CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Statewide Plant Pest Prevention and Management Program Environmental Impact Report

Volume 3 - Appendices B through G

December 2014

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Volume 3 – Appendices B through G

FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Statewide Plant Pest Prevention and Management Program

SCH #2011062057

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Appendix B

Human Health Risk Assessment

California Department of Food and Agriculture
Statewide Plant Pest Prevention and Management Program

Human Health Risk Assessment

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LIST OF ABBREVIATIONS

A........Applicator

ACP........Asian Citrus Psyllid

ADAF........Age-Dependent Adjustment Factor

ADD........Average Daily Dose

AGIH TLV........American Conference of Government Industrial Hygienists Threshold Limit Values

AI........Acute Intake

AIUF........Aquatic Invertebrate Uptake Factor

AR........Application Rate

AT........Averaging Time

ATP........Approved Treatment Protocol

ATSDR........Agency for Toxic Substances Disease Registry

AUF........Area Use Factor

BCF........Bioconcentration Factor

BMF........Biomagnification Factor

BMP........Best Management Practices

CACs........California Agriculture Commissioners

CDFA........California Department of Food and Agriculture

CDI........Chronic Daily Intake

CDPR........California Department of Pesticide Regulation

CF........Conversion Factor

Cmb........Methyl Bromide Concentration in Transport Container

CNW........Combined Nursery Worker

CRANK........Comprehensive Risk ANalysis Kalculator

CSF/SF........Cancer Slope Factor

CSM	Conceptual Site Model
DAF	Dermal Absorption Factor
DFR	Dislodgeable Foliar Residue
DL	Detection Limit
DPAR	During and Post Application Resident
DSD	Droplet Size Distribution
DTSC	California Department of Toxic Substances Control
dw	Dry Weight
DWB	Downwind Bystander
EC, E	Emulsifiable Concentrate
ED	Exposure Duration
EEC	Estimated Environmental Concentration
EED	Estimated Exposure Dose
EF	Exposure Frequency
EFH	US EPA's Exposure Factors Handbook: 2011 Edition (US EPA, 2011p)
EGVM	European Grapevine Moth
EIR	Environmental Impact Report
EPC	Exposure Point Concentrations
EPI	Estimation Programs Interface
ESU	Evolutionary Significant Units
ET	Exposure Time
EV	Event Frequency
EXAMS	Exposure Analysis Modeling System
ExpoSAC	US EPA Science Advisory Council for Exposure Policy 3
EXPRESS	EXAMS-PRZM Exposure Simulation Shell
F	Flowable
FDWB	Fumigation Downwind Bystander
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIR	Food Intake Rate
FQPA SF	Food Quality Protection Act Safety Factor
FUW	Fumigation Worker

GRAS .... Generally Recognized As Safe
GWSS .... Glassy-Winged Sharpshooter
HEC .... Human Equivalent Concentration
HHRA .... Human Health Risk Assessment
HLB .... Huanglongbing
IAF .... Inhalation Absorption Factor
IGR .... Insect Growth Regulator
IPC .... Integrated Pest Control
Iri .... Inhalation Rate
IRIS .... Integrated Risk Information System
Irs .... Soil Ingestion Rate
IRV .... Vegetation Ingestion Rate
KABAM .... Kow Aquatic BioAccumulation Model
Koa .... Octanol-Air Partition Coefficient
Koc .... Organic Carbon Absorption Coefficient
Kow .... Octanol-Water Partition Coefficient
LADD .... Lifetime Average Daily Dose
LBAM .... Light Brown Apple Moth
LO(A)EL/LOAEL .... Lowest Observable (Adverse) Effect Level
LOC .... LOC
LOEC .... Lowest Observable Effect Concentration
MAT .... Male Attractant Technique
MCL .... Maximum Contaminant Level
ML .... Mixer-Loader
MLA .... Mixer Loader Applicator
MOE .... Margin of Exposure
MOS .... Margin of Safety
MW .... Molecular Weight
NA .... Not Applicable
NDA .... No Data Available
NIOSH REL .... National Institute for Occupational Safety and Health Recommended Exposure Limit
NO(A)EL/ NO(A)EL .... No Observable (Adverse) Effect Level

NOC ....Not Of Concern

NOEC..No Observable Effect Concentration

NWI...Normalized Water Intake Rate

OEHHA...Office of Environmental Health Hazard Assessment

OPHED ....Occupational Pesticide Handler Exposure Database

OSHA PEL..Occupational Safety and Health Administration Permissible Exposure Level

PAL ....Post-Application Loader

PAR...Post-Application Resident

PAW..Post-Application Worker

PDCP...Pierce's Disease Control Program

PDEP-E ....Pest Detection/Emergency Projects - Eradication

PDR...Potential Dose Rate

PE5..PRZM-EXAMS Model Shell Version 5.0

PEDP-D...Pest Detection/Eradication Projects - Detection

PF ....Protection Factor

PHI ....Pre Harvest Intervals

PPE..Personal Protective Equipment

PRZM..Pesticide Root Zone Model

PTC ....Potential Toxicological Concern

PTW ....Post-Transfer Worker

PUR...Pesticide Use Reporting

RAGS ....U.S. Environmental Protection Agency (US EPA) Risk Assessment Guidance for Superfund Volume 1

RCD ....Risk Characterization Document

RED...Reregistration Eligibility Decision

REI ....Restricted Entry Interval

REL ....Reference Exposure Level

RQ ....Risk Quotient

S ....Solution

SC..Suspension Concentrate

SCLP ....Straight Chain Lepidopteran Pheromone

SDE ....Soil Dermal Exposure

SG ....Water Soluble Granule

SL ....Slurry

SLN ....Special Local Needs

SMILES ....Simplified molecular-input line-entry system

SOP ....US EPA's Standard Operating Procedures for Residential Pesticide Exposure Assessment (US EPA, 2012l)

SPLAT ....Specialized Pheromone and Lure Application Technology

Sqft ....square feet

STIR ....Screening Tool for Inhalation Risk

Tc ....Transfer coefficient from ExpoSAC

TGAI ....Technical grade of the active ingredient

TL ....Time to Loading of Transport Container

T-REX ....Terrestrial Residue Exposure

TRV ....Toxicity Reference Value

TU ....Time to Unloading of Transport Container

TWA ....Time Weighted Average

UE ....Unit Exposure

UF ....Uncertainty Factor

UH ....Upland Hydrology

ULV ....Ultra Low Volume

URRR ....Urban Residential Rapid Response

US EPA ..........U.S. Environmental Protection Agency

VADOFT ....Vadose Zone Fate and Transport Model

VFSMOD-W ....Vegetative Filter Strip Modeling System

VT ....Volume of Transport Container

VUF ....Vegetation Uptake Factor

WHO ....World Health Organization

WI ....Water Intake Rate

WP ....Wettable Powder

WSP ....Water Soluble Packet

Executive Summary

ES-1 Introduction

ES-1.1 Overview of the Statewide Plant Pest Prevention and Management Program

The California Department of Food and Agriculture (CDFA) is mandated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds in California (California Food and Agricultural Code [CFAC] Section 403). To accomplish this, CDFA implements the Statewide Plant Pest Prevention and Management Program (Statewide Program), an ongoing effort by CDFA to protect California's agriculture from damage caused by invasive pests and plant pathogens. The Statewide Program is implemented in partnership with a number of different entities, including international trading partners, the U.S. Department of Agriculture, California Agriculture Commissioners (CACs), other public agencies, industry groups, and academia.

The Statewide Program encompasses a range of prevention, management, and regulatory activities, carried out or overseen by CDFA against specific injurious pests and pathogens, and their vectors, throughout California. CDFA uses an Integrated Pest Management (IPM) approach for pest prevention and management activities under the Statewide Program.

The Statewide Program activities as they would be implemented in the future are referred to as the "Proposed Program." In compliance with the California Environmental Quality Act (CEQA), CDFA is preparing a Programmatic Environmental Impact Report (PEIR) to evaluate the potential impacts of the Proposed Program. This Human Health Risk Assessment (HHRA) has been prepared to support the analysis contained in the PEIR. The role of the HHRA in the PEIR analysis is discussed further below.

ES-1.2 Purpose of the Human Health Risk Assessment

The purpose of an HHRA is to quantify the human health risk from specific substances. This HHRA quantifies potential human health risks from chemicals potentially used under CDFA's Proposed Program. This HHRA evaluates this in the context of the specific application scenarios which may occur under the Proposed Program, taking into account manufacturer's product label requirements and other relevant regulatory requirements (described in more detail below under Section ES-1.6).

ES-1.3 Steps in the HHRA Process

This HHRA has been prepared in four fundamental steps:

1. Hazard Identification
2. Toxicology/Dose-Response
3. Exposure Assessment
4. Risk Characterization

Hazard Identification involves identification of the types of adverse health effects (e.g., cancer, other diseases, birth defects) that may be caused by exposure to a given chemical. *Toxicology/*

Dose-Response evaluates the potential adverse health effects on humans from different doses of chemicals over different time frames (e.g., instantaneous—"acute", or over a longer time period—"chronic"). The *Exposure Assessment* identifies the quantity of the chemical to which a human may be exposed during a specified time period. *Risk Characterization* is the final step which summarizes and integrates information from the preceding three steps and then synthesizes this into an overall conclusion about risk.

Each step is described in detail in Sections ES-2 through ES-5 below.

ES-1.4 Interagency Coordination

In addition to consulting various guidance documents during the HHRA process, CDFA and its risk assessment team invited technical experts from the California Department of Pesticide Regulation (DPR) and the Office of Environmental Health Hazard Assessment (OEHHA) to participate in the process through numerous working group meetings. These interagency meetings provided an opportunity for these agencies to provide input on the assumptions, analysis methods, and data used in this HHRA. During the meetings, key assumptions and results were reviewed. A total of 13 meetings were held during the process of HHRA preparation. The working group provided feedback, technical guidance, and reference material to support the HHRA process. **Attachment 1** provides details of each meeting.

ES-1.5 Use of this HHRA in CEQA Compliance

The hazards and hazardous materials and air quality impact analysis in the PEIR makes use of the conclusions of this HHRA to assess the potential for Proposed Program activities to result in significant impacts on human health. To assist in this determination, this HHRA was prepared to:

1. Investigate the types of chemicals potentially used under the Proposed Program;
2. Identify the pathway(s) by which human sensitive receptors might be exposed to such chemicals, and
3. Predict whether significant adverse effects to human health would occur as a result of the predicted exposure.

This HHRA assesses the potential risk to human health by considering direct exposure. An example of a direct exposure would be dermal absorption through the skin by contact during application.

The analyses contained in this HHRA played an important role in determining whether the Proposed Program would have significant impacts to human health under CEQA.

ES-1.6 Regulatory and CDFA Practices that Influence HHRA Results

Numerous regulations, policies, and practices govern the use of pesticides. These regulatory mechanisms are an important part of ensuring the protection of ecological receptors and safe use of pesticides. A few key mechanisms relevant to this HHRA are described below because they play an important role in the conclusions developed in Step 4 of the HHRA process.

ES-1.6.1 Pesticide Registration Process

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) mandates US EPA to regulate the use and sale of pesticides to protect human health and the environment. The US EPA achieves this mandate by registering and labeling pesticides. Under FIFRA, all new pesticides (with minor exceptions) must be registered or exempted by the Administrator of the US EPA; a process in which appropriate crops and sites for the pesticide are identified and prescribed based on research data. So that registrations are up to date, all registrations must be reviewed every 15 years, and all pesticides registered before 1984 must be reregistered. Labeling requirements control when and under what conditions pesticides can be applied, mixed, stored, loaded, or used, and when a field can be reentered after application and crops can be harvested. For an emergency condition, however, Section 18 of FIFRA authorizes US EPA to allow temporary unregistered use of a pesticide to avert risks to the environment, economy, and public health.

At the state level under the CFAC, DPR has the authority and responsibility to register pesticides for use and sale within California. Pesticides registered by DPR must, at a minimum, be registered for use by US EPA. In addition, DPR performs risk assessments of pesticides before they can be sold or used in California, and it periodically re-evaluates already registered pesticides.

When a pesticide is evaluated for registration, US EPA and DPR consider the chemical characteristics of the active ingredient(s) and potential exposure during pesticide application. Potential effects are considered to human health, water quality and aquatic environments, and non-target ecological organisms. Potential incompatibilities with other chemicals also are considered. From this evaluation, these agencies add restrictions to the pesticide product label to prohibit the use of the pesticide from occurring in a manner that has the potential to produce adverse effects. Label restrictions can specify where a pesticide can or cannot be applied, the maximum rate of application, the time period during which additional applications of the pesticide may or may not be made, or incompatible chemicals that must be avoided.

DPR considers the toxic properties of a chemical and estimates the amount of the chemical that potentially may cause an adverse effect. This includes acute (one-time), subchronic (1 to 3 months), and chronic (long-term and lifetime) evaluations. Compared to US EPA’s review, DPR’s review of a pesticide focuses on California-specific potential impacts and may require additional studies, such as data on worker exposure, foliar residue, indoor exposure potential, hazards to bees, dust hazards, and efficacy.

Both US EPA and DPR pesticide registration processes weigh the results of the risk assessments in the context of overall impacts both beneficial and adverse to the use of pesticides. This includes taking into account economic considerations. Therefore, some registered pesticides may show the potential for risks above a level of concern (LOC), however, the agencies have determined that despite this elevated risk potential, the use of the pesticide under specific circumstances that have implemented all feasible standards for risk minimization is warranted as the overall impacts considered as a whole are beneficial and that the risk is acceptable in this context.

ES-1.6.2 Compliance with Label Restrictions

Under the Proposed Program, CDFA would require that any pesticides used follow all applicable label restrictions and requirements developed by US EPA and DPR as part of their registration process.

ES-1.6.3 Pesticides and Pest Control Operations

Title 3, Division 6 of the California Code of Regulations (CCR) addresses Pesticides and Pest Control Operations. This portion of the CCR contains detailed implementing regulations for DPR's pesticide regulatory program. It contains pesticide possession and use limitations and requirements for specific pesticides, as well as license requirements for pesticide applicators and dealers, and standards for worker safety. Under the regulations in CCR, employers of pesticide workers are required to provide protective clothing, eyewear, gloves, respirators, and any other required protection, and also ensure that protective wear is worn according to product labels during application. The regulations also require that employers: provide field workers with adequate training in pesticide application and safety; communicate pesticide-related hazards to field workers; ensure emergency medical services is available to field workers; and ensure adherence to restricted entry intervals between pesticide treatments (CCR, Title 3, Section 6764).

The regulations outline the appropriate enforcement actions for County Agricultural Commissioners (CACs) to take in response to violations of the regulatory program, as well as the inspection authority and procedures for CACs in inspecting pesticide operations and investigating pesticide operation employee illness.

ES-1.6.4 Pesticide Illness Surveillance Program

California law requires physicians to report any known or suspected illness caused by a pesticide exposure. The Pesticide Illness Surveillance Program (PISP) is tasked with collecting and evaluating these reports before they are assigned to CACs to investigate the exposure circumstances. Scientists then review the collected information and enter it in a database. This data not only reflects the effectiveness of the California's pesticide regulatory program but also identifies areas for improvement. The PISP helps DPR reevaluate pesticide registrations and modify use practices to enhance protection for people and the environment. The PISP applies a broad definition to the term pesticide-related. If health effects appear to derive from exposure to any component of a pesticide product, including inert ingredients, impurities, and breakdown products, the surveillance program attributes those health effects to that pesticide product. Similarly, reporting includes but is not limited to toxic effects similar to those seen in pests. For example, a product designed to disrupt insect nerve function may, at excessive levels, cause neurologic symptoms in humans. The surveillance program records such cases, and also records cases in which contact with a pesticide causes local irritant effects such as rashes or inflammation of the eyes. Pesticides may act as irritants or allergens, through their odor, or by resulting in fires or explosions. These effects are all recognized as potential causes of illness or injury, along with the toxic impact of pesticide active ingredients.

ES-1.6.5 CDFA Requirements

Under the Proposed Program, CDFA would require pesticide use to be conducted consistent with the approaches described in Chapters 2 and 3 of the PEIR, as well as PEIR mitigation measures.

ES-2 Step 1: Hazard Identification

The first step in conducting the HHRA is a planning process called *Hazard Identification*. This included identification of the chemical use scenarios that may occur under the Proposed Program. From these scenarios, a list of pesticides and adjuvents was developed and used to form the basis for the chemicals evaluated. The list of potential hazardous chemicals were obtained from pesticide manufacturers' labels and material safety and data sheets. The chemicals were then evaluated in the context of available health effects information to determine the final list of chemicals of concern.

The Hazard Identification process for this HHRA is presented in greater detail in Section 2.1.

ES-2.1 Chemical Use Scenarios

For the purposes of evaluation in this HHRA, Proposed Program activities have been divided into eight different categories; the first five focus on specific major invasive pests, while the final three categories address a variety of pests, as follows:[1]

- Exotic Fruit Fly Control
- Asian Citrus Psyllid Control
- Pierce's Disease Control Program
- European Grapevine Moth Control
- Light Brown Apple Moth Control
- Pest Detection/Emergency Program – Eradication
- Pest Detection/Emergency Program – Detection
- Integrated Pest Control Program

Application of chemicals within these eight categories vary in the following ways:

- Type of chemical
- Concentration of chemical in pesticide product
- Application method (*e.g.*, soil injection, fumigation, spraying)
- Frequency of applications
- Rate of application
- Area of application

[1] Note that in some cases, these categories correspond to the organizational structure within CDFA administering the Statewide Program, but this is not necessary the case. For instance, all activities related to control of Pierce's disease are conducted under the Pierce's Disease Control Program. However, activities in the other categories may be administered by a combination of divisions and branches within CDFA. For a more complete description of CDFA's organizational structure as it relates to implementation of the Statewide Program, please refer to Chapter 2 of the PEIR.

- Setting in which activity would occur

To capture the different ways in which chemicals may be used in the Proposed Program, *chemical use scenarios* were developed for the HHRA, specifying these various parameters. These variables are all important descriptors necessary to characterize the scenario adequately for the HHRA. These chemical use scenarios were used to define the potential typical maximum exposures to sensitive human receptors.

ES-2.2 Active and Inert Ingredients Assessed

The list of potential hazardous chemicals that were evaluated in the HHRA were obtained from pesticide manufacturers' labels and material safety and data sheets. These labels contain the active ingredients that target a given pest. Several other ingredients may be contained in a specific pesticide formulation. These other chemicals typically are solvents and adjuvants that assist with the dispersal or efficacy of the active ingredient, and many are not considered harmful. Pesticide manufacturers are not required to report these other chemicals or their concentrations if they are determined to be a trade secret or are in small quantities, as allowed under pesticide labeling regulations. To the extent that information about these other chemicals was available, it was included in the HHRA; otherwise, they remain trade secrets and were not available to CDFA for use in the HHRA. A total of 79 pesticides products (including adjuvants or other formulations used in conjunction with pesticides), containing 91 different active or inert ingredients, were assessed. Some of these chemicals were determined to be not of concern for the following reasons:

- The chemical showed no endpoints of concern from an oral, inhalation, and/or dermal route of exposure in toxicity tests where dose levels near or above testing limits were employed in experimental animal studies. If endpoints such as blood parameter measurements, body weight, organ weight, or measured enzyme levels were not associated with pathology, these endpoints were considered not of concern.
- The only available toxicity data showed that the chemical was not known to be harmful to humans and had a history of safe use.

Other chemicals were evaluated as a potential chemical of concern if public agencies or literature reported pathological health effect endpoints or they were considered to have the potential to lead to a pathological effect. In some instances insufficient data was available to conduct some or all of the risk analysis, and in these instances could not be included in the risk assessment.

ES-3 Step 2: Toxicity Dose-Responses Assessment

After the chemicals and concentrations in the pesticide product were identified, the next step in the HHRA was to determine the toxicity of the individual chemicals. Toxicity values are quantitative values that describe the relationship between an estimated dose and the probability of developing an adverse health effect, such as cancer.

Toxicity is determined through numerous scientific studies that estimate the amount of chemicals to which a human body is exposed through inhalation, ingestion, or absorption that results in a specific adverse health effect. The specific toxicity factor type depends on the health effect. Acute and chronic non-cancer health effects are evaluated using a no observable adverse effect level (NOAEL). The NOAEL is the highest exposure level at which no statistically or biologically significant increases occur in the frequency or severity of adverse effects of the exposed population. Cancer health effects are evaluated using a cancer slope factor (CSF). A CSF is an upper bound on the increased risk from a lifetime exposure to a chemical, based on dose-response studies extrapolated to a dose of zero.

Often adequate human scientific studies are not available for a specific chemical and its health effects to derive a toxicity value based on a dose-response model. In these situations a hierarchy of alternative scientific studies is used to derive an appropriate toxicity value. For instance, often scientific studies are available for various animal species that exhibit similar effects as humans would on exposure. In other cases, a specific chemical may not be available, but a related chemical that is expected to behave in a similar manner does have adequate studies available. In such instances, a toxicity value is derived using these data while applying safety and uncertainty factors to account for extrapolation of the studies and to reflect population variation. Toxicity information was gathered on pesticides, inert ingredients and adjuvants from various government sources, including the U.S. Environmental Protection Agency (EPA), OEHHA, the Agency for Toxic Substances and Disease Registry, CDPR, the Hazardous Substances Data Bank, and Health Canada.

The toxicity values used in an HHRA are intended to protect identifiable sensitive individuals from harm. However, the toxicity values may not necessarily be protective for hypersensitive individuals who do not exhibit a dose-response reaction with chemical exposure. In a typical HHRA, the chances of an adverse health effect are assumed to escalate with increasing exposure to a specific chemical. The health effects of an individual who may have an allergy to a specific chemical do not follow a dose-response mechanism, rather the person gets the same effect regardless of the amount of chemical to which he/she is exposed.

ES-4 Step 3: Exposure Assessment

The third step in the HHRA was to determine how much chemical exposure an exposed individual (referred to as a “sensitive receptor”) could receive. The exposure assessment portion of the HHRA was divided into two steps. The first step was to determine the potential concentration of the chemical in the environment through fate and transport processes. In the context of pesticide application, this included determining the specific concentration of chemicals that may be found in the air, water, soil, and/or contained in/on the plant as a result of the application. This took into account the total amount of pesticide to be applied, along with any mechanisms of dispersal or degradation of the chemicals that may occur during or shortly after application of the pesticide. The HHRA used several different tools and methods to determine the concentrations available in the environment. See Section 2.3 for specific details.

The next step in determining human exposure after the concentrations in the environment were identified was to estimate how much the human body takes up. Exposure was determined by combining the concentration in the environment with specific exposure factors. Exposure factors took into account the amount that would be taken into the body, the amount of time exposure would occur, and the frequency of exposure. Exposure factors that describe the amount taken into the body would include human breathing rates, amount of exposed skin, absorption rate through the skin, and amount of material ingested. The following exposure routes were analyzed:

- Inhalation: Aerosols and vapors
- Intentional Ingestion of Soil: Pica behavior (children that intentionally eat soil)
- Ingestion of Vegetation: Eating garden produce
- Dermal Exposure to Soil: Resulting from working or playing in treated areas
- Dermal Exposure to Vegetation: Resulting from working or playing in treated areas
- Incidental Ingestion of Vegetation Residues: Hand-to-mouth transfer of plant-residues caused by touching perioral areas or eating

An exposure pathway would have to be complete for it to be relevant to the HHRA. For instance, ingestion of tree leaves at a nursery would not be likely to occur because most people do not eat leaves. Thus, ingestion of tree leaves would not be considered a completed exposure pathway, and this was not evaluated. In some instances, the exposure pathway may be complete, but based on low concentrations or a minimal amount of exposure compared to a dominant pathway of exposure, it may not have been fully quantified and was dismissed as discountable. Detailed exposure models were identified for the following potential sensitive receptors:

- Mixer-Loader Applicator: The mixer-loader applicator (MLA) represents a combination exposure of a worker who may be occupationally exposed to Proposed Program pesticides, inert ingredients, and adjuvants while preparing pesticide solutions and applying them.
- Post-Application Loader: The post-application loader (PAL) represents a worker at a nursery who may be occupationally exposed to pesticide, inert ingredient, and adjuvant residues while loading plants, treated under the Proposed Program, onto trucks for transport.
- Combined-Nursery Worker: The combined-nursery worker represents a combination exposure of a worker employed at a nursery who may be occupationally exposed to Proposed Program pesticides, inert ingredients, and adjuvants while preparing pesticide solutions and applying them, as well as while loading the treated plants into a truck for transport.
- Post-Application Worker: The post-application worker (PAW) represents a worker at a production agriculture facility who may be occupationally exposed to pesticide, inert ingredient, and adjuvant residues while harvesting crops that have been treated under the Proposed Program.
- Downwind Bystander: The downwind bystander (DWB) represents any adult or child located downwind from an application site and who would have the potential to be exposed to off-site drift.
- Post-Application Resident: The post-application resident (PAR) represents a typical individual living in an urban or residential environment who would have the potential to come into contact with Proposed Program pesticides, inert ingredients, or adjuvant residues after residential treatments. Both the adult and the child were analyzed.

- During and Post-Application Resident: The during and post-application-resident represents a combination exposure of a resident who may be downwind at the time his/her property is being treated, and who would potentially be exposed to pesticides, inert ingredients, and adjuvant residues on treated vegetation after chemical applications. Both the adult and the child were analyzed.
- Fumigation Worker: The fumigation-worker (FUW) represents a worker who would be employed at a commodity fumigation facility and would have the potential to be exposed during a fumigation activity, including during application of a fumigant in a fumigation chamber, when aerating the chamber, or when using a forklift to unload a commodity from the chamber.
- Fumigation Downwind Bystander: The fumigation downwind bystander (FDWB) represents an individual downwind from a commodity fumigation site who potentially could be exposed to fumigants through off-site drift.
- Post-Transfer Worker: The post-transfer worker (PTW) represents a worker employed at a post-transfer receiving facility who could be exposed to fumigant that had off-gassed from treated commodity during transport.

Various assumptions for acute and chronic exposures were developed for each receptor group under each application scenario, using widely accepted models and data sources to estimate the concentrations in the various environmental media and the amounts that would be ingested, absorbed, or inhaled by sensitive receptors.

ES-5 Step 4: Risk Characterization

Risk characterization is the process of estimating the incidence of a health effect resulting from the human exposure described in an exposure assessment. For this analysis, it was performed by combining the exposure and dose-response assessments to determine the likelihood that the use of the chemicals could cause harm to the relevant sensitive receptors.

The goal of risk characterization is to provide an understanding of the type and magnitude of an adverse health effect that a particular chemical could cause under particular circumstances. The process of combining exposure and dose-response is different for carcinogens and noncarcinogens. For noncarcinogens, the dose estimate is divided by the NOAEL to obtain the Margin of Exposure (MOE). If the MOE is greater than 100, the chemical exposure under consideration is regarded as unlikely to lead to adverse health effects (EPA 2007). If the MOE is less than 100, adverse health effects are more likely and measures to reduce the potential for such effects need to be considered. The MOE is not an actual measure of risk, but it is a benchmark that can be used to estimate the likelihood of risk. For carcinogens, excess lifetime risk is calculated by multiplying the dose estimate by a cancer potency factor. The result is an upper bound probability that lifetime exposure to a chemical will lead to excess cancer risk. This value is usually expressed as a population risk such as 1×10^{-6}, which means that no more than 1 in a million exposed persons is expected to develop cancer. Risk estimates obtained in this way are not scientific estimates of actual cancer risk; upper bounds exist on actual cancer risk that are useful in setting exposure limits. Generally, acceptable cancer risk is set at no more than one potential new case in a population of 1 million. (OEHHA 2001)

When exposure to more than one chemical occurs, the cancer risk estimates are combined in an additive manner for each route of exposure. For noncarcinogens, the MOEs may be combined when chemicals have the same mechanism of toxicity (e.g., liver damage). This is the typical approach taken by regulators in evaluating risk assessments that allows them to make an informed regulatory decision, which is protective and manages the risk. However, some pesticides are recognized to have the potential to act synergistically (greater than additive) when a common mechanism of toxicity exists. EPA has identified five groups of pesticides that each have a common mechanism of toxicity: organophosphates, N-methyl carbamates, triazines, chloroacetanilides, and pyrethrins/pyrethroids (EPA 2012b). EPA's cumulative exposure and risk assessment of common mechanism pesticides is more comprehensive in the exposure and chemicals included than were feasible to conduct for the Proposed Program because exposures to these pesticides could occur from sources other than the Proposed Program, a large number of possible combinations of exposures would be possible, and predicting which combinations would be most likely would be impossible. In its most recent cumulative risk assessments, EPA concluded for these groups of pesticides do not exceed the agency's LOC when the latest risk mitigation measures for these pesticides are implemented (EPA 2012a).

The LOC for human health risk that has been used in this HHRA is as follows: for noncarcinogenic effects, the LOC would be exceeded if the MOE has been modeled to be less than 100; and for carcinogenic effects, the LOC would be exceeded if the excess cancer risk has been modeled to be greater than 1 in a million.

ES-6 Uncertainties

In characterizing risks from exposure to chemical substances, it is important to address the variability and uncertainty associated with the exposure/risk estimates. The risk characterization should provide information on: (1) potential measurement errors based on the precision and accuracy of the available data, (2) variability of the input data used in the exposure/risk estimates, and (3) uncertainty that results from data gaps or the assumptions used. The risk characterization also assesses the relative importance of these components on the estimates of exposure/dose and risk.

Uncertainty may be introduced into the exposure/risk calculations at various stages of the risk assessment process. Uncertainty may occur as a result of: (1) the techniques used to sample and analyze chemical residues, (2) site-specific mechanisms of chemical fate and transport, (3) the selection of exposure scenarios and exposure factors, (4) the uncertainties associated with toxicity data that have been extrapolated from high doses in animals to low doses in humans, and that do not account for the interactions of exposures to multiple chemical substances over a lifetime, and (5) the potential size of the exposed populations and subpopulations. Variability can occur as a result of variations in individual day-to-day or event-to-event exposure factors or variations among the exposed population.

These uncertainties have been considered when characterizing the potential human health associated with the various Proposed Program application scenarios.

The uncertainties in this HHRA are discussed in greater detail in Sections 3 and 4 of this HHRA.

ES-7 Conclusions

Section 3 lists the detailed results of the risk characterization phase for every application scenario. The vast majority of scenarios did not show any human health risk exceeding the LOC. For several scenarios, risk was estimated to exceed the LOC, and alternative scenarios and/or measures were developed to reduce risk below the LOC:

- **Fumigation:** fumigation of agricultural commodities for control of fruit flies and ACP was determined to have potential for acute and chronic non-cancer risk exceeding the LOC for the PTW due to inhalation of off-gassing of methyl bromide following treatment. This would be due to the buildup of the off-gassing chemical in containers as the commodities are transported. Use of adequate ventilation, temperature control in refrigeration units, and real-time air analyzers were determined to be sufficient to reduce the risk below the LOC. In addition, the HHRA acknowledges that potential exists for sub-chronic and chronic risk to the FUW and FDWB from methyl bromide exposure; mitigation, if any, that may be required to reduce such exposure is being further assessed by CDPR.

- **Soil injection of Alias 4F for control of Pierce's disease:** for one scenario (PDCP-02), the use of Alias 4F (active ingredient imidacloprid) was estimated to exceed the acute LOC for the A, MLA, and CNW, primarily due to dermal exposure. The risk was able to be reduced below the LOC by reducing the area a single worker would treat from 50 acres to 44.5 acres. It is considered unlikely that a single applicator is capable of treating 44.5 acres or more in a single day using soil injection due to the sheer size of the treatment area.

- **Use of Dursban 50W or Lorsban 4E for control of Pierce's disease:** for three scenarios (PDCP-28, PDCP-30, and PDCP-31), the use of either Dursban 50W or Lorsban 4E (active ingredient chlorpyrifos) was estimated to exceed the acute or chronic LOC for the MLA, PAL, and/or CNW, primarily due to dermal exposure. The risk was able to be reduced below the LOC by reducing the area a single worker would treat, or in the case of PDCP-30, the frequency with which any worker would conduct the treatment.

The full conclusions of this HHRA can be found in Section 5.

ES-8 Reader's Guide to Document

ES-8.1 Organization of Document

The HHRA has been prepared to serve as a supporting technical document to the PEIR, and has been conducted consistent with the standard of professional practice for performing an HHRA. The language and terminology used in the main body of the HHRA is consistent with this standard of professional practice, and is aimed at a technically-oriented reader. To assist the lay reader in understanding and interpreting the results of the HHRA, this executive summary and the PEIR provide a summary of the HHRA methods and results using less technical language and terminology. The Dashboard Database (described in more detail below) provides additional, more technical supporting information for the HHRA. Neither the main body of the HHRA, the attachments, nor the Dashboard Database should be considered in isolation of the analysis and conclusions contained in the PEIR. The Dashboard Database can be downloaded at www.cdfa.gov/go/PEIR.

The main body of this HHRA consists of six major sections:

1. Introduction
2. Risk Assessment Methodology
3. Risk Assessment Results
4. Program-wide Uncertainty Analysis
5. Conclusions

The *Introduction* section of this HHRA report gives a summary of the background of CDFA's use of chemicals and motivation for conducting this HHRA. It also introduces some basic concepts and framework of how HHRAs are conducted and organized.

The *Risk Assessment Methodology* section describes the four-step approach used in this HHRA. These four steps are described in more detail above in Sections ES-2 through ES-5.

The *Risk Assessment Results* section presents the results of the HHRA for each category of pest control activity that may be conducted under the Proposed Program. For each category, the application scenarios are described, followed by a description of conceptual site models, a presentation of risk results, an uncertainty analysis, and conclusions.

The *Program-Wide Uncertainty Analysis* section summarizes the various uncertainties associated with and factored into the HHRA. This section is described in more detail above in Section ES-6.

Finally, overall conclusions regarding the HHRA including the key assumptions, limitations and results are presented in the *Conclusions* section.

ES-8.2 Attachments

The HHRA report contains the following attachment:

- Attachment 1: Information pertaining to the joint OEHHA, DPR, & CDFA Meetings

ES-8.3 Dashboard Database

The Dashboard Database is an electronic database that was developed to provide easy access to all of the HHRA's supporting data. While this HHRA provides tabulated summary results, additional information such as specific details of each chemical application scenario, pesticide product formulations, physical and toxicological properties of the chemicals considered in the HHRA, summary of active ingredient fate characteristics and environmental effects, etc.

The reader should be cautioned against using the risk values contained in the Dashboard Database without consulting the risk characterization discussions in Section 3 of the HHRA and the analysis in the main body of the PEIR which puts these values in context of human health impacts including uncertainty analysis, model limitations, conservative assumptions, and qualitative discussion of elements not otherwise incorporated in the quantitative analysis. The

HHRA and PEIR provide the interpretation of the risk estimates and provides conclusions regarding the potential for risk to human health, but the details on which those conclusions are based exist in the Dashboard Database.

ES-8 References

OEHHA. See Office of Environmental Health Hazard Assessment.

Office of Environmental Health Hazard Assessment. 2001. A Guide to Human Health Risk Assessment. California Environmental Protection Agency. Sacramento, CA. Available: http://www.oehha.ca.gov/pdf/HRSguide2001.pdf. Accessed February 28, 2014.

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———. 2012a (July 31). Human Health Risk Assessment. Available: http://www.epa.gov/risk/health-risk.htm. Accessed November 13, 2012.

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1 Introduction

1.1 Purpose of Human Health Risk Assessment

The HHRA assesses potential future activities to be conducted under CDFA's Proposed Program. Specifically, the HHRA focuses on chemical applications that may be conducted under the Proposed Program to exclude, eradicate or control (collectively referred to in this HHRA as "control") invasive or harmful pests. The HHRA evaluates the potential risk to human health from such chemical applications.

Several Proposed Program activities have not been evaluated in this HHRA, as follows:

- Activities not involving the use of chemicals
- Activities involving the use of common household chemicals, such as bleach

The hazards and hazardous materials and air quality impacts analysis in the PEIR makes use of the conclusions of this HHRA to assess the potential for Proposed Program activities to result in significant impacts on human health.

1.2 Steps in HHRA Process

Risk assessors follow a methodological framework for conducting risk assessments which are typically broken down into four fundamental steps (NRC 1983 and US EPA 2012a). These steps are as follows:

1. Hazard Identification
2. Toxicology/Dose-Response
3. Exposure Assessment
4. Risk Characterization

Hazard Identification is the step taken to identify the types of adverse health effects (e.g., cancer, other diseases, birth defects) that may be caused by exposure to the chemical in question, and characterization of the quality and weight of evidence supporting this identification. This starts by determining the list of chemicals that are involved in the various scenarios. The available scientific data for a given chemical is then examined to develop a weight of evidence that characterizes the link between the negative effects and the chemical agent.

Toxicology/Dose-Response is the step taken to identify the response (i.e., adverse health effects) in a subject (i.e., human or biological organism) from different doses (i.e., quantities) of chemicals over different time frames (e.g., instantaneous—"acute", or over a longer time period—"chronic"). Toxicity is a property of a chemical, and the toxicity of a chemical alone does not indicate its potential to harm a given human. A key to understanding the effects of a chemical on an individual human is the dosage of the chemical that they receive. For example, there are substances that are considered toxic (e.g., caffeine), but are harmless in small dosages. Conversely, an ordinarily harmless substance (e.g., water) can be lethal if over-consumed. This relationship between dosage and effect to a human is called a dose-response effect. Typically, as the dose and/or the duration of exposure increases, the measured response also increases. The dose-response relationship for a chemical depends on, and may vary for, different adverse health effects and subjects. First, all data that are available through experiments to document the dose-response relationship are assessed. Then, to estimate probability of adverse effect beyond the lower range of available observed data, inferences are made to determine the dose level that begins to cause the adverse effect in the subject.

Exposure Assessment is the step taken to identify the quantity of the chemical to which subjects are exposed during a specified time period. Exposure is defined as the contact between a chemical and the body of a subject. Exposure to chemicals can occur through various means, including inhalation, dermal (i.e., skin) contact, and consumption of contaminated food or water. Exposure assessment includes measuring or estimating the magnitude, frequency, and duration of a subject's exposure, or expected exposure, to a chemical in the environment. Environmental pathways, including air, water and soil, of chemicals are assessed using models of chemical transport and fate. The range of exposure for any specific chemical is considered. Specifically, subjects having a high degree of contact with a chemical for an extended period are considered. Uncertainties in assumptions of exposure also are considered.

Risk Characterization is the final step which summarizes and integrates information from the preceding three steps and then synthesizes an overall conclusion about risk. Risk characterization conveys the nature and presence or absence of risks, along with information about how the risk was assessed and where assumptions and uncertainties still exist. Risk is usually characterized in probabilities. Probabilities can be expressed in several ways, which presents challenges in presenting and communicating risk. Thus, a risk assessment needs to consider what numbers mean and how they are interpreted.

These four steps implemented in the context of the Proposed Program are the subject of this HHRA report.

1.3 Scope of HHRA

This HHRA considers potential human exposure resulting from chemical applications performed according to the US EPA and California Department of Pesticide Regulation (DPR) approved labels, following the approaches described in Chapters 2 and 3 of the PEIR. The Statewide Program uses an integrated pest management approach, identifying specific and effective strategies that can be used to detect, eradicate or control specific invasive pests that may be found in California.

The Statewide Program includes physical, biological, and chemical management approaches. This HHRA focuses in on the chemical management activities. The potential effects on human health from physical and biological management activities are discussed in various sections of the PEIR, in particular section 6.2 Air Quality and 6.5 Hazards and Hazardous Materials.

Specific chemical use scenarios were developed to describe how each pesticide product may be used within the Proposed Program. The details of these application scenarios (*e.g.*, number of applications, application timing, application rate, host-specific treatment *etc.*) were used to define the potential typical maximum exposure to human receptors for each specific individual use scenario. The magnitude of the exposures was estimated using models designed to estimate the environmental concentrations of pesticide ingredients following applications. Exposure estimates did not, however, include concurrent or consecutive exposures as a result of other Proposed Program scenarios, other non-Proposed Program pesticide use, or other potential contributions to human health risk such as smoking, household chemical exposure, UV radiation, etc.

Under certain application conditions, multiple pesticide products may be considered substantially similar to one another such that the risk results generated for a particular product and scenario may be considered applicable to the use of other substantially similar products. US EPA defines "substantially similar" as

> "substantially similar" or "identical" in composition and labeling to other US EPA-registered pesticide products or would differ in ways that would not significantly increase the risk of unreasonable adverse effects on the environment.

For each pesticide product, this HHRA considers all named active and inert ingredients deemed to be of toxicological concern, to the extent adequate information exists to support the analysis. Where possible, surrogate chemicals were identified for inert ingredients lacking adequate information, based on similarity in chemical structure and physical properties. Those ingredients lacking adequate information and/or an appropriate surrogate could not be included in the assessment. Similarly, chemical ingredients listed as proprietary on product labels could not be evaluated in this risk assessment since adequate information is not available to the risk assessment team.

1.4 Guidance

In conducting this HHRA, several sources of guidance were consulted and followed including in particular the following documents:

1. Standard Operating Procedures for Residential Pesticide Exposure Assessment (US EPA, 2012l)
2. Supplemental Guidance for Assessing Susceptibility from Early-life Exposure to Carcinogens (US EPA, 2005q)
3. Exposure Factors Handbook: 2011 Edition (US EPA, 2011p)
4. Risk assessment Guidance for Superfund Volume 1, Human Health Evaluation Manual (Part A) (US EPA, 1989e)
5. Review of Worker Exposure Assessment Methods (US EPA, 2007k)
6. PHED Surrogate Exposure Guide: Estimates of Worker Exposure (US EPA, 1998f)

1.4.1 Interagency Coordination

In addition to consulting various guidance documents during the HHRA process, CDFA and its risk assessment team invited technical experts from DPR and OEHHA to participate in the process through numerous working group meetings. These interagency consultations provided an opportunity for these agencies to provide input on the assumptions, analysis methods, and data used in this HHRA. During the working group meetings, key assumptions and results were reviewed. A total of 13 working group meetings were held during the process of HHRA preparation. The working group provided feedback, technical guidance, and reference material to support the HHRA process. Refer to **Attachment 1** for details of each meeting.

1.5 Use of this HHRA in CEQA Compliance

When evaluating potential risks from the use of pesticides in a CEQA document, sole reliance on US EPA's and DPR's pesticide registration processes as the demonstration of safety has been deemed insufficient. Court decisions affirm that although CDFA can and should use US EPA and DPR toxicology data, it is still required to do an independent assessment of the safety of pesticides rather than relying on the registration process alone. Further, CDFA's assessment considers data collected from both published scientific literature and data submitted to US EPA and DPR to support pesticide registration, whereas US EPA and DPR utilize the latter data only. The project-specific application rates, spectrum of target and non-target organisms, and specialized exposure scenarios evaluated by CDFA may not be evaluated by US EPA and DPR in their generalized registration assessments.

The hazards and hazardous materials and air quality impact analysis in the PEIR makes use of the conclusions of this HHRA to assess the potential for Proposed Program activities to result in significant impacts on human health. To assist in this determination, this HHRA was prepared to:

1. Investigate the types of chemicals potentially used under the Proposed Program;
2. Identify the pathway(s) by which human sensitive receptors might be exposed to such chemicals, and
3. Predict whether significant adverse effects to human health would occur as a result of the predicted exposure.

This HHRA assesses the potential risk to human health by considering direct exposure. An example of a direct exposure would be dermal absorption through the skin by contact during application.

1.6 Regulatory and CDFA Practices that Influence HHRA Results

Numerous regulations, policies, and practices govern the use of pesticides. These regulatory mechanisms are an important part of ensuring the protection of ecological receptors and safe use of pesticides. A few key mechanisms relevant to this HHRA are described below because they provide important context for the health and safety requirements for pesticide applications and therefore play an important role in the conclusions developed as part of risk characterization.

1.6.1 Pesticide Registration Process

FIFRA mandates US EPA to regulate the use and sale of pesticides to protect human health and the environment. The US EPA achieves this mandate by registering and labeling pesticides. Under FIFRA, all new pesticides (with minor exceptions) must be registered or exempted by the Administrator of the US EPA; a process in which appropriate crops and sites for the pesticide are identified and prescribed based on research data. So that registrations are up to date, all registrations must be reviewed every 15 years, and all pesticides registered before 1984 must be reregistered. Labeling requirements control when and under what conditions pesticides can be applied, mixed, stored, loaded, or used, and when a field can be reentered after application and crops can be harvested. For an emergency condition, however, Section 18 of FIFRA authorizes US EPA to allow temporary unregistered use of a pesticide to avert risks to the environment, economy, and public health.

At the state level under the CFAC, DPR has the authority and responsibility to register pesticides for use and sale within California. Pesticides registered by DPR must, at a minimum, be registered for use by US EPA. In addition, DPR performs risk assessments of pesticides before they can be sold or used in California, and it periodically re-evaluates already registered pesticides.

When a pesticide is evaluated for registration, US EPA and DPR consider the chemical characteristics of the active ingredient(s) and potential exposure during pesticide application. Potential effects are considered to human health, water quality and aquatic environments, and non-target ecological organisms. Potential incompatibilities with other chemicals also are considered. From this evaluation, these agencies add restrictions to the pesticide product label to prohibit the use of the pesticide from occurring in a manner that has the potential to produce adverse effects. Label restrictions can specify where a pesticide can or cannot be applied, the maximum rate of application, the time period during which additional applications of the pesticide may or may not be made, or incompatible chemicals that must be avoided.

US EPA examines the ingredients of a pesticide, the site or crop on which it is to be used, the amount, frequency and timing of its use, and storage and disposal practices. DPR also considers the toxic properties of a chemical and estimates the amount of the chemical that potentially may cause an adverse effect.

DPR considers the toxic properties of a chemical and estimates the amount of the chemical that potentially may cause an adverse effect. This includes acute (one-time), subchronic (1 to 3 months), and chronic (long-term and lifetime) evaluations. Compared to US EPA's review, DPR's review of a pesticide focuses on California-specific potential impacts and may require additional studies, such as data on worker exposure, foliar residue, indoor exposure potential, hazards to bees, dust hazards, and efficacy.

Both US EPA and DPR pesticide registration processes weigh the results of the risk assessments in the context of overall impacts both beneficial and adverse to the use of pesticides. This includes taking into account economic considerations. Therefore, some registered pesticides may show the potential for risks above a LOC, however, the agencies have determined that despite this elevated risk potential, the use of the pesticide under specific circumstances that have implemented all feasible standards for risk minimization is warranted as the overall impacts considered as a whole are beneficial and that the risk is acceptable in this context.

1.6.2 Compliance with Label Restrictions

CDFA requires that pesticides used under the Statewide Program follow all applicable label restrictions. Pesticide labeling has specific regulations that apply which include the following:

- All words, statements, graphic presentations, or designs required to appear on the label or labeling must be clearly legible and easy to read by a person with normal vision.
- Warning or caution statements must appear on the label in a place sufficiently prominent to warn the user, and must state clearly and in nontechnical language the particular hazard involved in the use of the pesticide, e.g., ingestion, skin absorption, inhalation, flammability or explosion, and the precautions to be taken to avoid accident, injury, or damage.

1.6.3 Pesticides and Pest Control Operations

Title 3, Division 6 of the California Code of Regulations (CCR) addresses Pesticides and Pest Control Operations. This portion of the CCR contains detailed implementing regulations for DPR's pesticide regulatory program. DPR evaluates proposed pesticide products and only registers those pesticides that it determines can be used safely. In addition, DPR's oversight includes:

- Licensing of pesticide professionals;
- Site-specific permits before restricted-use pesticides may be used in agriculture;
- Strict rules to protect workers and consumers;
- Mandatory reporting of pesticide use by agriculture and by pest control businesses;
- Environmental monitoring of water and air; and
- Testing fresh produce for pesticide residues; and
- Cultural commissioners.

The regulations outline the appropriate enforcement actions for CACs to take in response to violations of the regulatory program, as well as the inspection authority and procedures for CACs in inspecting pesticide operations and investigating pesticide operation employee illness. It contains pesticide possession and use limitations and requirements for specific pesticides, as well as license requirements for pesticide applicators and dealers, and standards for worker safety. As discussed below, under the regulations in CCR, employers of pesticide workers are required to provide protective clothing, eyewear, gloves, respirators, and any other required protection, and also ensure that protective wear is worn according to product labels during application. The regulations also require that employers: provide field workers with adequate training in pesticide application and safety; communicate pesticide-related hazards to field workers; ensure emergency medical services is available to field workers; and ensure adherence to restricted entry intervals between pesticide treatments (CCR, Title 3, Section 6764).

These pesticides and pest control operation regulations would require that pesticide handlers and field workers conducting activities under the Proposed Program would be trained in safe pesticide application, notified of the health hazards of pesticide exposure, and provided with protective clothing and equipment. In addition to the details described above, the regulations also ensure that aerial applicators are fully qualified and operate in a safe manner and possess a valid Pest Control Aircraft Pilot Certification issued by DPR.

1.6.4 Pesticide Illness Surveillance Program

California law requires physicians to report any known or suspected illness caused by a pesticide exposure. The PISP is tasked with collecting and evaluating these reports before they are assigned to CACs to investigate the exposure circumstances. Scientists then review the collected information and enter it in a database. This data not only reflects the effectiveness of the California's pesticide regulatory program but also identifies areas for improvement. The PISP helps DPR reevaluate pesticide registrations and modify use practices to enhance protection for people and the environment. The PISP applies a broad definition to the term pesticide-related. If health effects appear to derive from exposure to any component of a pesticide product, including inert ingredients, impurities, and breakdown products, the surveillance program attributes those health effects to that pesticide product. Similarly, reporting includes but is not limited to toxic effects similar to those seen in pests. For example, a product designed to disrupt insect nerve function may, at excessive levels, cause neurologic symptoms in humans. The surveillance program records such cases, and also records cases in which contact with a pesticide causes local irritant effects such as rashes or inflammation of the eyes. Pesticides may act as irritants or allergens, through their odor, or by resulting in fires or explosions. These effects are all recognized as potential causes of illness or injury, along with the toxic impact of pesticide active ingredients.

1.6.5 CDFA Requirements

Under the Proposed Program, CDFA would require pesticide use to be conducted consistent with the approaches described in Chapters 2 and 3 of the PEIR, as well as PEIR mitigation measures.

1.7 Approach

The purpose of this HHRA was to estimate the potential harm to human health as a result of the use of chemicals under the Proposed Program. Two potential approaches exist to evaluating the risk to human health.

The first approach involves collecting detailed measurements during an application event and measuring the amount of material absorbed into the human body and monitoring the toxicological symptoms. This method was not selected since it requires expensive and time consuming experiments that are too burdensome to be conducted for the number of pesticides this HHRA needs to evaluate. In addition, it is not ethical to conduct such experiments intentionally on humans simply for data gathering purposes. Most of the observed data comes from followup monitoring studies that occur once a pesticide is registered and may not completely represent the application specific-scenarios that would be used under the Proposed Program.

The second approach, which has been used for this HHRA, attempts to capture a range of typical chemical use scenarios that may be implemented under the Proposed Program. These scenarios provide necessary inputs for the HHRA, such as the amount, type, and frequency of application of a particular chemical(s). This information is combined with chemical property data, values of exposure based on upper bound values from standardized models that capture some of the major fate and transport mechanism that indicate how the pesticide travels throughout the environment.

Many of the potential human health effects are based on extrapolated results from animal testing and/or potential effects based on similarity to other known chemicals and biological processes.

This HHRA was conducted by using models and exposure data developed primarily by the US EPA in the context of typical application methods and settings in California. The HHRA depends on these US EPA exposure models to estimate environmental concentrations and risk estimates in lieu of observed adverse effects. The majority of these models, described in detail in the applicable sections of this document, are Microsoft Excel-based user interface packages which allow for input of information specific to the Proposed Program, as well as default data when site-specific data is not available. Since multiple models were required for this HHRA and some models require the output of previous models as its input, it was convenient to integrate several models into one Excel workbook so that information from all models could be combined into a single risk estimate as the final output for each pesticide application scenario. This Excel workbook is referred to as the Comprehensive Risk ANalysis Kalculator (CRANK), providing a consolidated tool to estimate risk for the HHRA (as well as Appendix A, Ecological Risk Assessment).

Due to the number of chemicals and application situations that could occur under the Proposed Program, a substantial amount of information serves as inputs for the various models used in this HHRA. To present this information in an organized and efficient manner, a Microsoft Access database with a custom user interface was created. This Microsoft Access database is referred to as the Dashboard Database. This database is available as a standalone installation package that is available at the CDFA website where other PEIR documents are available. Technical assistance is available for the use of this database or specific questions regarding where to find specific input data during the 45 day public comment period. The CDFA website also contains contact information for this technical assistance.

The database specifically contains the following information that the reader may wish to reference:

- Specific details of each chemical application scenario, including application rates, number of applications, application intervals, method of application, application area, etc.
- Pesticide product formulations, including concentration of active ingredient and to the extent information is available, inert ingredients and adjuvents.
- Physical properties of the chemicals considered in the HHRA, including half life, degradation rate, vapor pressure, solubility, molecular weight, octanol-water coefficient (Log KOW) and soil adsorption coefficient (Log KOC)
- Toxicological properties of the chemicals considered in the HHRA, such as TRV values
- Summary of active ingredient fate characteristics and environmental effects based on published literature
- Model specific inputs and outputs including: PRZM EXAMS Model Shell, VFSMOD
- Tissue concentrations based on dietary exposure model results
- Size of species home and foraging ranges
- Soil concentration estimation results
- Water concentration estimation results
- Individual RQs for all surrogate species for each chemical ingredient
- Total RQs for all surrogate species for combined chemical ingredients used in an application scenario.

The reader should be cautioned against using the risk values contained in the Dashboard Database without consulting the risk characterization discussion (Section 7 of the HHRA) and the analysis in the main body of the PEIR which puts these values in context of human health impacts including uncertainty analysis, model limitations, conservative assumptions, and qualitative discussion of elements not otherwise incorporated in the quantitative analysis. The HHRA and PEIR provide the interpretation of the risk estimates and provides conclusions regarding the potential for risk to human health, but the details on which those conclusions are based exist in the Dashboard Database.

2 Risk Assessment Methodology

2.1 Hazard Identification

This section provides a brief description of the chemical use scenarios that may occur under the Proposed Program. From these scenarios, a list of pesticides and adjuvents was developed and used to form the basis for the chemicals evaluated. The list of potential hazardous chemicals were obtained from pesticide manufacturers' labels and material safety and data sheets. The chemicals were then evaluated in the context of available health effects information to determine the final list of chemicals of concern.

2.1.1 Chemical Use Scenarios

For the purposes of evaluation in this HHRA, Proposed Program activities have been divided into eight different categories; the first five focus on specific major invasive pests, while the final three categories address a variety of pests, as follows:[2]

- Exotic Fruit Flies
- Asian Citrus Psyllid
- Pierce's disease/Glassy Winged Sharpshooter
- European Grapevine Moth
- Light Brown Apple Moth
- Pest Detection/Emergency Program – Eradication
- Pest Detection/Emergency Program – Detection
- Integrated Pest Control Program

Application of chemicals within these six categories vary in the following ways:

- Type of chemical
- Concentration of chemical
- Application method (e.g., soil injection, fumigation, spraying)
- Duration and frequency of applications
- Rate of application
- Area of application
- Setting in which activity would occur (e.g., agriculture, residential)

To capture the different ways in which chemicals may be used in the Proposed Program, chemical use scenarios were developed for the HHRA, specifying these various parameters. These variables are all important descriptors necessary to characterize the scenario adequately

[2] Note that in some cases, these categories correspond to the organizational structure within CDFA administering the Statewide Program, but this is not necessary the case. For instance, all activities related to control of Pierce's disease and Glassy Winged Sharpshooters are conducted under the Pierce's Disease Control Program. However, activities in the other categories may be administered by a combination of divisions and branches within CDFA. For a more complete description of CDFA's organizational structure as it relates to implementation of the Statewide Program, please refer to Chapter 2 of the PEIR.

for the HHRA. These chemical use scenarios were used to define the potential typical maximum exposures to sensitive human receptors.

Each category of activity for which chemical use scenarios were developed is described further below.

Fruit Fly Control Activities

The eradication and control activities evaluated for invasive fruit flies may occur in four settings: residential, nursery, production agriculture, and fumigation sites. For nurseries, agriculture, and fumigation sites, this involves implementation of activities required for regulatory compliance purposes (i.e., conducted by growers in response to a quarantine established by CDFA). Treatments in residential areas are conducted as eradication or suppression activities, which are conducted directly by CDFA or its agents. The affected crops vary depending on the species of fruit fly and the location of the activities.

Asian Citrus Psyllid Control Activities

Asian citrus psyllid control activities are performed for regulatory compliance purposes (*i.e.*, in response to quarantines). Fumigation activities include but are not limited to fumigations in sea van containers and fumigation facilities. Treated commodities include curry and kaffir lime leaves.

Pierce’s Disease Control Program Activities

Eradication and control activities for glassy-winged sharpshooters, the insect pest that transmits Pierce’s disease, may occur in three settings: residential, nursery, and production citrus agriculture. For nurseries and agriculture, this involves implementation of activities required for regulatory compliance purposes (i.e., conducted by growers in response to a quarantine established by CDFA). Treatments in residential areas would be conducted as eradication or suppression activities, which would be conducted directly by CDFA or its agents.

In residential and nursery settings, host plants for glassy-winged sharpshooters would be treated. In a production agriculture setting, treatments are conducted to ensure citrus fruit are free from glassy-winged sharpshooters prior to shipping (referred to as bulk citrus treatments).

European Grapevine Moth Control Activities

Eradication and control activities for the European Grapevine moth would occur in nursery settings only, for regulatory compliance purposes (i.e., in response to quarantines). Nursery stock would be treated as part of a quarantine to ensure moths are not transported outside of designated quarantine areas.

Light Brown Apple Moth Control Activities

Eradication and control activities related to the Light Brown Apple Moth would occur in agricultural and nursery settings, for regulatory compliance purposes (i.e., in response to quarantines). Treatments options depend on the life stage targeted and the host plant.

Pest Detection/Emergency Program

The primary objectives of the Pest Detection/Emergency Program (PD/EP) are the early detection and prompt eradication of serious agricultural pests from California including, but not limited to, exotic fruit flies, Japanese beetle, light brown apple moth, khapra beetle, gypsy moth, European corn borer, and European pine shoot moth.

Pest Detection/Emergency Program – Eradication

Eradication activities conducted under the PD/EP Program would be performed under the Pest Detection/Emergency Program –Eradication. Activities performed as part of Pest Detection/Emergency Program –Eradication would vary based on target pest and include both pesticide application and trapping.

PD/EP-Eradication activities related to the use of Isomate twist ties used to control Light Brown Apple Moth and European Grapevine Moth were previously characterized in OEHHA's *Human Health Risk Assessment of Isomate LBAM Plus* and *Human Health Risk Assessment of Isomate-EGVM* (OEHHA, 2009; OEHHA, 2010a). These activities have not been evaluated in this HHRA.

Pest Detection/Emergency Program – Detection

Detection and delimitation activities conducted under the PD/EP Program would be performed under the Pest Detection/Emergency Program – Detection. Activities performed as part of Pest Detection/Emergency Program – Detection would vary based on target pest and would be limited to insect traps and lures.

Integrated Pest Control Program

For purposes of this risk assessment, detection and delimitation measures aimed at control of the pink bollworm have been evaluated for the Integrated Pest Control Program. The pink bollworm was the only pest identified within the Integrated Pest Control Program at the time of publication. Activities performed as part of Integrated Pest Control Program would include the use of traps to detect or delimit pink bollworm in residential and production agriculture environments.

2.1.2 Active and Inert Ingredients Assessed

After determining the chemical use scenarios, the list of potential chemicals of concern was assembled for evaluation in the HHRA, based on the pesticide products that may be used. The risk assessment team investigated all pesticide product labels and MSDS to determine the list of active and inert ingredients. In some instances the exact ingredients could not be determined or evaluated because the chemical ingredients were listed as proprietary on product labels. Across all pest control activities considered in this HHRA, a total of 79 pesticide and adjuvants products containing a total of 91 different active and inert ingredients were assessed. Each pesticide or adjuvant product chemical ingredient was categorized into one of three categories for each evaluated exposure route (oral, inhalation, dermal) depending on the toxicity information available. The categories of classification described below are Not of Concern (NOC), Potential Toxicological Concern (PTC), or No Data Available (NDA).

Chemicals evaluated as NOC are not of toxicological concern for a particular exposure route based on one or more of the following criteria and were not evaluated further in this HHRA:

1) When toxicity tests for a chemical show no endpoints of concern from an oral, inhalation, and/or dermal route of exposure and where dose levels near or above testing limits were employed in experimental animal studies. If endpoints such as blood parameter measurements, body weight, organ weight, or measured enzyme levels were not associated with pathology, these endpoints were considered not of concern.
2) When limited or no toxicity tests are available for a chemical and available information showing that the chemical was not known to be harmful to humans and has a history of safe use.

Chemicals evaluated to be of potential toxicological concern for specific exposure routes were deemed PTC for that exposure route if their reported endpoints were pathological effects or were considered to have the potential to lead to a pathological effect. These effects must also be observed within the dose levels tested. Only endpoint data for oral, inhalation, and dermal routes of exposure were considered. For all chemicals designated PTC for the evaluated exposure route, when multiple endpoints were available, the most sensitive endpoints available were selected and used to characterize risk. Where appropriate, route-to-route toxicity extrapolations (e.g. oral to dermal) were made for systemic effects. For more details on endpoint selection and extrapolation, please refer to Section 2.2 Toxicity Dose-Response Assessment.

If toxicological data were not available for a given chemical, a suitable surrogate was selected, when possible, based on its similarity in chemical structure and physical properties. If a suitable surrogate could not be found for which relevant toxicological data were available, the chemical was deemed NDA. The risk for chemicals designated NDA could not be evaluated.

<u>Substantially Similar Pesticides</u>

Under certain application conditions, multiple pesticide products may be considered substantially similar to one another such that the risk results generated for a particular product and scenario may be considered applicable to the use of other substantially similar products. US EPA defines “substantially similar” as:

> “substantially similar” or “identical” in composition and labeling to other US EPA-registered pesticide products or would differ in ways that would not significantly increase the risk of unreasonable adverse effects on the environment.

Sevin XLR (a.i.-carbaryl) was considered substantially similar in its composition and use pattern to Sevin SL (a.i.-carbaryl), and therefore the evaluation of Sevin SL is considered to be representative of use of Sevin XLR as well. Alias 4F (a.i.-imidacloprid) was considered substantially similar in its composition and use pattern to Admire Pro (a.i.-imidacloprid), and therefore the evaluation of Admire Pro is considered to be representative of use of Alias 4F as well. Couraze 2F (a.i.-imidacloprid) was considered substantially similar in its composition and use pattern to Alias 2F (a.i.-imidacloprid), and therefore the evaluation of Alias 2F is considered to be representative of use of Couraze 2F as well. Tame 2.4 EC Spray (a.i.-fenpropathrin) was considered substantially similar in its composition and use pattern to Danitol 2.4 EC Spray (a.i.-imidacloprid), and therefore the evaluation of Danitol 2.4 EC Spray is considered to be representative of use of Tame 2.4 EC Spray as well. Merit 75 WP (a.i.-imidacloprid) was considered substantially similar in its composition and use pattern to Merit 75 WSP (a.i.-imidacloprid), and therefore the evaluation of Merit 75 WP is considered to be representative of use of Merit 75 WSP as well.

2.2 Toxicity Dose-Response Assessment

All chemicals, including pesticide active and inert ingredients have some degree of toxicity and no substances are completely non-toxic. This fundamental concept of toxicology is expressed by Philippus Von Hohenheim (also known as Paracelsus), a 16th century physician and scientist (Pachter 1951), in his famous maxim: “All things are poison, and nothing is without poison: only the dose permits something not to be poisonous.” Accordingly, understanding the toxicity of the pesticide active and inert ingredients, and the potential dose that human receptors might receive as part of Proposed Program applications, is critical. Two fundamentally different toxicological responses may transpire following exposure depending on the end response: cancerous and non-cancerous health effects. Toxicity values are quantitative values that describe the relationship between an estimated dose and the probability of developing cancer or the likelihood of producing non-cancerous health effects.

Non-cancerous health effects (e.g. difficulty breathing, neurological effects) have been evaluated using no observable adverse effect levels (NO(A)ELs). A NO(A)EL is the highest exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects between the exposed population and its control (US EPA 1993c). When NO(A)ELs were available in the literature, the most sensitive effect level was selected. All NO(A)ELs used in this assessment are reported in units of milligrams of chemical per kilogram body weight per day (mg/kg-day). Extrapolations were made and uncertainty factors applied to NO(A)ELs selected from the literature for use in estimating risk. Extrapolations and uncertainty includes using animal studies and/or surrogate chemicals. Use of the most sensitive effect level along with conservative extrapolation and uncertainty factors are generally considered health-protective of a representative cross section of the general population.

NO(A)ELs were obtained for each assessed chemical for the available and relevant routes of exposure. In cases where NO(A)ELs were not available for relevant routes, accepted approaches that have been developed by the US EPA or other agencies were followed, such as using oral exposures combined with a dermal absorption factor to represent the absorbed dose that is relevant for dermal exposure assessments. Non-cancer risks were characterized by using acute study NO(A)ELs to assess risk from acute exposures and chronic study NO(A)ELs to assess risk from chronic exposures.

Cancer risk has been assessed through characterizing the relationship between dose of a carcinogen and the increased likelihood of developing cancer. This relationship is expressed using information on the dose (i.e., the exposure) and the carcinogenic "potency" of a chemical. The cancer slope factor (CSF) represents the carcinogenic potency of a chemical using units of [(mg/kg-body weight/day)$^{-1}$]. Cancer slope factors are compared to exposure estimates (mg/kg-body weight/day) to yield a unitless probability estimate of cancer risk. The CSF is estimated by using an upper-bound estimate derived typically from animal studies assuming linear extrapolation of a multistage model taking into account the incidence of cancer in lifetime high dose exposure studies to zero incidence at zero dose (US EPA 1993c). Cancer risk was assessed using CSFs developed by the US EPA and other agencies such as OEHHA from chronic exposure studies.

Toxicity information was gathered on those pesticide active and inert ingredients demonstrating carcinogenicity and non-cancerous health effects from government sources including the US EPA, OEHHA, ATSDR, CDPR, HSDB, and Health Canada.

2.2.1 Mechanism of Action and Target Organs and Systems

Toxicity studies are often conducted using single chemicals rather than a combination of chemicals which may be found in the real world such as a specific pesticide formulation. An HHRA typically evaluates the chemicals individually, and then combines the risks from individual chemicals to get a final combined representation of risk.

As an extremely conservative approach, for this HHRA, additive risk of pesticide active and inert ingredients were estimated regardless of their mechanism of action (e.g., acetylcholinesterase inhibition), target organ (e.g., liver), or target system (e.g., nervous system). The most sensitive effect considered to be relevant for each chemical by the US EPA or other authoritative agency was used as the basis for risk characterization in this report. By assuming the chemicals are targeting the same organ or system, the potential hazard to human health was likely overestimated, as opposed to underestimated.

2.2.2 Data Sources

The toxicity assessment used the following data sources, generally in the order presented below. In the event that no conflicting or suspect data was found, other sources were used to corroborate the initial data found. The most conservative and health-protective data was used when two or more data points existed:

- US EPA Reregistration Eligibility Decision Documents
- US EPA Human Health Assessment Scoping Documents
- CDPR Risk Characterization Documents
- ATSDR Toxicological Profile
- OEHHA Toxicity Criteria Database
- UNEP SIDS Initial Assessment Profile

- USDA Human Health and Ecological Risk Assessment
- OEHHA Chronic Toxicity Summary

A wide range of chemicals was considered in this HHRA. For each pesticide product, all named active and inert ingredients designated PTC were researched for their physical, chemical, and environmental fate properties (e.g., solubility, soil degradation, dermal absorption, molecular weight, etc.). Property data were gathered from various resources including:

- Hazardous Substances Data Bank (HSDB, 2011d)
- US EPA Reregistration Eligibility Decision Documents (US EPA, 2012p)
- CDPR Risk Characterization Documents (CDPR, 2012f)
- ATSDR Toxicological Profile (ATSDR, 2013)

2.3 Exposure Assessment

The third step in the HHRA was to determine how much chemical exposure an exposed individual (referred to as a "sensitive receptor") would receive. Exposure is commonly defined as contact of visible external physical boundaries (i.e., external boundaries such as the mouth, nostrils, and skin) with a chemical. Exposure is dependent upon the intensity, frequency, and duration of contact. The intensity of contact is typically expressed in terms of the concentration of contaminant per unit mass or volume (i.e., µg/g, µg/L, mg/m3, ppm, etc.) in the media (i.e. soil, air, water, etc.) to which humans are exposed. Dose refers to the amount of chemical to which individuals are exposed that crosses the external boundary. Dose is dependent upon contaminant concentration and the rate of intake (i.e., inhalation or ingestion) or uptake (i.e., dermal absorption) and may be normalized to body weight as a function of time (i.e., mg/kg/day). Average daily dose (ADD) rates may be estimated using the standard exposure assessment algorithm shown below:

$$ADD = \frac{C * CR * ED * F}{BW * AT}$$

where:

ADD = potential average daily dose (mg/kg/day);
C = contaminant concentration (mg/L, mg/m^3; mg/cm^2);
CR = contact rate (L/day; m^3/day; cm^2/day);
ED = exposure duration (years);
F = frequency of exposure events (days/year);
BW = body weight (kg); and
AT = averaging time (days).

The contaminant concentration refers to the amount of chemical residue in the media of interest, and contact rate refers to the rate of ingestion, inhalation, or dermal deposition per day. Exposure duration refers to the length of time that contact occurs and is affected by activity patterns; for instance, one year to calculate annual average. Frequency is the number of exposure events over a specified time period. Body weight and averaging time are specific to the population and exposure scenarios being evaluated. The averaging time (AT) is the number of days over which the exposure is averaged. For exposure assessments used to support cancer risk assessments AT is replaced by lifetime (LT) (i.e., 25,550 days = 70 years * 365 days/year). The resulting exposure estimate is referred to as the potential lifetime average daily dose (LADD). ADD and LADD are expressed in units of mg/kg/day. Absorbed doses (i.e., ADD and LADD) may be estimated by applying an absorption factor.

The exposure assessment portion of the HHRA was divided into two parts. The first part was to determine the concentration of the chemical in the environment (C) through fate and transport processes. In the context of pesticide application, this included determining the specific concentration of chemicals that may be found in the air, water, soil, and contained in/on the plant. This took into account the total amount of pesticide to be applied, along with any mechanisms of dispersal or degradation of the chemicals that may occur during or shortly after application of the pesticide. The next part in determining human exposure (ADD or LADD) was to estimate how much the human body would take up of the estimated concentration in the environment. The three main uptake pathways addressed in the HHRA were inhalation, ingestion, and dermal absorption. These two parts are each discussed in further detail below.

2.3.1 Estimating Pesticide Environmental Concentrations

The first part of the exposure assessment portion of the HHRA was an estimation of the concentration of the chemicals in the environmental media. This was then used to determine how much an individual person may be exposed to by coming into contact with various environmental media such as air, soil, and water. A brief discussion of the methodology used for each environmental media relevant to the Proposed Program is presented next. Environmental media considered in the assessment of risk were soil, air, surface water, and vegetation contacted and consumed by human receptors.

For specific information on the environmental media to which potential receptors may be exposed, refer to the CSM sections of Section 3.

Relevant Environmental Fate Studies

Previous studies have examined the fate, transport, and environmental concentrations of pesticides in a variety of scenarios and provide empirical data from actual pesticide applications. Specifically, numerous studies have been conducted on the pesticides that may be used under the Proposed Program, including studies by DPR, University of California Cooperative Extension, University of California, Riverside, and others available in the open literature. When available, these data were used to represent the concentration of pesticides and inert ingredients that may be used under the Proposed Program. When relevant data were not available from studies, models were used to make estimates. The models are described in the rest of this section of the HHRA.

Application Rates

Each individual application scenario utilized specific pesticide application rates based on the amount of active ingredient used per unit size (e.g. acres, trees). The application rates listed on pesticide product labels were followed in all cases, except when a Special Local Need[3] (SLN) was in effect (i.e., for diazinon). Since it is known that acephate can easily breakdown to methamidophos which is also a PTC and consistent with US EPA (2006s) methods, a 25% conversion efficiency of acephate to methamidophos at time of application was assumed to estimate methamidophos concentrations in the environment. Acephate concentrations were still conservatively assumed to be at 100% the applied rate at the time of application. Please refer to the application scenarios described in Section 3 for more details.

Pesticide Application Methods

A variety of pesticide application methods are used that include for example, backpack sprayers, boom sprayers and soil drenching. Refer to the Section 3 for the specific pesticide application methods used.

General Comments on the Use of Models

As described above, when valid empirical data from studies was not available, various models were used to estimate the concentration of chemicals in the environmental media. Selection of models and equations were based on approval and/or common use by various regulatory agencies including US EPA and DPR. By design, these models use conservative inputs and methods that result in conservative estimates ensuring that the results are health-protective, and input values were therefore selected to increase the likelihood that environmental concentrations of chemicals and the magnitude of exposure for each receptor group were overestimated, as opposed to underestimated.

Media-Specific Exposure Assessment Methods

Soil

Soil concentrations were used to estimate exposure primarily from dermal contact and ingestion. Pesticides can reach the soil directly, or indirectly from the movement of chemicals from the foliage or atmosphere to the ground after application. Once in the soil, the chemicals are subject to various fate and transport mechanisms which dictate the concentration of chemicals in the soil at any given time. The key assumptions and extent to which these fate and transport processes are accounted for in the models is presented below, starting with short term concentrations used for acute exposures and then long term time-weighted concentrations used for chronic exposures.

Acute Soil Estimated Environmental Concentrations

To obtain conservative estimates of acute exposure, the peak concentration that could be found in soil is desired. Soil concentrations for acute duration exposure conditions were estimated

[3] 40 CFR 162.151 states that SLN means an existing or imminent pest problem within a state for which the state lead agency, based upon satisfactory supporting information, has determined that an appropriate federally registered pesticide product is not sufficiently available. In these cases, USEPA or CDPR may authorize a use which differs from label requirements. An SLN may address a new pest, method or timing of application, different use rate, new crop/use site, or integrated pest management practice in certain crops.

using the Simple Soil Model (SSM), assuming no degradation of the chemicals, and represent the peak concentrations in soils immediately following an application. When multiple applications were modeled, the peak concentration may occur following one of the later applications. Several assumptions were made regarding the amount of chemicals deposited on the soil after an application, based on the treatment method. For foliar applications, a vegetation interception fraction, the amount of pesticide retained on the plant foliage, of 80% was used as a default interception fraction for the calculation of soil environmental concentrations (US EPA, 2006q). Therefore, to estimate the soil concentrations of chemicals following foliar applications, 20% of the applied amount was assumed to be deposited directly to the soil. For drench applications, 100% of the applied pesticide was assumed to be deposited directly to soil. Soil densities appropriate for the treated crops and the amount of pesticide deposited in the soil were used to estimate the concentration of chemicals in the soil. Specifically, soil concentrations were estimated using the same soil densities provided by US EPA (2006q) for modeling movement to surface water in crop-specific scenarios.

The soil concentration was estimated assuming the entire applied amount was distributed only in the upper 15 cm of soil. Various researchers (Ramanand *et al*., 1988; Zhang *et al*., 2000) report applied pesticides commonly penetrate to 30 cm. Various researchers (Ramanand et al., 1988; Zhang et al., 2000) have determined applied pesticides commonly penetrate to 30 cm so assuming penetration to only 15 cm should result in a health-protective overestimate of actual soil concentrations. These assumptions were incorporated into the SSM to estimate the initial instantaneous soil concentrations and if applicable the maximum instantaneous soil concentrations over time. These soil concentration results are used in later exposure models that require the concentration of chemicals in soil.

Chronic Soil Estimated Environmental Concentrations

To obtain conservative estimates of chronic exposure, the peak concentration that could be found in soil is desired. Soil concentrations used for chronic exposures were estimated using standard first order rate kinetics. Soil aerobic instantaneous concentration versus time was plotted for each chemical in order to estimate a time weighted average (TWA) concentration as follows (Lyman, 1990) :

$$(C_x = C_0 e^{-kt})$$

Where:

C_x = Concentration on Day x following the application

C_0 = Concentration on Day 0 (immediately following application)

e = 2.718

k = 0.693/half life

t = time (days)

The above equation was used to estimate the amount of chemicals present at any time post application. The maximum 31-day average assessed over the course of a year was calculated and then used to estimate chronic exposure for human receptors. These estimates are considered conservative as they do not take into account all fate and transport mechanisms that may reduce the long-term concentrations.

Air

Air concentrations have been used to estimate exposure primarily from inhalation. When pesticides are applied they can reach the air directly or from volatilization of the chemical from the ground and plants after application. Once in the air, the chemicals are subject to dispersal and deposition which decreases concentrations in the air. In some cases the concentrations of chemicals in the air can be measured. When measured air concentrations are not available, models are used. The key assumptions used in the models is presented below.

Empirical data from the scientific literature were used for air concentrations when the available studies were conducted with sufficient similarities in label application rate and methods to Proposed Program application scenario. However, for the majority of the application scenarios, no empirical air concentration data could be located that reflect anticipated typical Proposed Program pesticide application techniques.

Therefore, estimation of chemical ingredient concentrations in air during application was accomplished using the Occupational Pesticide Handler Unit Exposure Surrogate Reference Table (OPHED) (US EPA, 2013b) in all cases except handling naled/DDVP wicks and fumigant concentrations at fumigation facilities. After applications, chemical droplets and vapor were assumed to deposit out of the air and residues were not expected to volatilize; thus, post-application chemical air concentrations were considered to be de minimus. Special cases are addressed in the following subsections. The results of the OPHED model was used to estimate exposure from chemicals in the air.

Handling Naled/DDVP Wicks

The concentrations of naled and DDVP in the air around a worker was measured in previous studies (CDFA, 2010d). In this study, the naled and DDVP air concentration present in the personal breathing zone of workers handling Dibrom 8 Emulsive wicks was reported to be 0.00048 mg/m^3 in an occupational exposure assessment completed for CDFA's Pest Detection Emergency Projects Statewide Detection Trapping Program (CDFA, 2010d). However, according to the laboratory doing the analysis (Pope, 2013, Pers comm, M. Blankinship call to Paul Pope, ALS Lab, SLC, UT) the value reported in CDFA (2010d) was the detection limit of the analytical method used. Consistent with professional practice and guidance (US EPA, 1989e), this assessment assumed one half of the detection limit to represent the air concentration.

Traps/Lures Ambient Air Concentration Estimation

A chemical trap containing a chemical used to lure pests to the trap may result in volatilization of the chemical into the air. An individual not involved in preparing traps, but in the vicinity of the trap once it is placed, may potentially be exposed to these trap chemicals volatilized into the air. For all traps and lures except for Isomate twist ties, a "box model" was used to estimate ambient air concentrations. This box model was based on methods developed in OEHHA's *Human*

Health Risk Assessment of Isomate-EGVM (OEHHA, 2010a). For the purposes of simplicity, all traps, lures, and splats are referred to as “traps.”

The “box model” was developed in order to estimate the ambient air concentration of trapping agents and lures, which a potential human receptor may be exposed to, in the area surrounding a trap. A hypothetical box (4 meter width, 4 meter length, and 4 meter height) through which air may freely flow in and out was modeled around the trap, resulting in a 64 m^3 total volume of air. Because emission rates for specific traps were not available, the dissipation rate of a chemical from a trap was estimated by assuming the total amount of chemical in the trap was completely emitted by the end of the re-application interval and the chemical was emitted at a constant rate per day. Due to the fact that the trap is located outdoors, the air was assumed to move through the “box” at 1 mile per hour, resulting in an air exchange rate of 402 exchanges per hour. The air concentration estimated from the “box model” was used in later exposure models to estimate the exposure from inhalation.

Post-Fumigation Plant Off-gassing Air Concentration Estimation

During fumigation, commodities may sorb a substantial amount of fumigant which does not chemically react and instead creates a “residue” in and on the surface of treated commodities. These residues may then be released over time through plant off-gassing, generating the potential for exposure to commodity handlers. During vehicular transport of treated commodities, plant off-gassing may result in the buildup of air concentrations within the transport container.

Methods are available for estimating methyl bromide (MB) exposure due to off-gassing of fumigated commodities for processing workers (Nicas, 2003). However, methods for evaluating exposure to post-transfer-workers (PTWs) have not been previously described for any fumigant. Thus, a novel method for estimating exposure was constructed utilizing methodology similar to that presented by Nicas (2003) and agreed upon during the interagency consultations with OEHHA and CDPR.

Plant off-gassing typically follows first-order dissipation kinetics (CDPR, 2002h; Tebbets et al., 2003; Hansen et al., 2000; Hartsell et al., 1991) and may be expressed by the following equation:

Equation 1: $R(t) = R_0 e^{(-\alpha t)}$

Where:

$R_{(t)}$: The commodity residue level remaining at time t

R_0: The fumigant residue level in commodity at reference time zero (e.g. at the end of an active aeration period) (mg/kg)

α: Plant off-gassing rate constant (hr^{-1})

t: The amount of time passed since reference time zero (hr)

DPR has compiled a list of plant off-gassing rates (α) and fumigant residue levels (R_0) for a variety of commodities (DPR, 2002g). Reported α and R_0 vary greatly for the same commodity, due in part to differences in fumigation rate, time, and temperature. Even greater variability is observed between commodities. For purposes of this risk assessment, exposure concentrations for the PTW were estimated using α and R_0 values for basil leaves ($\alpha = 0.017\ hr^{-1}$; $R_0 = 2.2$ mg/kg) and tomatoes ($\alpha = 0.022\ hr^{-1}$; $R_0 = 1.8$ mg/kg) (DPR, 2002g). Basil leaves were selected as a surrogate to represent fumigation of curry and kaffir lime leaves for control of ACP, while tomatoes were selected as a surrogate to represent fumigation of bell peppers for control of fruit flies.

The PTW's airborne MB exposure level can be estimated via mathematical modeling provided the plant off-gassing rate, the MB residue levels in fumigated commodity, the mass of commodity being handled, and the ventilation characteristics of the transport container are known (Nicas 2003). Consider a fumigated commodity mass W (mg) containing MB residue at level R_0 is placed in a transport container. The initial mass of MB residue is $W*R_0$ and the MB residue remaining at a future time t, denoted M(t), is:

Equation 2: $$M(t) = WR_0 e^{(-\alpha t)}$$

The instantaneous MB mass emission rate function, G(t) (mg/hr) is the product of αM(t), or:

Equation 3: $$G(t) = \alpha W R_0 e^{(-\alpha t)}$$

For a well-mixed space containing the commodity with volume V (m^3), volumetric flow rate of air Q (m^3/hr), and initial airborne MB concentration C_0, the MB concentration in air, denoted C(t) (mg/m^3), is expressed as follows:

Equation 4: $$C(t) = \frac{\alpha W R_0}{Q-\alpha V}\left\{e^{(-\alpha t)} - e^{(-[Q/V]t)}\right\} + C_0 e^{(-[Q/V]t)}$$

If there is a time lag (t_l) between when the initial commodity residue levels are measured (R_0) and when the commodity is loaded into the transport container, the "initial residue mass" (WR_0) corresponds to $M(t_l)$ computed by Eq. 2. Assuming the initial concentration (C_0) in the transport container is zero, if the transport truck is in transit for the duration time t_t, the air concentration in the commodity transport container at the end of transit duration is modeled as follows:

Equation 5: $$C(t) = \frac{\alpha M(t_l)}{Q-\alpha V}\left\{e^{(-\alpha t_t)} - e^{(-[Q/V]t_t)}\right\}$$

Equation 5 was used to estimate exposure to PTWs who open and enter the transport container to move the commodities. If the commodity mass occupies a substantial volume of the transport container, using the non-occluded volume of the container (space not taken up by produce) rather than the whole container volume is more appropriate. However, decreasing volume leads to largely counterbalancing effects on air concentration when air exchange is considered (Nicas 2003). For the same mass emission into air, a smaller volume increases the concentration in air, while, for the same volumetric flow rate Q, a smaller volume increases the rate of removal from the air space. For simplicity of analysis, the volume of the transport container was not be adjusted to the non-occluded volume.

Fumigation Facility Air Concentration Estimation

The fumigant concentrations in the air onsite and downwind from a fumigation facility could not be estimated reliably. No current commodity fumigation air monitoring data or modeling techniques were available. As such, analysis of fumigant air concentration and exposure relied on available exposure monitoring and modeling data considered within the context of current fumigation guidelines (CDPR, 1994; CDPR, 2002; CDPR, 2012) and is qualitatively analyzed in this risk assessment.

Pesticide Off-target Drift

During application of pesticides, the aerosolized particles may be dispersed to a location beyond the desired target. Off-target drift, also referred to as "off-site drift," of the chemicals that may be used under the Proposed Program was estimated using AgDRIFT Version 2.1.1 (AgDRIFT). AgDRIFT predicts off-site deposition of chemicals applied by aerial, orchard airblast, and ground spraying methods, as well as the potential of buffer zones to protect sensitive aquatic and terrestrial habitats from undesired exposures (US EPA, 2010p). It was developed by the US EPA’s Office of Pesticide Programs, the U.S. Department of Agriculture Agricultural Research Service (ARS), the U.S. Department of Agriculture Forest Service, and the Spray Drift Task Force (SDTF).

In this HHRA, AgDRIFT was used to estimate the percent of the applied chemicals that drift off-site and has the potential to expose a receptor downwind from the application site. Aerial, airblast, and ground application methods were considered for potential drift exposure.

For all model runs used in the HHRA, the terrestrial assessment was chosen from the model’s toolbox tab, and point deposition was selected rather than the user-defined area-average because the target of the off-site drift is a single receptor. In accordance with US EPA’s *Overview of Issues Related to the Standard Operating Procedures for Residential Exposure Assessment* (US EPA, 1999f), the potential human receptor was assumed to be 25 feet away from the edge of the application area. The percentage of off-site drift was not dependent on the application rate so an active rate of 1 lb/acre was used for all model runs and combined with the actual application rate in subsequent steps.

For aerial applications, the “Tier III Aerial (Agricultural)” mode was used. All the default settings given by AgDRIFT were used (e.g., drop size distribution: ASAE Medium to Course, Swath Width: 60 feet, etc.). AgDRIFT estimated the fraction of chemical drifting to 25 feet away to be 14.66% for aerial applications.

For airblast applications, the “Tier I Orchard/Airblast (Agricultural)” mode was used. Because the majority of Proposed Program applications would be anticipated to be on citrus crops, the “Dense (Citrus, Tall Trees)” setting was selected from the “Combination Orchards” section. All other default settings given by AgDRIFT were used. The fraction of chemical applied that drifts off-site to a point 25 feet away was estimated to be 3.30% for airblast applications.

For ground applications, the “Tier I Ground (Agricultural)” mode was used, and the boom height was set to “Low Boom.” The drop size distribution was changed to “ASAE Fine to Medium/

Coarse," and all other default settings given by AgDRIFT were used. The fraction of chemical applied that drifts off-site to a point 25 feet away was estimated to be 0.83% for ground applications.

Off-site drift from drench, tablet, and trap/lure applications was assumed to be de minimus since these do not readily aerosolize into particles that have the potential to drift, so AgDRIFT was not run for these assessments.

Water Ingestion

The California Department of Pesticide Regulation (CDPR) and State Water Resources Control Board (SWRCB) maintain comprehensive databases of pesticides in surface and groundwater (CDPR, 2014; SWRCB, 2014b; SWRCB, 2014c). These surface and groundwater databases draw data from a variety of sources, including public, federal, state, and local agencies, private industry, and environmental groups. Examples of these sources include: United States Geological Survey (USGS, 2011),, State Water Resources Control Board (SWRCB, 2014c), California Department of Public Health (CDPH) and CDPR (CDPR, 2009a; CDPR, 2010b; CDPR, 2011b; CDPR, 2012a; CDPR, 2012b; CDPR, 2012d). These databases were queried for detections of Proposed Program pesticide ingredients over the past 5 years (2009-2014) in order to assess the potential for exposure to these ingredients via the ingestion of drinking water from both groundwater and surface water sources. Reported ingredient concentrations were compared to corresponding risk-based screening thresholds to evaluate the likelihood of exposure above a level of concern. When available, risk based screening hresholds were selected based on the most health protective Water Quality Goal available from the SWRCB Compilation of Water Quality Goals (SWRCB, 2014a) or derived using the methods described by USEPA (2011w). Detection and water waulty data may be reviewed in the Dashboard Database.

Groundwater

Of the Proposed Program chemicals,acephate, carbaryl, chlorantraniliprole, chlorpyrifos, cyfluthrin, DDVP, diazinon, dinotefuran, ethylene glycol, glyphosate, imidacloprid, lambda-cyhalothrin, malathion, methyl bromide, naled, naphthalene, permethrin, thiamethoxam, 1,2,4-trimethylbenzene, and xylene groundwater concentrations are monitored and reported in one or more databases. Except for the chemicals noted in the following paragraph, pesticides were not detected in groundwater above their respective risk-based screening threshold.

Only methyl bromide and the inert ingredients 1,2,4-trimethylbenzene, naphthalene, and xylenes exceeded their respective risk based screening thresholds. . The maximum detected chemical concentrations exceeding the established risk based screening thresholds in groundwater for both CDPR (2014) and SWRCB (2014c) data sources are 30,000,000 ppb for 1,2,4-trimethylbenzene, 490 ppb for methyl bromide, 6,000,000 ppb for naphthalene, and 71,000,000 ppb for xylenes. The risk based screening threshold for these chemicals is 140 ppb for 1,2,4-trimethylbenzene, 9.8 ppb for methyl bromide, 0.29 ppb for naphthalene, and 1,400 ppb for xylene.

Methyl bromide is a fumigant that may be used under the Proposed Program in aboveground fumigation chambers and sea vans. This activity is unlike soil fumigation practices that inject methyl bromide directly into the subsurface soil to control soil-borne pathogens. Soil injection, under certain site-specific circumstances, may result in transport of methyl bromide from soil to groundwater, but will not occur in fumigation chambers and sea vans. Thus, this soil to groundwater transport phenomenon would be absent under the Proposed Program.

1,2,4-Trimethylbenzene, naphthalene, and xylenes are present as ingredients in Proposed Program pesticide formulations, typically at less than 5%. These chemicals are also common constituents of gasoline and diesel fuel. Since 1991, the state of California has spent over $2.7 billion, reported in 2010, assessing and/or remediating thousands of leaking underground storage tanks that have impacted groundwater (Cal/EPA, 2010). Accordingly, the source of these three chemicals in groundwater is most likely a result of leaking underground storage tanks and the contribution, if any, from Proposed Program activities would be anticipated to be de minimus.

The groundwater data available suggest that use of pesticide products under the Proposed Program would not result in these pesticides reaching groundwater or result in groundwater concentrations above the level of concern. Based on these data, it is anticipated that exposure to Proposed Program pesticide active and inert ingredients via groundwater ingestion is highly unlikely and any exposure that might occur is insignificant. Thus, exposure to Proposed Program pesticide ingredients via the groundwater ingestion pathway was considered an insignificant pathway of exposure and dismissed from further evaluation in the HHRA and PEIR.

Surface Water

Of the Proposed Program pesticide active and inert ingredients, acephate, acetamiprid, bifenthrin, carbaryl, chlorpyrifos, cyfluthrin, DDVP, diazinon, fenpropathrin, tau-fluvalinate, glyphosate, imidacloprid, lambda cyhalothrin, malathion, methamidophos, methyl bromide, methyl chloride, naled, naphthalene, permethrin, pyrethrins, thiamethoxam, and xylene surface water concentrations are monitored and reported in one or more databases. Of these chemicals, five were detected above their risk-based screening threshold.

The chemicals detected above their risk-based screening threshold were acephate, chlorpyrifos, DDVP (dichlorvos), diazinon, and methamidophos. Note that the use of DDVP within the Proposed Program is limited to trap and splat application methods to trees and telephone poles. These methods involve highly targeted applications to very small areas. Thus, it is not likely that the Proposed Program's use of DDVP will result in substantial, if any, transport to water. However, there exists the potential for the other four chemicals to reach surface waters. The maximum detected chemical concentrations exceeding the established risk-based screening thresholds in surface waters for both CDPR (2014) and SWRCB (2014b) data sources are 13.5 ppb for acephate, 2.4 ppb for chlorpyrifos, 0.169 for DDVP, 61.9 ppb for diazinon, and 1.3 ppb for methamidophos. The risk based screening threshold for these chemicals is 2.8 ppb for acephate, 2 ppb for chlorpyrifos, 0.1 ppb for DDVP, 1 ppb for diazinon and 0.35 ppb for methamidophos.

Although the treatments which may be conducted under the Proposed Program may contribute to surface water concentrations of these ingredients, treatments are limited to areas where potentially impacted surface waters are not used as drinking water resources. Furthermore, regulatory requirements of the pesticide product label, the Pest Control Advisor's recommendation, the MPs listed in Chpater 2 of the PEIR, and where applicable CDFA's and regulated entities' NPDES permits and/or RWQCB Ag Waiver program (discussed further in Appendix A, Ecological Risk Assessment and Section 6.7 of the PEIR) identify the measures needed to reduce or eliminate potential adverse impacts to surface water from pesticide ingredients used in the Proposed Program.

Specifically, the Proposed Program Management Practices contain numerous BMPs designed to monitor, reduce, or eliminate the potential for transport of Proposed Program pesticides to surface waters. These MPs include but are not limited to the following requirements that must be followed by CDFA, CDFA contractors, and regulated entities:

- Identify and make plans to avoid streamside management areas and surface water to prevent chemicals not labeled for aquatic use from drifting over open water, or from accidentally being applied directly to water.
- Monitor wind conditions to avoid pesticide drift. Delay or do not apply foliar sprays if wind speeds are over 10 miles per hour.
- Check weather service prior to application. Delay or do not apply foliar treatments if there is a 40% or higher chance of rain forecast to occur 24 hours before or after the planned application. This minimizes the chance of substantial runoff.
- Use buffer zones where applicable to protect sensitive areas, such as bodies of water, critical habitat for threatened and endangered species, and other identified sensitive areas.
- Do not make direct application to water bodies.
- Make sure that the aircraft pilot is in radio communication with Proposed Program personnel on the ground, to verify wind speed and direction and location of non-target sites, including water bodies, people, vehicles, and buildings.

Based on the protective measures and regulatory requirements presented previously, , contamination of surface water and subsequent exposure from its use as drinking water is not expected to result in measurable human health impacts from Proposed Program activities. Therefore, exposure to Proposed Program pesticide ingredients via the surface water ingestion pathway was considered an insignificant pathway of exposure and dismissed from futher evaluation in this HHRA.

Vegetation

Exposure to pesticide ingredients can occur from contact with or ingestion of vegetation that has had pesticide applied. Exposure can occur due to the plant uptaking the chemical and incorporating it into its tissue and subsequent ingestion of the plant. Exposure can also occur when there is dermal contact with chemical residue found on the surface of plants. The methods used to estimate the concentrations of chemicals in or on plants is presented below.

Terrestrial Plant Tissue Concentrations

Uptake into plant tissue from soil is possible following foliar applications because some of the applied material will be deposited or washed off onto the soil. In most cases, tissue residues from soil uptake were added to the estimated surface residues from direct deposition; however, plants are not expected to take up hydrophobic (i.e., "water-disliking") chemicals from the soil as a result of the soil's ability to bind and/or degrade thee chemicals before the chemical is transported through the soil profile to the plant's root zone. Those chemicals with a Log K_{ow} of greater than 7.0 are poorly taken up by plants (US EPA 2007p), and no systemic tissue residues taken up from soil were estimated for such chemicals. For foliar applied systemic pesticides, the tissue concentrations were assumed to be equal to the surface residues deposited as the foliar spray. The conversion from surface residue concentration to plant tissue concentration was done with the US EPA T-REX. For soil-applied systemic pesticides, only uptake from the soil was assumed to occur.

Surface Residues from Foliar Applications

US EPA's Terrestrial Residue EXposure (T-REX) model (Version 1.5; US EPA 2012i) was used to estimate the surface residues of pesticide active and inert ingredients on terrestrial vegetation following foliar applications. Using chemical-specific data, T-REX estimated the residue concentrations on terrestrial vegetation, and human receptors were assumed to consume vegetation from the fruits and seeds category.

Detailed Description of T-REX Model

T-REX is a screening-level tool to estimate likely residues on various terrestrial diet categories and evaluate whether there is a potential for risk to generic birds or mammals with those diet types. Despite its main use as a model to determine risk to birds and mammals, the estimates of the concentrations in the plants is applicable for use in human exposure models when human dietary intake is applied instead of the dietary intake for birds and mammals. T-REX is a spreadsheet-based model that estimates pesticide residues based on both the upper bound and mean residue concentrations as presented by Hoerger and Kenaga (1972) and modified by Fletcher *et al*. (1994). These concentrations are estimated by relating the application rate of a pesticide to residues remaining on dietary items of terrestrial organisms. The food item categories considered in T-REX are short grass, tall grass, broadleaf plants, fruits/pods/seeds and arthropods (US EPA 2012i).

Briefly, T-REX assumes a linear relationship between pesticide application rate and the amount of pesticides deposited on plant surfaces. As the application rate increases, the residues in or on plant tissues increase. The relationship is based on empirical data from studies that measured residues in plant tissues following spray applications of a number of pesticides at different application rates. T-REX provides estimates of pesticide residues immediately following an application and models the residues remaining through time using pesticide-specific degradation rates. T-REX provides both mean and 90^{th} percentile 'upper bound' estimates of pesticide residues. In this assessment, the conservative upper bound residue estimates were used.

Plant Tissue Residues from Soil Concentrations

Pesticide active and inert ingredient residues can be taken up from soil into plant tissue when pesticides are present in the soil as a result of drench or soil injection applications or drift from foliar spray applications (assumed to be 20% of application rate). The concentrations of these residues in plant tissue were estimated using a terrestrial vegetation uptake factor (VUF) and the soil concentration estimated as described in Section 2.3.1. The terrestrial VUF equation is modified from the Briggs equation described in US EPA (2012g). The modified Briggs equation is used here because it is based on the concentration in soil, rather than the concentration in soil pore water. The equation uses each pesticide active or inert ingredient's Log K_{ow} and K_{oc} to estimate the terrestrial plant tissue concentration. The terrestrial plant tissue concentration was estimated using the following equation:

$$\text{Terrestrial VUF (dry weight)} = \left(\left[10^{(0.95 \times \text{Log}(K_{ow}) - 2.05)} + 0.82\right] \times \left[0.784 \times 10^{(-0.434 \times [\text{Log}(K_{ow}) - 1.78]^2 \div 2.44)}\right] \times \left[\frac{\rho}{\theta + \rho \times K_{oc} \times f_{oc}}\right]\right)$$

Where:

K_{OW} = Octanol/Water Partition Coefficient (unitless)

ρ = soil bulk density (g-dw/cm^3)

θ = soil-water content by volume (cm^3/cm^3)

K_{OC} = soil organic carbon-water partitioning coefficient (cm^3/g-organic carbon or L/kg-organic carbon)

f_{OC} = fraction of organic carbon in the soil

Once the terrestrial VUF was estimated, it was multiplied by the concentration of the pesticide active or inert ingredient in soil to get the concentration in terrestrial vegetation. This value was used to represent the concentration following drench or soil injection applications or the concentration resulting from uptake into terrestrial vegetation from the soil following foliar applications. If the Log K_{ow} was greater than 7.0, no uptake was assumed (US EPA 2007p).

Surface Residue on Foliage

Post-application chemical residues may potentially come into dermal contact with a human receptor are referred to as dislodgeable foliar residues (DFRs). The method for estimating the DFR was taken from the US EPA's Standard Operating Procedures for Residential Pesticide Exposure Assessment (SOP) (US EPA, 2012l).

The DFR for a particular chemical was estimated using the application rate, fraction of transferable ingredient, the fraction of residue that dissipates per day, and the number of days past the time of application. Consistent with the cited US EPA guidance, different DFRs are used under different circumstances as follows:

The SOP assumes that 25% of the original application rate is available for transfer and that 10% of the residue dissipates daily. These SOP default assumptions were left unchanged for residential treatments.

In production agriculture settings, the fraction of transferable ingredient was assumed to be equivalent to the fraction of pesticide retained to foliage after application. Specifically, the fraction retained was assumed to be 80%, and for nurseries, it was assumed to be 60% (US EPA, 2006q).

In all cases, the DFR was estimated to reflect residue concentrations directly after application, with the exception of cases in which the pesticide product label required a specific re-entry interval. No degradation was assumed to occur when estimating DFR values directly after application. The results of the model to estimate DFR was used in exposure models to estimate dermal exposure.

2.3.2 Exposure Models

The exposure assessment estimates the dose, or amount of pesticide active or inert ingredient, that different types of human receptors may be exposed to under different application scenarios that would be a part of the Proposed Program. The exposure to chemicals varies for different types of human receptors depending on the activities of a particular individual and proximity to the application site. The following types of human receptors were assessed in this HHRA:

- Mixer-Loader-Applicator (MLA): Pesticide handlers
- Downwind Bystander (DWB): Residents or workers near the application site
- Post-Application Resident (PAR): Residents in yard after application
- During & Post-Application Residents (DPAR): Residents near application site during application and in yard after application
- Post-Application Worker (PAW): Farm worker that harvests treated plants
- Post-Application Loader (PAL): Nursery employee that loads trucks
- Combined Nursery Worker (CNW): Nursery pesticide handler that also loads trucks
- Fumigation Worker (FUW): Fumigation site employee that runs fumigations
- Fumigation Downwind Bystander (FDWB): Resident or worker near fumigation site
- Post-Transfer Worker (PTW): Trucker that unloads treated produce

The potential health impacts to relevant receptors, if any, can be estimated by comparing estimated exposure doses with the measures of toxicity. Descriptions of the methodology used to assess toxicity are detailed in Section 2.2.

Exposure Routes

Depending on the activities and location of a particular individual seven exposure routes could potentially occur under acute and chronic duration exposure scenarios. The exposure routes considered in this HHRA are the following:

- Inhalation: Aerosols and vapors
- Intentional Ingestion of Soil: Pica behavior (children that intentionally eat soil)
- Ingestion of Vegetation: Eating garden produce
- Dermal Exposure to Soil: Due to working or playing in treated areas

- Dermal Exposure to Vegetation: Due to working or playing in treated areas
- Incidental Ingestion of Vegetation Residues: Hand-to-mouth transfer of plant-residues due to touching of perioral areas or eating.

A discussion of groundwater and surface water ingestion exposure was presented in Section 2.3.1 and exposure pathways associated with these media were not evaluated in the HHRA.

Exposed Populations (Receptors)

A description of each of the ten receptors identified in Section 2.3.2 is provided below. These receptor groups represent all groups with reasonable potential for exposure under one or more of the pesticide use scenarios evaluated in this HHRA.

Mixer-Loader-Applicator

The mixer-loader-applicator (MLA) represents the combination exposure of a worker who may be occupationally exposed to Proposed Program chemicals while both preparing pesticide solutions (mixing and loading) and applying them. The MLA would work in every category of pest control activities and setting (e.g., residential, nursery, production agriculture, etc.) and is assumed to be exposed through dermal and inhalation routes. Ingestion was not evaluated for this receptor because the applicator is properly trained not to consume treated vegetation.

Mixer-Loader-Applicator Acute Exposure Assessment

Exposure for the MLA was evaluated using the US EPA's Occupational Pesticide Handler Unit Exposure Surrogate Reference Table and the Occupational Pesticide Handler Exposure Database (OPHED) methods described in US EPA Review of Worker Exposure Assessment Methods (US EPA 2013b; US EPA 2007k), with the exception to the analysis on workers handling Dibrom wicks, which utilized empirical data and is described below. The Surrogate Reference Table provides generic "unit exposures" derived from the Pesticide Handler Exposure Database (PHED), the Outdoor Residential Exposure Task Force (ORETF), and the Agricultural Handler Exposure Task Force (AHETF). Unit exposures are the amount of a chemical that is transferred to skin or inhaled per pound of chemical handled. Unit exposures are based on US EPA guideline studies submitted to assist the US EPA in assessing exposures as part of the US EPA's determination if pesticide products meet safety standards required for registration. The US EPA developed unit exposures that are based on the type of pesticide product, the amount of the product handled, the personal protective equipment (PPE) used, and the equipment used to handle and apply the product, but not on the chemicals contained in the product. The US EPA publishes "unit exposures" in a reference table for "surrogate" chemicals, intended for assessing pesticide handler exposures to any pesticides. Thus, the "unit exposures" utilized in this risk assessment reflect the US EPA's extensive empirical database on pesticide handler exposures and their recommended approaches to assessing pesticide handler exposures. These unit exposures are widely utilized by several government agencies, including DPR and OEHHA, as the basis for pesticide exposure assessments and, therefore, are consistent with generally accepted health risk assessment methods for the assessment of the Proposed Program MLA receptor.

For each pesticide active and inert ingredient a dermal and inhalation unit exposure was chosen from the OPHED Surrogate Reference Table (US EPA 2013b) based on its application scenario and pesticide product type (e.g., wettable powder, liquid, etc.). When designating the most accurate unit exposure, all appropriate PPE was assumed to be worn according to the pesticide product label. OPHED only gives one exposure value for the dermal route because it combines soil, vegetation, and equipment dermal exposure together. Specific OPHED application scenarios and PPE chosen for each pesticide product can be found in the supplemental information to this HHRA report.

The mixer-loader (ML) and applicator (A) were conservatively assumed to be the same person in all scenarios; therefore, when the ML and the A needed to be analyzed separately, their risk was summed to find the MLA risk. The ML and the A were analyzed separately in the following instances:

- The pesticide product label called for varying PPE between the ML and the A (e.g., mixed and loaded using water soluble packaging, closed loading system, etc.).
- OPHED provided separate unit exposures for the ML and A.

In the case of varying PPE, the ML and A were evaluated separately because their exposures were substantially different. In cases of separate unit exposures, the ML and A were evaluated separately out of necessity. The ML and A risk results reported separately to display the difference between the activities, but also summed to produce the MLA risk.

In several instances, the pesticide product label required different PPE for the ML than for the A, but the Surrogate Reference Table only allowed the selection of a single PPE option for the MLA unit exposure (e.g. “MLA-backpack sprayer” exists in the table, but “Applicator-backpack sprayer” does not). Having only the MLA unit exposure prevents the ability to specify a different PPE for the A than for the ML. In these cases, a ML unit exposure was selected for the ML reflecting the label required PPE for mixing/loading (e.g. ML-Wettable Powder-Water-soluble packaging), and a MLA unit exposure was selected for the A reflecting the label required PPE for applying (e.g. MLA-Backpack-No respirator). Since summing the ML and A risk would drastically overestimate risk to the MLA, just the A’s risk (estimated using a MLA unit exposure) was reported for the MLA. This method is still protective because the MLA was assumed to be wearing less PPE during mixing/loading than required, therefore will have greater exposure. The ML risk value was reported in order to display a less conservative, but more accurate, representation of the ML.

The special instances described in the paragraph above are shown in Table 1:

Table 1: Mixer-Loader-Applicator Unique OPHED Scenarios

Product	Category of Pest Control Activity	OPHED Scenarios
Diazinon AG500	Fruit Flies	ML-Liquid-Dermal-Engineering control (closed loading system)
		ML-Liquid-Inhalation-Engineering control (closed loading system)
		MLA,Manually-pressurized Handwand-Double layer clothes, gloves
		MLA,Manually-pressurized Handwand-PF5
Entrust Naturalyte Insect Control	LBAM	ML-Wettable Powder-Dermal-Single layer clothes, gloves
		ML-Wettable Powder-Inhalation-PF5
		MLA,Backpack Sprayer-Nursery-Single layer clothes, gloves
		MLA,Backpack Sprayer-Nursery-No respirator
Dursban 50W	Pierce’s disease	ML-Wettable Powder-Dermal-Engineering control (water-soluble packets)
		ML-Wettable Powder-Inhalation-Engineering control (water-soluble packets)
		MLA,Backpack Sprayer-Nursery-Double layer clothes, gloves
		MLA,Backpack Sprayer-Nursery-PF5
	Pierce’s disease	ML-Wettable Powder-Dermal-Engineering control (water-soluble packets)
		ML-Wettable Powder-Inhalation-Engineering control (water-soluble packets)
		MLA,Backpack Sprayer-Nursery-Double layer clothes, gloves
		MLA,Backpack Sprayer-Nursery-PF5
Merit 75 WSP	Pierce’s disease (Foliar)	ML-Wettable Powder-Dermal-Engineering control (water-soluble packets)
		ML-Wettable Powder-Inhalation-Engineering control (water-soluble packets)
		MLA,Backpack Sprayer-Outdoor residential-Single layer clothes, gloves
		MLA,Backpack Sprayer-Outdoor residential-No respirator
	Pierce’s disease (Drench)	ML-Wettable Powder-Dermal-Engineering control (water-soluble packets)
		ML-Wettable Powder-Inhalation-Engineering control (water-soluble packets)
		MLA,Mechanically-pressurized Sprayer Sprayer-Soil-directed-Wettable Powders-Single layer clothes, gloves
		MLA,Mechanically-pressurized Sprayer Sprayer-Soil-directed-Wettable Powders-No respirator

The MLA's average daily dose (ADD) was estimated using the application rate, the number of acres a single worker treats per day, the OPHED unit exposure, and the worker's body weight, assumed to be 80 kg (US EPA, 2011p).

Dibrom wicks are absorbent pieces of material that the MLA soaks with Dibrom 8 Emulsive using a liquid dropper then places the soaked material within the trap. The MLA's inhalation ADD for Dibrom wicks was estimated using the concentration of naled/DDVP in the air, the amount of air the worker was expected to breathe in an hour, the number of hours worked per day, and the worker's body weight, which was assumed to be 80 kg (US EPA, 2011p). For purposes of this risk assessment, the MLA was assumed to breathe 0.667 m^3/hour (US EPA, 2011p) and to work 8 hours per day. The method for estimating the MLA's inhalation ADD was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute inhalation exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitation for additional details. Dermal exposure to Dibrom wicks was assumed to be de minimus because gloves have been observed to be protective (NIOSH, 1994).

For the methods for estimating concentrations of naled/DDVP in the air, refer to Section 2.3.1.

Mixer-Loader-Applicator Chronic Non-cancer Exposure Assessment

The MLA's lifetime average daily dose (LADD) of pesticide active and inert ingredients, except naled/DDVP, was estimated by extrapolating the worker's single day exposure to a long-term exposure. In order to make this extrapolation, the ADD was multiplied by the number of applications made per year and the number of years a worker is expected to be exposed, and then divided by the total duration of time assessed.

The MLA's LADD for naled/DDVP was estimated in the same method as the ADD, but then it was extrapolated to reflect a long-term exposure. The concentration of naled/DDVP estimated to be in the air was multiplied by the amount of air the worker was expected to breathe per hour, the number of hours worked per day, the number of days the worker sets traps per year, and the number of years the worker was expected to be exposed. This value was then divided by the total duration of time assessed and the worker's body weight, assumed to be 80 kg (US EPA, 2011p).

Based on CDFA's expert opinion, the expected number of work years for a pesticide handler involved in Proposed Program pesticide applications is 20 year. Accordingly, for the purposes of this risk assessment, the exposure duration of the MLA is assumed to be 20 years.

For the methods for estimating concentrations of naled/DDVP in the air, refer to Section 2.3.1.

Mixer-Loader-Applicator Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

Post-Application-Loader

The post-application-loader (PAL) represents a worker at a nursery who may be occupationally exposed to pesticide active and inert ingredient residues while loading plants that have been treated under the Proposed Program onto trucks for transport. Loading was assumed to occur after the re-entry interval (REI) had past. The REI is a specified time period that must occur before anyone can enter the application site area. The PAL was assumed to have the potential to be exposed through dermal contact with vegetation after foliar treatments and soil while handling pots.

Post-Application Loader Acute Exposure Assessment

Dermal Exposure to Vegetation

US EPA's *Standard Operating Procedures for Residential Pesticide Exposure Assessments* (SOP) (US EPA, 2012l) was used to estimate dermal exposure to residues on treated vegetation. This method assumes that pesticide active and inert ingredient residues are transferred to the skin of adults who come into contact with treated foliage.

The first step of the SOP methodology was to estimate the DFR of the desired pesticide active or inert ingredient. The DFR represents the amount of material on the surface of a plant that is available for dermal transfer to a receptor's skin after an application has occurred (US EPA, 2012l).

In order to estimate the amount of dermal transfer of residue from leaf surface to the skin, a transfer coefficient (Tc) specific for orchard maintenance was chosen from US EPA's *Science Advisory Council for Exposure (ExpoSAC) Policy 3* (US EPA, 2013c). ExpoSAC Policy 3 provides an extensive table of transfer coefficients, which correspond to various crop types and worker activities. When the crop or activity choices in ExpoSAC could not be matched to the application scenario, a surrogate was used. In the case of the Proposed Program PAL, an individual performing "orchard maintenance" was chosen, resulting in a Tc of 100 cm^2/hour. ExpoSAC guidance is commonly used by government agencies as a basis for pesticide exposure assessments and, therefore, is consistent with generally accepted risk assessment methods for the assessment of the Proposed Program PAL receptor. Refer to Section 4.1.2 Model Limitation for uncertainty associated with choosing surrogates in ExpoSAC.

The PAL's potential dose rate (PDR) was estimated using the DFR, the surface-to-skin transfer factor, the number of hours worked per day, and the worker's body weight. The PAL was assumed to work 8 hours per day and to weigh 80 kg (US EPA, 2011p).

For additional details of the methods for estimating the surface residue on foliage, refer to Section 2.3.1.

Dermal Exposure to Soil

The PAL was assumed to come into contact with soil while picking up potted plants.

Acute dermal exposure to soil (SDE) was estimated using the acute concentration of chemicals estimated to be in soil after an application, the surface area of a loader's hand that was expected to be exposed, a soil-to-skin adherence factor, and the number of times the loader was expected to come in contact with treated soil. For the purposes of this risk assessment, a fifth of the 95th percentile adult male hands surface area of 0.131 m^2, selected from US EPA's *Exposure Factors Handbook: 2011 Edition* (US EPA, 2011p), was used to represent the portion of the loader's hand that contacts the inside of a pot. A Department of Toxic Substances Control (DTSC) soil adherence factor of 0.2 mg/cm^2 was chosen (DTSC, 2011a), and the PAL was conservatively assumed to contact soil once every second of a 1 hour loading shift (i.e., 3600 times per hour). The SDE was normalized by the loader's body weight, assumed to be 80 kg (US EPA, 2011p), in order to estimate the ADD. The method for estimating the PAL's dermal ADD for soil was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute dermal exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitation for additional details.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Estimating Pesticide Environmental Concentrations Section 2.3.1.

Post-Application Loader Chronic Non-cancer Exposure Assessment

Dermal Exposure to Vegetation

The PAL's LADD was estimated by extrapolating the worker's single day exposure to a long-term exposure. In order to complete this extrapolation, the PDR was multiplied by the number of applications made per year and the number of years the worker was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the loader was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

Dermal Exposure to Soil

The PAL's chronic SDE was estimated in the same method as acute SDE, but using a chronic pesticide active or inert ingredient concentration in soil instead of acute. In order to estimate the PAL's LADD, the chronic SDE was multiplied by the number of applications made per year and the number of years the worker was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the loader was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to the Section 2.3.1.

Post-Application Loader Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

Combined-Nursery-Worker

The combined-nursery-worker (CNW) represents a combination exposure of a worker employed at a nursery that may be occupationally exposed to Proposed Program chemicals while preparing pesticide solutions and applying them, as well as loading the treated plants into a truck for transport. In other words, under this receptor analysis, the mixer-loader-applicator and post-application-loader were considered to be the same individual.

In order to estimate the CNW's exposure, the MLA's and the PAL's exposure values were summed. For additional details about MLA and PAL exposure, refer to the Mixer-Loader-Applicator exposure assessment and the Post-Application-Loader exposure assessment.

Post-Application-Worker

The post-application-worker (PAW) represents a worker at a production agriculture facility who may be occupationally exposed to chemical residues while harvesting crops that have been treated under the Proposed Program. Harvesting was assumed to occur after the REI had past. Accidental exposures to post-application workers violating the REI was not evaluated as compliance with regulations was assumed. The PAW has the potential to be exposed to residues on vegetation and soil through dermal contact. The PAW was also assumed to be exposed to the ingredients of Proposed Program traps/lures through the inhalation pathway due to the possibility that harvesting may occur in the vicinity of traps/lures. Post-application inhalation exposure was expected to be de minimis, and the PAW was not expected to consume recently treated vegetation.

Post-Application-Worker Acute Exposure Assessment

Dermal Exposure to Vegetation

In accordance with US EPA's *Science Advisory Council for Exposure (ExpoSAC) Policy 3* (US EPA, 2013c), a US EPA SOP (US EPA, 2012l) method was utilized for the PAW characterization in order to estimate post-application dermal potential doses from pesticide residues while harvesting fruit from trees. This method assumes that chemical residues are transferred to the skin of adults who come into contact with treated fruit trees while harvesting fruit. Moreover, this method estimates post-application dermal exposure from residues based on assumptions when adequate site-specific field data is unavailable.

The first step of the SOP methodology was to estimate the DFR of the desired pesticide active or inert ingredient. The DFR represents the amount of material on the surface of a plant that is available for dermal transfer to a receptor's skin after an application has occurred (US EPA, 2012l).

In order to estimate the amount of dermal transfer of residue from leaf surface to the skin, a transfer coefficient (Tc) specific for harvesting hands was chosen from US EPA's ExpoSAC Policy 3 (US EPA, 2013c). ExpoSAC Policy 3 provides an extensive table of transfer coefficients, which correspond to various crop types and worker activities. When the crop or activity choices in ExpoSAC could not be directly matched to the application scenario, a surrogate was used. In the case of the Proposed Program PAW, a "harvesting hand" picking oranges was chosen, resulting in a Tc of 1400 cm^2/hour. ExpoSAC guidance is commonly used by government agencies as a basis for pesticide exposure assessments and, therefore, was consistent with generally accepted risk assessment methods for the assessment of the Proposed Program PAW receptor. Refer to Section 4.1.2 Model Limitations for uncertainty associated with choosing surrogates in ExpoSAC.

The DFR was estimated by taking the application rate and factoring in the percent of material retained on the foliage after application, the fraction of residue that dissipates from the leaf surface per day, and the number of days that had passed since the initial application. In order to estimate the PAW's PDR, the DFR was multiplied by the surface-to-skin transfer factor and the number of hours worked per day, and normalized by the worker's body weight. The percent material retained to foliage was assumed to be 80% (US EPA, 2006q), the daily dissipation fraction was assumed to be 0.1 (US EPA, 2012l), and in most cases, the days post application was assumed to be zero, unless a pesticide product label REI was specified (US EPA, 2012l). An ExpoSAC Tc of 1400 cm^2/hour was chosen for the Proposed Program PAW, who was also assumed to work 8 hours per day and to weigh 80 kg (US EPA, 2011p).

Dermal Exposure to Soil

The PAW was only expected to be working with soil for control of fruit flies, and all other soil dermal exposures in categories of pest control activities were considered de minimus. With the exception of fruit fly control activities, The PAW performs harvesting work primarily with either ground crops or tree crops, requiring limited, if any, exposure to soil. Fruit fly control activities are the only activities that may potentially treat crops close to the soil.

Acute SDE was estimated using the acute concentration of pesticide active or inert ingredient estimated to be in soil after an application, the surface area of a harvester's hand, a soil-to-skin adherence factor, and the number of times the harvester was expected to come in contact with treated soil. For the purposes of this risk assessment, the 95^{th} percentile adult male hands surface area of 0.131 m^2 was selected from US EPA's *Exposure Factors Handbook: 2011 Edition* (US EPA, 2011p) to represent the PAW. A California Department of Toxic Substances Control (DTSC) soil adherence factor of 0.2 mg/cm^2 was chosen (DTSC, 2011a), and the PAW was conservatively assumed to contact soil once every second of an 8 hour work day. The SDE was normalized by the worker's body weight, assumed to be 80 kg (US EPA, 2011p), to estimate the ADD. The method for estimating the PAW's dermal ADD was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute dermal exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Section 2.3.1.

Inhalation of Vapor from Traps/Lures

When traps/lures were applied in production agriculture settings, the PAW had the potential to be exposed to the vapors.

The PAW's ADD was estimated using the concentration of trapping agent or lure estimated to be in the air, the amount of air the worker breathes per hour, and the number of hours worked per day. The exposure was then normalized for the PAW's body weight, assumed to be 80 kg (US EPA, 2011p). For purposes of this risk assessment, the PAW was assumed to breathe 0.667 m^3/hour (US EPA, 2011p) and to work 8 hours per day. The method for estimating the PAW's inhalation ADD for traps/lures was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute inhalation exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating concentrations of trapping agents and lures in the air, refer to Section 2.3.1.

Post-Application-Worker Chronic Non-cancer Exposure Assessment

Dermal Exposure to Vegetation

The PAW's LADD was estimated by extrapolating the worker's single day exposure to a long-term exposure. In order to complete this extrapolation, the PDR was multiplied by the number of applications made per year and the number of years the worker was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the worker was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

Dermal Exposure to Soil

The PAW's chronic SDE was estimated in the same method as acute SDE, but using the chronic chemical concentration in soil instead of acute. In order to estimate the PAW's LADD, the chronic SDE was multiplied by the number of applications made per year and the number of years the worker was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the worker was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Section 2.3.1.

Inhalation of Vapor from Traps/Lures

The PAW's LADD was estimated in the same method as the ADD, but then it was extrapolated to reflect a long-term exposure. This extrapolation was completed by multiplying the ADD by the maximum number of days per year a worker could be working near a trap/lure and the number of years a worker is expected to be exposed. This value was then divided by the total duration of time assessed and the worker's body weight, assumed to be 80 kg (US EPA, 2011p). The maximum number of days per year a worker could be working near a trap/lure was estimated by multiplying the number of reapplications per year by the reapplication interval. Based on CDFA's expert opinion, the worker was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

For the methods for estimating concentrations of trapping agents and lures in the air, refer to Section 2.3.1.

Post-Application-Worker Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

Downwind-Bystander

The downwind bystander (DWB) represents any adult or child that is downwind from an application site and has the potential to be exposed to off-site drift. In accordance with US EPA's *Overview of Issues Related to the Standard Operating Procedures for Residential Exposure Assessment* (US EPA, 1999f), the DWB was assumed to be 25 feet away from the application site. When ground equipment is used, the DWB was assumed to be exposed to drift through inhalation, and when airblast and aerial equipment is used, the bystander was assumed to receive both inhalation and dermal exposure. Exposure was assumed to be de minimus for a bystander during soil drench and trap/lure applications. Both an adult bystander and a child bystander assessment were completed.

Due to the fact that the DWB would most likely be a resident, three life-stages were considered in the analysis. The first life-stage, the infant, was considered to be between the ages of 0 to <2 years old and was assumed to have inconsequential exposure to drift from pesticide active or inert ingredients applied under the Proposed Program. This inconsequential exposure assumption for the infant is made under the assumption that infants spend most of their time indoors under supervision of an adult. Furthermore, infants are believed to spend only a few hours, if any, outdoors in areas affected by drift. The second life-stage, the child, was considered to be between the ages of 2 to <16 years old (US EPA 2005q), and the final life-stage, the adult, was considered to be age 16 to 40 years old (DTSC 2011a).

Downwind-Bystander Acute Exposure Assessment

Exposure for the DWB was estimated using a pesticide flagger as a surrogate (US EPA, 1999f). US EPA's *Occupational Pesticide Handler Unit Exposure Surrogate Reference Table* and the *Occupational Pesticide Handler Exposure Database* (OPHED) methods described in US EPA *Review of Worker Exposure Assessment Methods* (US EPA 2013b; US EPA 2007k) were used to characterize the exposure a flagger would receive from a given application. For additional details on OPHED, refer to the Mixer-Loader-Applicator exposure assessment.

In all cases, unit exposures for a "Flagger" exposed to liquids were selected from the Surrogate Reference Table (US EPA, 2013b). Due to the fact that the DWB is not directly involved in the application, PPE required by the label was irrelevant to the assessment, and the DWB was assumed to be wearing a single layer of clothes with no gloves and no respirator.

The percent of pesticide active or inert ingredient that drifts 25 feet from the application site was modeled using AgDRIFT Version 2.1.1 (US EPA, 2010p). For details on how AgDRIFT was used to estimate off-site drift, refer to Pesticide Off-target Drift in Section 2.3.1: Estimating Pesticide Environmental Concentrations.

The DWB's ADD was estimated using the application rate, the percent off-site drift, the acres treated per day, the OPHED unit exposure, and the bystander's body weight, which was assumed to be 80 kg for an adult and 18.6 kg for a child (US EPA, 2011p).

Downwind-Bystander Chronic Non-cancer Exposure Assessment

The DWB's LADD to pesticide active and inert ingredients was estimated by extrapolating the DWB's single-day exposure to a long-term exposure. In order to make this extrapolation, the ADD was multiplied by the number of applications made per year and the number of years the DWB is expected to be exposed, and then divided by the total duration of time assessed. In a residential setting, the DWB was assumed to have the potential to be exposed for a duration of 3 years, which, based on CDFA's expert opinion, is the maximum consecutive years Proposed Program treatments would ever be expected to occur at a single residence. For a DWB living next to a production agriculture field or a nursery, the exposure duration was assumed to be 24 years for an adult (DTSC, 2011a) and 14 years for a child (US EPA, 2005q).

Downwind-Bystander Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

In order to consider a resident who may live next to a production agriculture facility or nursery his/her entire life, an aggregate lifetime downwind bystander was analyzed by summing the cancer risk for the child DWB and the adult DWB. For additional details on summing risk values, refer to Risk Characterization Section 2.4.

Post-Application-Resident

The post-application-resident (PAR) represents a typical individual living in an urban or residential environment who has the potential to come into contact with pesticide active or inert ingredient residues after residential treatments conducted under the Proposed Program. The PAR was conservatively assumed to be active in the gardens and trees on his/her property and to consume homegrown produce. An adult resident was assumed to be exposed to residues on plant surfaces and soil through dermal contact and through ingestion of treated produce. A child resident was assumed to be exposed to residues on plant surfaces and soil through dermal contact, incidental ingestion of residues on vegetation from hand-to-mouth activity, and ingestion of treated produce and soil. Both the adult and child were expected to have the potential to be exposed to trapping agents and lures through the inhalation pathway, due to the possibility that a trap/lure may be placed in a residential setting. Post-application inhalation exposure to pesticide active or inert ingredient air concentrations was considered de minimus.

For the purposes of this risk assessment, the resident was analyzed over three life-stages. The first life-stage, the infant resident, was considered to be between the ages of 0 to <2 years old and was assumed to have negligible exposure to pesticide active and inert ingredients applied under the Proposed Program due to lack of activity in typically treated areas. Infants spend most of their time indoors and away from areas affected by Proposed Program treatments. When outdoors, infants are typically under adult supervision and are less mobile than children over the age of 2 years old; therefore, are less likely to spend a significant duration of time in treated areas. The second life-stage, the child resident, was considered to be between the ages of 2 to <16 years old (US EPA 2005q) and was conservatively assumed to spend time playing in treated areas. The final life-stage, the adult resident, was considered to be 16 to 40 years old (DTSC 2011a).

Post-Application-Resident Acute Exposure Assessment

Dermal Exposure to Vegetation

Both the adult PAR's and child PAR's dermal exposure to pesticide active or inert ingredient residues on vegetation were assessed using US EPA's SOP (US EPA, 2012l). US EPA's SOP provides Microsoft Excel-based models to estimate residential exposure associated with various activities and settings. For this particular dermal assessment, the SOP for Gardens and Trees was selected. The "Gardens" category within the Gardens and Trees SOP was used to estimate exposure in almost all cases; the only exception is that the "Trees" category was selected for the use of pesticide products for control of Pierce's disease and the application of Sevin SL in the Pest Detection/Emergency Program - Eradication.

The first step of the Gardens and Trees SOP equation was to estimate the DFR of the desired pesticide active or inert ingredient. The DFR represents the amount of material on the surface of a plant that is available for dermal transfer to a receptor's skin after an application has occurred (US EPA, 2012l).

The SOP makes use of transfer coefficients (Tc) to estimate the transfer of residue from leaf-surface to skin. These Tcs were derived from occupational reentry exposure studies conducted by the Agricultural Reentry Task Force meant to represent likely residential activities performed in gardens or trees. The Tcs recommended by the SOP for use in garden settings were 8,400 cm^2/hour for an adult and 4,600 cm^2/hour for a child age 6 to < 11 years old. For assessing activities in tree settings, the Tcs were 1,700 cm^2/hour for adults and 930 cm^2/hour for children 6 to <11 years old (US EPA, 2012l).

The index life-stage for a child assessed in the Gardens and Trees SOP was 6 to <11 years old because "it is assumed that younger children (i.e., <6 years old) won't utilize these areas for playing nor engage in the types of activities associated with these areas (e.g., gardening or picking fruits) to the extent that older children will" (US EPA, 2012l). The default exposure factors used in the SOP were left unchanged for the adult and child PAR.

In order to estimate the PAR's ADD, the DFR was multiplied by the surface-to-skin transfer factor and the number of hours per day the resident was expected to be exposed, and then divided by the resident's body weight. The SOP assumed the adult was exposed for 2.2 hours per day and weighed 80 kg (US EPA, 2012l). The child was assumed to be exposed for 1.1 hours per day and weighed 32 kg (US EPA, 2012l).

For additional details of the methods for estimating the surface residue on foliage, refer to Section 2.3.1.

Dermal Exposure to Soil

PAR dermal exposure to pesticide active or inert ingredient residues in soil was evaluated for soil drench applications only. The exposures assessed for dermal contact with soil after a drench treatment and dermal contact with treated vegetation after foliar treatment were considered protective of the exposure a resident would receive from dermal contact with soil after a foliar treatment.

Acute SDE was estimated using the acute concentration of pesticide active or inert ingredient estimated to be in soil after an application, the resident's surface area that typically contacts soil, a soil-to-skin adherence factor, the number of times the resident is expected to come in contact with treated soil per day, and the resident's body weight. For the purposes of this risk assessment, a DTSC surface area of 5,700 cm^2/event was selected for the adult and 2,900 cm^2/event for the child (DTSC, 2011a). A soil adherence factor of 0.07 mg/cm^2 was chosen for the adult and an adherence factor of 0.2 mg/cm^2 was used for the child (DTSC, 2011a). Both the PAR adult and child were assumed to contact soil 71 times per hour, based on the 90th percentile soil contact rate of both hands of a child age 1 to 5 years old (US EPA, 2011p). The PAR was conservatively assumed to spend 16 hours per day outside in treated areas and to have a body weight of 80 kg for an adult and 18.6 kg for a child (US EPA, 2011p). The method for estimating the PAR's dermal ADD for soil was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute dermal exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Section 2.3.1.

Ingestion of Treated Vegetation

Exposure to Proposed Program-applied pesticide active and inert ingredients via ingestion of treated vegetation was evaluated for both the PAR adult and child. Methods from the US EPA's *Risk Assessment Guidance for Superfunds* (RAGS) (US EPA, 1989e) and exposure factors from US EPA's *Exposure Factors Handbook: 2011 Edition* (EFH)(US EPA, 2011p) were used in this assessment.

The PAR's acute intake (AI) was estimated by multiplying the acute concentration of pesticide active or inert ingredient estimated to be in and on the edible tissue by the amount of vegetation a resident was expected to consume per day relative to his/her body weight. The PAR adult assessment used a vegetation ingestion rate of 0.57 g/kg-day, based on mean citrus intake for adults 50 years and older, from EFH (US EPA, 2011p). The vegetation ingestion rate for an adult age 50 years and older was used because it was more health-protective than the rate provided for other age brackets starting and ending in the assessed life-stage of an adult. The PAR child assessment used a vegetation ingestion rate of 2.5 g/kg-day, based on the mean citrus intake for a 3 to 5 year old child (US EPA, 2011p).

Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute exposure due to ingestion of treated vegetation, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model for additional details.

For the methods for estimating concentrations of pesticide active and inert ingredients in and on plant tissue, refer to Section 2.3.1.

Incidental Ingestion of Vegetation Residues

The PAR child was assumed to potentially come into contact with Proposed Program-applied pesticide active and inert ingredients by contacting residues on vegetation and then transferring that residue from his/her hand to mouth. Estimations of incidental ingestion for the PAR child are considered health protective of the PAR adult.

US EPA's SOP (US EPA, 2012l), specifically the Lawns/Turf SOP, was the method used for this exposure assessment. Although the Gardens and Trees SOP would have been the more ideal method, it did not include a hand-to-mouth analysis; therefore, Lawns/Turf was chosen as a conservative surrogate. As described in the Dermal Exposure to Vegetation assessment, the index life-stage for child residents contacting residues in gardens and trees was 6 to <11 years of age; however, the Lawns/Turf SOP hand-to-mouth assessment did not provide exposure factors for this life-stage. Instead, exposure factors for a child age 3 to <6 years old were used, as they are believed to be more conservative.

In accordance with the SOP, the dermal contact with vegetation exposure value, which was estimated in the Dermal Exposure to Vegetation assessment, was multiplied by the fraction of residue on the child's hands compared to total surface residue. The result was then divided by the typical surface area of a child's hands to estimate the potential amount of residue available on the PAR child's hands. In order to find the ADD, the SOP then factored in the fraction of hand surface area mouthed each event, the typical surface area of one hand, the number of hours per day the child may be exposed, the number of times the child contacts treated vegetation per hour, the fraction of residue removed from saliva, the frequency of hand-to-mouth contacts per hour, and the child PAR's body weight (US EPA, 2012l). Exposure factors for a child 3 to <6 years old, provided in the Lawns/Turf SOP (US EPA, 2012l), and a body weight of 18.6 kg (US EPA, 2011p) were used to complete the exposure assessment.

Ingestion of Soil

PAR exposure to chemical residues in soil through ingestion was evaluated for soil drench applications only. The exposures assessed for ingestion of soil after a drench treatment and incidental ingestion of residues on treated vegetation after foliar treatment were considered protective of the exposure a resident would receive from dermal contact with soil after a foliar treatment and incidental ingestion of residues on soil from hand-to-mouth activity after a drench treatment.

The PAR child was assumed to potentially be exposed to Proposed Program-applied pesticide active and inert ingredient residues by intentionally ingesting soil. Estimations of ingestion of soil for the PAR child are considered health protective of the PAR adult.

Methods from the US EPA's *Risk Assessment Guidance for Superfunds* (RAGS) (US EPA, 1989e) and exposure factors from US EPA's *Exposure Factors Handbook: 2011 Edition* (EFH) (US EPA, 2011p) were used in this assessment.

The PAR child's AI of residues on soil was estimated using the concentration of pesticide active or inert ingredient estimated to be in soil by a soil ingestion rate, the fraction of soil ingested that had been treated, and the child's body weight, which was assumed to be 18.6 kg (US EPA, 2011p). A soil ingestion rate of 1,000 mg soil/day was chosen from US EPA EFH (US EPA, 2011p) and was based on the ingestion by a child of age 1-<21 years old engaging in pica behavior (i.e., intentional ingestion of soil). The fraction of soil ingested from a treated site was conservatively assumed to be 100%.

Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute soil ingestion, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to the Section 2.3.1.

Inhalation of Vapor from Traps/Lures

When traps/lures were applied in residential settings, the PAR had the potential to be exposed to trapping agent and lure vapors.

The PAR's AI was estimated using the concentration of trapping agent or lure estimated to be in the air, the amount of air the resident breathes per hour, and the number of hours per day the resident may be in the vicinity of the trap. The exposure was then normalized for the PAR's body weight, assumed to be 80 kg for an adult and 18.6 kg for a child (US EPA, 2011p). For purposes of this risk assessment, the PAR adult was assumed to breathe 0.667 m^3/hour (US EPA, 2011p) and to be near a trap for 16 hours per day. The PAR child was assumed to breathe 0.421 m^3/hour (US EPA, 2011p) and to be near a trap for 16 hours per day. The method for estimating the PAR's inhalation ADD for traps/lures was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute inhalation exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating concentrations of trapping agents and lures in the air, refer to Section 2.3.1.

Post-Application-Resident Chronic Non-cancer Exposure Assessment

Dermal Exposure to Vegetation

The PAR's LADD was estimated by extrapolating the resident's single day exposure to a long-term exposure. In order to complete this extrapolation, the ADD was multiplied by the number of applications made per year and the number of years the resident was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the duration of Proposed Program treatments at a single residence was assumed to be 3 years, which would be an estimate of the longest period of yearly treatment intervals for residential programs.

Dermal Exposure to Soil

The PAR's chronic SDE was estimated in the same method as acute SDE, but using the chronic chemical concentrations in soil instead of acute. In order to estimate the PAR's chronic daily intake (CDI), the chronic SDE was multiplied by the number of applications made per year and the number of years the resident was expected to be exposed, and then divided by the total duration of time assessed. For the reasons described previously, the duration of Proposed Program treatments at a single residence was assumed to be 3 consecutive years.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Section 2.3.1.

Ingestion of Treated Vegetation

The PAR's chronic exposure to chemical residues in and on vegetation was estimated in the same method as acute exposure, but using a chronic residue concentration in and on vegetation instead of acute. The CDI was estimated by factoring in the number of applications made per year and the number of years the resident is expected to be exposed, and then averaging over the total duration of time assessed. For the reasons described previously, the duration of Proposed Program treatments at a single residence was assumed to be 3 consecutive years.

For the methods for estimating concentrations of pesticide active and inert ingredients in and on plant tissue, refer to Section 2.3.1.

Incidental Ingestion of Vegetation Residues

The PAR child's LADD was estimated by extrapolating the child's single day exposure to a long-term exposure. In order to complete this extrapolation, the ADD was multiplied by the number of applications made per year and the number of years the resident was expected to be exposed, and then divided by the total duration of time assessed. For the reasons described previously, the duration of Proposed Program treatments at a single residence was assumed to be 3 consecutive years.

Ingestion of Soil

The PAR child's chronic exposure to pesticide active or inert ingredients in soil through ingestion was estimated in the same method as acute exposure, but using a chronic soil concentration instead of an acute soil concentration. The CDI was estimated by factoring in the number of applications made per year and the number of years the resident is expected to be exposed, and then averaging over the total duration of time assessed. For the reasons described previously, the duration of Proposed Program treatments at a single residence was assumed to be 3 consecutive years.

For the methods for estimating concentrations of pesticide active and inert ingredients in soil, refer to Section 2.3.1.

Inhalation of Vapor from Traps/Lures

The PAR's CDI was estimated in the same method as the AI, but then it was extrapolated to reflect a long-term exposure. In order to complete this extrapolation, the AI was multiplied by the maximum number of days per year a resident may be near a trap/lure and the number of years a resident was expected to be exposed. This value was then divided by the total duration of time assessed. The maximum number of days per year a resident could be in the vicinity of a trap/lure was estimated by multiplying the number of reapplications per year by the reapplication interval. For the reasons described previously, the duration of Proposed Program treatments at a single residence was assumed to be 3 consecutive years.

For the methods for estimating concentrations of trapping agents and lures in the air, refer to Section 2.3.1.

Post-Application-Resident Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

During & Post-Application Resident

The during-and-post-application-resident (DPAR) represents a combination exposure of a resident who is downwind at the time his/her property is being treated, and who has the potential to be exposed to the pesticide active or inert ingredient residues on the treated vegetation after the application. In other words, under this receptor analysis, the downwind-bystander and the post-application-resident were considered to be the same individual. Both the adult and the child were analyzed.

In order to estimate the DPAR's exposure, the DWB's and the PAR's exposure values were summed. For additional details about DWB and PAR exposure, refer to the Downwind-Bystander exposure assessment and the Mixer-Loader-Applicator exposure assessment.

Fumigation Worker

The fumigation-worker (FUW) represents a worker employed at a commodity fumigation facility who has the potential to be exposed during any fumigation activity, including but not limited to applying the fumigant in the fumigation chamber, aerating the chamber, or using a forklift to unload the commodity from the chamber. Fumigations may occur in shipping, packaging, and transport environments in sea vans or chambers, and all fumigation activities were assumed to be performed according to appropriate fumigation guidelines. The FUW was expected to be exposed to Proposed Program-applied fumigants through the inhalation route. Dermal exposure was assumed to be de minimis when compared to the inhalation route.

Due to the lack of fumigation exposure monitoring data representing current fumigation standards, the FUW was analyzed qualitatively. CDPR's assumptions of worker exposure, reported in *Methyl Bromide Risk Characterization Document, Volume 1: Inhalation Exposure* (CDPR, 2002f), and the modeling used to estimate those exposures, contained in *Reference Manual: Methyl Bromide Commodity Fumigation* (CDPR, 1994c), were reviewed and deemed appropriate for this risk assessment. Fumigation facilities and workers were expected to follow the permit conditions reported in *Appendix C, Department of Pesticide Regulation Recommended Permit Conditions* (CDPR, 2012e) in order to reduce exposure to a methyl bromide concentration such that adverse health effects are minimized.

Fumigation Downwind Bystander

The fumigation-downwind-bystander (FDWB) represents an individual downwind from a commodity fumigation site that has the potential to be exposed to fumigants through off-site drift. Fumigations may occur in shipping, packaging, and transport environments in sea vans or chambers, and all fumigation activities were assumed to be performed according to appropriate fumigation guidelines. The FDWB was expected to be exposed to Proposed Program-applied fumigants through the inhalation route. Dermal exposure was assumed to be de minimis when compared to the inhalation route.

Due to the lack of fumigation exposure monitoring data representing current fumigation standards, the FDWB was analyzed qualitatively. CDPR's assumptions of residential exposures, reported in *Methyl Bromide Risk Characterization Document, Volume 1: Inhalation Exposure* (CDPR, 2002f), and the modeling used to estimate those exposures, contained in *Reference Manual: Methyl Bromide Commodity Fumigation* (CDPR, 1994c), were reviewed and deemed appropriate for this risk assessment. Fumigation facilities were expected to follow the permit conditions reported in *Appendix C, Department of Pesticide Regulation Recommended Permit Conditions* (CDPR, 2012e) in order to reduce exposure) in order to reduce exposure to a methyl bromide concentration such that adverse health effects are minimized.

Post-Transfer Worker

The post-transfer-worker (PTW) represents a worker employed at a post-transfer receiving facility who has the potential to be exposed to fumigant that has off-gassed from treated commodity during transport. Post-transfer worker inhalation exposure may occur as a result of unloading treated commodities from transport containers after fumigations conducted under the for control of ACP and fruit flies. Ingestion and dermal are not evaluated for this receptor because the PTW is assumed not to consume treated commodities and dermal penetration is considered negligible relative to inhalation exposure for fumigants.

Post-Transfer Worker Exposed to Fumigants Acute Exposure Assessment

The PTW's AI was estimated using the concentration of off-gassed fumigant estimated to be in the air, the amount of air the worker breathes per hour, and the number of hours worked per day. The exposure was then normalized for the PTW's body weight, assumed to be 80 kg (US EPA, 2011p). For purposes of this risk assessment, the PTW was assumed to breathe 0.667 m^3/hour (US EPA, 2011p) and to work 1 hour per day. The method for estimating the PTW's ADD was based on US EPA's Risk Assessment Guidance for Superfunds (RAGS) (US EPA, 1989e). Although RAGS is most commonly used to estimate continuous exposure, it was used to estimate acute inhalation exposure, in this case, due to lack of appropriate alternative methodology. Refer to Section 4.1.2 Model Limitations for additional details.

For the methods for estimating the concentration of fumigant in the air that off-gassed from treated commodities, refer to Section 2.3.1.

Post-Transfer Worker Exposed to Fumigants Chronic Non-cancer Exposure Assessment

The PTW's LADD was estimated by extrapolating the worker's single day exposure to a long-term exposure. In order to complete this extrapolation, the AI was multiplied by the number of applications made per year and the number of years the worker was expected to be exposed, and then divided by the total duration of time assessed. Based on CDFA's expert opinion, the worker was assumed exposed for no more than 20 work years as part of applications made under the Proposed Program.

Post-Transfer Worker Exposed to Fumigants Cancer Exposure Assessment

When estimating chronic exposure for cancer assessments, the same methods were followed as in the chronic non-cancer assessment, except that total duration of time assessed was equal to a lifetime (70 years) rather than the duration of exposure (OEHHA, 2012c).

Conceptual Site Models

A conceptual site model (CSM) is a written and graphical presentation of predicted relationships among chemical sources (pesticide application scenario) and receptor exposure (i.e. inhaling pesticide, dermal contact with pesticide, or ingestion of pesticide). It includes a description of the complete exposure pathways and outlines the primary release mediums, impacted media, and potential routes of exposure for each receptor. A complete exposure pathway is how a chemical can be traced, or expected to travel, from a source (application of chemical) to a plant, soil, air and eventually a human receptor that can be affected by that chemical. An exposure pathway that is not complete means that it is unlikely for that human receptor to be exposed to the chemical by that means. Each human health CSM covers the multiple pathways through which human receptors can be exposed to pesticide active and inert ingredients applied as part of a Proposed Program activity.

The starting point of the CSMs is the application technique which determines the first release of the chemical into the environment. The different possible pesticide application techniques addressed in this HHRA are: fumigation, trapping, spray (ground or aerial), soil treatment, and tablets inserted in the soil. The next exposure step following an application depends on the environmental media that the chemical reaches after application. These chemical residues may occur in the soil, air, water, the treated crop, as well as non-target plants and possibly humans (i.e. applicator) present at the time of the application. In nonagricultural settings, native or ornamental plants as well as the soil beneath them will retain chemical residues. The target plants or other plants present within the treated area can acquire residues via direct application as well as from uptake from the soil. Soil uptake is particularly prevalent following direct soil applications.

Following a spray application, the potential exists for off-site movement via aerial drift (hereinafter referred to as "drift") such that residues of the chemicals may be present in surface water and adjacent untreated areas. Downwind bystanders may be present and be exposed to chemicals by aerial drift through the inhalation or dermal pathways.

Once the chemical residue is present in various environmental media, three routes of exposure exist for a human receptor to become exposed: ingestion, dermal, and inhalation. For activity-specific CSMs, refer to the Conceptual Site Model sections within activity-specific subsections in section 3.

2.4 Risk Characterization

The risk characterization compared estimates of pesticide active or inert ingredient receptor exposure (e.g., ADD, AI, LADD, CDI) with receptor-specific toxicity values (NO(A)ELs, CSFs) to arrive at an estimate of risk for each receptor.

2.4.1 Non-Cancer Effects

The method used to quantify non-cancer risk for each pesticide active or inert ingredient is the MOE. This unit measures how close the receptor's daily intake is to the NO(A)EL, or, in other words, how close a pesticide or inert ingredient exposure is to being a concern. The MOE approach accounts for uncertainty in inter-species extrapolation and intra-species variation through the use of two 10x safety factors for a total of 100 target MOE. Thus, MOEs greater than 100 are typically not considered to be of concern (US EPA 2007k). Further interpretation of the MOE value is dependent on whether the toxicity data are from animals or humans. It should be noted that MOEs are not probabilistic statements of risk.

The generic formula for estimating a MOE is as follows:

MOE = Toxicity (mg/kg-day) / ADD (mg/kg-day)

Where:

MOE = Margin of Exposure (unitless)

ADD = Average Daily Dose

In situations where multiple pathways are present, multiple applications are made, or when applications are made with more than one pesticide active or inert ingredient, multiple exposures occur. A MOE was estimated for each chemical individually and the MOEs were summed without regard to mode of action or target organs and systems to conservatively estimate the hazard that may be associated with the combined exposure. Consistent with the evaluation of individual MOEs, summed MOEs greater than 100 are not considered to be of concern (US EPA 2007k).

The generic formula for summing MOEs is as follows:

$$MOE_{total} = 1/((1/MOE_1)+(1/MOE_2)+\ldots+(1/MOE_n))$$

Where:

MOE = Margin of Exposure (unitless)

2.4.2 Cancer Effects

The increased probability of developing cancer over a lifetime is the measure used for quantifying the toxicity of carcinogens. These probabilities identify the increased likelihood of an individual developing cancer over their lifetime as a result of a chemical exposure and are estimated based on both experimental and epidemiological carcinogenicity studies of animals and humans. These probabilities are expressed in terms of the chemical-specific CSF. The CSF multiplied by the daily intake provides an estimate of the incremental upper bound cancer risk.

Carcinogenic risks represent the incremental probability that an individual will develop cancer over a lifetime as a result of exposure to a chemical compound. EPA usually assumes a non-threshold dose-response for carcinogens (i.e., some finite risk no matter how small the dose). Cancer risk is expressed in terms of probability (e.g., 1 in a million or 1/1,000,000 or 1×10^{-6}). This is because the CSF is "the theoretical upper bound probability of extra cancer cases occurring in an exposed population assuming a lifetime exposure to a pesticide when the pesticide dose is expressed in exposure units of milligrams/kilogram-day (mg/kg-day)" (OEHHA 2003c). Consistent with the OEHHA definition, sub-chronic or acute cancer risk is not considered.

Generally, the LOC for cancer risk is set at no more than one potential new case in a population of 1 million. This is sometimes expressed as 1/1,000,000 or $1 \text{x} 10^{-6}$ (OEHHA 2001a). Consistent with risk assessment guidance (US EPA 1989e), estimates of cancer risk are rounded to the nearest whole number. For example, a value of $1.45 \text{ x} 10^{-6}$ is rounded to $1 \text{x} 10^{-6}$.

In contrast, California's Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, defines the LOC as 1 in 100,000 or 1×10^{-5}. The Proposition 65 value is sometimes expressed as 10 in 1,000,000, 10/1,000,000, 10×10^{-6}, 10E-06 or 1E-05.

This HHRA takes a conservative and health-protective approach and uses the OEHHA definition as potentially exceeding the LOC. Therefore, for purposes of this HHRA, estimates of risk at or below the OEHHA value of $1 \text{x} 10^{-6}$ are deemed to be below the LOC (OEHHA 2001a). Values above $1 \text{x} 10^{-6}$ are evaluated further to determine if the risks exceed the LOC given additional qualitative assessment including limitations of the models that may result in overstatements of the risk.

The generic formula for estimating cancer risk is as follows:

CR = Potency * LADD

Where:

CR = Cancer Risk (unitless)

LADD = Lifetime Average Daily Dose (mg/kg-day)

Potency = Cancer Slope Factor (CSF) $(mg/kg\text{-}day)^{-1}$

The lifetime exposure value in the equation must be estimated specifically for cancer risk, using a 70-year averaging time. For dermal cancer assessments, a chemical-specific dermal absorption factor (DAF) was applied to the dermal lifetime exposure value because only oral CSFs were available.

Higher susceptibility from early-life exposure to carcinogens was addressed using an age-dependent adjustment factor (ADAF) of three (3) for children between the ages of 2 to <16 years old (US EPA, 2005q). The 0-<2 year old age group was assumed to have de minimis exposure.

The formula used to estimate cancer risk for a child is as follows:

CR = Potency * ADAF* Lifetime Exposure

Where:

CR = Cancer Risk (unitless)

Potency = Cancer Slope Factor (CSF) $(mg/kg\text{-}day)^{-1}$

ADAF = Age-dependent Adjustment Factor (unitless)

In situations where multiple pathways are present, multiple applications are made, or when applications are made with more than one pesticide active or inert ingredient, multiple exposures occur. A cancer risk was estimated for each pesticide active or inert ingredient and the risk values were summed to conservatively estimate the total risk that may be associated with the combined exposure. Consistent with the evaluation of individual cancer risks, summed cancer risk values less than $1x10^{-6}$ are not considered to be of concern (OEHHA 2001a).

The generic formula for summing cancer risk values is as follows:

$$CR_{total} = CR_1+CR_2+\ldots+CR_n$$

Where:

CR = Cancer Risk (unitless)

2.5 Numeric Data Presentation and Use of the Term "Mitigation"

Numeric data presented in the risk characterization section, by its nature, are often very large or very small numbers. In order to present these numbers in an easily readable format, scientific notation is used. For example, the value of 1,290,000 is expressed as 1.29E+06 and the number 0.000000315 is expressed as 3.15E-7. Note that the "E" represents "exponent" or the number 10 raised to a power. The positive ("+") or negative ("-") sign following the "E" indicates the number of places the decimal point was moved from the original number; a positive sign indicates that the decimal moved to the left and a negative sign indicates that the decimal moved to the right.

When the numeric estimate of risk suggests that risk may be unacceptable, one or more reasonable changes to the application technique or method or assumptions on receptor exposure, or both, are made. These changes are referred to in this document as “mitigation”, “adjustment” or “modification” and result in the estimated risk being reduced below an LOC. The term “mitigation” in this HHRA is not necessarily synonymous with the term as it is used in CEQA.

3 Risk Assessment Results

The following sections present the HHRA results for each category of pest control activity. Application scenarios are first summarized, followed by a presentation of CSMs, risk results, an uncertainty analysis, and conclusions.

Pesticide applications were categorized into separate application scenarios and given a distinct application scenario identification number (Application Scenario ID). For the Pest Detection/Emergency Program – Eradication, these were further categorized into separate application and trapping scenarios and given a distinct application or trapping scenario identification number (Application Scenario ID and Trapping Scenario ID, respectively).The Pest Detection/Emergency Program – Detection and the Integrated Pest Control Program would only involve trapping, and each trapping scenario is given a Trapping Scenario ID, Each Application Scenario ID represents a unique combination of pesticide products used, application method, application rate, number of applications, application interval, application area, and environmental setting. Each Trapping Scenario ID represents a unique combination of pesticide products used, trap type, trapping method, treatment rate, and environmental setting.

The estimated environmental concentrations (EECs) of pesticides and inert ingredients resulting from these application scenarios are available in the Dashboard Database. Note that the estimated acute environmental concentrations did not account for degradation and dissipation processes that reduce the environmental concentrations. Degradation and dissipation include, but are not limited to, soil microbial metabolism, photodegradation, hydrolysis, and plant metabolism. Therefore, acute estimated environmental concentrations are likely to represent maximum instantaneous environmental concentrations that may, in reality, be substantially lower at the time that exposures occur.

In the risk results section, only those application scenarios estimated to have potential for MOEs or cancer risk above the level of concern (as indicated by a red highlight in the table) are presented. All other scenarios would have risk below the LOC, and can be reviewed in the Dashboard Database. In the case where risk was estimated to potentially exceed the LOC, alternative scenarios or other measures to reduce estimated risk below the LOC are identified. Such scenarios/measures are suggested as possibilities; other modifications to the scenarios may also reduce the risk below the LOC.

3.1 Fruit Fly Control Activities

3.1.1 Application Scenarios

The eight application scenarios for control of fruit flies are summarized in Table 2.

Table 2: Application Scenarios for Fruit Fly Control Activities

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
FF-01	Meth-O-Gas Q	Fumigation	Sea Van/Fumigation Chamber	NA
FF-02	Diazinon AG500	Drench-Hudson Sprayer	Small, Medium and most Large Nurseries	NA
FF-03	GF-120-Naturalyte Fruit Fly Bait	Backpack Sprayer	Residential (Fruit)	Foam Fighter
FF-04	GF-120-Naturalyte Fruit Fly Bait	Aerial	Production Agriculture	Foam Fighter
FF-05	GF-120-Naturalyte Fruit Fly Bait	Backpack Sprayer	Production Agriculture	Foam Fighter
FF-06	Malathion 8 Aquamul	Backpack Sprayer	Residential (Fruit)	Foam Fighter, Nu-Lure
FF-07	Malathion 8 Aquamul	Backpack Sprayer	Production Agriculture	Foam Fighter, Nu-Lure
FF-08	Malathion 8 Aquamul	Aerial	Production Agriculture	Foam Fighter, Nu-Lure

*In place of a backpack sprayer, groundboom may be used for foliar applications and mechanically-pressurized sprayer may be used for either foliar or drench applications. As the US EPA OPHED unit exposure for backpack sprayer is higher than mechanically-pressurized sprayer or groundboom, baseline risk was evaluated using US EPA OPHED data for backpack sprayer in order to yield health protective risk estimates for scenarios where this substitution could occur (i.e., where backpack sprayer is listed).
NA – Not applicable; formulation does not contain an adjuvant.

For all applications, exposure was evaluated by assuming the entire treatment area is treated in a single day. In situations where applications may be made exclusively to potted plants, this method would be health protective as the modeled area treated would be substantially larger than the actual area treated (i.e., the sum surface area of all potted plants treated). For the application scenario FF-02, a more realistic estimation was deemed appropriate. The total area treated used to estimate exposure for those scenarios was estimated through summation of the surface area of all pots treated per day. Based on CDFA's expert opinion and correspondence with nursery staff, the average pot size was considered to be a 5 gallon pot with a surface area of 0.55 ft^2, while the maximum number of pots treatable by one applicator in a day was 300. Multiplying the surface area treated per pot in acres (1.263E-6 acre/pot or 0.055 square feet per pot) by the total number of pots treated within a day (300 pot/day) yields the total area treated per day of 165 square feet/day. This is the maximum total pot surface area that an individual is assumed to be capable of treating in a single day and is the acreage used to evaluate receptor exposure for the application scenario FF-02. Based on this acreage, the corresponding number of pots treatable within a day for various pot sizes may also be determined by dividing the maximum acreage treatable (acre) by the surface area per pot of each size (acre/pot) (Table 3).

Table 3: Quantity of Pots Treatable per Day based on Maximum Treatable Surface Area

Pot Size	Surface Area per pot (ft^2/pot)	Surface Area per pot (acre/pot)	Maximum Treatable Pot Surface Area per Applicator per Day (square feet/applicator-day)	Quantity of Pots Treatable per Applicator per Day (pot/applicator-day)
1 Gal	0.25	5.74E-06	165	660
3 Gal	0.45	1.03E-05	165	367
5 Gal	0.55	1.26E-05	165	300
7 Gal	1.07	2.46E-05	165	154
15 Gal	1.25	2.87E-05	165	132
24" Box	4	9.18E-05	165	41
36" Box	9	2.07E-04	165	18
48" Box	16	3.67E-04	165	10
6 inch pot	0.2	4.59E-06	165	825
Pony Pack 5x5x2"	0.25	5.74E-06	165	660
Flat 18x18x1.5"	1.75	4.02E-05	165	94
24" tub	3	6.89E-05	165	55

Source: Surface areas by pot size are based on CDFA's expert opinion and correspondence with nursery staff.

3.1.2 Conceptual Site Models

CSMs for Fruit Fly Control Activities are presented in Figures 1 through 4.

Figure 1: Fruit Fly Control Activities Residential Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Sprayers (Backpack, Tank)			Air	Dermal	O	X	O	O	O	O
				Inhalation	X	X	O	O	X	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
			Edible Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
				Intentional Ingestion	O	O	X	X	X	X

Receptor Groups

General Notes:

CSM is for Fruit Fly applications that take place in residential environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

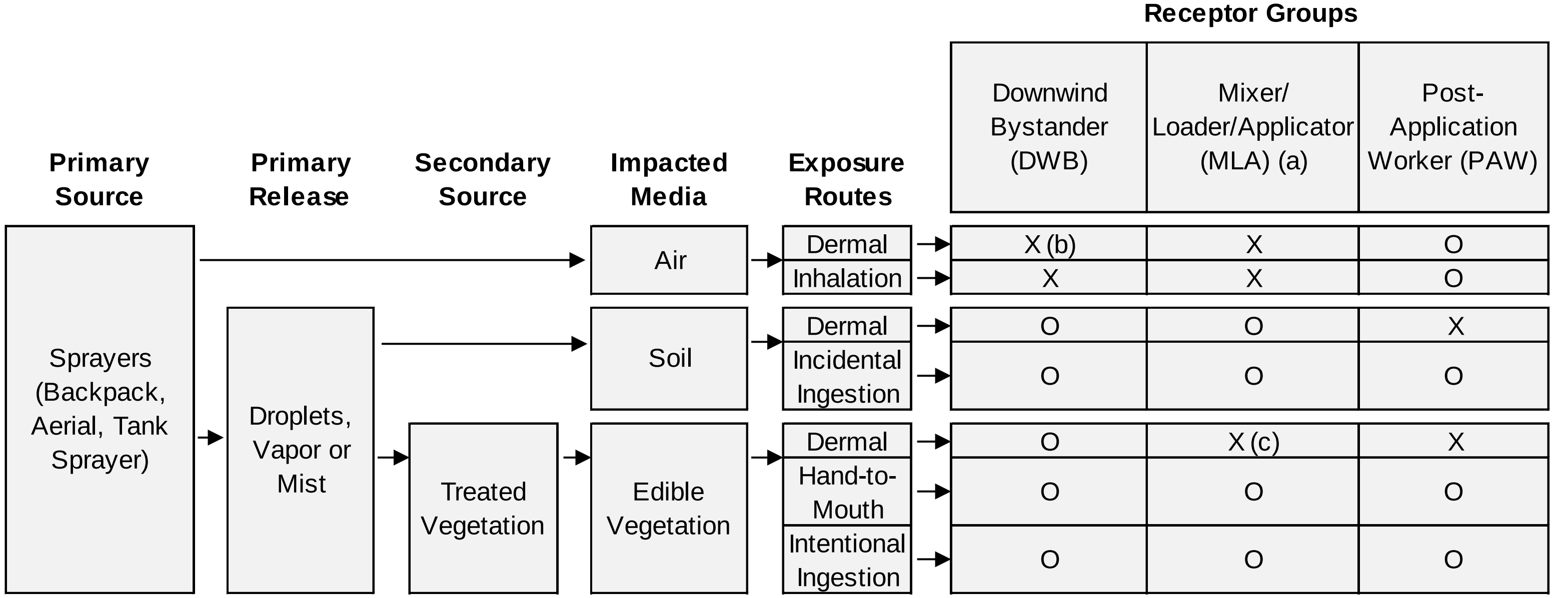
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Figure 2: Fruit Fly Control Activities Production Agriculture Conceptual Site Model



General Notes:
CSM is for Fruit Fly applications that take place in agricultural environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.
(b) Exposure to DWB limited to aerial applications.
(c) Aerial MLA receptors do not have a complete exposure pathway.

Figure 3: Fruit Fly Control Activities Nursery Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Spray Drench (Drench-Hudson Sprayer, Tank Spray)			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Large Droplets		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O

Receptor Groups: Downwind Bystander (DWB), Mixer/ Loader/Applicator (MLA) (a), Post-Application Loader (PAL), Combined Nursery Worker (CNW)

General Notes:

CSM is for Fruit Fly applications that take place in nursery environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

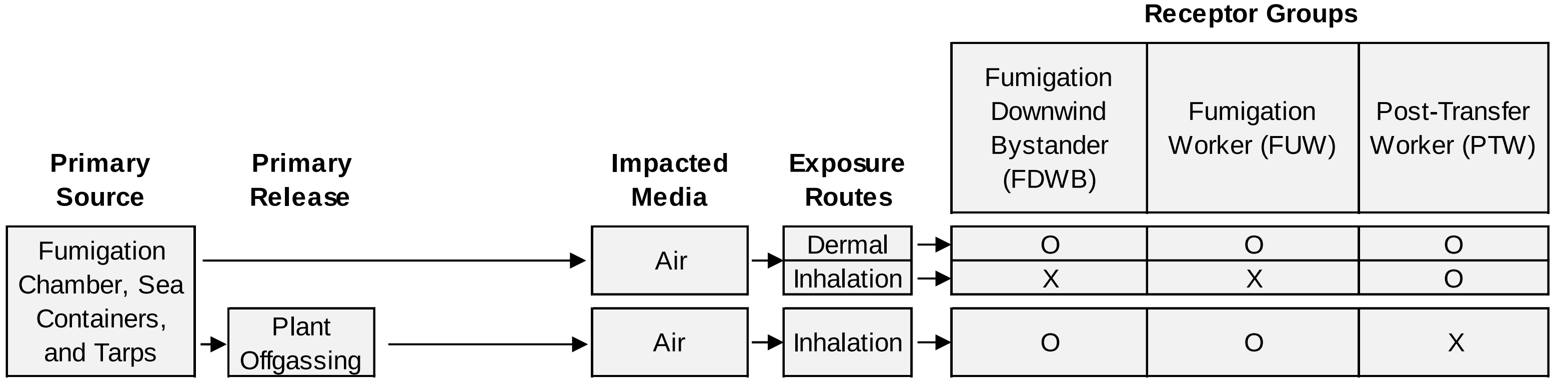
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No exposure was evaluated for the post-purchase consumer to treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Figure 4: Fruit Fly Control Activities Fumigation Conceptual Site Model



General Notes:

CSM is for Fruit Fly quarantine fumigations that take place in a variety of facilities and vessels, including, but not limited to, sea van containers.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants.

3.1.3 Risk Results

Table 4 presents the baseline run for the sole scenario that suggested the potential for risk levels above the LOC. The MOE for all other fruit fly scenarios were equal to or greater than 100, indicating that the estimated non-cancer hazard was below the LOC. Cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity.

FF-01

Table 4: FF-01- Baseline

Scenario	FF-01	**A.I. App Rate** (lbs/acre)	NA
Run	Baseline- Fumigation	**Apps per Year**	30
Product	Meth-O-Gas Q	**Acres per Day**	NA
Adjuvant	none	**App Interval** (days)	NA
Setting	Sea Van/Fumigation Chamber		
App Method	Fumigation		

		Post-Transfer-Worker **PTW**
	Ingredient	Inhalation
Acute MOE	Dimethyl ether	1.29E+06
Chronic MOE	Dimethyl ether	1.57E+07
Acute MOE	Methyl Bromide	1.87E-01
Chronic MOE	Methyl Bromide	1.74E+00
Acute MOE	Methyl chloride	6.07E+04
Chronic MOE	Methyl chloride	7.38E+04
Acute MOE	Summed Chemicals	1.87E-01
Chronic MOE	Summed Chemicals	1.74E+00

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

The most sensitive adverse effect of methyl bromide that has been identified by CDPR due to acute inhalation exposure is decreased spleen weight and decreased responsiveness (depression), based on a sub-chronic study in dogs (CDPR, 2002a). CDPR has identified the most sensitive adverse effect due to chronic inhalation exposure to be nasal epithelial hyperplasia and degeneration, based on a chronic study in rats (CDPR, 2002a). These potential adverse effect were the basis for all of the acute and chronic inhalation assessments on imidacloprid. Approaches were identified that are expected to lower potential exposures so MOEs exceed 100 (i.e., potential exposures are no more than 1/100th of the NO(A)EL in the most sensitive animal species tested) as follows.

Reduced exposure resulting in risk below the LOC (i.e., MOE > 100) to the PTW can be achieved through implementation of practices described in CDPR, 2011c. These practices are intended to reduce build-up and/or subsequent exposure to methyl bromide within containers and may include, but are not limited to:

- Keeping air vents open during loading
- Keeping air vents open during transit
- Keeping air vents open at all times during truck arrival
- Keeping cargo doors open for 15 minutes prior to discharge of cargo
- Keeping refrigeration unit on and set to target temperature throughout loading, transit, and arrival periods
- Use of real-time air analyzers

Limited fumigation exposure monitoring data are available for FUWs and FDWBs (CDPR, 2002). CDPR has prepared guidance on fumigation procedures and associated mitigation (CDPR, 2012), of which some reliance is made on the existing 2002 data. The available modeling approach and data (CDPR, 1994) suggest that current mitigations are sufficient to reduce acute exposure to the FUW and FDWB to levels resulting in risk below the LOC. However, available exposure monitoring data suggests potential exists for sub-chronic and chronic risk to these receptors (CDPR, 2002). Mitigation, if any, that may be required to reduce sub-chronic and chronic exposure of methyl bromide below the LOC for these receptors is being further assessed by CDPR.

3.1.4 Uncertainty Analysis

Plant Off-gassing Model

Methyl bromide residue plant off-gassing rate is strongly dependent on temperature (Nicas, 2003) where the higher the temperature, the more rapid and complete the off-gassing. Empirical off-gassing data gathered by CDPR (CPDR, 2002g) was in the range of 10° to 27.2°C and was used to estimate the exposure to the PTW. Refrigerated containers typically maintain a temperature range of approximately -1° to 10°C, depending on the commodity. As a result, off-gassing is expected to be less in a refrigerated container when compared to the conditions noted by CDPR in their study. Because the PTW works in a refrigerated container, his estimated exposure to plant off-gassing is likely overestimated and as a result, his risk is also likely overestimated.

FF-02 Mixer-Loader-Applicator

The risk values for FF-02 reflect exposure to the MLA who is mixing/loading and applying Diazinon AG500 wearing double-layer clothes, gloves, and a respirator of PF5. The product label requires the mixer-loader to use a closed loading system, but the risk assessment does not account for this engineering control due to limited unit exposure choices in US EPA's Occupational Pesticide Handler Unit Exposure Surrogate Reference Table (OPHED) (US EPA, 2013b). OPHED provides unit exposures for a MLA using a manually-pressurized sprayer or a backpack sprayer, but it does not allow for splitting the mixer-loader's exposure from the applicator's exposure; therefore, the same PPE designation had to be applied to the MLA as a whole. Since the mixer-loader was required to be assessed as wearing less PPE than reality, the risk is likely overestimated. For additional details on the uncertainty involved with choosing OPHED unit exposures, refer to the Mixer-Loader-Applicator exposure assessment in Section 2.3.2 and the Program-wide Uncertainty Analysis Section 4.

3.1.5 Conclusions

The MOE for seven of the eight scenarios was equal to or greater than 100, which indicates that the estimated non-cancer hazard for those seven scenarios would be below the LOC. For all eight scenarios, cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity. The MOE for one scenarios was less than 100, which indicates that some form of adjustment may be appropriate to reduce the non-cancer hazard, cancer risk, or both.

For the fumigation scenario, FF-01, the FUW, FDWB, and PTW have the potential for risk due to methyl bromide exposure. Specifically, consistent with the conclusions drawn by CDPR (2002), potential exists for sub-chronic and chronic risk to the FUW and FDWB. Adjustments, if any, that would reduce exposure below an LOC have not been assessed and are not known at this time. The acute and chronic risk to the PTW is addressed through the adoption of the measures described by CDPR (2011c) and discussed previously.

3.2 Asian Citrus Psyllid Control Activities

3.2.1 Application Scenarios

The 135 application scenarios for control of ACP are summarized in Table 5. Many of these scenarios are unique in that they often combines the use of more than one pesticide. In fact, with the exception of ACP-16 (fumigation), a total of 103 ACP scenarios involve multiple pesticide applications. To analyze these multiple pesticide application scenarios, a total of 32 scenarios involving single pesticide applications were evaluated separately and then combined. For example, ACP-01 and ACP-08 never actually occur in isolation. The pesticides in these scenarios are used in combination with each other as ACP-01-08 and are analyzed as such.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-01	Admire Pro	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-01-08	Admire Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-01 and ACP-08.
ACP-01-10	Admire Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-01 and ACP-10.
ACP-01-18	Admire Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-01 and ACP-18.
ACP-01-24	Admire Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-01 and ACP-24.
ACP-01-27	Admire Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-01 and ACP-27.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-02	Admire Pro	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-02-09	Admire Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-02 and ACP-09.
ACP-02-11	Admire Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-02 and ACP-11.
ACP-02-17	Admire Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-02 and ACP-17.
ACP-02-23	Admire Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-02 and ACP-23.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-02-26	Admire Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-02 and ACP-26.
ACP-03	Admire Pro	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-03-09	Admire Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-03 and ACP-09.
ACP-03-11	Admire Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-03 and ACP-11.
ACP-03-17	Admire Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-03 and ACP-17.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-03-23	Admire Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-03 and ACP-23.
ACP-03-26	Admire Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-03 and ACP-26.
ACP-04	Admire Pro	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-04-08	Admire Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-04 and ACP-08.
ACP-04-10	Admire Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-04 and ACP-10.
ACP-04-18	Admire Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-04 and ACP-18.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-04-24	Admire Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-04 and ACP-24.
ACP-04-27	Admire Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-04 and ACP-27.
ACP-05	Alias 2F	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-05-08	Alias 2F	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-05 and ACP-08.
ACP-05-10	Alias 2F	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-05 and ACP-10.
ACP-05-18	Alias 2F	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-05 and ACP-18.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-05-24	Alias 2F	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-05 and ACP-24.
ACP-05-27	Alias 2F	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-05 and ACP-27.
ACP-06	Alias 2F	Drench-Chemigation	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-06-09	Alias 2F	Drench-Chemigation	Baythroid XL	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-09.
ACP-06-11	Alias 2F	Drench-Chemigation	Danitol 2.4 EC Spray	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-11.
ACP-06-13	Alias 2F	Drench-Chemigation	Kontos	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-13.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-06-17	Alias 2F	Drench-Chemigation	Movento	Mechanically Pressurized Sprayer	Large Production Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-06 and ACP-17.
ACP-06-23	Alias 2F	Drench-Chemigation	Sevin SL	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-23.
ACP-06-25	Alias 2F	Drench-Chemigation	Tempo SC Ultra	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-25.
ACP-06-26	Alias 2F	Drench-Chemigation	Tombstone	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-06 and ACP-26.
ACP-07	Alias 2F	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-07-09	Alias 2F	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-09.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-07-11	Alias 2F	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-11.
ACP-07-13	Alias 2F	Drench-Backpack Sprayer	Kontos	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-13.
ACP-07-17	Alias 2F	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-07 and ACP-17.
ACP-07-23	Alias 2F	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-23.
ACP-07-25	Alias 2F	Drench-Backpack Sprayer	Tempo SC Ultra	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-25.
ACP-07-26	Alias 2F	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-07 and ACP-26.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-08	Baythroid XL	Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-09	Baythroid XL	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-10	Danitol 2.4 EC Spray	Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-11	Danitol 2.4 EC Spray	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-12	Flagship 25WG	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-12-09	Flagship 25WG	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-12 and ACP-09.
ACP-12-11	Flagship 25WG	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-12 and ACP-11.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-12-17	Flagship 25WG	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-12 and ACP-17.
ACP-12-23	Flagship 25WG	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-12 and ACP-23.
ACP-12-26	Flagship 25WG	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-12 and ACP-26.
ACP-13	Kontos	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-14	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-14-09	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-14 and ACP-09.
ACP-14-11	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-14 and ACP-11.
ACP-14-17	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-14 and ACP-17.
ACP-14-23	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-14 and ACP-23.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-14-26	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-14 and ACP-26.
ACP-15	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-15-08	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-15 and ACP-08.
ACP-15-10	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-15 and ACP-10.
ACP-15-18	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-15 and ACP-18.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-15-24	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-15 and ACP-24.
ACP-15-27	Marathon II Greenhouse & Nursery Insecticide	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-15 and ACP-27.
ACP-16	Meth-O-Gas Q	Fumigation	NA	NA	Sea Van/Fumigation Chamber	NA	NA
ACP-17	Movento	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-18	Movento	Backpack Sprayer	NA	NA	Large Production Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-19	Safari 20 SG	Drench-Chemigation	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-19-08	Safari 20 SG	Drench-Chemigation	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-19 and ACP-08.
ACP-19-10	Safari 20 SG	Drench-Chemigation	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-19 and ACP-10.
ACP-19-18	Safari 20 SG	Drench-Chemigation	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-19 and ACP-18.
ACP-19-24	Safari 20 SG	Drench-Chemigation	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-19 and ACP-24.
ACP-19-27	Safari 20 SG	Drench-Chemigation	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-19 and ACP-27.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-20	Safari 20 SG	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-20-08	Safari 20 SG	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-20 and ACP-08.
ACP-20-10	Safari 20 SG	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-20 and ACP-10.
ACP-20-18	Safari 20 SG	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-20 and ACP-18.
ACP-20-24	Safari 20 SG	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-20 and ACP-24.
ACP-20-27	Safari 20 SG	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-20 and ACP-27.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-21	Safari 20 SG	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-21-09	Safari 20 SG	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-21 and ACP-09.
ACP-21-11	Safari 20 SG	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-21 and ACP-11.
ACP-21-17	Safari 20 SG	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-21 and ACP-17.
ACP-21-23	Safari 20 SG	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-21 and ACP-23.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-21-26	Safari 20 SG	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-21 and ACP-26.
ACP-22	Safari 20 SG	Drench-Chemigation	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-22-09	Safari 20 SG	Drench-Chemigation	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-22 and ACP-09.
ACP-22-11	Safari 20 SG	Drench-Chemigation	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-22 and ACP-11.
ACP-22-17	Safari 20 SG	Drench-Chemigation	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-22 and ACP-17.
ACP-22-23	Safari 20 SG	Drench-Chemigation	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-22 and ACP-23.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-22-26	Safari 20 SG	Drench-Chemigation	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-22 and ACP-26.
ACP-23	Sevin SL	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-24	Sevin SL	Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-25	Tempo SC Ultra	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-26	Tombstone	Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-27	Tombstone	Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-28	Widow	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-28-08	Widow	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-28 and ACP-08.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-28-10	Widow	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-28 and ACP-10.
ACP-28-18	Widow	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-28 and ACP-18.
ACP-28-24	Widow	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-28 and ACP-24.
ACP-28-27	Widow	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-28 and ACP-27.
ACP-29	Widow	Drench-Chemigation	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-29-09	Widow	Drench-Chemigation	Baythroid XL	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-09.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-29-11	Widow	Drench-Chemigation	Danitol 2.4 EC Spray	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-11.
ACP-29-13	Widow	Drench-Chemigation	Kontos	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-13.
ACP-29-17	Widow	Drench-Chemigation	Movento	Mechanically Pressurized Sprayer	Large Production Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-29 and ACP-17.
ACP-29-23	Widow	Drench-Chemigation	Sevin SL	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-23.
ACP-29-25	Widow	Drench-Chemigation	Tempo SC Ultra	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-25.
ACP-29-26	Widow	Drench-Chemigation	Tombstone	Mechanically Pressurized Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-29 and ACP-26.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-30	Widow	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-30-09	Widow	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-09.
ACP-30-11	Widow	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-11.
ACP-30-13	Widow	Drench-Backpack Sprayer	Kontos	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-13.
ACP-30-17	Widow	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-30 and ACP-17.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-30-23	Widow	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-23.
ACP-30-25	Widow	Drench-Backpack Sprayer	Tempo SC Ultra	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-25.
ACP-30-26	Widow	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-30 and ACP-26.
ACP-31	Nuprid 4.6F Pro	Drench-Backpack Sprayer	NA	NA	Small, Medium and most Large Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-31-09	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-31 and ACP-09.
ACP-31-11	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-31 and ACP-11.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-31-17	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Small, Medium and most Large Nurseries	First Choice Narrow Range 415 Spray Oil	This scenario is a combination of ACP-31 and ACP-17.
ACP-31-23	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-31 and ACP-23.
ACP-31-26	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Small, Medium and most Large Nurseries	NA	This scenario is a combination of ACP-31 and ACP-26.
ACP-32	Nuprid 4.6F Pro	Drench-Backpack Sprayer	NA	NA	Large Production Nurseries	NA	This scenario is a sub-component of "Combination" scenarios and is not analyzed nor applied as described here. Combination scenarios are analyzed and utilize both a drench and a foliar applied product.
ACP-32-08	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Baythroid XL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-32 and ACP-08.

Table 5: Application Scenarios for Asian Citrus Psyllid Control Activities (continued)

Application Scenario ID	Product #1		Product #2		Setting	Adjuvant	Note
	Product	Application Method*	Product	Application Method*			
ACP-32-10	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Danitol 2.4 EC Spray	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-32 and ACP-10.
ACP-32-18	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Movento	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-32 and ACP-18.
ACP-32-24	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Sevin SL	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-32 and ACP-24.
ACP-32-27	Nuprid 4.6F Pro	Drench-Backpack Sprayer	Tombstone	Backpack Sprayer	Large Production Nurseries	NA	This scenario is a combination of ACP-32 and ACP-27.

*In place of a backpack sprayer, groundboom may be used for foliar applications and mechanically-pressurized sprayer may be used for either foliar or drench applications. As the US EPA OPHED unit exposure for backpack sprayer is higher than mechanically-pressurized sprayer or groundboom, baseline risk was evaluated using US EPA OPHED data for backpack sprayer in order to yield health protective risk estimates for scenarios where this substitution could occur (i.e., where backpack sprayer is listed).
NA – Not applicable; Application scenario does not have a second product, formulation does not contain an adjuvant, or no notes exist for this scenario.

For certain application scenarios, other pesticide products that are substantially similar in composition and method of application may be used in lieu of the product listed. A list detailing where substantially similar products may be used can be found in the Dashboard Database.

For all ACP applications, exposure was evaluated by assuming the entire treatment area would be treated in a single day. In situations where applications may be made exclusively to potted plants, this method is health protective as the modeled area treated would be substantially larger than the actual area treated (i.e., the sum surface area of all potted plants treated). For the application scenarios ACP-06-23 and ACP-29-23, a more realistic estimation was deemed appropriate. The total area treated used to estimate exposure for those scenarios was estimated through summation of the surface area of all pots treated per day. Based on CDFA's expert opinion and correspondence with nursery staff, the average pot size was considered to be a 5 gallon pot with a surface area of 0.55 ft^2, while the maximum number of pots treatable by one applicator in a day was 300. Multiplying the surface area treated per pot in acres (1.263E-6 acre/pot or 0.055 square feet/pot) by the total number of pots treated within a day (300 pot/day) yields the total area treated per day of 165 square feet/day. This is the treatment acreage used to evaluate receptor exposure for application scenarios ACP-06-23 and ACP-29-23. This is the maximum total pot surface area that an individual is assumed to be capable of treating in a single day and is the acreage used to evaluate receptor exposure for the application scenarios ACP-06-23 and ACP-29-23. Based on this acreage, the corresponding number of pots treatable within a day for various pot sizes may also be determined by dividing the maximum acreage treatable (acre) by the surface area per pot of each size (acre/pot). These calculations are presented previously in Table 3.

3.2.2 Conceptual Site Models

CSMs for ACP control activities are presented in Figure 5 and Figure 6.

Figure 5: Asian Citrus Psyllid Control Activities Nursery Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack & Aerial)			Air	Dermal	X	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X (b)	X	X
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	X (b)	X	X
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O
Spray Drench			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Large Droplets		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O
Soil Drench or Injection			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Saturated Soil		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O

General Notes:

CSM is for ACP applications that take place in a nursery environment.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

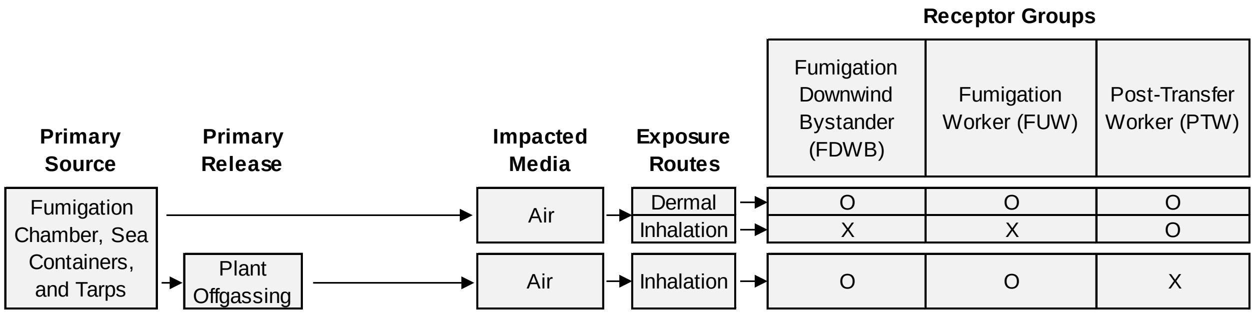
No exposure was evaluated for the post-purchase consumer to treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

(b) Aerial MLA receptors do not have a complete exposure pathway.

Figure 6: Asian Citrus Psyllid Control Activities Fumigation Conceptual Site Model



General Notes:

CSM is for Fruit Fly quarantine fumigations that take place in a variety of facilities and vessels, including, but not limited to, sea van containers.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants.

3.2.3 Risk Results

Table 6 presents the baseline run for the sole scenario that suggested the potential for risk exceeding the LOC. The MOE for all other ACP scenarios were equal to or greater than 100, indicating that the estimated non-cancer hazard was below the LOC. Cancer risk for all scenarios was either below the LOC (i.e., less than $1x10^{-6}$) or could not be estimated because the chemical evaluated did not show evidence of carcinogenicity.

ACP-16

Table 6: ACP-16- Baseline

Scenario	ACP-16	**A.I. App Rate** (lbs/acre)	NA
Run	Baseline- Fumigation	**Apps per Year**	26
Product	Meth-O-Gas Q	**Acres per Day**	NA
Adjuvant	none	**App Interval** (days)	NA
Setting	Sea Van/Fumigation Chamber		
App Method	Fumigation		

		Post-Transfer-Worker PTW
	Ingredient	Inhalation
Acute MOE	Dimethyl ether	2.57E+07
Chronic MOE	Dimethyl ether	3.61E+08
Acute MOE	Methyl Bromide	3.74E+00
Chronic MOE	Methyl Bromide	4.00E+01
Acute MOE	Methyl chloride	1.21E+06
Chronic MOE	Methyl chloride	1.70E+06
Acute MOE	Summed Chemicals	3.74E+00
Chronic MOE	Summed Chemicals	4.00E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

For a further characterization of health risks associated with methyl bromide fumigation and measures which would be anticipated to reduce the risk below the LOC, refer to the discussion of Scenario FF-01 in Section 3.1.3, above.

3.2.4 Uncertainty Analysis

Plant Off-gassing Model

See discussion above for fruit flies in Section 3.1.4.

Narrow Range 415 Spray Oil

As is the case with most respirable materials, Narrow Range 415 Spray Oil's toxicity via inhalation is largely dependent on its particle size at the time of exposure. The inhalation NOAEL for this oil was most likely derived from a study in which the oil was aerosolized in order to be breathed into the lungs. When estimating exposure to a pesticide handler, OPHED unit exposures were used. OPHED may or may not use a range of particle sizes, from respirable to non-respirable, when deriving these unit exposures. In the occupational field, this oil may be applied as a non-respirable particle, so risk is likely overestimated due to the combination of the NOAEL and OPHED unit exposure.

3.2.5 Conclusions

The MOE for 103 of the 104 scenarios was equal to or greater than 100, indicating that the estimated non-cancer hazard for these 103 scenarios would be below the LOC. The cancer risk for all 104 scenarios was either less than 1×10^{-6} or could not be estimated because the chemical evaluated did not show evidence of carcinogenicity. Therefore, for all the scenarios in which cancer risk could be estimated, risk was below the LOC. The MOE for one scenario was less than 100, which indicates that some form of adjustment may be appropriate to reduce the non-cancer hazard.

For the fumigation scenario, ACP-16, the FUW, FDWB, and PTW have the potential for risk due to methyl bromide exposure. In accordance with the conclusions by CDPR (2002), potential exists for sub-chronic and chronic risk to the FUW and FDWB. Adjustments, if any, that would reduce exposure below an LOC have not been assessed and are not known at this time. The acute and chronic risk to the PTW are addressed through the adoption of measures described by CDPR (2011c) discussed previously in Section 3.1.3.

3.3 Pierce's Disease Control Program Activities

3.3.1 Application Scenarios

The 59 application scenarios for control of Pierce's disease and Glassy-winged Sharpshooter are summarized in Table 7.

Table 7: Application Scenarios for Pierce's Disease Control Program Activities

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
PDCP-01	Admire Pro	Soil injection	Large Production Nurseries	NA
PDCP-02	Alias 4F	Soil injection	Large Production Nurseries	NA
PDCP-03	Assail 30 SG	Aerial	Bulk Citrus	NA
PDCP-04	Assail 30 SG	Airblast Sprayer	Bulk Citrus	NA
PDCP-05	Assail 30 SG	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-06	Assail 30 SG	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-07	Assail 70 WP	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-08	Assail 70 WP	Backpack Sprayer	Large Production Nurseries	NA
PDCP-09	Assail 70 WP	Aerial	Bulk Citrus	NA
PDCP-10	Assail 70 WP	Airblast Sprayer	Bulk Citrus	NA
PDCP-11	Astro	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-12	Astro	Airblast Sprayer	Small, Medium and most Large Nurseries	NA

Table 8: Application Scenarios for Pierce's Disease Control Program Activities (continued)

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
PDCP-13	Astro	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-14	Baythroid XL	Airblast Sprayer	Bulk Citrus	NA
PDCP-15	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-16	Baythroid XL	Aerial	Bulk Citrus	NA
PDCP-17	Baythroid XL	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-18	CoreTect Tree & Shrub Tablets Insecticide	Tablet-Soil Insertion	Small, Medium and most Large Nurseries	NA
PDCP-19	CoreTect Tree & Shrub Tablets Insecticide	Tablet-Soil Insertion	Residential (Citrus)	NA
PDCP-20	Danitol 2.4 EC Spray	Airblast Sprayer	Bulk Citrus	NA
PDCP-21	Decathlon 20 WP	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-22	Decathlon 20 WP	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-25	Discus	Aerial	Large Production Nurseries	CMR Silicone Surfactant
PDCP-26	Discus	Backpack Sprayer	Small, Medium and most Large Nurseries	CMR Silicone Surfactant
PDCP-27	Discus	Backpack Sprayer	Small, Medium and most Large Nurseries	CMR Silicone Surfactant
PDCP-28	Dursban 50W	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-29	Dursban 50W	Backpack Sprayer	Small, Medium and most Large Nurseries	NA

Table 9: Application Scenarios for Pierce's Disease Control Program Activities (continued)

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
PDCP-30	Lorsban 4E	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-31	Lorsban 4E	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-32	Mavrik Aquaflow	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-33	Mavrik Aquaflow	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-34	Merit 75 WSP	Backpack Sprayer	Residential (Citrus)	No Foam B
PDCP-35	Merit 75 WSP	Drench-Mechanically Pressurized Sprayer	Residential (Citrus)	NA
PDCP-36	Orthene 97	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-37	Orthene 97	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-40	PyGanic Crop Protection EC 1.4	Airblast Sprayer	Bulk Citrus	NA
PDCP-41	Quali-Pro Imidacloprid 2F	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-42	Quali-Pro Imidacloprid 2F	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-43	Renounce 20 WP	Airblast Sprayer	Bulk Citrus	NA
PDCP-44	Sevin SL	Backpack Sprayer	Residential (Citrus)	No Foam B
PDCP-45	Sevin SL	Airblast Sprayer	Small, Medium and most Large Nurseries	No Foam B
PDCP-46	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	No Foam B

Table 10: Application Scenarios for Pierce's Disease Control Program Activities (continued)

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
PDCP-47	Sevin SL	Backpack Sprayer	Small, Medium and most Large Nurseries	No Foam B
PDCP-48	Talstar S Select	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-49	Talstar S Select	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-50	Tame 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-51	Tame 2.4 EC Spray	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-52	Tempo SC Ultra	Backpack Sprayer	Residential (Citrus)	NA
PDCP-53	Tempo Ultra WP	Backpack Sprayer	Residential (Citrus)	NA
PDCP-54	Triact 70	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-55	Triact 70	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
PDCP-56	Tristar 30 SG	Aerial	Large Production Nurseries	Widespread Max, In-Place
PDCP-57	Tristar 30 SG	Backpack Sprayer	Small, Medium and most Large Nurseries	Widespread Max, In-Place
PDCP-58	Tristar 30 SG	Backpack Sprayer	Small, Medium and most Large Nurseries	Widespread Max, In-Place

Table 11: Application Scenarios for Pierce's Disease Control Program Activities (continued)

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
PDCP-59	Tristar 30 SG	Backpack Sprayer	Residential (Citrus)	NA
PDCP-60	Tristar 8.5 SL	Backpack Sprayer	Small, Medium and most Large Nurseries	In-Place
PDCP-61	Tristar 8.5 SL	Backpack Sprayer	Small, Medium and most Large Nurseries	In-Place
PDCP-62	Tristar 8.5 SL	Aerial	Large Production Nurseries	In-Place
PDCP-63	Quali-Pro Imidacloprid 2F	Drench-Mechanically Pressurized Sprayer	Small, Medium and most Large Nurseries	NA

*In place of a backpack sprayer, groundboom may be used for foliar applications and mechanically-pressurized sprayer may be used for either foliar or drench applications. As the US EPA OPHED unit exposure for backpack sprayer is higher than mechanically-pressurized sprayer or groundboom, baseline risk was evaluated using US EPA OPHED data for backpack sprayer in order to yield health protective risk estimates for scenarios where this substitution could occur (i.e., where backpack sprayer is listed).
NA – Not applicable; formulation does not contain an adjuvant.

For certain application scenarios, other pesticide products that are substantially similar in composition and method of application may be used in lieu of the product listed. A list detailing where substantially similar products may be used can be found in the Dashboard Database.

For all Pierce's disease application scenarios, exposure was evaluated by assuming the entire treatment area would be treated in a single day. In situations where applications may be made exclusively to select trees within a broad residential area (i.e., the entire treatment area), this method is considered health protective as the modeled area treated would be substantially larger than the actual area treated (i.e., the sum surface area treated for all treated trees). For the application scenarios PDCP-35 and PDCP-44, a more realistic estimation was deemed appropriate. The total area treated used to estimate exposure for those scenarios was estimated through summation of the surface area treated for all treated trees. To estimate the total surface area treated, the average tree treatment area was multiplied by a maximum number of trees treated in a day. Based on CDFA's expert opinion, the average dripline radius per tree was considered to be 10 feet, yielding an average treatment area per tree of 314 ft^2, while the maximum number of trees treatable in a day per applicator was considered to be approximately 200 trees. Multiplying the average treatment area per tree (314 ft^2/tree) by the maximum number of trees treatable in a day per applicator (tree/applicator-day) yields the total surface area treated within a day per applicator of 1.44 acres/applicator-day. This is the treatment acreage used to evaluate receptor exposure for application scenarios PDCP-35 and PDCP-44.

3.3.2 Conceptual Site Models

CSMs for Pierce's Disease Control Program Activities are presented in Figures 7 through 9.

Figure 7: Pierce's Disease Control Program Activities Residential Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Sprayers (Backpack)			Air	Dermal	O	X	O	O	O	O
				Inhalation	X	X	O	O	X	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
			Edible Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
				Intentional Ingestion	O	O	X	X	X	X
Soil Drench or Injection			Air	Dermal	O	X	O	O	O	O
				Inhalation	O	X	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Hand-to-Mouth	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Hand-to-Mouth	O	O	O	O	O	O
				Intentional Ingestion	O	O	X	X	X	X
Tree and Shrub Tablets			Air	Dermal	O	O	O	O	O	O
				Inhalation	O	O	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Hand-to-Mouth	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Hand-to-Mouth	O	O	O	O	O	O
				Intentional Ingestion	O	O	X	X	X	X

Receptor Groups

General Notes:
CSM is for PDCP applications that take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Figure 8: Pierce's Disease Control Program Activities Nursery Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack, Aerial, & Airblast)			Air	Dermal	X (b)	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X (c)	X	X
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	X (c)	X	X
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O
Soil Drench or Injection			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Saturated Soil		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O
Tree and Shrub Tablets			Air	Dermal	O	O	O	O
				Inhalation	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	O	O
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O

General Notes:
CSM is for PDCP applications that take place in nursery environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No exposure was evaluated for the post-purchase consumer to treated plants in nursery.

Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.
(b) Exposure to DWB limited to aerial and airblast applications.
(c) Aerial and Airblast MLA receptors do not have a complete exposure pathway.

Figure 9: Pierce's Disease Control Program Activities Production Agriculture Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Worker (PAW)
Sprayers (Aerial & Airblast)			Air	Dermal	X	X	O
				Inhalation	X	X	O
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X
				Incidental Ingestion	O	O	O
		Treated Vegetation	Edible Vegetation	Dermal	O	O	X
				Hand-to-Mouth	O	O	O
				Intentional Ingestion	O	O	O

General Notes:
CSM is for PDCP applications that take place in agricultural (bulk citrus) environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

3.3.3 Risk Results

For each application scenario, a "baseline" run was completed to reflect the application scenarios proposed in Table 7 without modifications that may influence risk outcomes (e.g. changes in application techniques, PPE, acres treated per day, etc.). If the baseline scenario analysis suggested that there was a potential for MOEs or cancer risk above the LOC (as indicated by a red highlight in the table), then reduced exposure analyses were completed. These runs are referred to as "reduced exp." runs and reflect any modifications to the original (baseline) application scenario analysis that were made to reduce exposure and to achieve a level of risk below the LOC (as indicated by a green highlight in the table).

Certain application scenarios required multiple application methods to be evaluated to allow the applicator to select the most appropriate equipment, within the constraints of the analysis, for a given scenario. The alternative form of application equipment was analyzed as a "variant" run and is described in the title of the variant run. For example, a scenario which may alternatively use a mechanically pressurized hand sprayer in lieu of the method described for the baseline would be "Variant – Mechanically Pressurized Hand Sprayer." If the "variant" run analysis suggested that there was a potential for MOEs or cancer risk to exceed the LOC, then reduced exposure analyses were completed. These runs are referred to as “variant reduced exp.” runs and are analogous to the “reduced exp.” runs described above.

Tables 8 through 16 present baseline and variant runs for each scenario that suggested the potential for MOEs or cancer risk to exceed the LOC and their associated reduced exposure runs.

PDCP-02

Table 12: PDCP-02- Baseline

Scenario	PDCP-02		**A.I. App Rate** (lbs/acre)	5.12
Run	Baseline- Single-LCG, No resp		**Apps per Year**	2
Product	Alias 4F		**Acres per Day**	50
Adjuvant	none		**App Interval** (days)	180
Setting	Large Production Nurseries			
App Method	Soil injection			

		Applicator			Mixer-Loader-Applicator			Combined Nursery Worker		
		A			**MLA**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.71E+01	1.16E+03	8.96E+01
Acute MOE	Summed Chemicals	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.71E+01	1.16E+03	8.96E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

The most sensitive adverse effect of imidacloprid that has been identified by CDPR due to acute dermal exposure is decreased motor activity, based on an acute oral study in rats. The same effect has been identified by the CDPR as the most sensitive adverse effect due to acute inhalation exposure (CDPR, 2006b). The potential adverse effect was the basis for all of the acute dermal and inhalation assessments on imidacloprid. Approaches were identified that are expected to lower potential exposures so MOEs exceed 100 (i.e., potential exposures are no more than 1/100th of the NO(A)EL in the most sensitive animal species tested) as follows:

In order to reduce the exposure analyzed in the baseline run to a level that results in risk below the LOC, a reduced exp. run was performed with the following adjustment(s) to the scenario:

- No single applicator may treat more than 44.5 acres per day, instead of 50 acres per day.

Based on this acreage, the corresponding number of pots treatable within a day for various pot sizes may also be determined by dividing the maximum acreage treatable (acre) by the surface area per pot of each size (acre/pot). These calculations are presented previously in Table 3. Note that it is unlikely that a single applicator is capable of treating 44.5 acres or more in a single day using soil injection due to the sheer size of the treatment area. The results of this adjustment are shown in Table 9.

Table 13: PDCP-02- Reduced Exp.- 44.5 acres/day per Applicator Completed by Two Separate Applicators for a Total of 50 Acres Treated

Scenario	PDCP-02	**A.I. App Rate** (lbs/acre)	5.12
Run	Reduced Exp.- 44.5 acres/day per applicator	**Apps per Year**	2
Product	Alias 4F	**Acres per Day**	50
Adjuvant	none	**App Interval** (days)	180
Setting	Large Production Nurseries		
App Method	Soil injection		

		Applicator			Mixer-Loader-Applicator			Combined Nursery Worker		
		A			**MLA**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	1.21E+02	1.44E+03	1.12E+02	1.10E+02	1.31E+03	1.01E+02	1.09E+02	1.31E+03	1.01E+02
Acute MOE	Summed Chemicals	1.21E+02	1.44E+03	1.12E+02	1.10E+02	1.31E+03	1.01E+02	1.09E+02	1.31E+03	1.01E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

PDCP-28

Table 14: PDCP-28- Baseline

Scenario	PDCP-28	**A.I. App Rate** (lbs/acre)	1
Run	Baseline- Double-LCG, Resp PF5; ML WSP	**Apps per Year**	2
Product	Dursban 50W	**Acres per Day**	0.75
Adjuvant	none	**App Interval** (days)	180
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator			Post-Application-Loader			Combined Nursery Worker		
		MLA			**PAL**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Summed	Dermal	Inhalation	Summed
Acute MOE	Calcium silicate	*	1.56E+03	1.56E+03	*	*	*	*	1.56E+03	1.56E+03
Acute MOE	chlorpyrifos	8.56E+01	3.81E+02	6.99E+01	1.94E+04	5.95E+02	5.77E+02	7.45E+01	3.81E+02	6.23E+01
Acute MOE	kaolin clay	*	1.81E+03	1.81E+03	*	*	*	*	1.81E+03	1.81E+03
Acute MOE	Summed Chemicals	8.56E+01	2.62E+02	6.45E+01	1.94E+04	5.95E+02	5.77E+02	7.45E+01	2.62E+02	5.80E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

*Not assessed for one of the following reasons: No Data Available (NDA), Not of Concern (NOC), or incomplete exposure pathway.

Results for PDCP-28 are consistent with conclusions in the US EPA RED for chlorpyrifos (US EPA, 2006a), which found that, for certain occupational risk scenarios, occupational exposure to chlorpyrifos through use of backpack sprayer is of concern. Additionally of note, the US EPA RED risk evaluation was completed using PHED Version 1.1 data (US EPA, 1998f) while results of this analysis were generated using more recent PHED 2013 data (US EPA, 2013b). Differences in PHED unit exposure values between versions can be substantial. For example, the available dermal unit exposure that may be used to represent an MLA making applications in a nursery using a backpack sprayer while wearing single layer clothing and no gloves is more than

5 times higher using 2013 PHED data (US EPA, 2013b) than 2011 PHED data (US EPA, 2011l). Thus, estimates made using more recent data may lead to the conclusion of risk where previous estimates using older data may not.

The most sensitive adverse effect of chlorpyrifos that has been identified by the US EPA due to acute dermal exposure is plasma and red blood cell cholinesterase inhibition, based on a sub-chronic study in rats (US EPA, 2006a). The same effect has been identified by the US EPA as the most sensitive adverse effect due to acute inhalation exposure (US EPA, 2006a). The potential adverse effect was the basis for all of the acute dermal and inhalation assessments on chlorpyrifos. Approaches were identified that are expected to lower potential exposures so MOEs exceed 100 (i.e., potential exposures are no more than 1/100th of the NO(A)EL in the most sensitive animal species tested) as follows:

In order to reduce the exposure analyzed in the baseline run to a level that results in risk below the LOC, a reduced exp. run was performed with the following adjustment(s) to the scenario:

- No single applicator may treat more than 0.40 acres per day or 17,454 square feet per day, instead of 0.75 acres per day or 32,670 square feet per day.

Based on this acreage, the corresponding number of pots treatable within a day for various pot sizes may also be determined by dividing the maximum acreage treatable (acre) by the surface area per pot of each size (acre/pot). These calculations are presented previously in Table 3. The results of this adjustment are shown in Table 11.

Table 15: PDCP-28- Reduced Exp.- 0.40 acres/day per Applicator Completed by Two Separate Applicators for a Total of 0.75 Acres Treated

Scenario	PDCP-28	**A.I. App Rate** (lbs/acre)	1
Run	Reduced Exp.- 0.40 acres/day per applicator	**Apps per Year**	2
Product	Dursban 50W	**Acres per Day**	0.75
Adjuvant	none	**App Interval** (days)	180
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator MLA			Post-Application-Loader PAL			Combined Nursery Worker CNW		
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Summed	Dermal	Inhalation	Summed
Acute MOE	Calcium silicate	*	2.93E+03	2.93E+03	*	*	*	*	2.93E+03	2.93E+03
Acute MOE	chlorpyrifos	1.61E+02	7.14E+02	1.31E+02	1.94E+04	5.95E+02	5.77E+02	1.26E+02	7.14E+02	1.07E+02
Acute MOE	kaolin clay	*	3.40E+03	3.40E+03	*	*	*	*	3.40E+03	3.40E+03
Acute MOE	Summed Chemicals	1.61E+02	4.91E+02	1.21E+02	1.94E+04	5.95E+02	5.77E+02	1.26E+02	4.91E+02	1.00E+02

Notes:
If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.
*Not assessed for one of the following reasons: No Data Available (NDA), Not of Concern (NOC), or incomplete exposure pathway.

PDCP-30

Table 16: PDCP-30- Baseline

Scenario	PDCP-30	**A.I. App Rate** (lbs/acre)	3.5
Run	Baseline- Double-LCG, Resp PF5	**Apps per Year**	150
Product	Lorsban 4E	**Acres per Day**	0.086
Adjuvant	none	**App Interval** (days)	2
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator MLA			Combined Nursery Worker CNW		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Chronic MOE	1,2,4-Trimethylbenzene	5.14E+03	5.19E+05	5.09E+03	4.69E+03	5.19E+05	4.65E+03
Chronic MOE	chlorpyrifos	1.04E+02	6.93E+02	9.03E+01	9.47E+01	6.93E+02	8.33E+01
Chronic MOE	Cumene	7.05E+05	4.58E+07	6.94E+05	6.43E+05	4.58E+07	6.34E+05
Chronic MOE	Xylenes	5.74E+04	4.94E+06	5.67E+04	5.23E+04	4.94E+06	5.18E+04
Chronic MOE	Summed Chemicals	1.02E+02	6.92E+02	8.86E+01	9.27E+01	6.92E+02	8.17E+01

Notes:
If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

The most sensitive adverse effect of chlorpyrifos that has been identified by the US EPA due to chronic dermal exposure is plasma and red blood cell cholinesterase inhibition, based on a weight of evidence from five studies (US EPA, 2006a). The same effect has been identified by the US EPA as the most sensitive adverse effect due to chronic inhalation exposure (US EPA, 2006a). The potential adverse effect was the basis for all of the chronic dermal and inhalation assessments on chlorpyrifos. Approaches were identified that are expected to lower potential exposures so MOEs exceed 100 (i.e., potential exposures are no more than 1/100th of the NO(A)EL in the most sensitive animal species tested) as follows:

Two options were identified to reduce the risk below the LOC.

Option 1: In order to reduce the exposure analyzed in the baseline run to a level that results in risk below the LOC, a reduced exp. run was performed with the following adjustment(s) to the scenario:

- No single applicator may treat more than 2,962 square feet per day, instead of 3,746 square feet per day.

The results of this adjustment are shown in Table 13.

Table 17: PDCP-30- Reduced Exp.- 2,962 square feet/day per Applicator Completed by Two Separate Applicators for a Total of 3,746 square feet Treated

Scenario	PDCP-30	**A.I. App Rate** (lbs/acre)	3.5
Run	Reduced Exp.- 0.068 acres/day per applicator	**Apps per Year**	150
Product	Lorsban 4E	**Acres per Day**	0.086
Adjuvant	none	**App Interval** (days)	2
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator			Combined Nursery Worker		
		MLA			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Chronic MOE	1,2,4-Trimethylbenzene	6.51E+03	6.56E+05	6.44E+03	5.80E+03	6.56E+05	5.75E+03
Chronic MOE	chlorpyrifos	1.31E+02	8.76E+02	1.14E+02	1.17E+02	8.76E+02	1.03E+02
Chronic MOE	Cumene	8.91E+05	5.79E+07	8.78E+05	7.95E+05	5.79E+07	7.84E+05
Chronic MOE	Xylenes	7.26E+04	6.24E+06	7.17E+04	6.47E+04	6.24E+06	6.40E+04
Chronic MOE	Summed Chemicals	1.28E+02	8.75E+02	1.12E+02	1.15E+02	8.75E+02	1.01E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

Option 2: In order to reduce the exposure analyzed in the baseline run to a level that results in risk below the LOC, a reduced exp. run was performed with the following adjustment(s) to the scenario:

- No single MLA/PAL combined nursery worker can work more than 122 applications per year, instead of 150 applications per year.

The results of this adjustment are shown in Table 14.

Table 18: PDCP-30- Reduced Exp.- 122 applications/year per Combined Nursery Worker Completed by Two Separate Applicators for a Total of 150 Acres Treated

Scenario	PDCP-30	**A.I. App Rate** (lbs/acre)	3.5
Run	Reduced Exp.- 122 applications/year per combined-nursery-worker	**Apps per Year**	150
Product	Lorsban 4E	**Acres per Day**	0.086
Adjuvant	none	**App Interval** (days)	2
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator **MLA**			Combined Nursery Worker **CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Chronic MOE	1,2,4-Trimethylbenzene	6.32E+03	6.38E+05	6.26E+03	5.77E+03	6.38E+05	5.72E+03
Chronic MOE	chlorpyrifos	1.28E+02	8.52E+02	1.11E+02	1.16E+02	8.52E+02	1.02E+02
Chronic MOE	Cumene	8.67E+05	5.63E+07	8.54E+05	7.91E+05	5.63E+07	7.80E+05
Chronic MOE	Xylenes	7.05E+04	6.07E+06	6.97E+04	6.44E+04	6.07E+06	6.37E+04
Chronic MOE	Summed Chemicals	1.25E+02	8.51E+02	1.09E+02	1.14E+02	8.51E+02	1.00E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

PDCP-31

Table 19: PDCP-31- Baseline

Scenario	PDCP-31	**A.I. App Rate** (lbs/acre)	3.5
Run	Baseline- Double-LCG, Resp PF5	**Apps per Year**	2
Product	Lorsban 4E	**Acres per Day**	0.75
Adjuvant	none	**App Interval** (days)	180
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator **MLA**			Post-Application-Loader **PAL**			Combined Nursery Worker **CNW**		
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Summed	Dermal	Inhalation	Summed
Acute MOE	1,2,4-Trimethylbenzene	2.42E+03	2.45E+04	2.21E+03	6.38E+05	2.85E+04	2.73E+04	2.23E+03	2.45E+04	2.04E+03
Acute MOE	chlorpyrifos	2.45E+01	1.09E+02	2.00E+01	5.55E+03	2.88E+02	2.73E+02	2.25E+01	1.09E+02	1.86E+01
Acute MOE	Cumene	3.32E+04	2.98E+07	3.32E+04	8.75E+06	3.91E+05	3.74E+05	3.05E+04	2.98E+07	3.05E+04
Acute MOE	Xylenes	2.70E+04	2.31E+06	2.67E+04	7.12E+06	3.18E+05	3.04E+05	2.48E+04	2.31E+06	2.46E+04
Acute MOE	Summed Chemicals	2.42E+01	1.08E+02	1.98E+01	5.49E+03	2.84E+02	2.70E+02	2.22E+01	1.08E+02	1.84E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

The most sensitive adverse effect of chlorpyrifos that has been identified by the US EPA due to acute dermal exposure is plasma and red blood cell cholinesterase inhibition, based on a sub-chronic study in rats (US EPA, 2006a). The same effect has been identified by the US EPA as the most sensitive adverse effect due to acute inhalation exposure (US EPA, 2006a). The potential adverse effect was the basis for all of the acute dermal and inhalation assessments on chlorpyrifos. Approaches were identified that are expected to lower potential exposures so MOEs exceed 100 (i.e., potential exposures are no more than 1/100th of the NO(A)EL in the most sensitive animal species tested) as follows:

In order to reduce the exposure analyzed in the baseline run to a level that results in risk below the LOC, a reduced exp. run was performed with the following adjustment(s) to the scenario:

- No single applicator may treat more than 3,920 square feet per day, instead of 32,670 square feet per day (0.75 acres per day).

The results of this adjustment are shown in Table 16.

Table 20: PDCP-31- Reduced Exp.- 3,920 square feet/day per Applicator Completed by Nine Separate Applicators for a Total of 32,670 square feet Treated

Scenario	PDCP-31	**A.I. App Rate** (lbs/acre)	3.5
Run	Reduced Exp.- 0.09 acres/day per applicator	**Apps per Year**	2
Product	Lorsban 4E	**Acres per Day**	0.75
Adjuvant	none	**App Interval** (days)	180
Setting	Small, Medium and most Large Nurseries		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator			Post-Application-Loader			Combined Nursery Worker		
		MLA			**PAL**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Summed	Dermal	Inhalation	Summed
Acute MOE	1,2,4-Trimethylbenzene	2.02E+04	2.04E+05	1.84E+04	6.38E+05	2.85E+04	2.73E+04	1.16E+04	2.04E+05	1.10E+04
Acute MOE	chlorpyrifos	2.04E+02	9.07E+02	1.66E+02	5.55E+03	2.88E+02	2.73E+02	1.17E+02	9.07E+02	1.03E+02
Acute MOE	Cumene	2.77E+05	2.48E+08	2.76E+05	8.75E+06	3.91E+05	3.74E+05	1.59E+05	2.48E+08	1.59E+05
Acute MOE	Xylenes	2.25E+05	1.92E+07	2.23E+05	7.12E+06	3.18E+05	3.04E+05	1.29E+05	1.92E+07	1.29E+05
Acute MOE	Summed Chemicals	2.01E+02	9.03E+02	1.65E+02	5.49E+03	2.84E+02	2.70E+02	1.15E+02	9.03E+02	1.02E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

3.3.4 Uncertainty Analysis

<u>PDCP-28 and PDCP-29- Mixer-Loader-Applicator</u>

The risk values for PDCP-28 and PDCP-29 reflect exposure to the MLA who is mixing/loading and applying Dursban 50W wearing double-layer clothes, gloves, and a respirator of PF5. The product label requires the mixer-loader to use water-soluble packets which reduces exposure to packet contents prior to mixing and loading. However, the risk assessment does not account for this engineering control due to limited unit exposure choices in US EPA's OPHED (US EPA, 2013b). OPHED provides unit exposures for a MLA using a backpack sprayer, but it does not allow for splitting the mixer-loader's exposure from the applicator's exposure; therefore, the same PPE designation had to be applied to the MLA as a whole. Since the mixer-loader was required to be assessed as wearing less PPE than is typically worn in practice, the risk is likely overestimated. For additional details on the uncertainty involved with choosing OPHED unit exposures, refer to the Mixer-Loader-Applicator exposure assessment in Section 2.3.2 and the Program-wide Uncertainty Analysis Section 4.

<u>PDCP-34 Mixer-Loader-Applicator</u>

The risk values for PDCP-34 reflect exposure to the MLA who is mixing/loading and applying Merit 75 WSP wearing single-layer clothes, gloves, and no respirator. The product label requires the mixer-loader to use water-soluble packets which reduces exposure to packet contents prior to mixing and loading. However, the risk assessment does not account for this engineering control due to limited unit exposure choices in US EPA's OPHED (US EPA, 2013b). OPHED provides unit exposures for a MLA using a backpack sprayer, but it does not allow for splitting the mixer-loader's exposure from the applicator's exposure; therefore, the same PPE designation had to be applied to the MLA as a whole. Since the mixer-loader was required to be assessed as wearing less PPE than reality, the risk is likely overestimated. For additional details on the uncertainty involved with choosing OPHED unit exposures, refer to the Mixer-Loader-Applicator exposure assessment in Section 2.3.2 and the Program-wide Uncertainty Analysis Section 4.

<u>PDCP-35 Mixer-Loader-Applicator</u>

The risk values for PDCP-35 reflect exposure to the MLA who is mixing/loading and applying Merit 75 WSP wearing single layer clothes, gloves, and no respirator. The product label requires the mixer-loader to use water-soluble packets which reduces exposure to packet contents prior to mixing and loading. However, the risk assessment does not account for this engineering control due to limited unit exposure choices in US EPA's OPHED (US EPA, 2013b). OPHED provides unit exposures for a MLA using a mechanically-pressurized hand-held sprayer for soil-directed applications, but it does not allow for splitting the mixer-loader's exposure from the applicator's exposure; therefore, the same PPE designation had to be applied to the MLA as a whole. Since the mixer-loader was required to be assessed as wearing less PPE than reality, the risk is likely overestimated.

Additional uncertainty arises from the OPHED unit exposures designated for mixing/loading and applying of wettable powders during soil-directed applications. The wettable powders, soil-directed spray unit exposures are higher than the unit exposures given for foliar applications. These unit exposures are compared in Table 17.

Table 21: OPHED Foliar vs. Drench Unit Exposure Comparison

Exposure Scenario	Application Type	Exposure Route	Personal Protective Equipment	Unit Exposure (ug/lb ai)
Mixer/ Loader/ Applicator, Mechanically-pressurized Hand-held Sprayer	General Broadcast/ Foliar Applications	Dermal	Single layer clothes, no gloves	1300
			Single layer clothes, gloves	390
			Double layer clothes, gloves	290
		Inhalation	No Respirator	3.9
			Respirator PF5	0.78
			Respirator PF10	0.39
	Drench/ Soil-directed Applications – Wettable Powders	Dermal	Single layer clothes, no gloves	4310
			Single layer clothes, gloves	4310
			Double layer clothes, gloves	2160
		Inhalation	No Respirator	3931
			Respirator PF5	786
			Respirator PF10	393

Source: (US EPA, 2013b)

The difference in the unit exposures between the foliar and wettable powders drench applications is most likely because the drench study used wettable powders for the mixing/loading portion (Evans, J., US EPA Office of Pesticide Programs 2013, Pers comm, E-mail Re: mechanically-pressurized handgun OPHED unit exposures). According to the product label, Merit 75 WSP should be mixed/loaded using water-soluble packaging which reduces exposure to packet contents prior to mixing and loading. Due to the fact that the unit exposures for soil-directed applications are higher than those for foliar applications and the inability to incorporate proper engineering controls for the mixing/loading assessment, uncertainty exists in the MLA risk assessment, but the risk is likely over-estimated.

Due to the likely over-estimation of risk to the MLA in the soil drench mechanically-pressurized handgun assessment, a PDCP-35 reduced exposure analysis was conducted assessing Merit 75 WSP applied using a soil-injection technique. Based on professional judgment, the OPHED soil injection technique exposure values are considered better representatives than OPHED mechanically-pressurized handgun for estimating soil drench exposure. The risk values resulting from the soil-injection analysis may be an under-estimation of risk to the MLA. The MLA's realistic risk is expected to be in between the two assessments.

For additional details on the uncertainty involved with choosing OPHED unit exposures, refer to the Mixer-Loader-Applicator exposure assessment in Section 2.3.2 and the Program-wide Uncertainty Analysis Section 4.

3.3.5 Conclusions

The MOE for 55 of the 59 scenarios was equal to or greater than 100, indicating that the estimated non-cancer hazard for these 55 scenarios was below the LOC. The cancer risk for all scenarios was either less than $1x10^{-6}$ or could not be estimated because the chemicals did not show evidence of carcinogenicity, which indicates that cancer risk, for all the scenarios in which cancer risk could be estimated, was below the LOC. The MOE for four scenarios was less than 100, indicating that some form of adjustment may be appropriate to reduce the non-cancer hazard. The modifications previously presented as Reduced Exposure scenarios and required to reduce risk below the LOC for those scenarios are presented in Table 18.

Table 22: : Mitigation Options Which Can to Reduce Risk Below the LOC for Pierce's Disease Control Program Scenarios

Scenario	Run Category	At Risk Receptor(s)	Risk Category	Product	Active Ingredient	Mitigation Options Which Can Reduce Risk Below the LOC			
						Option 1	Option 2	Option 3	Option 4
PDCP-02	Baseline	A, MLA, CNW	Acute	Alias 4F	Imidacloprid	Limit the number of acres treated by an individual applicator to 44.5 acres/day	-	-	-
PDCP-28	Baseline	MLA, CNW	Acute	Dursban 50W	Chlorpyrifos	Limit the number of acres treated by an individual applicator to 0.4 acres/day	-	-	-
PDCP-30	Baseline	MLA, CNW	Chronic	Lorsban 4E	Chlorpyrifos	Limit the number of acres treated by an individual applicator to 2,962 sqft/day	Limit the number of applications an individual MLA/PAL combined nursery worker may apply to 122 applications/year.	-	-
PDCP-31	Baseline	MLA, CNW	Acute	Lorsban 4E	Chlorpyrifos	Limit the number of acres treated by an individual applicator to 3,920 sqft/day	-	-	-

3.4 European Grapevine Moth Control Activities

3.4.1 Application Scenarios

The four scenarios for control of European Grapevine Moth are summarized in Table 19.

Table 23: Application Scenarios for European Grapevine Moth Control Activities

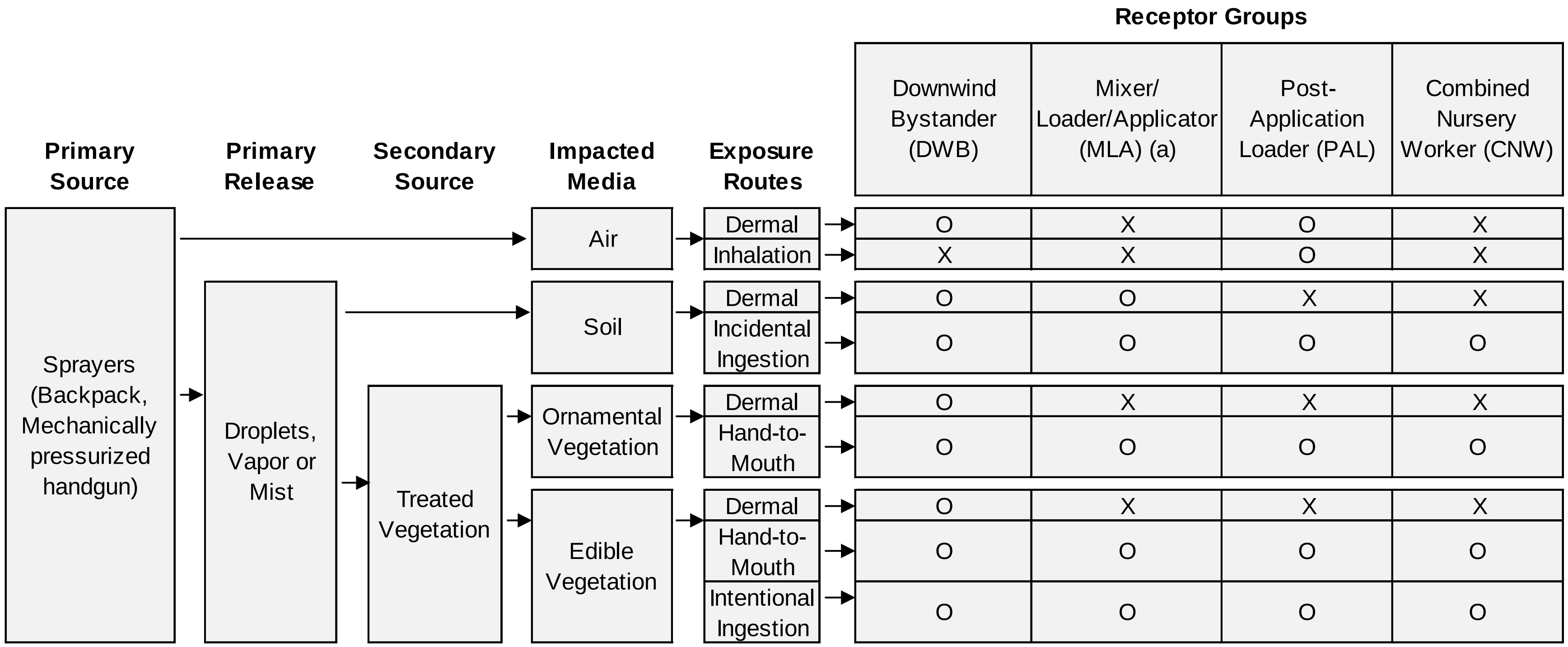
Application Scenario ID	Product	Application Method*	Setting	Adjuvant
EGVM-01	Intrepid 2F	Backpack Sprayer	All Nurseries	Kinetic
EGVM-02	Conserve SC Turf and Ornamental	Backpack Sprayer	All Nurseries	NA
EGVM-03	Conserve SC Turf and Ornamental	Mechanically Pressurized Hand-Held Sprayer	All Nurseries	NA
EGVM-04	DuPont Acelepryn	Backpack Sprayer	All Nurseries	NA

*In place of a backpack sprayer, groundboom may be used for foliar applications and mechanically-pressurized hand-held sprayer may be used for either foliar or drench applications. As the US EPA OPHED unit exposure for backpack sprayer is higher than mechanically-pressurized hand-held sprayer or groundboom, baseline risk was evaluated using US EPA OPHED data for backpack sprayer in order to yield health protective risk estimates for scenarios where this substitution could occur (i.e., where backpack sprayer is listed).
NA – Not applicable; formulation did not contain an adjuvant.

3.4.2 Conceptual Site Model

The CSM for European Grapevine Moth Control Activities is presented in Figure 10.

Figure 10: European Grapevine Moth Nursery Conceptual Site Model



General Notes:
EGVM applications take place in nursery environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

3.4.3 Risk Results

The MOEs estimated under all application scenarios analyzed for European Grapevine Moth were equal to or greater than 100, which indicates that the estimated non-cancer hazard would be below the LOC. Cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity.

3.4.4 Uncertainty Analysis

No EGVM-specific uncertainty was noted. For Program-wide Uncertainty Analysis, refer to Section 4.

3.4.5 Conclusions

For each application scenarios analyzed for European Grapevine Moth, the MOEs did not show levels of risk exceeding the LOC, and cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity.

3.5 Light Brown Apple Moth Control Activities

3.5.1 Application Scenarios

The seven scenarios for control of Light Brown Apple Moth are summarized in Table 20.

Table 24: Application Scenarios for Light Brown Apple Moth Control Activities

Application Scenario ID	Product	Application Method*	Setting	Adjuvant
LBAM-01	Conserve SC Turf and Ornamental	Mechanically Pressurized Hand-held Sprayer	Small, Medium and most Large Nurseries	NA
LBAM-02	DiPel DF	Backpack Sprayer	Field Crop	NA
LBAM-03	Dipel Pro DF	Backpack Sprayer	Small, Medium and most Large Nurseries	NA
LBAM-04	DuPont Acelepryn	Backpack Sprayer	Small, Medium and most Large Nurseries	Bonide All Seasons Horticultural and Dormant Spray Oil
LBAM-05	Entrust Naturalyte Insect Control	Backpack Sprayer	Field Crop	NA
LBAM-06	Intrepid 2F	Mechanically Pressurized Hand-held Sprayer	Field Crop	Bonide All Seasons Horticultural and Dormant Spray Oil
LBAM-07	Scimitar GC	Mechanically Pressurized Hand-held Sprayer	Small, Medium and most Large Nurseries	Bonide All Seasons Horticultural and Dormant Spray Oil

*In place of a backpack sprayer, groundboom may be used for foliar applications and mechanically-pressurized hand-held sprayer may be used for either foliar or drench applications. As the US EPA OPHED unit exposure for backpack sprayer is higher than mechanically-pressurized hand-held sprayer or groundboom, baseline risk was evaluated using US EPA OPHED data for backpack sprayer in order to yield health protective risk estimates for scenarios where this substitution could occur (i.e., where backpack sprayer is listed).
NA – Not applicable; formulation does not contain adjuvant

3.5.2 Conceptual Site Models

The CSMs for Light Brown Apple Moth Control Activities are presented in Figures 11 and 12.

Figure 11: Light Brown Apple Moth Nursery Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack, Mechanically pressurized handgun)			Air	Dermal	O	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	X	X	X
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O
Traps & Lures	Trap			Dermal	O	X	O	X
				Inhalation	O	X	O	X
				Ingestion	O	O	O	O

Receptor Groups

General Notes:

CSM is for LBAM applications that take place in nursery environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

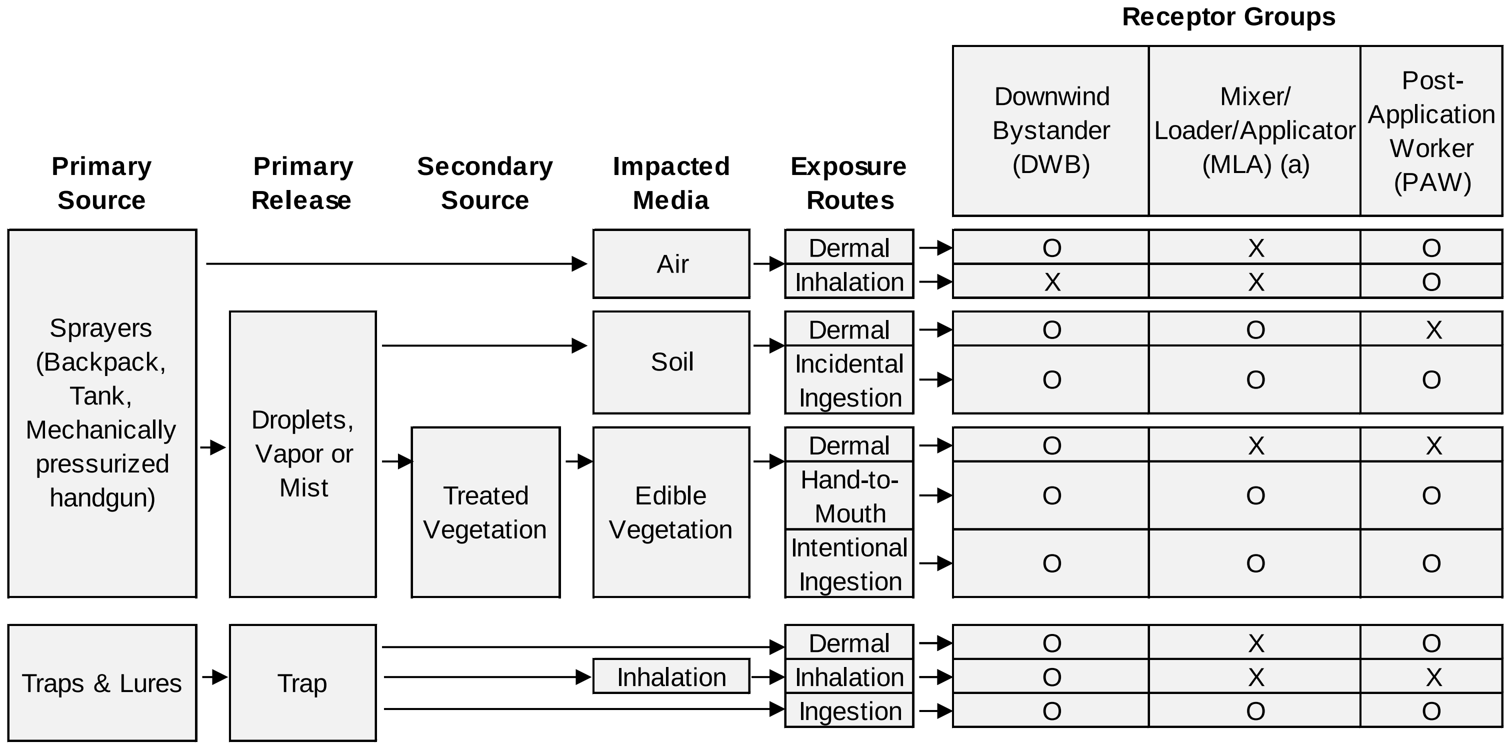
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No exposure was evaluated for the post-purchase consumer to treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Figure 12: Light Brown Apple Moth Production Agriculture Conceptual Site Model



General Notes:
CSM is for LBAM applications that take place in agricultural environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

3.5.3 Risk Results

The MOEs estimated under all application scenarios were equal to or greater than 100, which indicates that the estimated non-cancer hazard would be below the LOC. Cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity.

3.5.4 Uncertainty Analysis

LBAM-05 Mixer-Loader-Applicator

The risk values for LBAM-05 reflect exposure to the MLA who is mixing/loading and applying Entrust Naturalyte Insect Control wearing single-layer clothes, gloves, and no respirator. The pesticide product label requires the mixer-loader to wear a respirator, but the risk assessment does not account for this extra PPE due to limited unit exposure choices in US EPA's OPHED (US EPA, 2013b). OPHED provides unit exposures for a MLA using a backpack sprayer, but it does not allow for splitting the mixer-loader's exposure from the applicator's exposure; therefore, the same PPE designation had to be applied to the MLA as a whole. Since the mixer-loader was required to be assessed as wearing less PPE than reality, the risk is likely overestimated. For additional details on the uncertainty involved with choosing OPHED unit exposures, refer to the Mixer-Loader-Applicator exposure assessment in Section 2.3.2 and the Program-wide Uncertainty Analysis Section 4.

3.5.5 Conclusions

For each application scenarios analyzed for Light Brown Apple Moth, the MOEs did not show risk exceeding the LOC, and cancer risk could not be estimated because none of the chemicals evaluated showed evidence of carcinogenicity.

3.6 Pest Detection/Emergency Program – Eradication

3.6.1 Application Scenarios

The seven application and eight trapping scenarios under the Pest Detection/Emergency Program – Eradication are summarized in Table 21 and Table 22, respectively.

Table 25: Application Scenarios for Pest Detection/Emergency Program – Eradication

Application Scenario ID	Product	Application Method*	Setting
PD/EP-E-01	CoreTect Tree & Shrub Tablets Insecticide	Tablet-Soil Insertion	Residential
PD/EP-E-02	Dipel Pro DF	Backpack Sprayer	Residential
PD/EP-E-03	GF-120-Naturalyte Fruit Fly Bait	Backpack Sprayer	Residential
PD/EP-E-04	Merit 2F	Drench-Mechanically Pressurized Hand-held Sprayer	Residential
PD/EP-E-05	RoundUp	Hudson Sprayer	Residential
PD/EP-E-06	Sevin SL	Backpack Sprayer	Residential
PD/EP-E-07	Tempo SC Ultra	Backpack Sprayer	Residential

*In place of a backpack sprayer, the use of a mechanically-pressurized hand-held sprayer is possible and is expected to result in a lower level of risk, when assuming the same treatment area. Lower levels of risk are expected for the mechanically-pressurized hand-held sprayer because US EPA OPHED designates a lower unit exposure for this method than for the backpack sprayer.

Table 26: Trapping Scenarios for Pest Detection/Emergency Program – Eradication

Trapping Scenario ID	Product 1	Product 2	Product 3	Trap Type	Setting
PD/EP-Etr-01	Dibrom 8 Emulsive	Cuelure	NA	Jackson Trap	Production Agriculture
PD/EP-Etr-02	Dibrom 8 Emulsive	Cuelure	NA	Jackson Trap	Residential
PD/EP-Etr-03	Dibrom 8 Emulsive	FT-Methyl Eugenol	NA	Jackson Trap	Production Agriculture
PD/EP-Etr-04	Dibrom 8 Emulsive	FT-Methyl Eugenol	NA	Jackson Trap	Residential
PD/EP-Etr-05	Dibrom Concentrate	FT-Methyl Eugenol	Min-U-Gel 400	Splat	Production Agriculture
PD/EP-Etr-06	Dibrom Concentrate	FT-Methyl Eugenol	Min-U-Gel 400	Splat	Residential
PD/EP-Etr-07	STATIC Spinosad ME	NA	NA	Splat	Production Agriculture
PD/EP-Etr-08	STATIC Spinosad ME	NA	NA	Splat	Residential

NA – Not applicable; no additional products contained within the trap.

For certain application scenarios, other pesticide products that are substantially similar in composition and method of application may be used in lieu of the product listed. A list detailing where substantially similar products may be used can be found in the Dashboard Database.

For all Pest Detection/Emergency Program –applications, exposure was evaluated by assuming the entire treatment area would be treated in a single day. In situations where applications may be made exclusively to select trees within a broad residential area (i.e., the entire treatment area), this method is health protective as the modeled area treated would be substantially larger than the actual area treated (i.e., the sum surface area treated for all treated trees). For the application scenario PD/EP-E-06, a more realistic estimation was deemed appropriate. The total area treated used to estimate exposure for those scenarios was estimated through summation of the surface area treated for all treated trees. To estimate the total surface area treated, the average tree treatment area was multiplied by a maximum number of trees treated in a day. Based on CDFA's expert opinion, the average dripline radius per tree was considered to be 10 feet, yielding an average treatment area per tree of 314 ft^2, while the maximum number of trees treatable in a day per applicator was considered to be approximately 200 trees. Multiplying the average treatment area per tree (314 ft^2/tree) by the maximum number of trees treatable in a day per applicator (tree/applicator-day) yields the total surface area treated within a day per applicator of 1.44 acres/applicator-day. This is the treatment acreage used to evaluate receptor exposure for application scenario PD/EP-E-06.

3.6.2 Conceptual Site Model

The CSM for the Pest Detection/Emergency Program –is presented in Figure 13.

Figure 13: Pest Detection/Emergency Program – Eradication Residential Conceptual Site Model

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
					Receptor Groups					
Sprayers (Backpack)			Air	Dermal	O	X	O	O	O	O
Sprayers (Backpack)			Air	Inhalation	X	X	O	O	X	X
Sprayers (Backpack)	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
Sprayers (Backpack)	Droplets, Vapor or Mist		Soil	Incidental Ingestion	O	O	O	X	O	X
Sprayers (Backpack)	Droplets, Vapor or Mist	Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
Sprayers (Backpack)	Droplets, Vapor or Mist	Treated Vegetation	Ornamental Vegetation	Hand-to-Mouth	O	O	O	X	O	X
Sprayers (Backpack)	Droplets, Vapor or Mist	Treated Vegetation	Edible Vegetation	Dermal	O	X	X	X	X	X
Sprayers (Backpack)	Droplets, Vapor or Mist	Treated Vegetation	Edible Vegetation	Hand-to-Mouth	O	O	O	X	O	X
Sprayers (Backpack)	Droplets, Vapor or Mist	Treated Vegetation	Edible Vegetation	Intentional Ingestion	O	O	X	X	X	X
Spray Drench & Stump Application (b)			Air	Dermal	O	X	O	O	O	O
Spray Drench & Stump Application (b)			Air	Inhalation	O	X	O	O	O	O
Spray Drench & Stump Application (b)	Large Droplets		Soil	Dermal	O	O	X	X	X	X
Spray Drench & Stump Application (b)	Large Droplets		Soil	Incidental Ingestion	O	O	O	X	O	X
Spray Drench & Stump Application (b)	Large Droplets	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
Spray Drench & Stump Application (b)	Large Droplets	Treated Vegetation	Ornamental Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Spray Drench & Stump Application (b)	Large Droplets	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O	O	O
Spray Drench & Stump Application (b)	Large Droplets	Treated Vegetation	Edible Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Spray Drench & Stump Application (b)	Large Droplets	Treated Vegetation	Edible Vegetation	Intentional Ingestion	O	O	X	X	X	X
Soil Drench or Injection			Air	Dermal	O	X	O	O	O	O
Soil Drench or Injection			Air	Inhalation	O	X	O	O	O	O
Soil Drench or Injection	Saturated Soil		Soil	Dermal	O	O	X	X	X	X
Soil Drench or Injection	Saturated Soil		Soil	Incidental Ingestion	O	O	O	X	O	X
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Edible Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Edible Vegetation	Intentional Ingestion	O	O	X	X	X	X
Tree and Shrub Tablets			Air	Dermal	O	O	O	O	O	O
Tree and Shrub Tablets			Air	Inhalation	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil		Soil	Dermal	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil		Soil	Incidental Ingestion	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil	Treated Vegetation	Edible Vegetation	Hand-to-Mouth	O	O	O	O	O	O
Tree and Shrub Tablets	Saturated Soil	Treated Vegetation	Edible Vegetation	Intentional Ingestion	O	O	X	X	X	X
Traps & Lures	Trap			Dermal	O	X	O	O	O	O
Traps & Lures	Trap		Air	Inhalation	O	X	X	X	X	X
Traps & Lures	Trap			Ingestion	O	O	O	O	O	O

General Notes:
PDEP-E applications take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.
(b) Stump applications apply to glyphosate applications only and exposure is limited to MLA only.

3.6.3 Risk Results

The MOEs estimated under all application scenarios analyzed in the Pest Detection/Emergency Program – Eradication were equal to or greater than 100, which indicates that the estimated non-cancer hazard would be below the LOC. Cancer risk for all scenarios was either below the LOC (i.e., less than $1x10^{-6}$) or could not be estimated because the chemical evaluated did not show evidence of carcinogenicity.

3.6.4 Uncertainty Analysis

Trap/Lure Box Model

In order to estimate the concentration of chemical in the ambient air around an outdoor trap, the volume of affected air was assumed to be contained in a hypothetical 64 m^3 box. The wind speed was assumed to be 1 mph. In most instances, specific trap/lure emission rates were unavailable, so the rates were estimated assuming linear dissipation over the entire re-application interval. Receptors were assumed to remain in the hypothetical box for the entirety of the exposure time. Due to the lack of empirical air monitoring data, uncertainty exists with the exposure concentrations that may occur under actual field conditions in the assessment of traps and lures; however, based on the conservative assumptions, the risk is expected to be an over-estimate.

3.6.5 Conclusions

For each application scenarios analyzed in the Pest Detection/Emergency Program – Eradication, the MOEs did not show risk above the LOC, and the cancer risk was either below the LOC or could not be estimated because the chemicals evaluated did not show evidence of carcinogenicity.

3.7 Pest Detection/Emergency Program – Detection

3.7.1 Application Scenarios

The 12 trapping scenarios under Pest Detection/Emergency Program – Detection are summarized in Table 23.

Table 27: Trapping Scenarios for Pest Detection/Emergency Program –Detection

Trapping Scenario ID	Product 1	Product 2	Trapping Method	Setting
PD/EP-DTr-01	FT-Methyl Eugenol	Dibrom 8 Emulsive	Jackson Trap	Production Agriculture
PD/EP-DTr-02	FT-Methyl Eugenol	Dibrom 8 Emulsive	Jackson Trap	Residential
PD/EP-DTr-03	FT-Methyl Eugenol	Dibrom 8 Emulsive	Jackson Trap	Production Agriculture
PD/EP-DTr-04	FT-Methyl Eugenol	Dibrom 8 Emulsive	Jackson Trap	Residential
PD/EP-DTr-05	Sirex Lure	1,2-propanediol	Lingren Funnel Trap	Production Agriculture
PD/EP-DTr-06	Sirex Lure	1,2-propanediol	Lingren Funnel Trap	Residential
PD/EP-DTr-07	Dual Lure	NA	Japanese Beetle trap	Production Agriculture
PD/EP-DTr-08	Dual Lure	NA	Japanese Beetle trap	Residential
PD/EP-DTr-09	SSM Sex Pheromone	Hercon Vaportape II	milk carton trap	Production Agriculture
PD/EP-DTr-10	SSM Sex Pheromone	Hercon Vaportape II	milk carton trap	Residential
PD/EP-DTr-11	Dual Lure	NA	Japanese Beetle trap	Production Agriculture
PD/EP-DTr-12	Dual Lure	NA	Japanese Beetle trap	Residential

NA – Not applicable; no additional products contained in the trap or lure.

For certain application scenarios, other pesticide products that are substantially similar in composition and method of application may be used in lieu of the product listed. A list detailing where substantially similar products may be used can be found in the Dashboard Database.

3.7.2 Conceptual Site Model

The CSM for the Pest Detection/Emergency Program –Detection is presented in Figure 14.

Figure 14: Pest Detection/Emergency Program –Detection Residential and Production Agriculture Conceptual Site Model

Primary Source	Primary Release	Impacted Media	Exposure Routes	Receptor Groups: Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)	Post-Application Worker (PAW)
Traps & Lures	Trap		Dermal	X	O	O	O	O	O
		Air	Inhalation	X	X	X	X	X	X
			Ingestion	O	O	O	O	O	O

General Notes:

PDEP-D applications take place in agricultural and residential environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

3.7.3 Risk Results

The MOEs estimated under all application scenarios analyzed in the Pest Detection/Emergency Program –Detection were equal to or greater than 100, which indicates that the estimated non-cancer hazard would be below the LOC. Cancer risk for all scenarios was either below the LOC (i.e., less than $1x10^{-6}$) or could not be estimated because the chemical evaluated did not show evidence of carcinogenicity.

3.7.4 Uncertainty Analysis

<u>Traps/Lures Box Model</u>

See discussion above for the Pest Detection/Emergency Program – Eradication in Section 3.6.4.

3.7.5 Conclusions

For each application scenario analyzed in the Pest Detection/Emergency Program –Detection, the MOEs did not show risk above the LOC, and the cancer risk was either below the LOC or could not be estimated because the chemicals evaluated did not show evidence of carcinogenicity.

3.8 Integrated Pest Control Program

3.8.1 Application Scenarios

The 4 trapping scenarios under the Integrated Pest Control Program trapping are summarized in Table 24.

Table 28: Trapping Scenarios for Integrated Pest Control Program

Trapping Scenario ID	Product	Trapping Method	Setting
IPC-Tr-01	Grandlure	Boll Weevil Scout Trap	Production Agriculture
IPC-Tr-02	Grandlure	Boll Weevil Scout Trap	Residential
IPC-Tr-03	Grandlure	Boll Weevil Scout Trap	Production Agriculture
IPC-Tr-04	Grandlure	Boll Weevil Scout Trap	Residential

3.8.2 Conceptual Site Model

The CSM for the Integrated Pest Control Program is presented in Figure 15.

Figure 15: Integrated Pest Control Program Residential and Production Agriculture Conceptual Site Model

				Receptor Groups					
Primary Source	Primary Release	Impacted Media	Exposure Routes	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)	Post-Application Worker (PAW)
Traps & Lures	Trap		Dermal	X	O	O	O	O	O
		Air	Inhalation	X	X	X	X	X	X
			Ingestion	O	O	O	O	O	O

General Notes:

IPC applications take place in agricultural and residential environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

3.8.3 Risk Results

The MOEs estimated under all application scenarios analyzed in the Integrated Pest Control Program were equal to or greater than 100, which indicates that the estimated non-cancer hazard would be below the LOC. Cancer risk for all scenarios was either below the LOC (i.e., less than $1x10^{-6}$) or could not be estimated because the chemical evaluated did not show evidence of carcinogenicity.

3.8.4 Uncertainty Analysis

Traps/Lures Box Model

See discussion above for the Pest Detection/Emergency Program – Eradication in Section 3.6.4.

3.8.5 Conclusions

For each application scenarios analyzed in the Integrated Pest Control Program, the MOEs did not show risk exceeding the LOC, and the cancer risk was either at below the LOC or could not be estimated because the chemicals evaluated did not show evidence of carcinogenicity.

4 Program-wide Uncertainty Analysis

In characterizing risks from exposure to chemical substances, it is important to address the variability and uncertainty associated with the exposure/risk estimates. The risk characterization should provide information on: (1) potential measurement errors based on the precision and accuracy of the available data, (2) variability of the input data used in the exposure/risk estimates, and (3) uncertainty that results from data gaps or the assumptions used. The risk characterization also assesses the relative importance of these components on the estimates of exposure/dose and risk.

Uncertainty may be introduced into the exposure/risk calculations at various stages of the risk assessment process. Uncertainty may occur as a result of: (1) the techniques used to sample and analyze chemical residues, (2) site-specific mechanisms of chemical fate and transport, (3) the selection of exposure scenarios and exposure factors, (4) the uncertainties associated with toxicity data that have been extrapolated from high doses in animals to low doses in humans, and that do not account for the interactions of exposures to multiple chemical substances over a lifetime, and (5) the potential size of the exposed populations and subpopulations. Variability can occur as a result of variations in individual day-to-day or event-to-event exposure factors or variations among the exposed population.

The remainder of this section discusses uncertainties associated with the Exposure Assessment and the Toxicity Assessment.

4.1 Exposure Assessment

To address the exposure assessment uncertainties, the following assumptions were made. In some cases, as noted below, conservative assumptions likely resulted in an over-estimate of actual risk.

4.1.1 Inert Ingredient Information Quality

The HHRA evaluated information on inert ingredients to the extent that information was available. The quality and depth of information available on inert ingredients in pesticide products was highly variable; in some instances, full disclosure of ingredients was given, others offered partial disclosure, and some offered none. In instances where inert ingredients were not disclosed and no information was available to estimate risk, the extent of risk, if any, remains unknown.

4.1.2 Model Limitations

When using models to derive environmental media concentrations and exposure values in the HHRA, model limitations were encountered. To overcome these limitations, various assumptions were made based on professional judgment. When possible, conservative assumptions (i.e., ones that result in the highest exposure estimate) were made. For a description of the models presented in this section, please refer to section 2.3: Exposure Assessment. Limitations of each model are presented below.

US EPA Occupational Pesticide Handler Exposure Data (OPHED)

OPHED required the user to select from the given combinations of application techniques, settings, and PPE. When a requested application scenario did not match any of the OPHED choices, the most suitable surrogate was chosen based on professional judgment. Most studies used to derive the OPHED unit exposures were unavailable.

Briggs Equation

The Briggs equation was used to estimate chemical concentration in vegetation. It allows for the calculation of expected tissue concentrations due to chemical uptake from soil residues for plants. When the Log K_{ow} of a chemical analyzed was greater than 7, the model assumed there was no chemical uptake from the soil, limiting the analysis to foliar residues only, if applicable.

Simple Soil Model (SSM)

Soil concentrations for foliar applications were estimated assuming 20% of the applied chemical was deposited directly to the soil and 80% was retained on the foliage. This ratio of applied pesticide to soil and foliage is consistent with US EPA agricultural risk assessment models (US EPA, 2006q). To the extent that this ratio might be different in real-world situation, this assumption may lead to either an over- or under-estimate of exposure.

AgDRIFT

Most model defaults were left unchanged. AgDRIFT makes assumptions for a variety of parameters associated with application methods and meteorological data that may not match site specific conditions and may lead to over- or under-estimation of percent off-site drift.

US EPA Standard Operating Procedures for Residential Exposure Assessments

US EPA's Residential SOPs are more reliable for estimating instantaneous or acute exposure than continuous exposure. The user is limited to the application settings, exposure pathways, and activity patterns provided in the SOP so a surrogate had to be chosen if the requested application and exposure options were not available. For example, the US EPA Lawns/Turf SOP was used as a surrogate for estimating incidental ingestion of residues on plant surfaces from hand-to-mouth activity. Using conservative surrogates, such as the US EPA Lawns/Turf SOP, provided more confidence that the resulting exposure was an over-estimate compared to actual exposure.

US EPA Risk Assessment Guidance for Superfunds (RAGS)

RAGS methodology is most commonly used to estimate continuous exposure, but in some cases (e.g., ingestion of vegetation), it was used for acute exposure assessments due to lack of appropriate alternative methodology. Alternative methodologies that were considered but deemed less conservative or less appropriate for the specific analysis included, but were not limited to, US EPA *Standard Operating Procedures for Residential Exposure Assessments* (US EPA, 2012l) and US EPA's *Occupational Pesticide Handler Exposure Data* (US EPA, 2013b).

Using conservative values for exposure parameters (e.g., vegetation ingestion rate), provided more confidence that the resulting exposure was an over-estimate compared to actual exposure.

US EPA Science Advisory Council for Exposure Policy 3 (ExpoSAC)

The user is limited to the combinations of crop groups and activities (e.g., Apple- Harvesting hand; Peach- Orchard maintenance) provided by ExpoSAC in order to choose a corresponding transfer-factor. If a match to crop or activity for a given application scenario was not available, a surrogate was used, resulting in an under- or over-estimate of exposure.

In situations where a surrogate crop and activity was selected, the residue transfer estimation may be impacted. Selecting conservative surrogates from applicable crop group and activity options provided more confidence that the resulting exposure was an over-estimate compared to actual exposure.

4.2 Toxicity Assessment

To address the toxicity assessment uncertainties, the following assumptions were made. In some cases, as noted below, conservative assumptions likely resulted in an over-estimate of actual risk.

4.2.1 Toxicological Endpoints

The toxicity assessment evaluated non-cancerous adverse effects and cancerous endpoints that were derived from animal data observed in controlled experiments. Uncertainty associated with these data are addressed through use of the MOE approach. The MOE approach accounts for uncertainty in inter-species extrapolation and intra-species variation through the use of two safety factors of ten, which multiplied together result in a total target MOE of 100.

For cancer endpoints, models have been used to extrapolate from the high doses used in laboratory studies to the low doses likely to occur in the field. The accuracy of this extrapolation is uncertain.

4.2.2 Endocrine Disruptors

Endocrine disruptors are chemicals or mixtures of chemicals that may interfere with the body's endocrine system and produce developmental, reproductive, neurological and immune effects in both humans and wildlife (NIEHS, 2013). Although endocrine disruptors are generally considered to have the potential to cause adverse effects, considerable uncertainty exists regarding the relationship between endocrine disruptor exposure and adverse health outcomes. In many cases, only screening level data are available indicating the potential for a chemical to interact with the endocrine system in a way that may produce an adverse effect (US EPA, 2011v). In general, these and other forms of endocrine disruptor data are not sufficient for conducting a risk assessment. As a result, endocrine disruption was not explicitly assessed in this HHRA.

4.2.3 Synergism

Synergism is the effect caused when exposure to two or more chemicals at the same time results in health effects that are greater than the sum of the effects of the individual chemicals (Health Canada, 2013). Uncertainty exists as to whether any of the chemicals analyzed in this HHRA produce synergistic effects. Although methodologies were available for assessing synergism, no usable endpoints were available in the literature to evaluate synergistic relationships between and within active and inert ingredients analyzed in this HHRA. Therefore, synergistic effects could not be evaluated in this risk assessment.

5 Conclusions

This HHRA was conducted in order to determine the potential health risk to humans from implementation of chemical management activities under CDFA's Proposed Program. The HHRA was conducted using procedures and methodologies commonly used by government agencies such as US EPA and DPR as well as the wider risk assessment community. The HHRA, relied upon the four stage process for risk assessments: hazard identification, toxicity dose response assessment, exposure assessment, and risk characterization. In the hazard identification phase, CDFA and its risk assessment team consulted with DPR and OEHHA to determine the appropriate scenarios to assess, which models should be used to evaluate exposure, default data assumptions, and appropriate toxicity effects representations based on scientific literature. The toxicity dose-response assessment phase developed conservative values for both acute and chronic non-cancer health effects as well as cancer slope factors (CSF). CSF were obtained from US EPA standardized values for all chemicals which are known to be carcinogenic. Non-cancer health effects were based on NO(A)ELs obtained from literature studies. In the exposure assessment phase, ADD and LADD for potential exposed populations were determined using various models accounting for concentration of the applied chemicals to various environmental media and subsequently absorbed by a human receptor. The risk characterization phase provided conclusions on the potential for adverse effects to occur to human receptors. The risk characterization phase utilized both a quantitative and qualitative assessment. If the estimated MOE was above the LOC of 100, then it was concluded that the potential for adverse effects is low. If the estimated MOE or cancer risk was above the LOC, then a reduced exposure scenario was developed and/or qualitative assessment was conducted to incorporate protective measures, as well as information that the quantitative models are not capable of fully representing.

Section 3 lists the detailed results of the risk characterization phase for every application scenario. In some situations, based on the quantitative assessment indicating the MOE or cancer risk was below the LOC it was easily concluded that the potential for adverse effects was low. When the MOE or cancer risk was above the LOC, reduced exposure scenarios were developed and/or appropriate measures were identified that could be implemented to reduce risk levels. Key scenarios for which such reduced exposure scenarios or measures were developed included:

- **Fumigation:** fumigation of agricultural commodities for control of fruit flies and ACP was determined to have potential for acute and chronic non-cancer risk exceeding the LOC for the PTW due to inhalation of off-gassing of methyl bromide following treatment. This would be due to the buildup of the off-gassing chemical in containers as the commodities are transported. Use of adequate ventilation, temperature control in refrigeration units, and real-time air analyzers were determined to be sufficient to reduce the risk below the LOC. In addition, the HHRA acknowledges that potential exists for sub-chronic and chronic risk to the FUW and FDWB from methyl bromide exposure; mitigation, if any, that may be required to reduce such exposure is being further assessed by CDPR.

- **Soil injection of Alias 4F for control of Pierce's disease:** for one scenario (PDCP-02), the use of Alias 4F (active ingredient imidacloprid) was estimated to exceed the acute

LOC for the A, MLA, and CNW, primarily due to dermal exposure. The risk was able to be reduced below the LOC by reducing the area a single worker would treat from 50 acres to 44.5 acres. It is considered unlikely that a single applicator is capable of treating 44.5 acres or more in a single day using soil injection due to the sheer size of the treatment area.

- **Use of Dursban 50W or Lorsban 4E for control of Pierce's disease:** for three scenarios (PDCP-28, PDCP-30, and PDCP-31), the use of either Dursban 50W or Lorsban 4E (active ingredient chlorpyrifos) was estimated to exceed the acute or chronic LOC for the MLA, PAL, and/or CNW, primarily due to dermal exposure. The risk was able to be reduced below the LOC by reducing the area a single worker would treat, or in the case of PDCP-30, the frequency with which any worker would conduct the treatment.

6 References

The complete list of references is presented in the Dashboard Database and accessed via the References portal.

Attachment 1

Joint OEHHA, DPR, & CDFA Meeting Details

ATTACHMENT 1

Joint OEHHA, DPR, & CDFA Meeting Details

Table of Contents

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting Status Meeting Notes
November 1, 2012, 2-4 pm

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Nick Condos, Craig Hanes, Laura Petro, Roger Spencer, Janet Taylor

OEHHA: Allan Hirsch, Regina Linville, Chuck Salocks

DPR: Sheryl Beauvais, Marylou Verder-Carlos, Dave Duncan, Dave Kim, Lisa Ross, Jay Schreider, Randy Segawa

Horizon: Mike Blankinship, Scott Dwyer, Ryan Jolley, Brad Sample, Michael Stevenson, Joe Sullivan, Judy Zaninovich

Attachments:

Sign-in Sheet
Agenda
Presentation

Notes:

Risk Assessment Methodology

Ecological Risk

- Estimated Environmental Concentrations (EEC):
  - For chronic risk, proportional exposure is determined using the area-use factor - the proportion of treated home/foraging range treated with pesticides during a single application.
  - For acute risk, proportional exposure is determined using all food collected from the treated area.
- Biological surrogates include species related to California Environmental Quality Act (CEQA) criteria (i.e., surrogates for special-status species), as well as species of importance to agriculture, such as honeybees and earthworms.

Human Health Risk

- Drinking water will not be evaluated as an exposure pathway, on the basis that production agriculture and other treatment settings for the Statewide Program are not located near drinking water sources. Reasonable assumptions supporting this basis will be discussed in the Risk Assessment.

- Cumulative risk associated both with CDFA and non-CDFA activities, such as lifetime exposure of workers to chemicals, will be evaluated qualitatively in the Program EIR.

Asian Citrus Psyllid (ACP) Program

Nursery Quarantines

- Nursery stock designated for sale cannot move within or out of a nursery unless a foliar and drench treatment is applied. For example, if a citrus plant is for sale it must have had at least one drench and foliar application. In retail nurseries only one pesticide treatment is required as long as the plant is for sale and does not leave the premises. In production nurseries, the plants that are for sale must be treated every 90 days (certification period) or the plants go on hold until they are treated again. Plants may receive both soil and foliar treatments either on the same day or on consecutive days.
- Only ACP host plants are required to be treated.
- Treatments typically occur about 90 days apart. Typically nurseries wait to treat numerous ACP host plants at once. Treatments do occur more frequently when needed to meet higher demand for host plants from production nurseries.
- Defining a typical nursery scenario is difficult, as many nurseries have different set ups and geographic settings. Capturing nursery scenarios is one of the big challenges for the Risk Assessment.
- For economic reasons and to meet label requirements, nurseries apply the minimum amount of pesticides needed. At nursery site visit, team observed spraying of plants to wetness, and did not observe any direct runoff from treatment.
- At nurseries, treatments typically occur either at outdoor loading dock, on a designated spray paid, or while sitting out at the nursery.
- ACP nursery scenario considers production and retail nurseries. Setting for ACP focuses on loading docks in production nurseries.
- ACP is the first nursery model. This nursery scenario will be expanded/modified for other programs, as necessary based on program information provided by CDFA (e.g., European grapevine moth, etc.).

Methyl bromide use

- Methyl bromide fumigation is performed on Kaffir lime or curry leaves used for condiments.
- Currently for ACP, two companies in San Diego and Los Angeles conduct methyl bromide fumigation once per week.
- Assumption is that methyl bromide from fumigation will not contaminate soil because treated leaves are picked off plant and fumigated in chamber. No soil in chamber. Leaves grown within the quarantine area.
- CDFA monitors methyl bromide fumigation, but does not conduct enforcement on these treatments. County agricultural commissioner is notified and can observe/enforce, if they desire.
- After fumigation, leaves are brought to distribution center. No cold storage facility is used.
- Fumigation is included in both the ecological and human health risk assessments.

Level of Effort and Future Joint Meetings

- Joint DPR/OEHHA meetings will be scheduled once every 6 weeks on Thursdays.
- Regularly scheduled meetings are intended to allow for interim review of the Risk Assessment, avoiding the heavy concentrated workload associated with reviewing the whole Risk Assessment document at end of the process.
- Subsequent meetings will focus on various aspects of Risk Assessment development, such as addressing specific CDFA programs (similar to ACP quarantines which was the Program reviewed in this meeting).
- Much of the risk assessment methodology has already been presented, but can be discussed in subsequent meetings as specific issues related to the methodology arise, such as program-specific considerations.
- CDFA and consultant team are requesting a cursory level of review from DPR/OEHHA but encourage more review if specific issues in the Risk Assessment are identified.

  Meeting topics will be identified in advance of each meeting. Similarly, any documents relevant to meetings will be sent out to DPR/OEHHA points of contact prior to meetings. Documents can then be distributed within DPR/OEHHA as needed.
- CDFA and consultant team are available to discuss subtopics with DPR/OEHHA outside of formal meetings, as necessary.

<u>Summary of Questions and Answers:</u>

1) DPR question: How was 'treated area' identified? (relates to ecological risk/AUF slide)

   Joe answer: based on area for single application. Additionally only applies to chronic exposure.

2) DPR question: Where does run off go in a loading dock application? Was there are drain? (concern was whether there was any off-site movement).

   CDFA answer: Applicators try to prevent run off. They drench just to saturation. Joe suggested revising to say ‘spray to wetness'.

3) DPR question: Do they treat all plants at a time, or just some plants?

   Joe: Only treat host ACP plants.

   CDFA: Agrees - only treat those that will be sold.

4) OEHHA question: Will this model nursery be for all programs or will there be separate nursery scenarios for different pest programs?

   Joe: The model nursery is generic and will modified as needed to reflect specific program elements.

5) Will it be production and retail nursery?

   Joe: It will be a combination of both.

Horizon (Michael): Noted that there are an infinite number of options for application of pesticides. Goal is to identify reasonable worst-case scenarios. Other treatments not under CDFA jurisdiction will be addressed in the cumulative impacts analysis section of the EIR.

6) DPR question: Are the terrestrial insects considered in the ERA? For example bees?

Joe: yes

7) OEHHA question: Don't you think that methyl bromide will go into the soil?

Joe: we believe that it is likely to volatilize.

Mike: pointed out that treated commodity is boxed leaves that have been picked and are not associated with soil anymore. Methyl bromide treatment occurs in two locations in CA: San Diego and LA.

8) DPR question: after fumigation, where does crop go?

CDFA (Janet/Laura): It is brought to distribution centers and the shipped.

9) DPR question: not placed in cold storage?

CDFA (Janet/Laura): No, it is not placed in cold storage.

10) DPR question: Is the human health risk assessment not evaluating fumigation chambers?

Mike: That is not correct; the CSM has just not been developed yet.

11) DPR question: How are pesticides in water being evaluated?

Mike: Evaluated USGS, SWRCB and DPR surfacewater databases. For the most part, CDFA pesticides are not detected and when they are, they are almost always at concentrations less than the MCL. Surface water near nurseries, production agriculture or urban areas is not a common source for drinking water. For these reasons, the human drinking water pathway is not being considered.

12) DPR question: what is being done for cumulative assessment?

Mike: It would be difficult to tease out CDFA programs from overall applications. This CDFA-specific assessment cannot realistically look at all possible exposures, including those outside CDFA programs. This assessment will focus on CDFA activity only. As described earlier, a qualitative cumulative risk assessment will be completed in the PEIR.

13) In planning for next meetings, DPR wanted to know what will be sent out prior to meeting

Materials that is to be discussed at each for meeting will be sent to the DPR and OEHHA managers who will identify appropriate subject matter experts on their staff and distribute accordingly.

14) Sheryl offered several excellent suggestions to Mike and Scott after the meeting regarding pesticide handler exposure, re-entry exposure, residential exposure, and EPA's exposure factors handbook.

Sign-In Sheet

11/1/12
CDFA PEIR
OEHHA/DPR Mtg

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California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday, November 1, 2012, 2–4 pm
CalEPA Bldg, Conference Room 550, Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Janet Taylor, Robert Leavitt, Nick Condos
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais
Horizon:	Michael Stevenson, Ryan Jolley, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich,

Agenda:

I. Welcome and Sign-In (Laura; 5 min)
II. Introductions (All; 5 min)
III. Meeting Objectives (Laura, Mike; 5 min)
IV. Overall PEIR Structure and Schedule (Michael; 5 min)
V. Pierce's Disease Control Program (PDCP)
   a. Review To Date (Mike; 5 min)
      i. DPR Comments July 8, 2011
      ii. DPR Meeting August 26, 2011
      iii. OEHHA Meeting November 28, 2011
      iv. OEHHA Comments and Meeting August 29, 2012
   b. Program Overview (Craig, Roger; 10 min)
VI. Risk Assessment Methodology & Tools
   a. Pesticide Application Information: The PMDS (Joe; 5 min)
   b. Ecological (Joe; 10 min)
   c. Human (Mike; 10 min)
VII. Next For Review: Asian Citrus Psyllid (ACP)
   a. Program Overview (Janet, Laura; 5 minutes)
   b. "Model" Nursery and Application Scenarios (Joe; 15 min)
   c. Conceptual Site Models (Mike; 10 min)
VIII. Level of Effort and Future Meeting Schedule (Mike; 10 min)
IX. Questions, Actions and Adjourn (All; 10 min)

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #1

Thursday, November 1, 2012

Agenda

I. Welcome
II. Introductions
III. Meeting Objectives
IV. EIR Background
V. PDCP
VI. Risk Assessment Methods & Tools
VII. ACP
VIII. Level of Effort & Future Meeting Schedule
IX. Q&A/Adjourn

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II. Introductions
III. Meeting Objectives
- II. Review Progress & Current Status
- III. Present Future Plan
- IV. Establish Review Schedule
- V. Identify Assignments

IV. EIR Background

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V. Pierce's Disease Control Program

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The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Pierce's Disease Control Program (PDCP)

- Vector = Glassy-winged Sharpshooter
- 14 Active Ingredients
- 20 Inert Ingredients
- 3 Application Scenarios
  - Production Ag
  - Nursery
  - Urban

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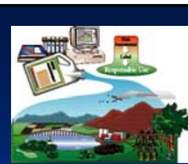

VI. Risk Assessment Methods & Tools

a. Pesticide Application Information - PMDS
b. EECs
c. Ecological
d. Human

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Pesticide Application Information

- Active and Inert Ingredients
- Intermittent Exposure
  - None, Single or Multiple Applications
- Potentially Rapidly Diminishing Exposure
  - Dependent on Chemical Specific Fate Characteristics
  - Could see Peaks and Valleys
- Spatially Disjunct Exposures
- Variable Treatment Areas
  - < 1 acre up to more than a hundred acres
- Realistic, Tending Toward Worst-Case Scenario

Pesticide Application Information

Program Material Data Sheet

- Tool used to gather information on:
  - Pesticides used
  - Adjuvants and additives used
  - Application
    - Rate
    - Method
    - Frequency, Duration and Seasonality
    - Interval
  - Treatment area size

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CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Pesticide Application Information
Program Material Data Sheet

Program	Products	Scenarios
Asian Citrus Psyllid Nursery Quarantine	20	30
European Grape Vine Moth Nursery Quarantine	3	4
Fruit Flies Regulatory Quarantine	4	9
Light Brown Apple Moth Nursery Quarantine	6	7
Pest Detection/Eradication Program--Detection	7	6
Pest Detection/Eradication Program--Eradication	13	10
Pierce's Disease Control Program	30	60
Totals	83	126

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Pesticide Application Information
Program Material Data Sheet

- Example application scenario detail:
  - ✓ Use in Residential Setting
  - ✓ Foliar: Annually apply at 8.6 oz/ac a single time to 15 acres by backpack sprayer (will cover wand) using No Foam B as a spray additive.
  - ✓ Soil Drench: Apply at 8.6 oz/acre a single time to 15 acres as soil application.

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Pesticide Application Information

- Review Product Label
  - Verify annual or areal limits
  - Identify PPE, buffers or other restrictions
- Review Material Safety Data Sheet
  - Identify inert ingredients
  - Identify PPE

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Estimated Environmental Concentrations (EECs)

Environmental Media	Unit	Method
Air	mg/m^3	USEPA STIR (Screening Tool for Inhalation Risk Model)
Surfacewater	ug/L	USEPA EXPRESS (Consists of USEPA EXAMS (Exposure Analysis Modeling System Model) and USEPA PRZM (Pesticide Rootzone Model) (1)
Terrestrial Vegetation and Terrestrial Invertebrates	ug/Kg	USEPA T-REX (Terrestrial Residue Exposure Model)
Aquatic Vegetation	ug/Kg	Bioconcentration Factor (BCF) using USEPA EXPRESS Output
Soil	ug/Kg	Calculation using: Label Application Rate; 80% canopy interception; 15 cm soil depth and 1.6 g/ml soil density. (2)
Fish and Aquatic Invertebrates	ug/Kg	USEPA KABAM (Kow-[Based] Aquatic Bioaccumulation Model) using USEPA EXPRESS output.

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The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Ecological Risk Assessment Approach

1. Chronic & Acute Risk
2. Routes
3. Estimated Environmental Concentrations
4. Surrogate Species
5. Toxicity Reference Values
6. Risk Characterization

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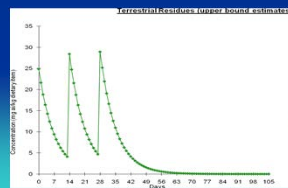
Ecological Risk

1. Acute Risk

Based on peak concentration immediately following treatment
- Highest peak if multiple applications



Ecological Risk

2. Chronic Risk

Time-Weighted Average Concentration
- Terrestrial Vertebrates
  - 31 days based on the shortest nesting period of the surrogate bird species
- Terrestrial Insects
  - Not considered
- Earthworms
  - 56 days based on chronic test duration
- Aquatic Vertebrates
  - 60 days based on chronic test duration
- Aquatic Invertebrates
  - 21 days based on chronic test duration

Ecological Risk

3. Routes of Exposure

- Terrestrial Animals
  - Focus on Dietary Exposure for Vertebrates
    - Lack Inhalation and Dermal Toxicity Values
  - Earthworms – Direct Exposure to Soil
  - Insects – Exposure to Spray or Systemic Plant Residues
- Aquatic Animals
  - Focus on Exposure to Pesticide Products in Water
    - Lack Dietary Toxicity Values
- Terrestrial Plants
  - Focus on Qualitative Crop Phytotoxicity Effects

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CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Ecological Risk

4. Estimated Environmental Concentrations (EECs)

- Terrestrial Vertebrates: dietary intake based on modeled concentrations in food
- Earthworms: modeled soil concentration
- Terrestrial Insects: application rate or direct contact
- Aquatic Vertebrates & Invertebrates: modeled water concentration

Ecological Risk

4. EECs: Oral Ingestion

- Methods based on U.S. EPA's Wildlife Exposure Factors Handbook
  - Food Ingestion based on metabolizable energy and body weight (mg/kg/day)
    - Specific for birds, mammals, and herps
  - Water Intake based on water loss and body weight (L/kg/day)
    - Specific for birds, mammals, and herps
  - Soil Intake from literature (g/kg/day)

Ecological Risk

4. EECs: Proportional Exposure

- Area Use Factor (AUF)

$$AUF = \frac{\text{Treated Area}}{\text{Home Range}}$$

  - Proportion of Home Range or Foraging Range treated with Pesticide
    - Home Range or Foraging Range from Literature
    - Area Treated varies with Program Element (i.e. Nursery, Urban Rapid Response, Production Agriculture)

Ecological Risk

4. EECs: Exposure Calculation

Daily dose = $\sum IR_F \times C_i \times P_i \times F_i + \sum IR_M \times C_M \times P_M$

IR_F = Food Ingestion Rate
C_i = Concentration in Food Item
P_i = Proportion of Food Contaminated
F_i = Fraction of Food Item in Diet
IR_M = Ingestion Rate of Soil or Water
C_M = Concentration in Soil or Water
P_M = Proportion of Soil or Water Contaminated

Source: USEPA Screening Level Risk Assessment Protocol 1999

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CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
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Ecological Risk

5. Surrogate Species

- Birds
  - 11 Species
- Mammals
  - 9 Species
- Amphibians
  - 6 Species
- Reptiles
  - 8 Species
- Fish
  - 7 Species
- Aquatic Invertebrates
  - 6 Species
- Soil Invertebrates
  - 1 Species
- Terrestrial Insects
  - 3 Species

Ecological Risk

6. Toxicity Reference Values

- Identify Ecologically Relevant Acute or Chronic Endpoint
  - Peer-Reviewed Journal Article
  - Published USEPA Document such as Reregistration Eligibility Decision (RED) or Risk Assessment
  - EPA Office of Pesticide Products Database
  - Other Government Database

Ecological Risk

7. Risk Characterization

$$RQ = \frac{\text{EEC or Dose}}{\text{TRV}}$$

- RQ > 1.0 Indicates Potential for Risk
  - Discuss Uncertainties
    - Likelihood of Presence
    - Factors influencing persistence (e.g. flushing)
    - Factors influencing exposure (e.g. food not present)
    - Proximity to Application Site
    - Size of Application Area

Human Risk Assessment Approach

1. Toxicity Assessment
2. Exposure Assessment
   a. Conceptual Site Model
   b. Human Exposure Pathways
3. Risk Estimate

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
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Human Risk

1. Toxicity Assessment

- Toxicity values used:
  - NOEL, NOAEL, LOEL, LOAEL, CSF, NIOSH REL
- Sources
  - IRIS, EPA REDs, DPR RCDs, ATSDR, OEHHA TCD, Federal Register, USDHHS

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Human Risk

2. Exposure Assessment

Receptor	Scenario(s) Considered	Analysis Method	Exposure Pathway(s) Considered: Urban Scenario	Ag Scenario	Nursery Scenario
Adult Mixer/Loader/Applicator (MLA) (2)	Urban, Ag, Nursery	PHED	acute/chronic dermal absorption inhalation (1)	acute/chronic dermal absorption inhalation (1)	acute/chronic dermal absorption inhalation (1)
Adult Post-Application Worker (PAW) (3)	Ag, Nursery	ExpoSAC	NA	acute/chronic dermal absorption	acute/chronic dermal absorption
Child & Adult Post-Application Resident (PAR)	Urban	RAGS	acute/chronic dermal absorption inhalation veg. ingestion soil ingestion	NA	NA
Adult Down Wind By-Stander (DWB) (4)	Ag, Nursery	PHED	NA	acute/chronic inhalation dermal absorption	acute/chronic inhalation dermal absorption

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Human Risk

3. Risk Estimate Approach

Receptor	Acute Duration Exposures: Method Used to Estimate Daily Intake	Non-Cancer Toxicity Value	Non-Cancer Hazard Characterization Approach	Chronic Duration Exposures: Method Used to Estimate Lifetime Intake	Non-Cancer Toxicity Value	Cancer Toxicity Value	Cancer Risk Characterization Approach	Non-Cancer Hazard Characterization Approach
Adult Mixer/Loader/Applicator (MLA)	PHED	Acute NOEL (DPR) or acute NOAEL (USEPA)	MOE	PHED	Chronic NOEL (DPR) or chronic NOAEL (USEPA)	CSF (RED or IRIS)	Cancer probability	MOE
Adult Post Application Worker (PAW)	ExpoSAC	Acute NOEL (DPR) or acute NOAEL (USEPA)	MOE	ExpoSAC	Chronic NOEL (DPR) or chronic NOAEL (USEPA)	CSF (RED or IRIS)	Cancer probability	MOE
Child & Adult Post-Application Resident (PAR)	RAGS	Acute NOEL (DPR) or acute NOAEL (USEPA)	MOE	RAGS	Chronic NOEL (DPR) or chronic NOAEL (USEPA)	CSF (RED or IRIS)	Cancer probability	MOE
Adult Down Wind By-Stander (DWB)	PHED	Acute NOEL (DPR) or acute NOAEL (USEPA)	MOE	PHED	Chronic NOEL (DPR) or chronic NOAEL (USEPA)	CSF (RED or IRIS)	Cancer probability	MOE

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Asian Citrus Pysllid Nursery Overview

The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

State Interior Quarantine (CCR 3435)

Prevents the spread of ACP from known infested areas to the rest of the State.

ACP History in So. CA

- August 28, 2008
  ACP discovered in San Diego County. Quarantine declared 9/5/08 in southwest area of county
- October 2008- present
  ACP discovered in six more counties
  - Imperial, Orange, LA, San Bernardino, Ventura and Riverside
- Current area under quarantine -22,147 sq. miles
  - Includes all or part of 8 counties (Santa Barbara #8)

Quarantine Regulations- Nurseries

- Nurseries (production and retail treatments)
  - Must treat *all* host material with an approved treatment (foliar and drench pesticide) if intended for sale within the quarantine area
- Treatment good for 90 days for production nurseries
  - Must re-treat or hold or destroy
- Retail nurseries only one treatment required

The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Nursery Chemicals

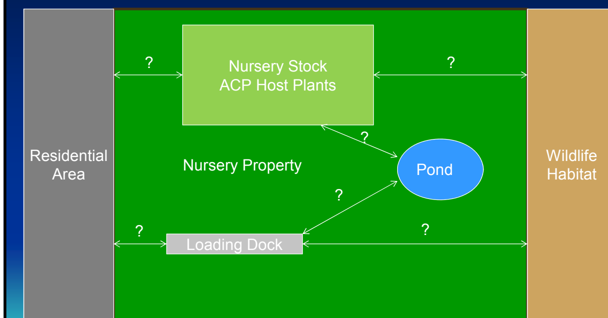
SYSTEMICS -*DRENCH*

- Imidacloprid – Admire Pro Systemic, Admire 2, Couraze 2F, Marathon II, Merit 2F, Alias 2F, Alias 4F, Nuprid 4.6F Pro, Widow
- Thiamethoxam – Flagship 25WG
- Dinotefuran – Safari 20 SG

FOLIAR

- Cyfluthrin – Tempo SC Ultra, Baythroid XL, Tombstone
- Fenpropathrin – Danitol 2.4 EC, Tame 2.4 EC
- Carbaryl – Sevin XLR Plus, Sevin SL
- Spirotetramat – Movento, Kontos

"Model" Nursery



34

"Model" Nursery

Loading Dock

35

"Model" Nursery

Containerized Stock

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The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

"Model" Nursery
Setting

37

"Model" Nursery
Setting

38

"Model" Nursery
Loading Dock Application

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ACP Nursery Scenarios

- Most Nurseries
  - Up to 4 applications at 3 month intervals
  - Treat same plants in 3,750 ft^2 nursery blocks or spray pad
  - Foliar applications using tank or backpack sprayers
  - Soil drench using tank or backpack sprayer, mix and pour, or dosatron

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The Horizon Team

ACP Nursery Scenarios

- Production Nurseries
  - Up to 150 applications per year at 2-3 day interval
  - Treat different plants on 3,750 ft^2 area of loading dock or spray pad prior to shipment
  - Foliar applications using tank or backpack sprayers
  - Soil drench using tank or backpack sprayer, mix and pour, or dosatron

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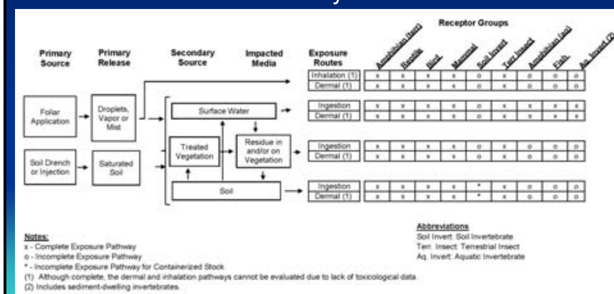
Ecological Risk

Conceptual Site Model

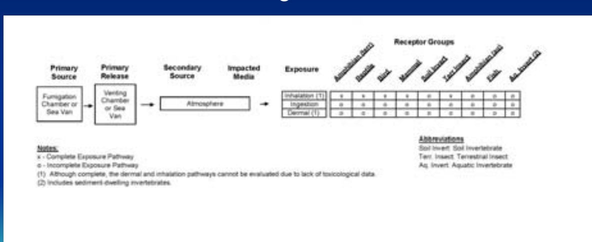
Nursery



Ecological Risk

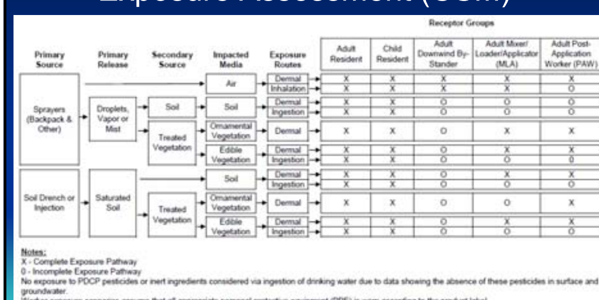
Conceptual Site Model

Fumigation



Human Risk

Exposure Assessment (CSM)



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The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012

Level of Effort & Future Meeting Schedule

- Provide a Forum For:
  - –Sister Agency Review
  - –Regular and on-going feedback
  - –Prompt attention to issues
  - –Expeditious review to stay on schedule

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Example of Future Work for OEHHA & DPR Between Now & Dec 13:

- Establishing protocol for future meetings and work
- Provide feedback on Ecorisk methods
- Review ACP CSM and Program info and provide feedback on proposed approach
- Meet to determine scope/schedule ASAP

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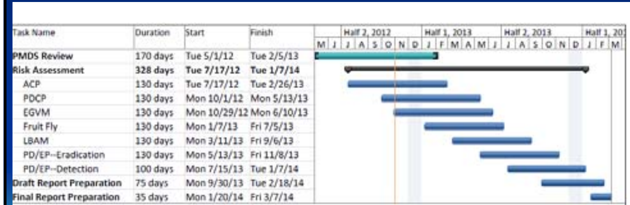
Estimated Project Schedule



Task Name	Duration	Start	Finish
PMDS Review	170 days	Tue 5/1/12	Tue 2/5/13
Risk Assessment	**328 days**	**Tue 7/17/12**	**Tue 1/7/14**
ACP	130 days	Tue 7/17/12	Tue 2/26/13
PDCP	130 days	Mon 10/1/12	Mon 5/13/13
EGVM	130 days	Mon 10/29/12	Mon 6/10/13
Fruit Fly	130 days	Mon 1/7/13	Fri 7/5/13
LBAM	130 days	Mon 3/11/13	Fri 9/6/13
PD/EP--Eradication	130 days	Mon 5/13/13	Fri 11/8/13
PD/EP--Detection	100 days	Mon 7/15/13	Tue 1/7/14
Draft Report Preparation	75 days	Mon 9/30/13	Tue 2/18/14
Final Report Preparation	35 days	Mon 1/20/14	Fri 3/7/14

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DPR/OEHHA Meeting Schedule

- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

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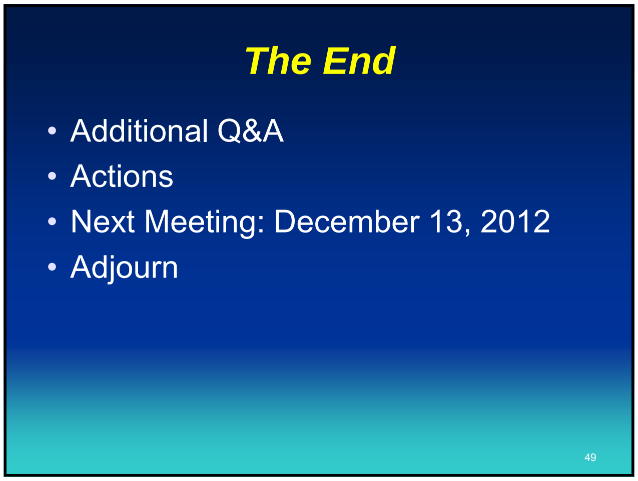
The Horizon Team

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Nov 1, 2012



The Horizon Team

Final Meeting Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting Status Meeting Minutes
December 13, 2012, 9-11 am

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Craig Hanes

OEHHA: Regina Linville, David Ting

DPR: Sheryl Beauvais, Dave Kim, Randy Segawa

Horizon: Ryan Jolley, Mike Blankinship, Joe Sullivan, Brad Sample, Ryan Beil, Stephen Burkholder, Greg Gorder

Attachments:

- Agenda
- Attendee List
- Powerpoint Presentation
- Revised CSMs

Notes:

Meeting Preparations

- Timeline for each meeting – including supplemental materials, the meeting itself, and due date for draft minutes, comments and final minutes – will be sent out before each meeting , similar to slide 6.

Confidentiality

- CDFA has developed the meeting and document protocol (previously emailed by Laura Petro) because the Program EIR is a working draft and CDFA wants to ensure compliance with the public records act.
- As a rule of thumb, contact Laura Petro first if you are unsure about communications or would like to discuss an issue further with colleagues that are not part of the PEIR review team.

Area Use Factor

- Previous meeting minutes (11/1/12) identified that in determining estimated environmental concentrations for chronic ecological risk, proportional exposure is determined using the area-use factor. OEHHA pointed out that use of the area-use factor was identified at a previous meeting (before 11/1/12) as an item requiring additional review. The team needs to come to a resolution on use of this methodology. As such, use of the area-use factor will be added to subsequent meeting agendas. Discussion immediately following the meeting clarified this issue. Estimating chronic exposure will include use of the AUF representing the lowest estimated exposure as well as assuming 100% exposure representing the highest exposure estimate.

Topic #1: Pesticide Fate & Transport to a Pond: The Role and Effects of Buffers

Buffers in the Statewide Program

- Most pesticide labels in CDFA's programs require a buffer, such as 25 feet.
- There are 6 or 7 production nurseries where loading dock treatments can occur up to 3x/week, 50 weeks/year for a total of 150 applications per year.
- Team is currently using the U.S. Environmental Protection Agency (USEPA) PRZM/EXAMS with the PE5 shell to estimate pesticide transport via erosion or drift to the hypothetical pond. A current limitation of the existing model is that it cannot yet accommodate 150 pesticide applications and cannot accommodate a vegetative buffer between the pesticide application area and the pond.
- CDFA's risk assessment team (team) wants to consider including vegetative buffers between pesticide application sites and ponds in the modeling work to estimate farm pond pesticide concentration. Inclusion of buffers accurately represents Statewide Program application scenarios. If buffers are not considered, the team is concerned that exposure and subsequent risk to aquatic species will be over-estimated.
- *OEHHA advises against modeling the effects of buffer zones when predicting surface water chemical concentrations. US EPA does not model the impact of buffer zones because they have not found an accurate and reliable model to do so. Additionally, Dirk Young (a US EPA environmental and fate modeler) pointed out that accumulation of chemicals in the buffer zone is not considered in existing buffer zone models. This omission underestimates the risk to terrestrial species in and around the buffer zone.*.
- *OEHHA is concerned that the uncertainty associated with overestimating risk is receiving more attention than the uncertainty that could lead to underestimating risk. As an example, OEHHA noted that the effect of dietary exposure of chemicals to aquatic organisms is not included in the risk assessment. OEHHA pointed out that risk from dietary exposure could be modeled by the US EPA AquaTox model. OEHHA highlighted AquaTox to emphasize that the uncertainties in these analyses also lead to potential underestimation of risk – even in flowing waters. But OEHHA did not specifically recommend the use of AquaTox, which may be labor intensive*.
- Laura Petro will discuss the proposed OEHHA contact with U.S. EPA (Dirk Young) and confidentiality issues with CDFA's legal counsel.
- DPR will investigate the buffer issue and report back.

- Other models for calculating overland/soil transport to ponds are currently being investigated, including VFSMOD, FOCUS-PRZM and literature sources. Team will not model impacts to species in flowing water body; only ponds will be considered for estimating pesticide concentrations in surface waters.
    - Statewide Program nursery scenarios may be located near ponds but less likely near flowing water bodies. However, flowing water bodies are more likely to be located near treatments for Statewide Programs in other settings (not nurseries).
    - If there is a species of concern in flowing water, a pond will be the modeled water body and the assumption will be employed that the pond scenario overestimates risk for the species in flowing water due to dilution in the flowing water and no dilution in the pond.
    - CDFA risk assessment team has been speaking with Dirk Young at U.S.EPA regularly, in a very generic sense, without making project specific references.
    - CDFA team has been investigating methodologies in Europe/abroad that incorporate buffers effects into calculations of pesticide fate and transport.

Topic #2: Nursery Conceptual Site Model

- Team will not evaluate risk from exposure to nursery stock after removal from the nursery. Team does not feel it is reasonable to evaluate the dermal exposure from one plant. In addition, developing a model with the variety of potential exposure scenarios would be very difficult if not impossible.
- Team discussed, and OEHHA and DPR agreed, that:
    - The team has to draw a line on what is reasonable to include in the risk assessment.
    - It is very important the risk assessment/Program EIR document discuss assumptions used as a basis for why risk was not assessed in particular situations.
- Based on conversations following the meeting, OEHHA is unclear on several aspects of the nursery CSMs specific to ecotoxicological exposure. This has been discussed with CDFA and resolution is ongoing.
- After further consideration, OEHHA asks why inhalation and dermal toxicity data based on rodents, etc. (used for human extrapolation) are not used to estimate risk to mammalian wildlife from fumigation ("downwind wildlife"). Inhalation and dermal (e.g., dust bathing) exposure rates for wildlife are available in US EPA's Wildlife Exposure Handbook. Similarly, will the database ECOTOX be queried for inhalation and dermal toxicity data in non-mammalian species?
-

Topic #3: Fumigation Chambers

- CDFA only implements fumigation when it is a federal quarantine requirement.
- Soil is not fumigated and therefore not a source/pathway of exposure
- The human health risk assessment will not consider dermal exposure because inhalation is the primary pathway.

- Treated crops may off-gas methyl bromide and could also be used as food by consumers, but the human health risk assessment will not consider post-purchase exposure after the crops have left the fumigation site.
  - Team discussed finding a food tolerance for methyl bromide. This will not be done because of the acknowledgment that the ingestion pathway for either the post-purchase consumer or the applicator/loader will not be considered
  - Harvard Fong is an Industrial Hygienist with CDPR and has extensive expertise with methyl bromide fumigation and will be consulted
- The Fumigation CSM has been updated (see attached):
  - All dermal exposure pathways are incomplete
  - Fumigation to soil has been removed
  - Inhalation to Downwind Bystander, Applicator, and Post-Application-Worker remain as the only complete exposure pathways
- Vapors are vented to the atmosphere with no trap or filter
- DPR would include children as downwind bystander, not just adults.
- No ecological receptors will be considered for fumigation chambers, in large part because there is no inhalation toxicity data available via this route of exposure.

Topic #4: Comparison of Methods for Estimating Human Residential Exposure

- Sheryl, Greg, Ryan Beil and Mike met briefly before the start of the meeting to discuss alternatives to the estimating residential exposure.
- Options include: 1997 and 2012 USEPA SOPs and USEPA Assessment Guidance for Superfund (RAGS). Each of the three options has advantages and disadvantages. More discussion is planned on this topic.
- Sheryl to provide RCDs (Example 2000 Deltamethrin, Pyrethroids, Malathion) as examples source for residential risk assessment
- Blankinship team to provide scenario-specific examples for products that should be covered and summary of RAGS approach to Sheryl.
- 2012 SOP "Pick-your-own farm" scenario may be useful in determining exposure to a resident.
- OEHHA suggested that the construction of an exposure scenario and selection of exposure parameters should be tailored to the exposure situation, physical and chemical properties of the chemical, and the toxicity of the chemical (e.g., acute vs chronic). Some exposure scenarios described in the US EPA guidelines are not the same as those in the PEIR. (See page 20 of draft meeting minutes)

- OEHHA suggested that exposure parameter information is OEHHA's Air Toxics Hot Spots Program Risk Assessment Guidelines: Technical Support Document for Exposure Assessment and Stochastic Analysis (2012) should be considered (See page 20 of draft meeting minutes).

- OEHHA suggested that for acute exposure, highly-exposed individuals should be considered together with the average-exposed individuals (See page 20 of draft meeting minutes).

- OEHHA questioned why the soil ingestion pathway is considered complete for the adult resident (by sprayer or soil drench) (See page 24 of draft meeting minutes).

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday, December 13, 2012, 9–11 am
CalEPA Bldg, Conference Room 350, Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Conference Call #: 1-866-796-8081; Passcode 8025803

Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Janet Taylor, Robert Leavitt, Nick Condos
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Jay Schreider, Marylou Verder-Carlos, Sheryl Beauvais
Horizon:	Michael Stevenson, Ryan Jolley, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich, Stephen Burkholder, Ryan Beil

Agenda:

I. Welcome, Sign-In and Introductions (Laura; 5 min)
II. Meeting Agenda (Mike 2 min)
III. Meeting Prep and Review Deadlines; Confidentiality (Mike and Laura; 10 min)
IV. Recap of 11.1.12 meeting (Mike; 5 min)
V. **Topic #1:** Pesticide Fate & Transport to a Pond: The Role & Effect of Buffers
    a. Label and NPDES Permit Requirements
    b. The Problem and Proposed Solutions
VI. **Topic #2:** The Nursery Conceptual Site Models (CSMs)
    a. Wholesale/Production, Retail and Powerline
    b. Up to 150 applications/year
VII. **Topic #3:** Human Health Risk Fumigation CSM
VIII. **Topic #4:** Residential Exposure Approach
    a. EPA 1997 SOP v. 2012 SOP v. RAGS
IX. Questions, Actions and Adjourn (All; 10 min)

cdfa

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday, December 13, 2012, 9–11 am
CalEPA Bldg, Conference Room 350, Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Name	Affiliation	Email
David Ting	OEHHA	david.ting@oehha.ca.gov
Greg Gorder	TSG	ggorder@tsgusa.com
Craig Hawes	CDFA	craig.hawes@cdfa.ca.gov
Laura Petro	CDFA	Laura.Petro@cdfa.ca.gov
Ryan Jolley	HORIZON	ryan@horizonh2o.com
Stephen Burkholder	Blankinship & Assoc.	stephen@h2osci.com
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Dave Kim	DPR	DKim@CDPR.CA.GOV
Randy Segawa	DPR	rsegawa@cdpr.ca.gov
Ryan Beil	Blankinship & Assoc.	ryanbeil@h2osci.com
Regina Linnville - Phone	OEHHA	Regina.Linville@oehha.ca.gov
Brad Sample - Phone	Ecorisk	bsample@ecorisk.com
Mike Blankinship	Blankinship	mike@h2osci.com
Joe Sullivan	Ardea	birdtox1@ardeacon.com

Horizon

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CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #2

Thursday, December 13, 2012

Horizon
WATER and ENVIRONMENT

Agenda

I. Welcome, Sign-In, Introductions
II. Meeting Agenda
III. Scheduling & Confidentiality
IV. Recap of November 1, 2012 Mtg
V. Topic #1 Buffers
VI. Topic #2: Nursery CSMs
VII. Topic #3: Human Fumigation CSM
VIII. Topic #4: Residential Exposure
IX. Q&A/Adjourn

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The Horizon Team

Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

3

General Meeting Preparation and Review Deadlines

Mon	Tues	Weds	Thurs	Fri
		Distribute Meeting Materials		
			Hold Meeting	
	Distribute Draft Minutes			
Deadline for Comments				Distribute Final Minutes

4

Typical Preparation and Review Deadlines

Date	Days Allotted	Action
Weds	-	Distribute Meeting Materials
Thurs	5.5	Hold Meeting
Tues	3	Distribute Draft Minutes
Mon	4	Deadline for Comments
Fri	4	Distribute Final Minutes

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Meeting #2 Preparation and Review Deadlines

Date	Day	Days Allotted	Action
Weds	12/5	-	Distribute Meeting Materials
Thurs	12/13	5.5	Hold Meeting
Mon	12/17	2	Distribute Draft Minutes
Fri	12/21	4	Deadline for Comments
Fri	1/2/2013	8	Distribute Final Minutes

6

Confidentiality

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Nov 1, 2012 Recap

- 21 Attendees
- Overall PEIR Structure
- Pierce's Disease Control Program
- Risk Assessment Methodology
- Asian Citrus Psyllid (ACP)
  - Nursery CSMs
- Level of Effort

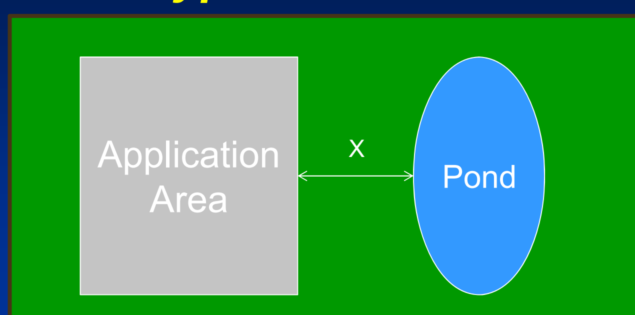
8

Topic #1

- Pesticide Fate & Transport to a Pond: The Role and Effects of Buffers

9

Pesticide Transport to a Pond: Typical Scenario



X = Label req'd buffer
X = NPDES
X = Reality

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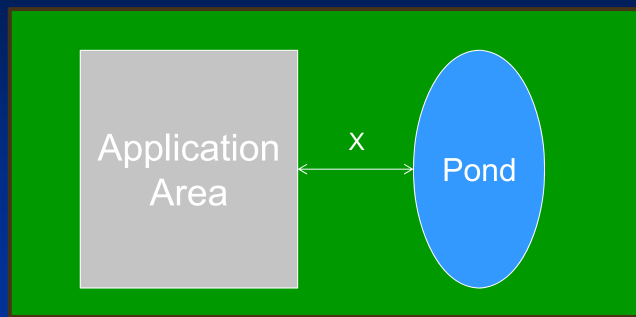
Pesticide Transport to a Pond: How EXAMS Calculates Buffers

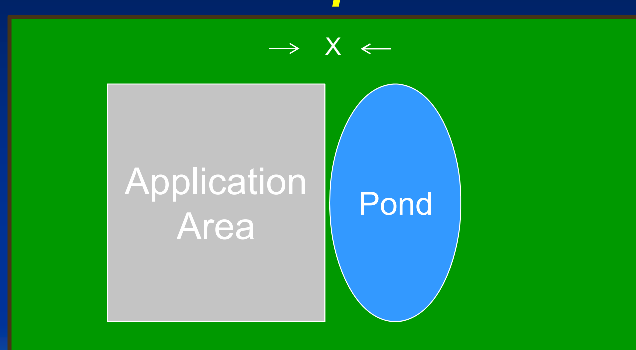


X = Label req'd buffer
X = NPDES
X = Reality

EXAMS quantifies pond water concentration based on application equipment and droplet size – **SPRAY DRIFT ONLY.**

11

Pesticide Transport to a Pond: How EXPRESS & PE5 Model Transport



X = 0 Feet

Issue: PRZM does not account for any buffer distance when estimating pond water concentration

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Pesticide Transport to a Pond

Program	Limitation	Drift Buffer Considered?	Erosion Buffer Considered?
EXPRESS & PE5	Unable to handle >26 applications	Yes	No
PRZM	Hard to use; command line entry/programming	No	Yes
EXAMS	Hard to use; only receives inputs from PRZM & AgDrift	Yes	Not Applicable
PRZM-Buff	Limited availability (not currently developed for public release)	Not Applicable	Yes
APEX	Site specific - requires ArcGIS inputs. Not amenable to Statewide generalized modeling	Unknown	Yes
FOCUS-PRZM	Not GUI; Requires command line entry	Not Applicable	Yes
VFSMOD	Not GUI; Requires command line entry	Yes	Yes
Literature Sources	Site & chemical specific; Ability to handle >26 applications ??	Yes	Yes

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The Short List

Program	Limitation	Drift Buffer Considered?	Erosion Buffer Considered?
~~EXPRESS & PE5~~	~~Unable to handle >26 applications~~	~~Yes~~	~~No~~
~~PRZM~~	~~Hard to use; command line entry/programming~~	~~No~~	~~Yes~~
~~EXAMS~~	~~Hard to use; only receives inputs from PRZM & AgDrift~~	~~Yes~~	~~Not Applicable~~
~~PRZM-Buff~~	~~Limited availability (not currently developed for public release)~~	~~Not Applicable~~	~~Yes~~
~~APEX~~	~~Site specific - requires ArcGIS inputs. Not amenable to Statewide generalized modeling~~	~~Unknown~~	~~Yes~~
FOCUS-PRZM	**Not GUI; Requires command line entry**	**Not Applicable**	**Yes**
VFSMOD	**Not GUI; Requires command line entry**	**Yes**	**Yes**
Literature Sources	**Site & chemical specific; Ability to handle >26 applications ??**	**Yes**	**Yes**

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Example from the Short List: VFSMOD

Pros:

- Effective and accurate for ~25 ft buffer
- Graphical user interface available

Cons:

- Over-estimates buffer efficiency <10 ft
- Requires command line entry to PRZM and EXAMS, even with VFSMOD Shell

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Topic #2

- Nursery Conceptual Site Models

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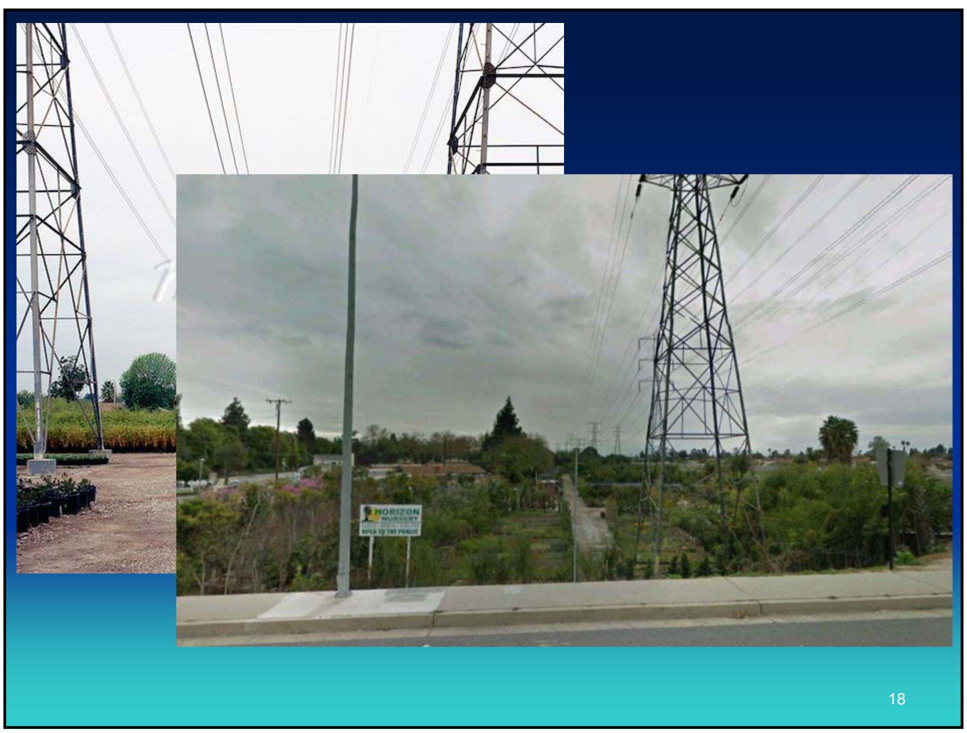
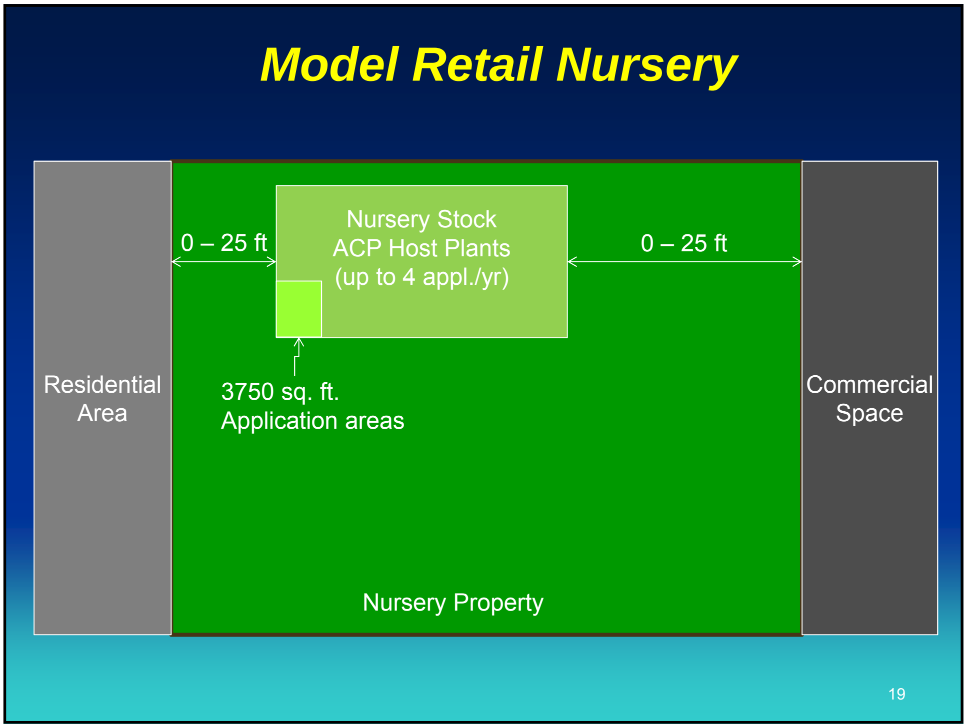
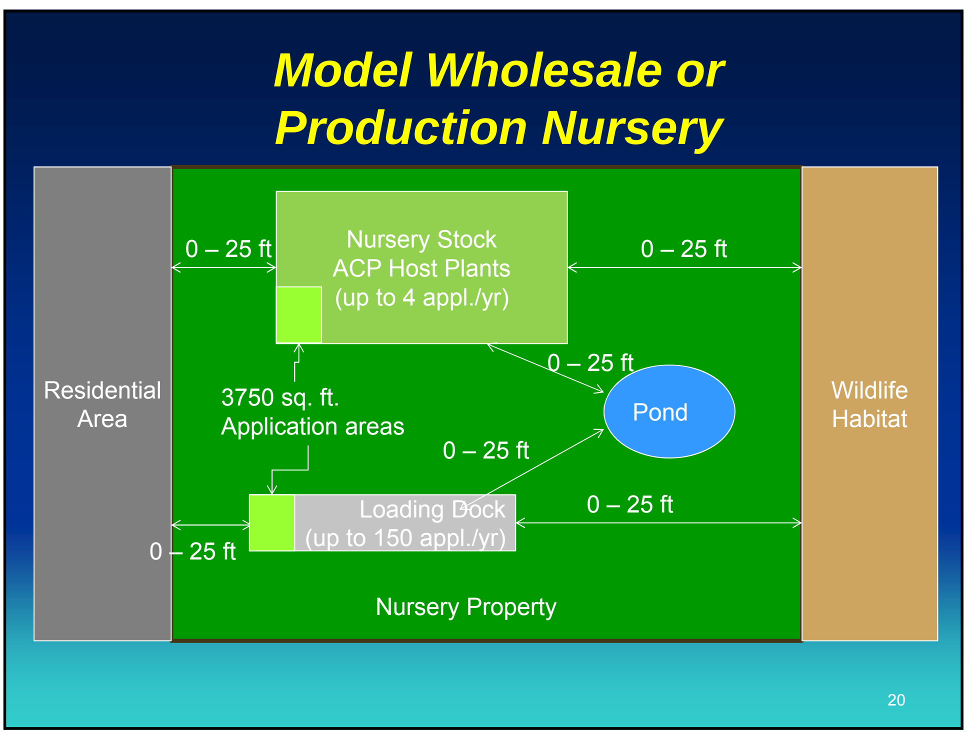
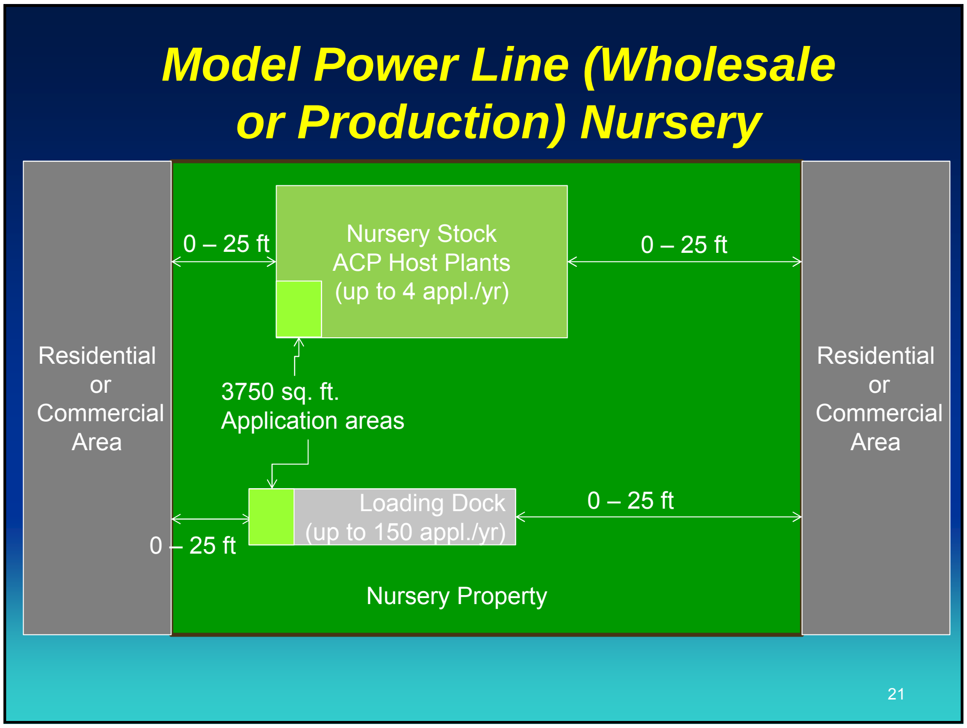
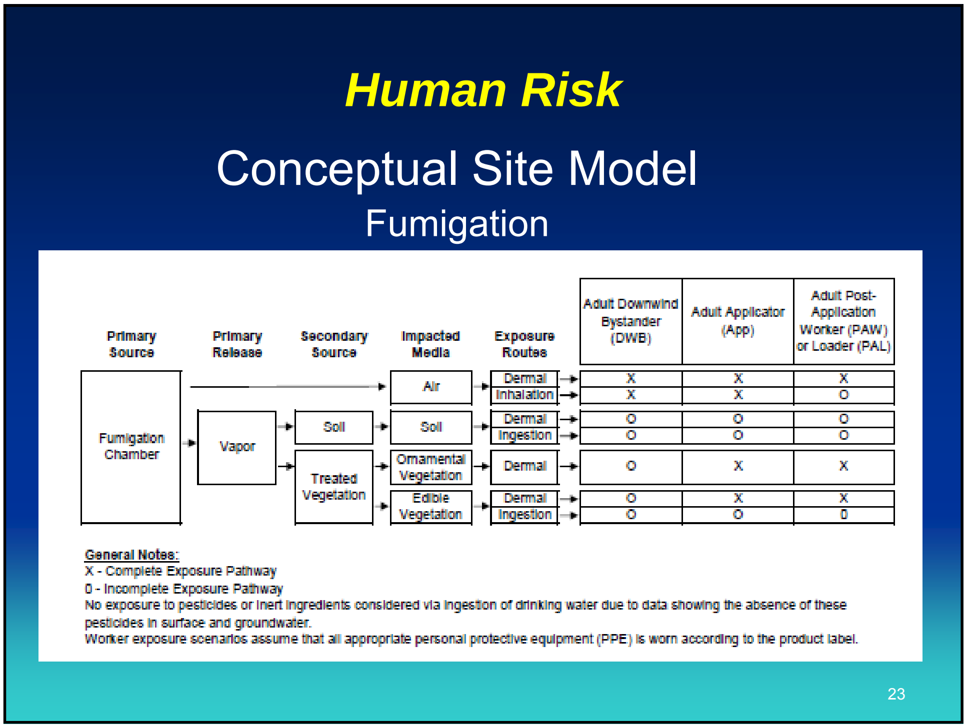

18

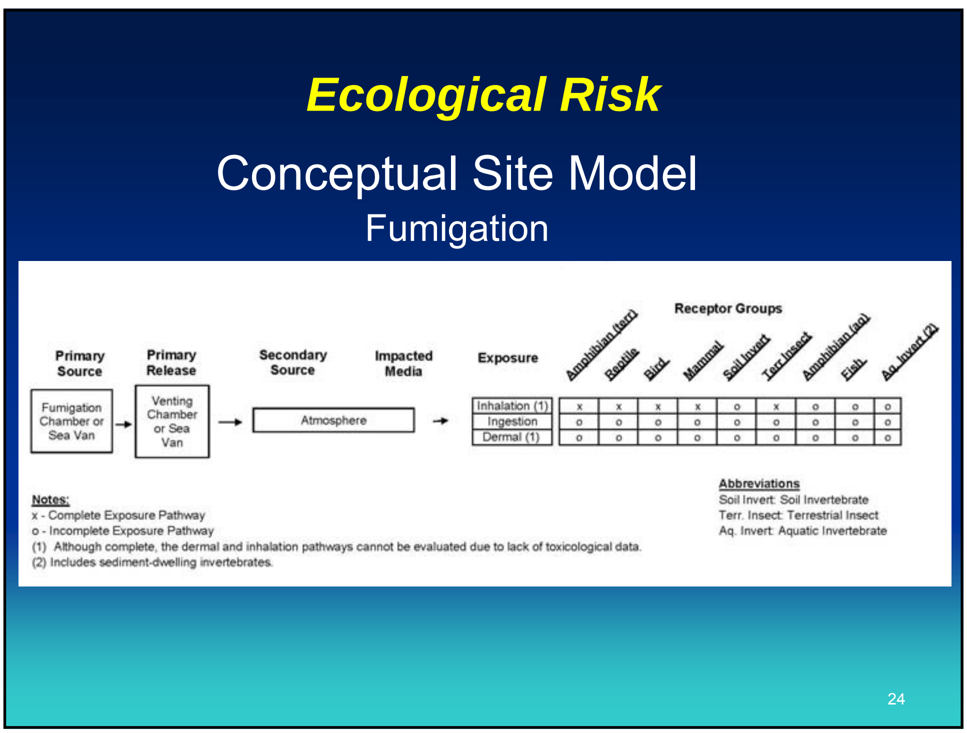

Model Retail Nursery
Residential Area
0 – 25 ft
Nursery Stock
ACP Host Plants
(up to 4 appl./yr)
0 – 25 ft
3750 sq. ft.
Application areas
Commercial Space
Nursery Property
19


Model Wholesale or
Production Nursery
Residential Area
0 – 25 ft
Nursery Stock
ACP Host Plants
(up to 4 appl./yr)
0 – 25 ft
0 – 25 ft
Pond
Wildlife Habitat
3750 sq. ft.
Application areas
0 – 25 ft
Loading Dock
(up to 150 appl./yr)
0 – 25 ft
0 – 25 ft
Nursery Property
20


Model Power Line (Wholesale or Production) Nursery
Residential or Commercial Area
0 – 25 ft
Nursery Stock
ACP Host Plants
(up to 4 appl./yr)
0 – 25 ft
Residential or Commercial Area
3750 sq. ft.
Application areas
Loading Dock
(up to 150 appl./yr)
0 – 25 ft
0 – 25 ft
Nursery Property
21


Topic #3
• Human & Ecological Risk CSMs for Fumigation Chambers
22


Human Risk
Conceptual Site Model
Fumigation
Primary Source
Primary Release
Secondary Source
Impacted Media
Exposure Routes
Adult Downwind Bystander (DWB)
Adult Applicator (App)
Adult Post-Application Worker (PAW) or Loader (PAL)
Fumigation Chamber
Vapor
Air
Soil
Soil
Treated Vegetation
Ornamental Vegetation
Edible Vegetation
Dermal | X | X | X
Inhalation | X | X | O
Dermal | O | O | O
Ingestion | O | O | O
Dermal | O | X | X
Dermal | O | X | X
Ingestion | O | O | 0
General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
23


Ecological Risk
Conceptual Site Model
Fumigation
Primary Source
Primary Release
Secondary Source
Impacted Media
Exposure
Receptor Groups
Amphibian (terr)
Reptile
Bird
Mammal
Soil Invert
Terr Insect
Amphibian (aq)
Fish
Aq. Invert (2)
Fumigation Chamber or Sea Van
Venting Chamber or Sea Van
Atmosphere
Inhalation (1) | x | x | x | x | o | x | o | o | o
Ingestion | o | o | o | o | o | o | o | o | o
Dermal (1) | o | o | o | o | o | o | o | o | o
Notes:
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.
Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate
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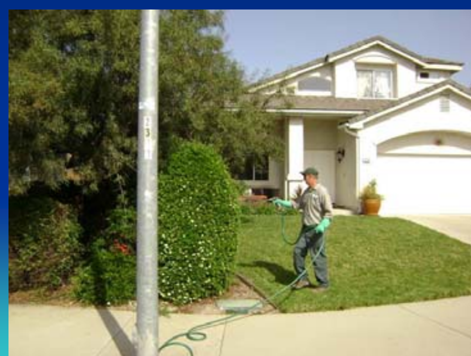
Topic #4

- Comparison of Methods for Estimating Human Residential Exposure



25

Challenge:
Estimating Exposure for the PAR

- Post-Application-Resident
  - A person living in a residential environment with the potential to be exposed to a pesticide product after an urban treatment
  - Adult and child

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Tools Available

- USEPA 1997 Residential SOPs
- USEPA 2012 Residential SOPs
- USEPA 1989 RAGS

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Differences in Available Tools

Method	Ingestion	Dermal	Inhalation	Exposure Methods and Inputs	Other
USEPA 1997 Residential SOP	use toddler turf data veg. negligible	adult and child veg. only	negligible	transfer coefficients application rate residue factors	short-term centered
USEPA 2012 Residential SOP	negligible	adult and child veg. only	negligible	occupational transfer coefficients application rate residue factors	short-term centered 0.55 adj. factor for child
USEPA RAGS	adult and child soil and veg.	adult and child soil and veg.	adult and child	EFH intake rates/surface area application rate concentrations from models	long-term centered

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Example Comparison: Cyfluthrin

Chemical: Cyfluthrin			USEPA 1997 Residential SOP			USEPA 2012 Residential SOP			USEPA RAGS
			Gardens	Trees	Total (Gardens + Trees)	Gardens	Trees	Total (Gardens + Trees)	
Adult	Acute	AI (mg/kg-day)	4.51E-03	4.51E-03	9.02E-03	1.50E-02	1.42E-03	1.64E-02	1.41E-04
		MOE	5.55E+04	5.55E+04	2.77E+04	1.62E+04	1.76E+05	1.48E+04	1.78E+06
	Chronic	CDI (mg/kg-day)	2.25E-04	2.25E-04	4.51E-04	7.70E-04	7.09E-05	8.41E-04	1.93E-05
		MOE	1.06E+04	1.06E+04	5.32E+03	3.11E+03	3.39E+04	2.85E+03	1.24E+05
Child	Acute	AI (mg/kg-day)	2.10E-03	2.10E-03	4.21E-03	1.10E-02	9.69E-04	1.20E-02	1.68E-04
		MOE	1.19E+05	1.19E+05	5.95E+04	2.37E+04	2.58E+05	2.17E+04	1.49E+06
	Chronic	CDI (mg/kg-day)	1.05E-04	1.05E-04	2.10E-04	5.27E-04	4.85E-05	5.76E-04	2.31E-05
		MOE	2.28E+04	2.28E+04	1.14E+04	4.55E+03	4.95E+04	4.17E+03	1.04E+05

Assumptions

Method	USEPA 1997 Residential SOP	USEPA 2012 Residential SOP	USEPA RAGS
Adult's Age	18-64	16-<80	21+
Child's Age	10-12	6-<11	6-<11
Adult Transfer Coefficient-Gardens	10000	8400	-
Adult Transfer Coefficient-Trees	10000	1700	-
Child Transfer Coefficient-Gardens	5000	4620	-
Child Transfer Coefficient-Trees	5000	935	-
Adult Body Weight	80	80	80
Child Body Weight	32	32	32
Acute NOAEL	250 (1 DAF)	250 (1 DAF)	250 (1 DAF)
Chronic NOAEL	2.4 (0.05 DAF)	2.4 (0.05 DAF)	2.4 (0.05 DAF)

Gardening Activities: Cabbage Weeding, tomato tying, squash havesting, chysanthemum pinching
Trees Activities: Ornamanetal citrus tree pruning, apple harvesting, orange harvesting, grapefruit harvesting, ornamental citrus tree pruning

Proposed Solutions

	Method	Pros	Cons
1	USEPA 2012 SOP	Most recently updated Most conservative Short-term assessments	No ingestion or inhalation Occupational transfer coefficients Adjustments for long-term
2	USEPA RAGS	Ingestion, inhalation, and dermal Long-term assessments	Not most recently updated New approach Adjustments for short-term
3	USEPA 1997 SOP	Current DPR approach Short-term assessments	Not most recently updated Turf ingestion and no inhalation Adjustments for long-term

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The End

- Additional Q&A
- Actions
- Next Meeting: January 24, 2013
- Adjourn

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The Horizon Team

Conceptual Site Model (CSM)
Human Health Risk Assessment

Receptor Groups

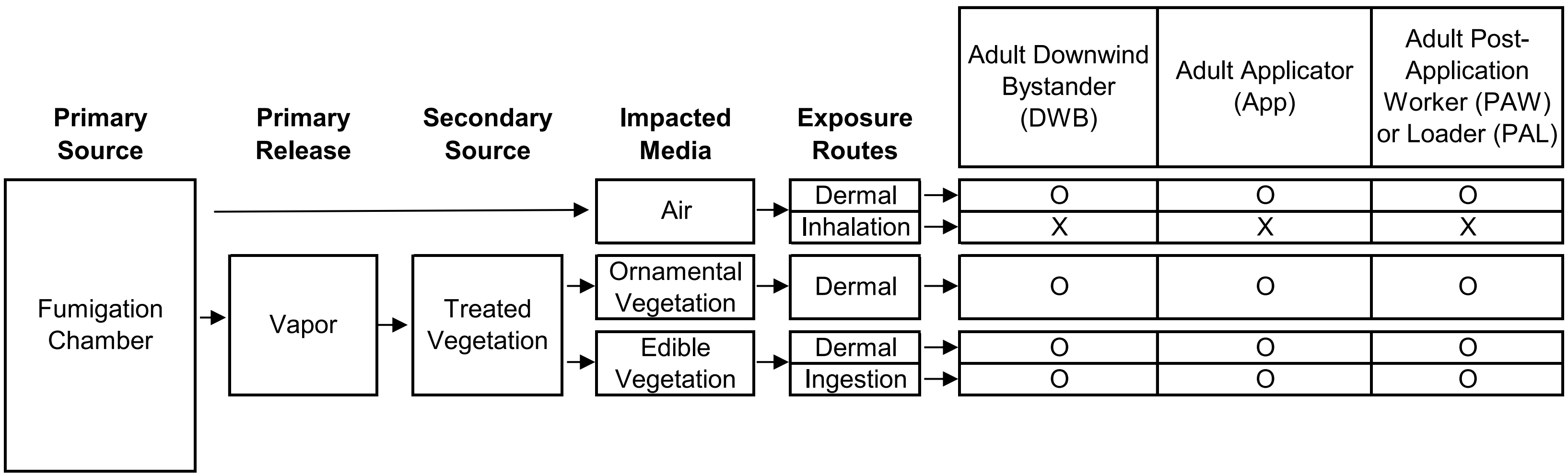
Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Post Application Resident (PAR) Adult (d)	Post Application Resident (PAR) Child (d)	Adult Downwind Bystander (DWB) (a)	Adult Mixer/ Loader/Applicator (MLA) (b)	Adult Post-Application Worker (PAW) or Loader (PAL)
Sprayers (Backpack, Aerial, & Other)			Air	Dermal	O	O	X	X	X
				Inhalation	X	X	X	X	O
	Droplets, Vapor or Mist	Soil	Soil	Dermal	X	X	O	O	O
				Ingestion	X	X	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	X	X	O	X (c)	X
			Edible Vegetation	Dermal	X	X	O	X (c)	X
				Ingestion	X	X	O	O	0
Soil Drench or Injection	Saturated Soil		Soil	Dermal	X	X	O	X (c)	X
				Ingestion	X	X	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O
				Ingestion	X	X	O	O	O

General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Includes DWB exposed by both ground-based and aerial applications
(b) Included MLA exposed by both ground-based and aerial applications.
(c) Aerial MLA receptors do not have a complete exposure pathway.

SW Human CSM, Overall
12/17/2012

Blankinship & Associates, Inc.

Fumigation
Conceptual Site Model (CSM)
Human Health Risk Assessment



General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Exposure to consumers and other human receptors post-purchase will not be assessed.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Final Meeting Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting #3 Minutes
January 24, 2013, 2-4:30 pm

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Vince Arellano

OEHHA: Regina Linville, David Ting

DPR: Sheryl Beauvais, Dave Kim, Randy Segawa, Jay Schreider, Dave Duncan, Yuzhou Luo, Mary Lou Verder-Carlos

Horizon: Michael Stevenson, Josh Pollak, Mike Blankinship, Joe Sullivan, Greg Gorder, Brad Sample, Ryan Beil, Scott Dwyer

Attachments:

- Meeting Notes
- Agenda
- Attendee List
- Presentation
- Conceptual Site Models (Larger print and the same as those in presentation)

Notes:

Meeting Preparation

- Materials for the meeting, including supplemental materials, the meeting agenda, were sent out before the meeting.

Confidentiality

- CDFA has developed the meeting and document protocol (previously emailed by Laura Petro) because the Program EIR is a working draft and CDFA wants to ensure compliance with the public records act.
- Please contact Laura Petro first if you are unsure about communications or would like to discuss an issue further.

Final Meeting Minutes

Topic #1: Light Brown Apple Moth (LBAM) Quarantine Program Overview

Background

- Vince Arellano from CDFA gave an overview of the program
- LBAM feeds on most types of nursery stock foliage, and is an external feeder (only feeds on the outside of plants). LBAM cannot survive in hot, dry areas.
- LBAM began as an eradication program, is now a control program.
- The Bay Area is the center of the regulated areas. The main concern is the movement of LBAM to other portions of the state where it is not currently established, with a goal of preventing the unnatural spread of LBAM.
    - Movement of plants allowed within quarantine areas, but not within eradication areas

Three-Tiered Approach to Quarantine Activities:

- Treatments in separate contiguous areas shown on map.
- Delimitation areas coalesced into a large contiguous area.
- Statutory authority boundary (which is an extension of the quarantine area) covers the largest area, which makes enforcing the quarantine easier for administrative purposes.

Treatments

- Treatments are done in limited areas in nurseries, and are expanded as necessary.
    - 30 day inspection schedule at nurseries
    - If LBAM find, then spray at 14 days
    - Still finding LBAM in the winter, main a problem in organic strawberries
- Good cropping practices in nurseries limit infestations.
- A list of lures & insecticides was presented (Slide 11).
    - Scimitar (lambda-cyhalothrin) considered the most effective
    - Dipel, Intrepid, and Conserve used by organic growers
- Quarantine treatments are monitored by CDFA to insure that they are done in a manner consistent with protocol.

Conceptual Site Models: Human and Ecological Risk

- <u>Action Item</u>: Blankinship to email out larger version of CSMs for easier viewing
- The conceptual site models (CSMs) are generic models, for all nursery & field crop environments.
    - "Soil Drench or Injection" route will not be considered for LBAM and will be removed from the CSM
- The CSMs show different exposure routes and whether or not exposure pathways are complete or incomplete.
- Human Risk:

- Team discussed how human risk from "you pick it" places may be incorporated into the CSM.
- Action Item: Consultant risk team will look for "you pick it" sites within the Program Area. Swanton Farms may be one.
- Action Item: Blankinship to revise Adult Downwind Bystander exposure to display an incomplete pathway via dermal exposure and a complete pathway via inhalation
- LBAM is not found on tree crops, so it would just be berries.
- OEHHA (David) requested clarification on why dermal exposure to edible vegetation is considered complete for "Post Application Resident" while ingestion exposure to edible vegetation is considered incomplete for the same human receptor.
- Action Item: Consultant risk team, OEHHA (David) and DPR (Sheryl) to convene a meeting to discuss/clarify and decide final CSMs. Meeting place and time will be Feb. 27, 1-3 at CalEPA Room 310.

- Ecological Risk:
  - Because of limited ecorisk and ecotoxicity data to ecological receptors, oral/dietary exposure (ingestion) is only the exposure route covered in the risk assessment.
  - Dermal exposure and inhalation, though part of the conceptual model, will not be covered in the risk assessment, due to lack of data.

Topic #2: Fruit Fly Quarantine Program Overview

Background

- Vince Arellano from CDFA gave an overview of the program
- Fruit flies are internal fruit feeders.
- Eradication generally occurs in urban areas. Fruit flies are usually not found in nursery areas.
- Southern California and the Bay Area are the main places fruit flies are found. Historically, most urban quarantines occurred in Southern California. Recently, quarantines have moved north. There are also more rural quarantines occurring.
- "Actionable" fruit flies are not established in California.
- The program is a cooperative effort between CDFA, USDA and counties. CDFA's jurisdiction covers transport of materials within the state. USDA covers exports out of the state. The PEIR will only cover activities within the state, because it is the only activity over which CDFA has jurisdiction/authority.

Quarantine and Eradication

- A find of 2 flies generally triggers an eradication effort, and more than 2 flies can trigger a quarantine. The number varies depending on species type.
- Eradications have a lower trigger level in terms of the number of fruit flies found. Quarantines have a higher trigger. Therefore, there can be eradications without a quarantine, but all quarantines will have an eradication

- Quarantine boundaries are generally established using geographical markers of population areas such as major roads and highways. Average quarantine size is 82 square miles.
- In nurseries, the life cycle phase of the fruit fly is important in quarantine and treatment decisions. Treatments are done under CDFA supervision.
- Rural residential treatments are only done in PDEP-Eradication

Treatments

- A minimum of 4 treatments is done in 30 days. The growers have the choice of treatments. CDFA supervises the treatments. Fruit flies have an extended life cycle in the winter months. Life cycle projections will vary from summer projections requiring a 30 day treat plan to a possible 130 day treat schedule through the winter.
- Male attraction treatment is put on street trees or telephone poles. Female are trapped in feeding stations.
- Treatments limited by local ordinances; for example, in San Diego, areas within ½ mile of a school cannot be treated.
- If nurseries don't want to use treatments, plants will be put on hold. Usually, plants will be surrendered for destruction in a landfill.
- Nursery quarantine soil drench treatments only treat the top 4-inches of soil
- Post-harvest fumigations have restrictions on how and when fumigation can occur and required buffers are too big for many locations
  - Discussion: Should a resident downwind-bystander be considered for a fumigation scenario? Could there be residential land use near a fumigation operation?
- Naled is not used in the quarantine program, but it is used in the eradication program

Conceptual Site Models: Human and Ecological Risk

- Human Risk:
  - CSM considers the worker who applies differently from the worker who loads the material afterwards.
  - Inhalation is the only complete exposure pathway for fumigation.
  - <u>Action Item:</u> consultant risk team to locate data on consumer exposure through off-gassing of produce from fumigation. EPA sets food tolerances. DPR's Worker Health and Safety Branch has done monitoring that suggests off-gassing of methyl bromide from produce can occur. Amounts of off-gassing are dependent on the type of produce, amount of methyl bromide applied and aeration intervals, among other factors. Information will be requested by the consultant risk assessment team from DPR (Harvard) regarding consumer exposure and "post-post-application-loader" exposure from fumigated produce and about the results of DPR's monitoring of methyl bromide concentrations in cold storage facilities and trucks transporting fumigated fruit.
    - Produce will off-gas methyl bromide during storage and transport so chemical concentrations can build up even days after treatment.

        - There are restrictions on maximum concentration of methyl bromide allowed. Are these health based? (e.g. TLV, PEL, etc.)
    - Fumigation will happen in a core area, if fruit fly is found and another treatment cycle can't be completed. Fumigation has not been used in a number of years, and is used by growers as a last resort.
- The CSM for nurseries needs to be modified to show soil drench and injection as the only application techniques. These techniques focus on the top 4" of soil.
- Another CSM needs to be developed for production ag and rural residential that shows sprayers as the sole application technique.
- The Adult Downwind Bystander (DWB) has an inhalation exposure, not a dermal exposure for the sprayer application technique.
- Eco Risk CSM:
    - OEHHA (Reggie) suggested that dermal exposure through soil should be considered due to animals taking dust baths and through bird's feet.
    - OEHHA (Reggie) requires clarification on why the aquatic amphibians, inverts and fish have an incomplete pathway under surface water exposure. These receptors do take in some water and, more importantly, the amphibians and fish will be eating the exposed terrestrial inverts.

December 13, 2012 Recap

- The chemicals evaluated in the Risk Assessment will be the only ones used, unless other chemicals are added to the PEIR later.
    - Suggestion to have the report identify pesticides approved for use but not evaluated in the risk assessment because they are not used in any CDFA program, and to discuss the basis for their exclusion. Another option would be to evaluate the pesticides to preempt any objections.
- Action Item: Program organization: Horizon to provide Program Organization Figure 2-4 (now attached) to team.
- In general, detection triggers an eradication, which may lead to a quarantine. It is beneficial to change triggers, after more research has been done.
- OEHHA (Reggie) still has questions regarding the nursery CSMs.
- CDFA (Laura) indicated that CDFA will not approve pesticides not evaluated in the PEIR to be used for quarantine or eradication treatments in the future.

Interim EcoRisk and Human Risk Activities Update

- Eco risk: applies to special status and endangered species, not abundant species, so need to look at individuals. The EPA has a level of concern for endangered species.
- Human risk: team plans to use USEPA 2012 standard operating procedure for acute exposure, and USEPA RAGS for chronic exposure.

- Team to consider evaluating inhalation and dermal onsite exposure to residents during treatment.
  - Action Item: A meeting will be held Feb. 27, 1-3 at CalEPA Room 310 with DPR (Sheryl), OEHHA (David) and Consultant Risk Team to discuss inhalation exposure to the resident and downwind-bystander. This meeting will take place along with the previously mentioned CSM meeting.

Topic #3: Pesticide Fate & Transport to a Pond: Buffers

- Some pesticide product labels require a 25’ buffer from water bodies.
- The proposed approach to evaluating buffers is as follows:
  1. First, assume no aerial or erosion buffer. If risk does not exceed thresholds, analysis stops there.
  2. If risk exists, a 25’ aerial drift reduction buffer will be used, using USEPA’s PRZM/EXAMS model.
  3. If risk still exists, then a 25’ soil erosion reduction buffer will be evaluated by reviewing scientific literature, resulting in either a qualitative or quantitative conclusion depending upon the data.
- OEHHA (Reggie) expressed concern regarding use of an iterative approach, and that it was not standard practice. DPR staff indicated that it is a commonly used approach when developing regulations, since it helps identify what types of protective measures are necessary (for instance, whether a buffer is needed).
- Reggie expressed concern that the literature review is essentially an unvetted, non-EPA approved approach, and suggested that such an evaluation would be more appropriate for an EIR. She felt that the literature review approach was likely to receive criticism if included in the risk assessment.
- Brad stated that such an approach can be a qualitative description of uncertainty, and not characterized as a modeling exercise, and is commonly used in risk assessment documents. Reggie responded that she had misgivings regarding making any definitive conclusion regarding a resulting risk quotient as a result of the literature review.
- Further discussion revolved around the frequent use of empirical field data, in lieu of models, to provide guidance on pesticide environmental fate. DPR does this regularly. In cases were adequate literature data is available, this data is deemed sufficient for use in estimating environmental fate and a model is not needed.
- DPR (Yuzhou) suggested that the assumptions and limitations of PE5 should be discussed in the report (e.g. comparison of “standard pond” in EXAMS, to CA field conditions; model deficiency for eroded solid removal)
- Yuzhou will provide Blankinship with literature sources related to buffers and soil erosion.

cdfa
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday, January 24, 2013, 2-4 pm
CalEPA Bldg, Conference Room 450, Sacramento

Name	Affiliation	Email
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14 Brad Sample	EcoRisk	phone-in
15. Dave Kim	CDPR	phone-in
16. Scott Dwyer	Kleinfelder	phone-in
17. Laura Pietro	CDFA	(via Mike B)
18. Mike Blankinship	Blankinship	mike@h2osci.com
19. David Ting	OEHHA	(via Mike B)

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #3

Thursday, January 24, 2013

Bactrocera cucurbitae

Agenda

I. Welcome, Sign-In, Introductions, Agenda
II. Topic #1: LBAM Quarantine
III. Topic #2: Fruit Fly Quarantine
IV. Recap of December 13, 2012 Mtg
V. Interim Activity Update
VI. Topic #3 Ponds & Buffers
VII. Q&A/Adjourn

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Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

3

Topic #1

- Light Brown Apple Moth (LBAM) Quarantine Program
  - >2,000 host species
  - 3-5 generations/yr
  - Overwintering larvae feed on fruit leaf

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LBAM Quarantine Program

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LBAM Quarantine Program

AREAS UNDER QUARANTINE

- Los Angeles Co: Long Beach and Whittier areas
- Sacramento Co: Foothill Farms area
- Sacramento and San Joaquin Co.s: Galt area
- Sacramento and Yolo Co.s: Sacramento area
- San Joaquin Co: Acampo, Clements, Kings Island & Lockeford areas
- San Luis Obispo Co: Cayucos and Los Osos areas
- Santa Barbara Co: Carpinteria and Goleta areas
- Solano Co: Allendale, Lindsey Slough and Vacaville areas
- Sonoma Co: Kenwood area
- Ventura Co: Carpinteria area

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LBAM Quarantine Program

AREAS UNDER STATUTORY QUARANTINE

- Contra Costa Co: Bacon & Bethel Island areas
- Monterey Co
- Sacramento Co
- San Joaquin Co: Bacon Island area
- Santa Barbara Co: Goleta & Santa Maria areas
- Solano Co
- Ventura Co: Carpinteria area
- Yolo Co

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LBAM Quarantine Program

REGULATED AREAS
Alameda Co
Contra Costa Co
Marin Co
Monterey Co
Napa Co
Sacramento & Yolo Co.s
San Benito Co
San Joaquin Co
Santa Clara Co
Solano Co
Sonoma Co

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LBAM Program

- Nursery (Small, Medium & Large)
- Field Crops
- Backpack or tank sprayer to 10 acres
- Treatment done if:
  – Still infested at re-inspection following treatment
  – Still infested after next 30 day inspection
- Treatment done with:
  – BT: Two applications 7-10 days apart
  – All Other Pesticides: One application

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The Horizon Team
Blankinship & Associates, Inc.

LBAM Quarantine Program

- Lures & Insecticides:
  - Dipel (BT subsp. K)
  - Acelepryn (chlorantraniliprole)
  - Scimitar (lambda-cyhalothrin
  - Intrepid (methoxyfenozide)
  - Bonide (petroleum oil)
  - Conserve (Spinosad)
  - Entrust (Spinosyn A & D)

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LBAM--Human Risk

Conceptual Site Model

Nursery & Field Crops

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Post Application Resident (PAR) Adult (d)	Post Application Resident (PAR) Child (d)	Adult Downwind Bystander (DWB) (a)	Adult Mixer/ Loader/Applicator (MLA) (b)	Adult Post-Application Worker (PAW) or Loader (PAL)
Sprayers (Backpack, Aerial, & Other)			Air	Dermal	O	O	X	X	X
				Inhalation	O	O	O	X	O
	Droplets, Vapor or Mist	Soil	Soil	Dermal	X	X	O	O	O
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	X	X	O	X (c)	X
			Edible Vegetation	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	0
Soil Drench or Injection	Saturated Soil		Soil	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O
				Ingestion	O	O	O	O	O

General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway

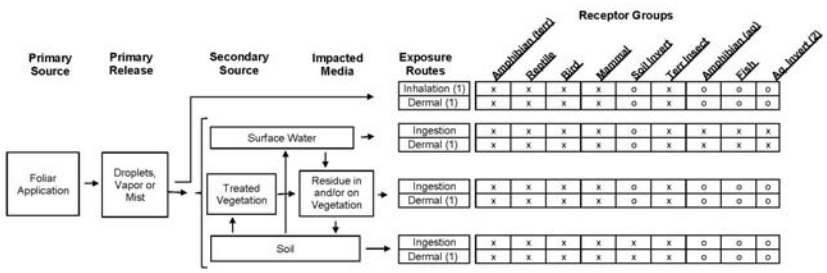
Indicates Revision from Dec 13, 2012 CSM

The Horizon Team
Blankinship & Associates, Inc.

LBAM--Ecological Risk

Conceptual Site Model

Nursery & Field Crops



Impacted Media	Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
	Inhalation (1)	x	x	x	x	o	x	o	o	o
	Dermal (1)	x	x	x	x	o	x	o	o	o
Surface Water	Ingestion	x	x	x	x	o	x	x	x	x
	Dermal (1)	x	x	x	x	o	x	x	x	x
Residue in and/or on Vegetation	Ingestion	x	x	x	x	o	x	o	o	o
	Dermal (1)	x	x	x	x	o	x	o	o	o
Soil	Ingestion	x	x	x	x	x	x	o	o	o
	Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Topic #2

- Fruit Fly Quarantine Program
  - Includes: Caribbean, Guava, Mediterranean, Melon, Mexican, Oriental, Peach and Striped
  - Example: Med Fly:
    - >250 host plants
    - Eggs laid under fruit skin and larvae feed on fruit
    - Larvae leave fruit and pupate in the soil
    - Adults live for up to 2 months

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Fruit Fly Quarantine Program

- Fruit Fly Quarantine Program

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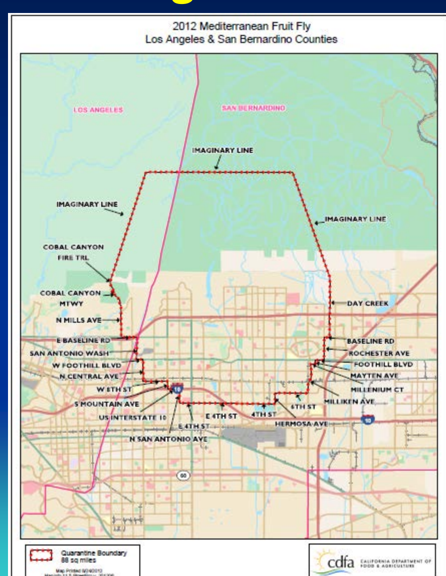
Ex. Med Fly Quarantine Program 2012



16

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Fruit Fly Quarantine Program

- Nursery Quarantine
  – Soil Drench 3 times at 14-day intervals
- Production Agriculture
  – Tree and Row Crops
  – Aerial and Ground Spray
- Rural Residential
  – Ground Spray
  – Combination Lure and Insecticide
- Post-harvest Fumigation
  – Sea Van or Fumigation Chamber

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Fruit Fly Quarantine Program

- Lure and Insecticides
  – Diazinon
  – Malathion
  – Naturalyte (Spinosyn A & D)
  – Bromo-Gas (methyl bromide)

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Fruit Fly--Human Risk

Conceptual Site Model

Fumigation

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Adult Downwind Bystander (DWB)	Adult Applicator (App)	Adult Post-Application Worker (PAW) or Loader (PAL)
Fumigation Chamber			Air	Dermal	O	O	O
				Inhalation	X	X	X
	Vapor	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O
			Edible Vegetation	Dermal	O	O	O
				Ingestion	O	O	O

Fruit Fly--Human Risk

Conceptual Site Model

Nursery & Field Crops

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Post Application Resident (PAR) Adult (d)	Post Application Resident (PAR) Child (d)	Adult Downwind Bystander (DWB) (a)	Adult Mixer/ Loader/Applicator (MLA) (b)	Adult Post-Application Worker (PAW) or Loader (PAL)
Sprayers (Backpack, Aerial, & Other)			Air	Dermal	O	O	X	X	X
				Inhalation	O	O	O	X	O
	Droplets, Vapor or Mist	Soil	Soil	Dermal	X	X	O	O	O
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	X	X	O	X (c)	X
			Edible Vegetation	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	0
Soil Drench or Injection	Saturated Soil		Soil	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O
				Ingestion	O	O	O	O	O

General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway

Indicates Revision from Dec 13, 2012 CSM

The Horizon Team
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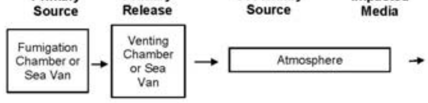
Fruit Fly--Ecological Risk

Conceptual Site Model

Fumigation



Exposure	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o

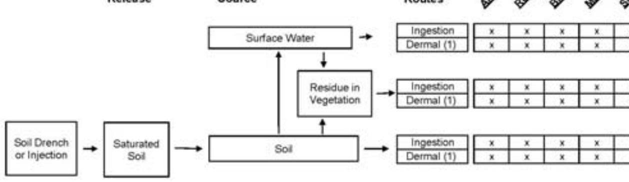
Notes:
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Fruit Fly--Ecological Risk

Conceptual Site Model

Nursery



Impacted	Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Surface Water	Ingestion	x	x	x	x	o	x	¤	¤	¤
	Dermal (1)	x	x	x	x	o	x	¤	¤	¤
Residue in Vegetation	Ingestion	x	x	x	x	x	x	o	o	o
	Dermal (1)	x	x	x	x	x	x	o	o	o
Soil	Ingestion	x	x	x	x	*	x	o	o	o
	Dermal (1)	x	x	x	x	*	x	o	o	o

Notes:
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
* - Incomplete Exposure Pathway for Containerized Stock
¤ - Aquatic exposure via soil erosion only.
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

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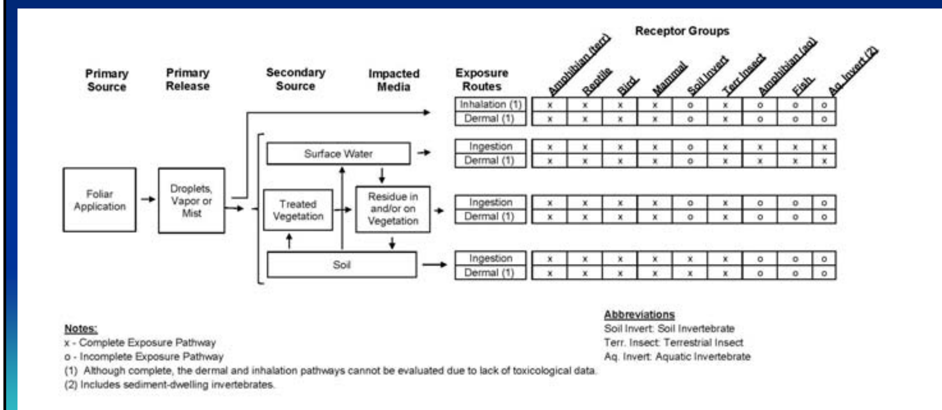
Fruit Fly--Ecological Risk

Conceptual Site Model

Production Ag and Rural Residential



December 13, 2012 Recap

- 14 Attendees
- Fate & Transport to Pond; Buffers
- Nursery Conceptual Site Models
- Fumigation Conceptual Site Models
- Residential Exposures

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Interim EcoRisk Activities

- Area Use Factors
  - Calculate assuming no AUF
  - Calculate Assuming AUF
  - Determine Midpoint as Representative Scenario
- Population Effect Threshold
  - Without ability to identify exposed population, not possible in this assessment

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Interim Human Risk Activities

- Resident Exposure
  - DPR references reviewed
  - OEHHA comments noted
  - Proposed Approach:
    - Use USEPA 2012 SOP for acute
      - Does not allow for highly exposed individuals to be considered
    - Use USEPA RAGS for chronic
      - Does allow for highly exposed individuals to be considered
    - Dermal exposure only (no ingestion, inhalation)
    - Investigating hand to mouth contribution (P65, Air Toxics Hot Spots)

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Topic #3

- Buffer Modeling
  - Use USEPA's PE5 Shell for PRZM/EXAMS
    - Step #1: Model assuming no aerial or erosion buffer
    - If risk, then Step #2: Incorporate 25' aerial drift reduction buffer
    - If still risk, then Step #3: Estimate & incorporate 25' soil erosion reduction buffer by review of scientific literature
    - Current Working with Dirk Young of USEPA to modify PE5 to accommodate 150 applications

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The End

- Additional Q&A
- Actions
- Next Meeting
  - March 7, 2013
  - 2-4 PM
  - DPR Room 450
- Adjourn

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(NOTE: This CSM appears on Slides 12 and 20 of the presentation and is shown here in a larger format for ease of reading)

Conceptual Site Model (CSM)
Human Health Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Post Application Resident (PAR) Adult (d)	Post Application Resident (PAR) Child (d)	Adult Downwind Bystander (DWB) (a)	Adult Mixer/ Loader/Applicator (MLA) (b)	Adult Post-Application Worker (PAW) or Loader (PAL)
Sprayers (Backpack, Aerial, & Other)			Air	Dermal	O	O	X	X	X
				Inhalation	O	O	O	X	O
	Droplets, Vapor or Mist	Soil	Soil	Dermal	X	X	O	O	O
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	X	X	O	X (c)	X
			Edible Vegetation	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	0
Soil Drench or Injection	Saturated Soil		Soil	Dermal	X	X	O	X (c)	X
				Ingestion	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O
				Ingestion	O	O	O	O	O

General Notes:

X - Complete Exposure Pathway

0 - Incomplete Exposure Pathway

Indicates Revision from Dec 13, 2012 CSM

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Specific Notes:

(a) Includes DWB exposed by both ground-based and aerial applications

(b) Included MLA exposed by both ground-based and aerial applications.

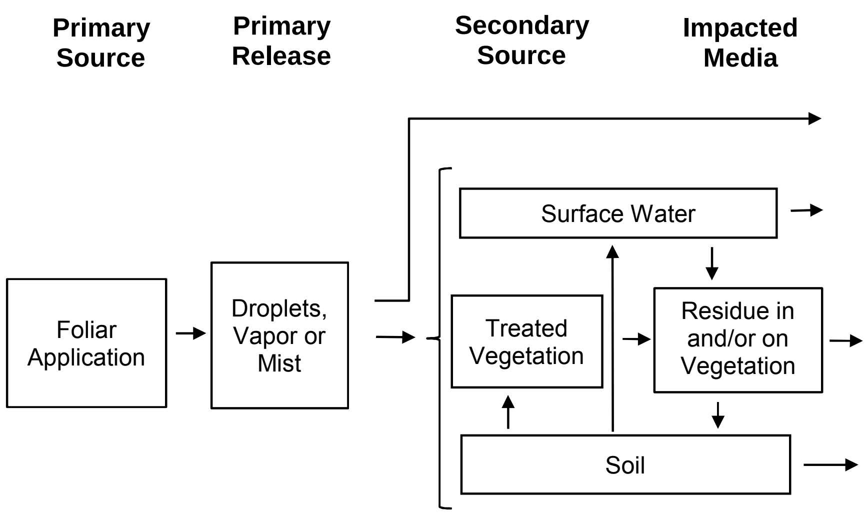
(c) Aerial MLA receptors do not have a complete exposure pathway.

SW Human CSM, Overall-Revised
1/23/2013

Blankinship & Associates, Inc.

(NOTE: This CSM appears on Slide 13 of the presentation and is shown here in a larger format for ease of reading)

Appendix C
Ecological Risk Assessment
Conceptual Site Model (CSM)



Receptor Groups

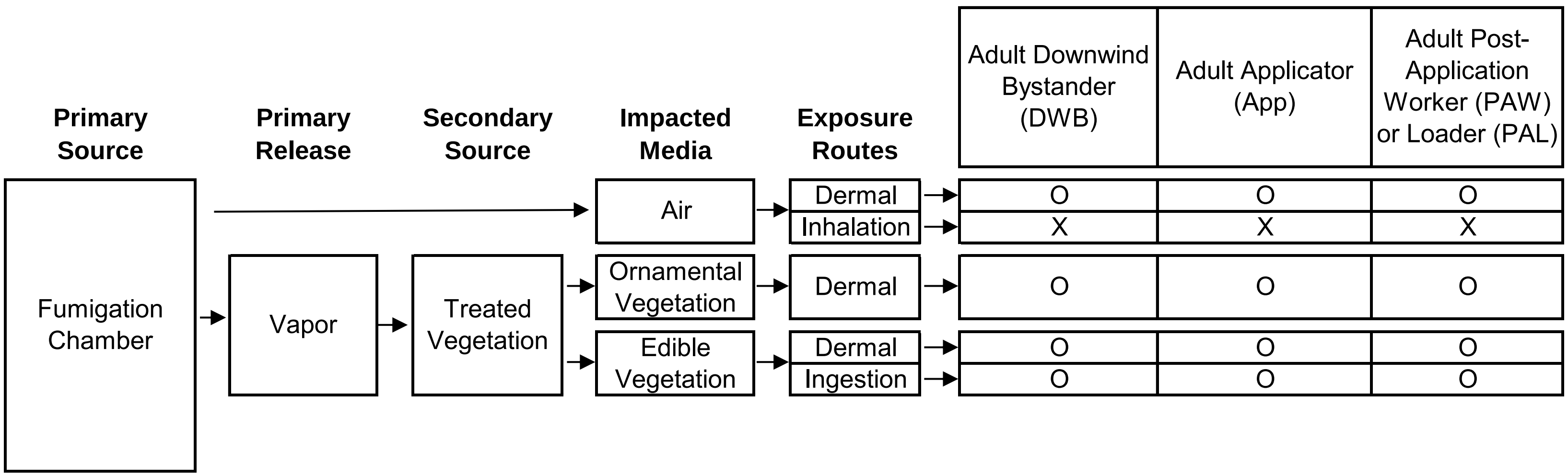
Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	*	x	o	o	o
Dermal (1)	x	x	x	x	*	x	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
* - Incomplete Exposure Pathway for Containerized Stock
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

(NOTE: This CSM appears on slide 19 of the presentation and is shown here in a larger format for ease of reading)

Fumigation
Conceptual Site Model (CSM)
Human Health Risk Assessment



General Notes:
X - Complete Exposure Pathway
0 - Incomplete Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Exposure to consumers and other human receptors post-purchase will not be assessed.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

SW Human CSM, Fumigation
12/17/2012

Blankinship & Associates, Inc.

(NOTE: This CSM appears on slide 21 of the presentation and is shown here in a larger format for ease of reading)

Appendix C
Ecological Risk Assessment
Conceptual Site Model (CSM)

Primary Source		Primary Release		Secondary Source		Impacted Media
Fumigation Chamber or Sea Van	→	Venting Chamber or Sea Van	→	Atmosphere	→	

Receptor Groups

Exposure	Amphibian (terr)	Repile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o

Notes:

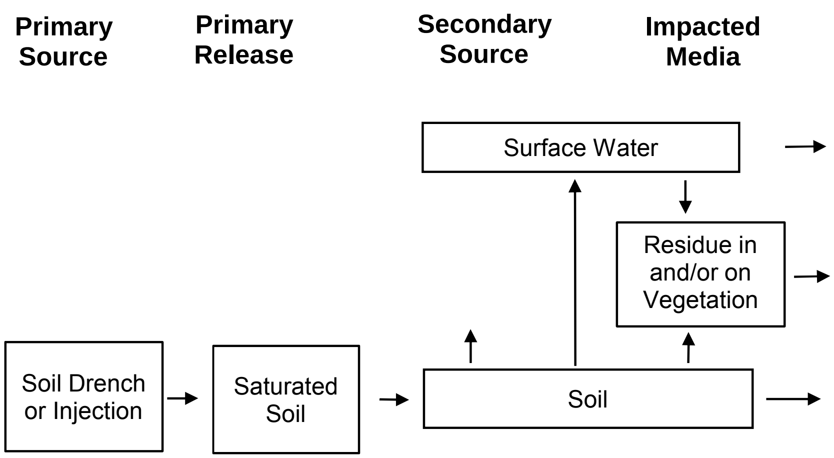
x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Appendix C
Ecological Risk Assessment
Conceptual Site Model (CSM)

(NOTE: This CSM appears on slide 22 of the presentation and is shown here in a larger format for ease of reading)



Receptor Groups

Impacted Media	Exposure Routes	Amphibian (terr)	Repile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Surface Water	Ingestion	x	x	x	x	o	x	x	x	x
	Dermal (1)	x	x	x	x	o	x	x	x	x
Residue in and/or on Vegetation	Ingestion	x	x	x	x	o	x	o	o	o
	Dermal (1)	x	x	x	x	o	x	o	o	o
Soil	Ingestion	x	x	x	x	*	x	o	o	o
	Dermal (1)	x	x	x	x	*	x	o	o	o

Abbreviations

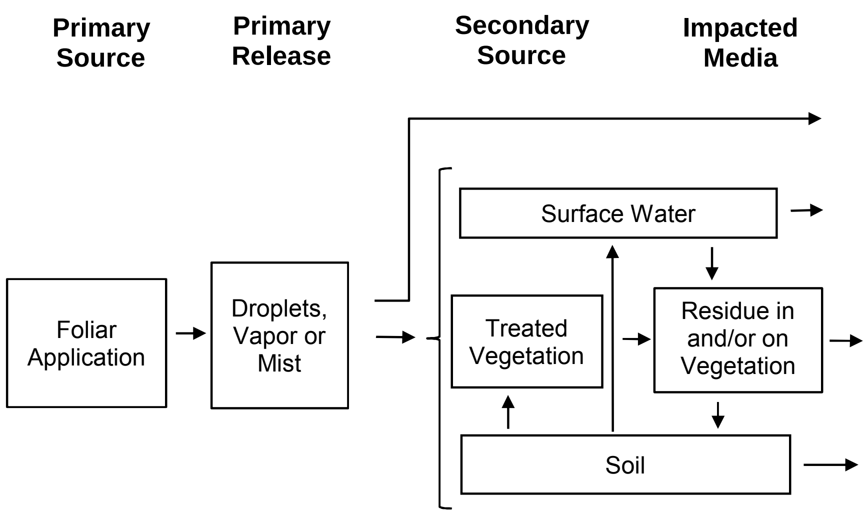
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
* - Incomplete Exposure Pathway for Containerized Stock
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

NOTE: This CSM appears on slide 23 of the presentation and is shown here in a larger format for ease of reading)

Appendix C
Ecological Risk Assessment
Conceptual Site Model (CSM)



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	*	x	o	o	o
Dermal (1)	x	x	x	x	*	x	o	o	o

Notes:

x - Complete Exposure Pathway
o - Incomplete Exposure Pathway
* - Incomplete Exposure Pathway for Containerized Stock
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations

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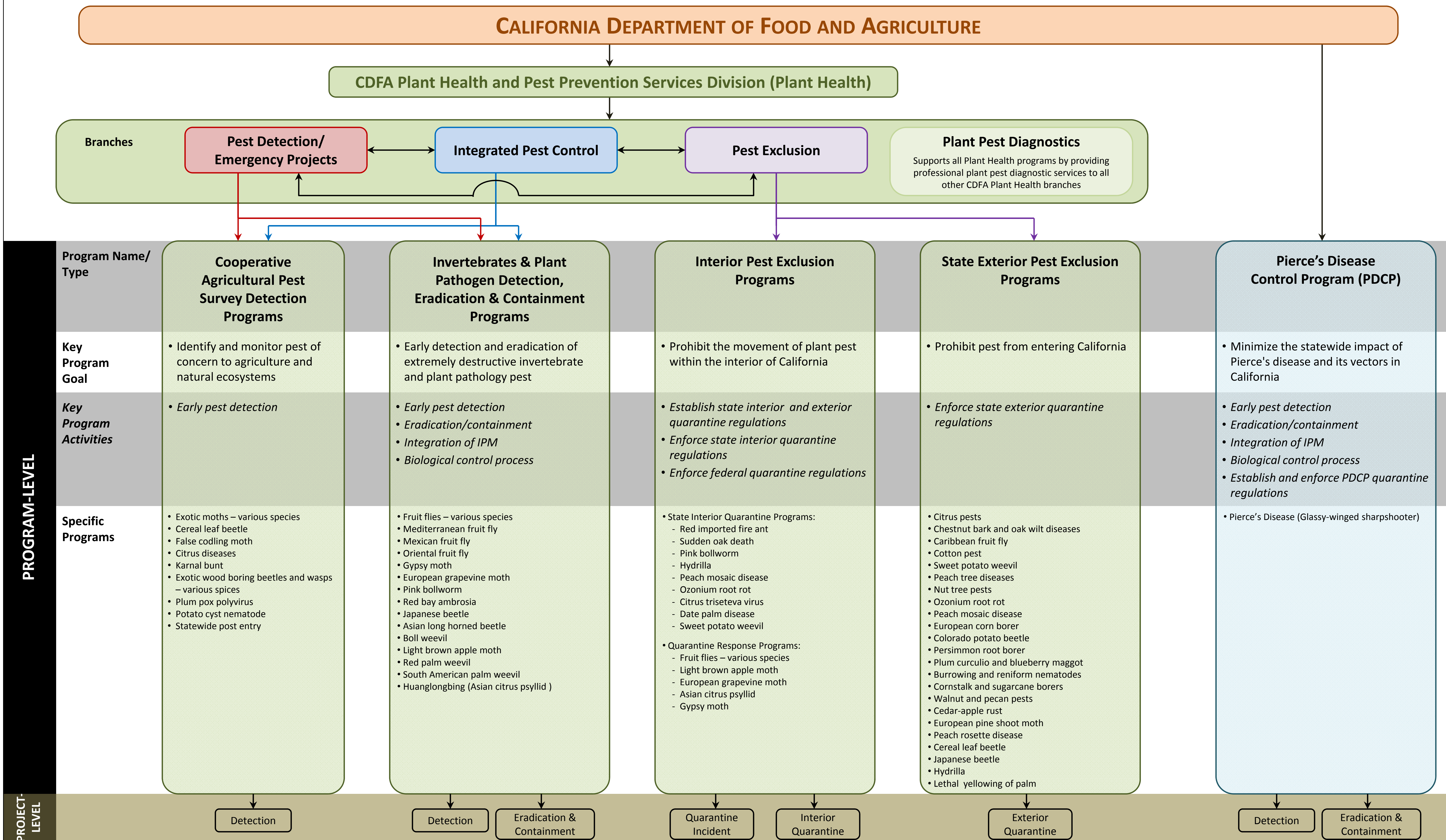
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate



Horizon WATER and ENVIRONMENT

INTERNAL DRAFT – DO NOT DISTRIBUTE

Figure 2-4. Statewide Program Organization

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday, February 27, 2013, 1-3 PM
CalEPA Bldg, Conference Room 310, Sacramento (Mtg Rm Contact: Liz Neese, DPR 916-445-4000)

Conference Call #: 1-866-730 7514 Passcode 248375#, Leader # 865964#

Attendees:

CDFA:	None
OEHHA:	David Ting
DPR:	Sheryl Beauvais
Horizon:	Mike Blankinship, Greg Gorder, Ryan Beil, David Bonnar

Agenda:

I. Welcome
II. Review and finalize CSMs
III. Discuss methods for exposure estimates and EECs for residents and bystanders.

cdfa

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 2/27/13

CalEPA Bldg, Conference Room: 310 Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Name	Affiliation	Email
Mike Blankinship	Blankinship	mike@envtox.com
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Greg Gorder	TSG	ggorder@tsgusa.com
David Bonnar	Blankinship	David@H2Osci.com
Ryan Beil	"	ryan@h2osci.com
Ryan Jolley (call-in)	Horizon	
David Ting	OEHHA	david.ting@oehha.ca.gov

Horizon WATER and ENVIRONMENT

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: ________________________
CalEPA Bldg, Conference Room:______ Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Final Meeting Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting
March 7, 2013

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Nick Condos

OEHHA: Regina Linville, David Ting

DPR: Sheryl Beauvais, Dave Kim, Jay Schreider, Randy Segawa

Horizon: Ryan Jolley, Michael Stevenson, Mike Blankinship, Joe Sullivan, Scott Dwyer, Brad Sample, Ryan Beil, Stephen Burkholder, Greg Gorder, David Bonnar

Attachments:

- Agenda
- Attendee List
- Meeting Presentation

Notes:

Topic #1: Program Overview

- Figure 2-4 provides an illustrated organization of CDFA's Statewide Plant Pest Prevention and Management Program and serves as a good desktop reference.

Topic #2: Pest Detection Emergency Projects (PD/EP)

Program Overview

- Cooperative Agricultural Pest Survey (CAPS) Program: Pests with these programs typically don't yet occur in California and trapping helps to confirms this is true. However, if a CAPS program pest is detected, often a new CDFA eradication program/project is initiated.
- EGVM was initially in the CAPS program, but its detection caused it to be reclassified into the Pest Detection and Emergency Projects Eradication Program (PDEP-E).
- Certain pests have pre-established eradication and quarantine triggers which are used to initiate programs/projects. If a protocol for eradication/quarantine triggers has not been previously established upon detection of an actionable pest, CDFA will convene a Technical Working Group

or a Scientific Advisory Panel to provide advice in the areas of eradication, control, containment and quarantine.

Risk Assessment Considerations

Human Health Risk – Conceptual Site Models (CSMs)

- PDEP-D (Pest Detection Emergency Projects-Detection) Human Health CSM should be titled as "Residential and Agricultural" and not specify bulk citrus for agricultural areas. Bulk citrus is only applicable to the Pierce's Disease Control Program (PDCP).
- Ecological Risk - CSMs
- Regarding PDEP-E (Pest Detection Emergency Projects-Eradication) for ACP, a drench application of imidacloprid is also used. As such, drench application and exposure pathways will be added to PDEP-E ecological CSM.
- For the PDEP-D ecological CSM, the ingestion pathway for terrestrial insects is "de minimis" and will be changed from an "X" to an "O". While incidental take of insects that encounter a trap cannot be precluded, there would be no direct attraction of non-target insects and any take would be infrequent. Additionally, incidental take would occur from the sticky substance more likely than the pesticide.
- Team clarified that a complete exposure pathway means that a direct exposure pathway to the receptor is possible.

Topic #3: European Grapevine Moth (EGVM) Program

Program Overview

- The goal of the EGVM program in the Napa/Solano/Sonoma infested area is to prevent the spread of the moth from the Host Area. Quarantine area currently is Napa County + 3 mile buffer into Solano/Sonoma County.
- In the EGVM quarantine program the host material cannot be moved within the host area without being treated because the ultimate goal is eradication. Some quarantines (for other pests) are less restrictive, where the goal is containment of the pest rather than eradication.
- In urban/residential areas, eradication may be accomplished by 1) fruit or flower removal, 2) Bt application, 3) mating disruption. The choice for method of eradication is generally the homeowner's choice.
- CDFA risk assessment team clarified that limitation on reapplication intervals applies to plants and not the nursery area. Because plants are continuously moving through nurseries, reapplication may occur multiple times at a single location, such as a loading dock, but for different plants.

Risk Assessment Considerations

Human Health Risk – CSMs

- No additional comments.

Ecological Risk – CSMs

- Review of draft final CSMs was initiated during the meeting. Drench applications will be added to appropriate CSMs. Reggie will continue her review.

Topic #4: Actions Since January 24, 2013 Meeting

Ecological Dermal Exposure Pathways

- The Department of Toxic Substances Control (DTSC) generally does not assess effects of dermal exposure unless it is a chemical especially permeable to the skin. Ingestion is sufficiently protective of the dermal and inhalation exposure. Additionally, not sufficient data is available for these exposure pathways.

Topic #5: The Dashboard

Overview

- Mike presented on the format and status of The Dashboard, a user-friendly interface which presents the risk analysis results recorded in the Access database.

General Format Recommendations

- Adjuvants should be distinguished from pesticide and inert ingredients and included in the pull-down menu list as a query-able result.
- Risk results are queried based on pesticide products rather than individual chemicals. This should be reflected in The Dashboard prompts ("Select a Pesticide" → "Select a Pesticide Product").

Additional Topics Discussed

Post-Delivery/Consumer Exposure

- Post-delivery consumer exposure is not being considered for any scenarios in the risk assessment because the exposure routes are too many and it would be too speculative to define them.
  The exposure of the Post application resident (PAR) receptor is being considered and would likely be greater than that of the post-delivery consumer. Therefore, analysis of the PAR is expected to be sufficiently protective of the post-delivery consumer.

  Non-Active Pesticide Ingredients

- The risk assessment will consider inert ingredients and adjuvants to the extent information for these chemicals can be identified and found on MSDS sheets and product labels.
- CDFA risk assessment team will look for name other than "inert" to refer to non-active pesticide chemicals.

Endangered Species

- CDFA currently conducts a protocol search of the California Natural Diversity Database (CNDDB) and consults with federal and state agencies prior to conducting treatment activities for emergency/area-wide projects.
- Federal agencies provide technical assistance when CDFA identifies locations of threatened or endangered species and/or critical habitat. CDFA consults directly with California Department of Fish & Wildlife for threatened and endangered species, critical habitat, and Species of Special Concern. The assessment focuses on specific treatment sites which are often located in residential areas away from critical biological habitat. When risk is identified federal agencies will consult with CDFA to determine appropriate measures to prevent take, such as using buffers and adjusting the timing of application, etc.

- In the Programmatic EIR, risk to all endangered species will be discussed. In the Ecological Risk Assessment, the general risk to endangered species will addressed by using 0.1 as the level of concern, while using 1.0 as the level of concern for all other species.

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting Agenda

Thursday, March 7, 2013, 2–4 pm
CalEPA Building, Conference Room 450, Sacramento (Mtg Room Contact: Leslie Reed 916-445-3984)

Building Access: Meeting attendees outside the Cal EPA building please coordinate with Mike Blankinship or Laura Petro for access to the meeting room.

Conference Call #: 1-866-796-8081; Passcode 8025803

Attendees:

CDFA:	Laura Petro, Vince Arellano, Craig Hanes, Roger Spencer, Janet Taylor, Robert Leavitt, Nick Condos
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais
Horizon:	Michael Stevenson, Ryan Jolley, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In (Laura, Mike; 5 min)
II. **Topic #1**: Figure 2-4: Overall Program Summary and Review (Michael, Laura; 15 min)
III. **Topic #2**: PDEP-D and PDEP-E Programs Summary and Overview (CDFA Staff; 15 min)
IV. **Topic #3**: EGVM Program Summary and Overview (CDFA Staff; 15 min)
V. Actions since last meeting (20 min)
   a. Final Human CSMs (Mike)
   b. Draft Final Eco CSMs (Joe)
   c. Eco dermal pathway review/approval (Joe)
VI. **Topic #4**: Database Intro (Mike; 15 min)
VII. Questions and Conclusions (All; 15 min)

CDFA / OEHHA / DPR
Statewide PEIR
Risk Assessment Meeting
3/7/13 2-4 PM

Name	Affiliation	Email
Stephen Burkholder	Blankinship & Associates, Inc.	stephen@h2osci.com
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David Bonnar	Blankinship & Assoc.	David@h2osci.com
Ryan Beil	Blankinship & Assoc.	ryan@h2osci.com
Joe Sullivan	Arden Consulting	birdtox1@ardencon.com
Mike Blankinship	Blankinship + Assoc	mike@h2osci.com
Nick Condos	CDFA	ncondos@cdfa.ca.gov
Laura [illegible]	CDFA	laura.petro@cdfa.ca.gov
Dave Kim	DPR	DKIM@CDPR.CA.GOV
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
David Ting	OEHHA	david.ting@oehha.ca.gov
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Michael Stevenson	Horizon	michael@horizonh2o.com
Regina Linville	OEHHA	regina.linville@oehha.ca.gov
Ryan Jolley	Horizon	ryan@horizonh2o.com
Randy Segawa	DPR	rsegawa@cdpr.ca.gov

Attending via Conference Call:
Scott Dwyer, Kleinfelder (Human Health Risk Team member)
Brad Sample, EcoRisk (Ecological Risk Team member)

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
Mar 7, 2013

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #4

Bactrocera cucurbitae

Thursday, March 7, 2013

Agenda

I. Welcome, Sign-In (Laura, Mike; 5 min)
II. Topic #1: Figure 2-4: Overall Program Summary and Review (Michael, Laura; 15 min)
III. Topic #2: PDEP-D and PDEP-E Programs Summary and Overview (CDFA Staff; 15 min)
IV. Topic #3: EGVM Program Summary and Overview (CDFA Staff; 15 min)
V. Actions since last meeting (20 min)
  I. Final Human CSMs Prepared (Mike)
  II. Draft Final Eco CSMs Prepared (Joe)
  III. Eco dermal pathway review/approval (Joe)
VI. Topic #4: Database Intro (Mike; 15 min)
VII. Questions and Conclusions (All; 15 min)

2

Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- **March 7, 2013**
- April 18, 2013
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

Legend
- Completed
- Today
- Scheduled

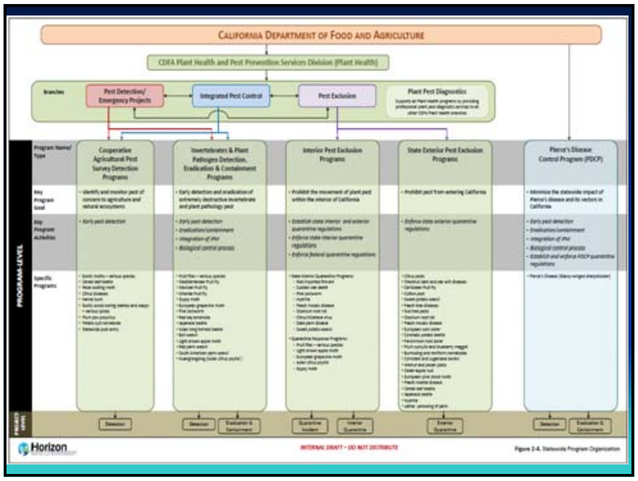
3

Topic #1

- Overall Program Summary and Review
- Figure 2-4

4

The Horizon Team
Blankinship & Associates, Inc.



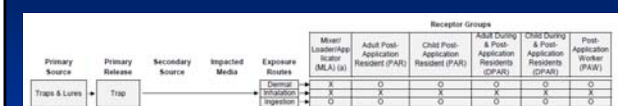
Topic #2

- Pest Detection Emergency Projects (PDEP)
  - Detection (PDEP-D)
  - Eradication (PDEP-E)

6

PDEP-E
Final Human Risk
Conceptual Site Model

PDEP-D
Final Human Risk
Conceptual Site Model



The Horizon Team
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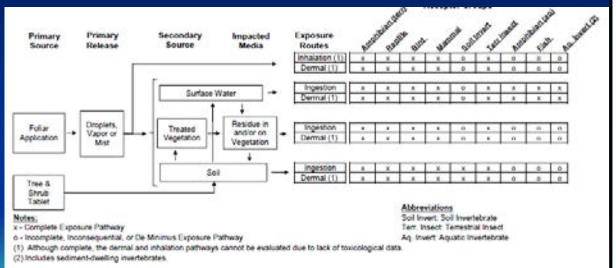
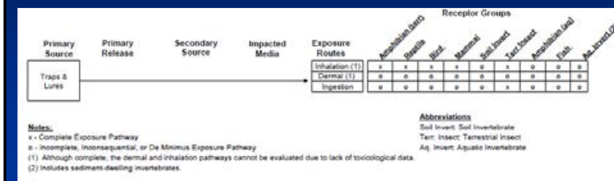
PDEP-E
DRAFT Final Ecological Risk
Conceptual Site Model



PDEP-D
DRAFT Final Ecological Risk
Conceptual Site Model

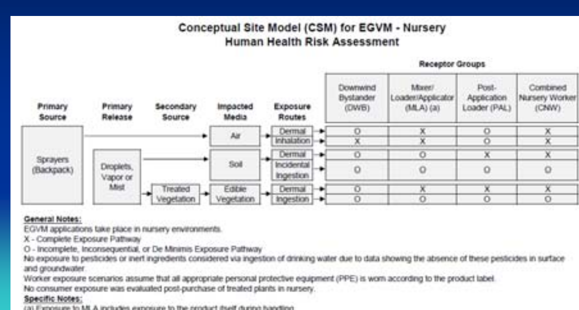


Topic #3

- European Grape Vine Moth (EGVM) Quarantine Program

11

EGVM
Final Human Risk
Conceptual Site Model



The Horizon Team
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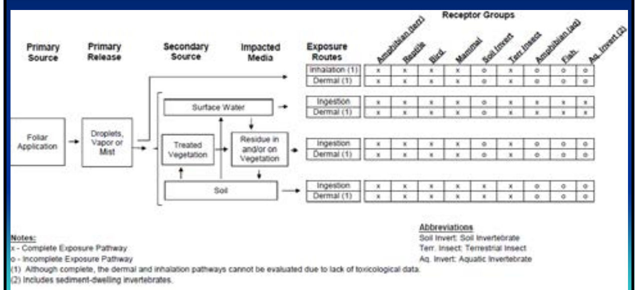
EGVM
Draft Final Ecological Risk
Conceptual Site Model



January 24, 2013 Recap

- 19 Attendees
- Final Human CSMs
- Draft Final Ecological CSMs
- Ecological Dermal Pathway
- (See attached for all CSMs)

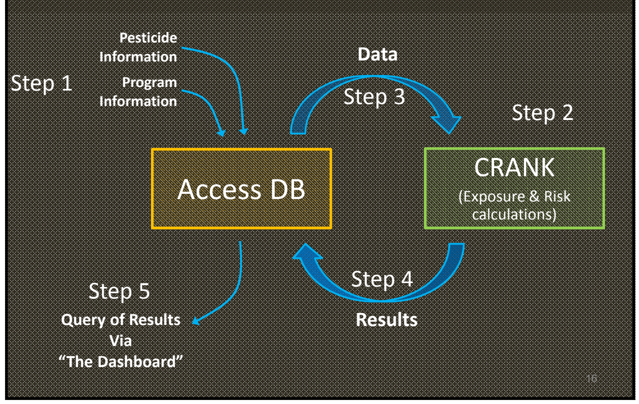
14

Topic #4

Database Introduction
- 5 Step Process
- Dashboard

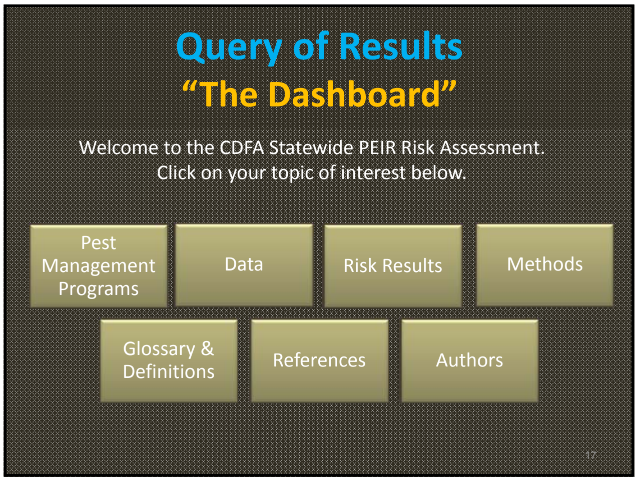
15

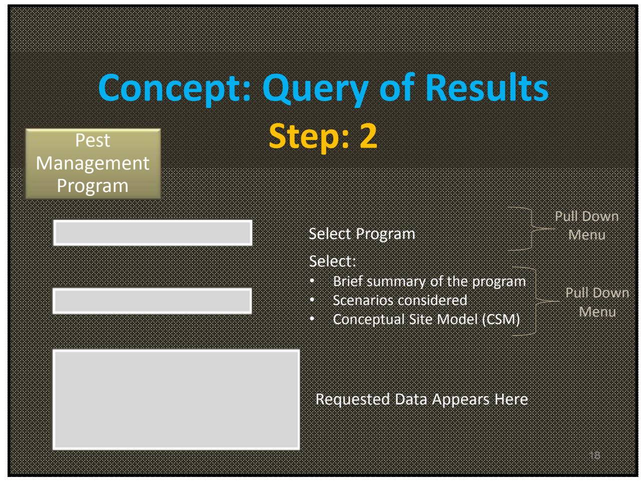
Basic Concept

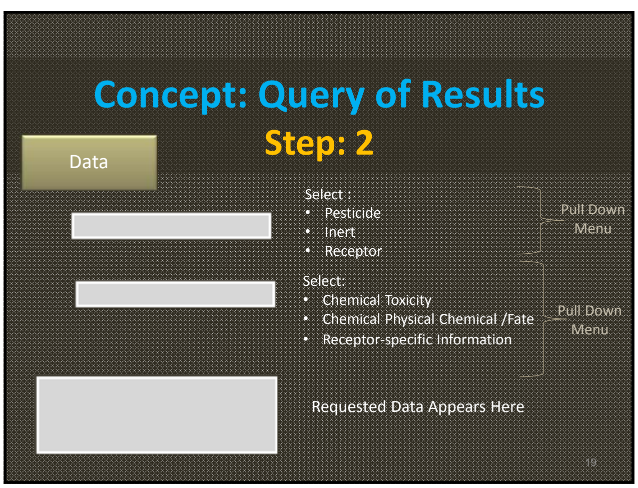


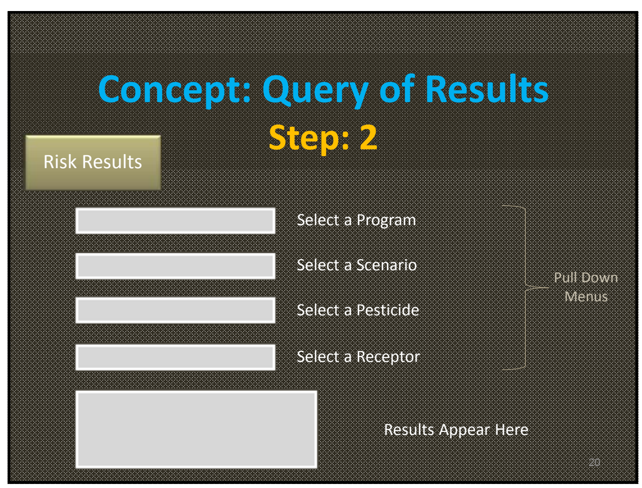
16

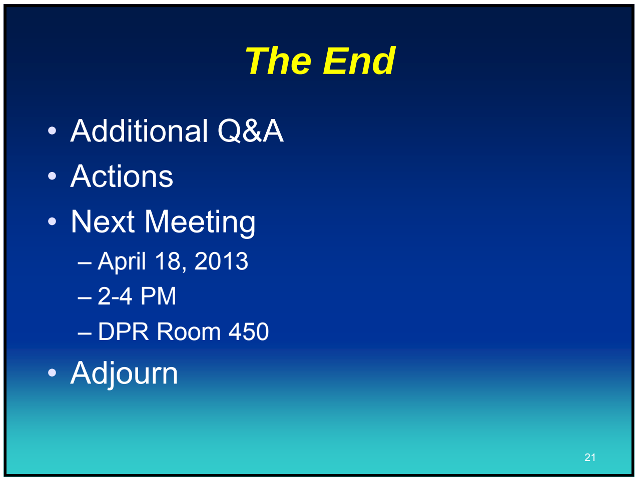
The Horizon Team
Blankinship & Associates, Inc.


Query of Results
"The Dashboard"
Welcome to the CDFA Statewide PEIR Risk Assessment.
Click on your topic of interest below.
Pest Management Programs
Data
Risk Results
Methods
Glossary & Definitions
References
Authors
17


Concept: Query of Results
Step: 2
Pest Management Program
Select Program
Pull Down Menu
Select:
• Brief summary of the program
• Scenarios considered
• Conceptual Site Model (CSM)
Pull Down Menu
Requested Data Appears Here
18


Concept: Query of Results
Step: 2
Data
Select :
• Pesticide
• Inert
• Receptor
Pull Down Menu
Select:
• Chemical Toxicity
• Chemical Physical Chemical /Fate
• Receptor-specific Information
Pull Down Menu
Requested Data Appears Here
19


Concept: Query of Results
Step: 2
Risk Results
Select a Program
Select a Scenario
Select a Pesticide
Select a Receptor
Pull Down Menus
Results Appear Here
20


The End
• Additional Q&A
• Actions
• Next Meeting
– April 18, 2013
– 2-4 PM
– DPR Room 450
• Adjourn
21

California Department of Food and Agriculture

CDFA Plant Health and Pest Prevention Services Division (Plant Health)

Branches

- **Pest Detection/ Emergency Projects**
- **Integrated Pest Control**
- **Pest Exclusion**
- **Plant Pest Diagnostics** – Supports all Plant Health programs by providing professional plant pest diagnostic services to all other CDFA Plant Health branches

PROGRAM-LEVEL

Program Name/ Type	**Cooperative Agricultural Pest Survey Detection Programs**	**Invertebrates & Plant Pathogen Detection, Eradication & Containment Programs**	**Interior Pest Exclusion Programs**	**State Exterior Pest Exclusion Programs**	**Pierce's Disease Control Program (PDCP)**
Key Program Goal	• Identify and monitor pest of concern to agriculture and natural ecosystems	• Early detection and eradication of extremely destructive invertebrate and plant pathology pest	• Prohibit the movement of plant pest within the interior of California	• Prohibit pest from entering California	• Minimize the statewide impact of Pierce's disease and its vectors in California
Key Program Activities	• *Early pest detection*	• *Early pest detection* • *Eradication/containment* • *Integration of IPM* • *Biological control process*	• *Establish state interior and exterior quarantine regulations* • *Enforce state interior quarantine regulations* • *Enforce federal quarantine regulations*	• *Enforce state exterior quarantine regulations*	• *Early pest detection* • *Eradication/containment* • *Integration of IPM* • *Biological control process* • *Establish and enforce PDCP quarantine regulations*
Specific Programs	• Exotic moths – various species • Cereal leaf beetle • False codling moth • Citrus diseases • Karnal bunt • Exotic wood boring beetles and wasps – various spices • Plum pox polyvirus • Potato cyst nematode • Statewide post entry	• Fruit flies – various species • Mediterranean fruit fly • Mexican fruit fly • Oriental fruit fly • Gypsy moth • European grapevine moth • Pink bollworm • Red bay ambrosia • Japanese beetle • Asian long horned beetle • Boll weevil • Light brown apple moth • Red palm weevil • South American palm weevil • Huanglongbing (Asian citrus psyllid)	• State Interior Quarantine Programs: - Red imported fire ant - Sudden oak death - Pink bollworm - Hydrilla - Peach mosaic disease - Ozonium root rot - Citrus triseteva virus - Date palm disease - Sweet potato weevil • Quarantine Response Programs: - Fruit flies – various species - Light brown apple moth - European grapevine moth - Asian citrus psyllid - Gypsy moth	• Citrus pests • Chestnut bark and oak wilt diseases • Caribbean fruit fly • Cotton pest • Sweet potato weevil • Peach tree diseases • Nut tree pests • Ozonium root rot • Peach mosaic disease • European corn borer • Colorado potato beetle • Persimmon root borer • Plum curculio and blueberry maggot • Burrowing and reniform nematodes • Cornstalk and sugarcane borers • Walnut and pecan pests • Cedar-apple rust • European pine shoot moth • Peach rosette disease • Cereal leaf beetle • Japanese beetle • Hydrilla • Lethal yellowing of palm	• Pierce's Disease (Glassy-winged sharpshooter)
PROJECT-LEVEL	Detection	Detection Eradication & Containment	Quarantine Incident Interior Quarantine	Exterior Quarantine	Detection Eradication & Containment

Horizon WATER and ENVIRONMENT

INTERNAL DRAFT – DO NOT DISTRIBUTE

Figure 2-4. Statewide Program Organization

Program	Nursery	Agriculture	Residential	Fumigation
PDEP-E			X	
PDEP-D		X	X	
PDCP	X	X	X	
Fruit Fly	X	X	X	X
EGVM	X			
LBAM	X	X		
ACP	X			X

Abbreviations:

PDEP-E - Pest Detection / Emergency Projects - Eradication
PDEP-D - Pest Detection / Emergency Projects - Detection
PDCP - Pierce's Disease Control Program
EGVM - European Grapevine Moth
LBAM - Light Brown Apple Moth
ACP - Asian Citrus Psyllid

					Receptor Groups					
Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Sprayers (Backpack)			Air	Dermal	O	X	O	O	O	O
				Inhalation	X	X	O	O	X	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
			Edible Vegetation	Dermal	O	X	X	X	X	X
				Ingestion	O	O	X	X	X	X
Spray Drench & Stump Application (b)			Air	Dermal	O	X	O	O	O	O
				Inhalation	O	X	O	O	O	O
	Large Droplets		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Ingestion	O	O	X	X	X	X
Soil Drench or Injection			Air	Dermal	O	X	O	O	O	O
				Inhalation	O	X	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Ingestion	O	O	X	X	X	X
Tree and Shrub Tablets			Air	Dermal	O	O	O	O	O	O
				Inhalation	O	O	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Ingestion	O	O	X	X	X	X
Traps & Lures	Trap			Dermal	O	X	O	O	O	O
				Inhalation	O	X	X	X	X	X
				Ingestion	O	O	O	O	O	O

General Notes:
PDEP-E applications take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.
(b) Stump applications apply to glyphosate applications only and exposure is limited to MLA only.

Receptor Groups

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)	Post-Application Worker (PAW)
Traps & Lures	Trap			Dermal	X	O	O	O	O	O
				Inhalation	X	X	X	X	X	X
				Ingestion	O	O	O	O	O	O

General Notes:

PDEP-D applications take place in agricultural (bulk citrus) and residential environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Receptor Groups

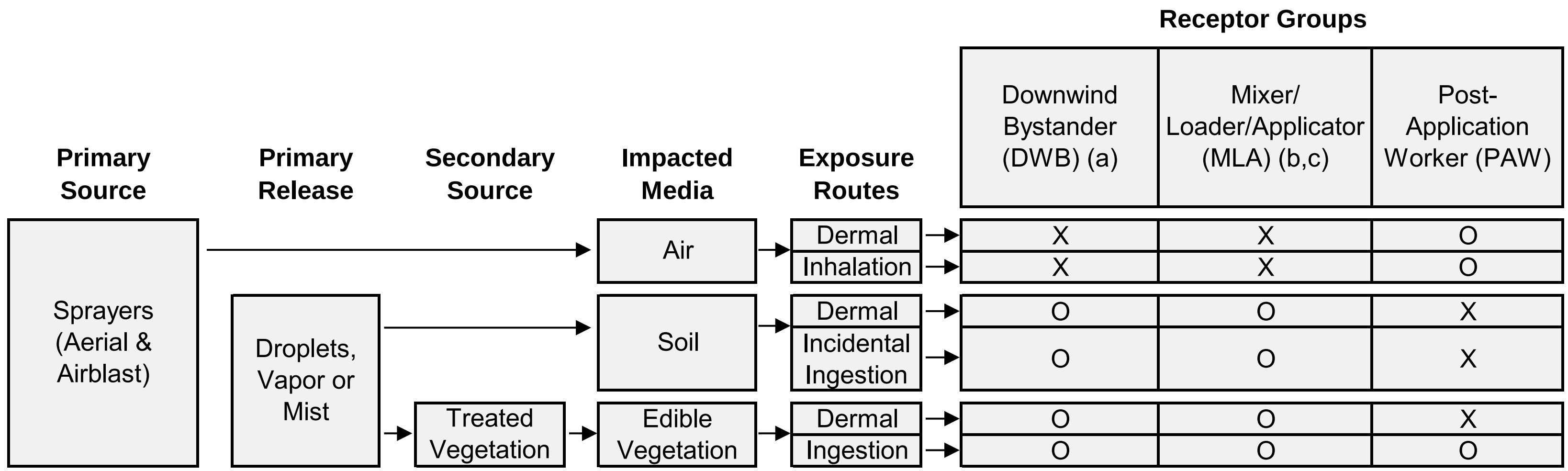
Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Sprayers (Backpack)			Air	Dermal	O	X	O	O	O	O
				Inhalation	X	X	O	O	X	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
			Edible Vegetation	Dermal	O	X	X	X	X	X
				Ingestion	O	O	X	X	X	X
Soil Drench or Injection			Air	Dermal	O	X	O	O	O	O
				Inhalation	O	X	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Ingestion	O	O	X	X	X	X
Tree and Shrub Tablets			Air	Dermal	O	O	O	O	O	O
				Inhalation	O	O	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O	O	O
				Incidental Ingestion	O	O	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O	O	O
				Ingestion	O	O	X	X	X	X

General Notes:
CSM is for PDCP applications that take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB) (a)	Mixer/ Loader/Applicator (MLA) (b,c)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
					Receptor Groups			
Sprayers (Backpack, Aerial, & Airblast)			Air	Dermal	X (d)	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X (e)	X	X
				Incidental Ingestion	O	O	O	O
			Edible Vegetation	Dermal	O	X (e)	X	X
				Ingestion	O	O	O	O
Soil Drench or Injection			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Saturated Soil		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Incidental Ingestion	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Ingestion	O	O	O	O
Tree and Shrub Tablets			Air	Dermal	O	O	O	O
				Inhalation	O	O	O	O
	Saturated Soil		Soil	Dermal	O	O	O	O
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Incidental Ingestion	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Ingestion	O	O	O	O

General Notes:
CSM is for PDCP applications that take place in nursery environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:
(a) Includes DWB exposed by both ground-based and aerial applications.
(b) Included MLA exposed by both ground-based, fumigation, and aerial applications.
(c) Exposure to MLA includes exposure to the product itself during handling.
(d) Exposure to DWB limited to aerial and airblast applications.
(e) Aerial and Airblast MLA receptors do not have a complete exposure pathway.



General Notes:

CSM is for PDCP applications that take place in agricultural (bulk citrus) environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

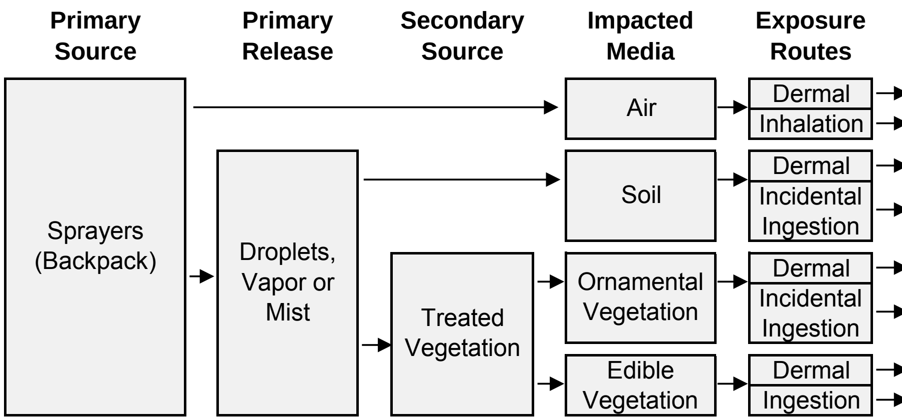
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

Specific Notes:

(a) Includes DWB exposed by both ground-based and aerial applications.

(b) Included MLA exposed by both ground-based and aerial applications.

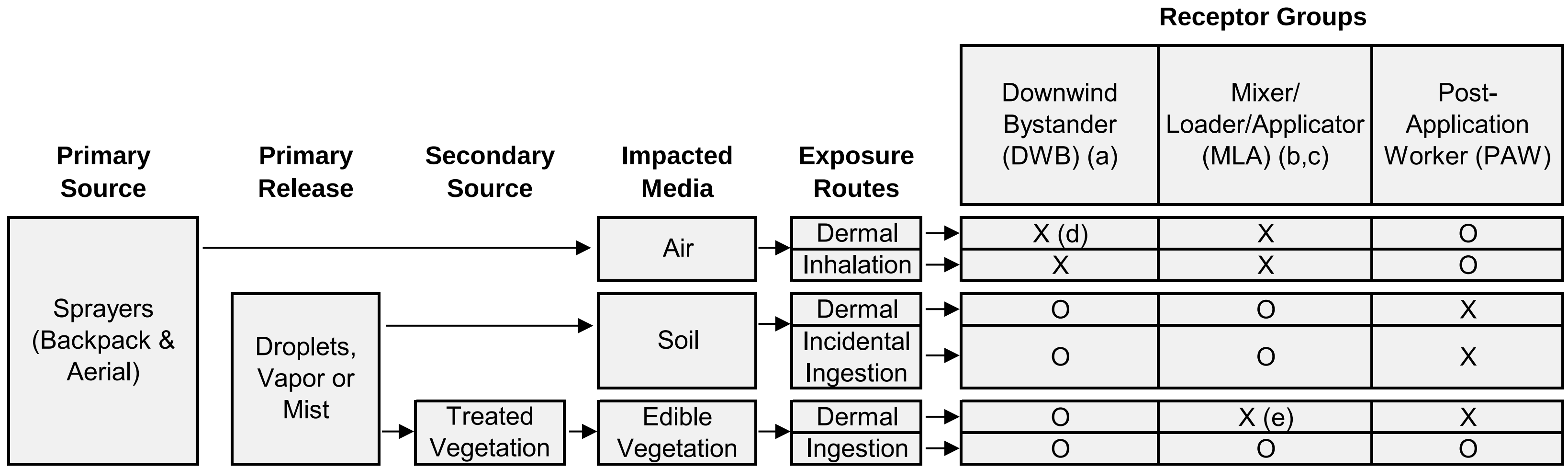
(c) Exposure to MLA includes exposure to the product itself during handling.



Receptor Groups

Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Air	Dermal	O	X	O	O	O	O
Air	Inhalation	X	X	O	O	X	X
Soil	Dermal	O	O	X	X	X	X
Soil	Incidental Ingestion	O	O	O	X	O	X
Ornamental Vegetation	Dermal	O	X	X	X	X	X
Ornamental Vegetation	Incidental Ingestion	O	O	O	X	O	X
Edible Vegetation	Dermal	O	X	X	X	X	X
Edible Vegetation	Ingestion	O	O	X	X	X	X

General Notes:
CSM is for Fruit Fly applications that take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.



General Notes:

CSM is for Fruit Fly applications that take place in agricultural (bulk citrus) environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Includes DWB exposed by both ground-based and aerial applications.

(b) Included MLA exposed by both ground-based and aerial applications.

(c) Exposure to MLA includes exposure to the product itself during handling.

(d) Exposure to DWB limited to aerial applications.

(e) Aerial MLA receptors do not have a complete exposure pathway.

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
					Receptor Groups			
Spray Drench			Air	Dermal	O	X	O	X
Spray Drench			Air	Inhalation	O	X	O	X
Spray Drench	Large Droplets		Soil	Dermal	O	O	X	X
Spray Drench	Large Droplets		Soil	Incidental Ingestion	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Ornamental Vegetation	Incidental Ingestion	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Edible Vegetation	Ingestion	O	O	O	O

General Notes:

CSM is for Fruit Fly applications that take place in nursery environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

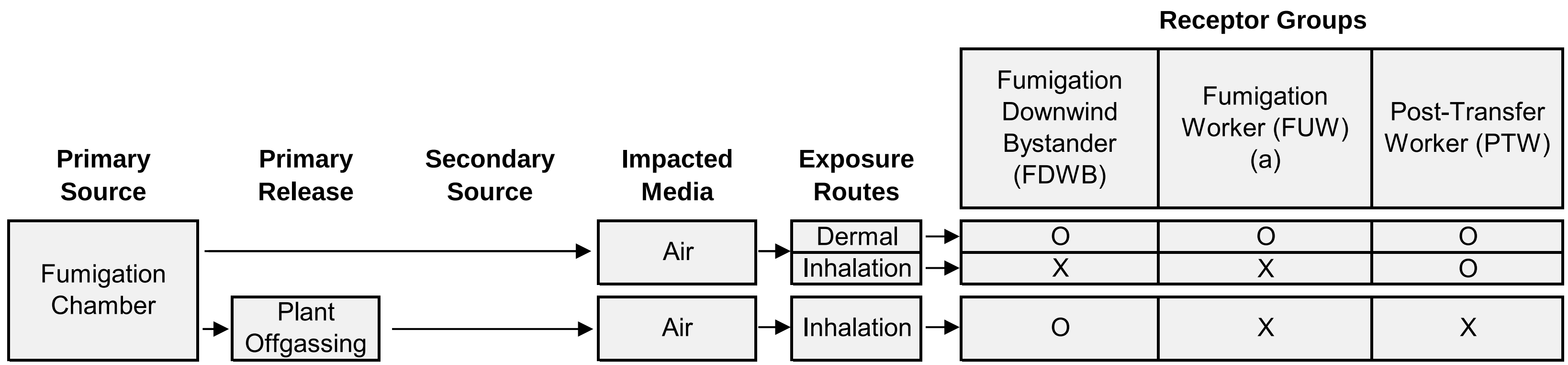
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.



General Notes:

CSM is for Fruit Fly - Fumigation applications take place in shipping, packaging, and transport environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants.

Specific Notes:

(a) Exposure to FUW includes exposure to the product itself during handling.

Receptor Groups

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack)			Air	Dermal	O	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Edible Vegetation	Dermal	O	X	X	X
				Ingestion	O	O	O	O

General Notes:

EGVM applications take place in nursery environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Receptor Groups

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Worker (PAW)
Sprayers (Backpack)			Air	Dermal	O	X	O
				Inhalation	X	X	O
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X
				Incidental Ingestion	O	O	X
		Treated Vegetation	Edible Vegetation	Dermal	O	X	X
				Ingestion	O	O	O
Traps & Lures	Trap			Dermal	O	X	O
				Inhalation	O	X	X
				Ingestion	O	O	O

General Notes:

CSM is for LBAM applications that take place in agricultural (bulk citrus) environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

Receptor Groups

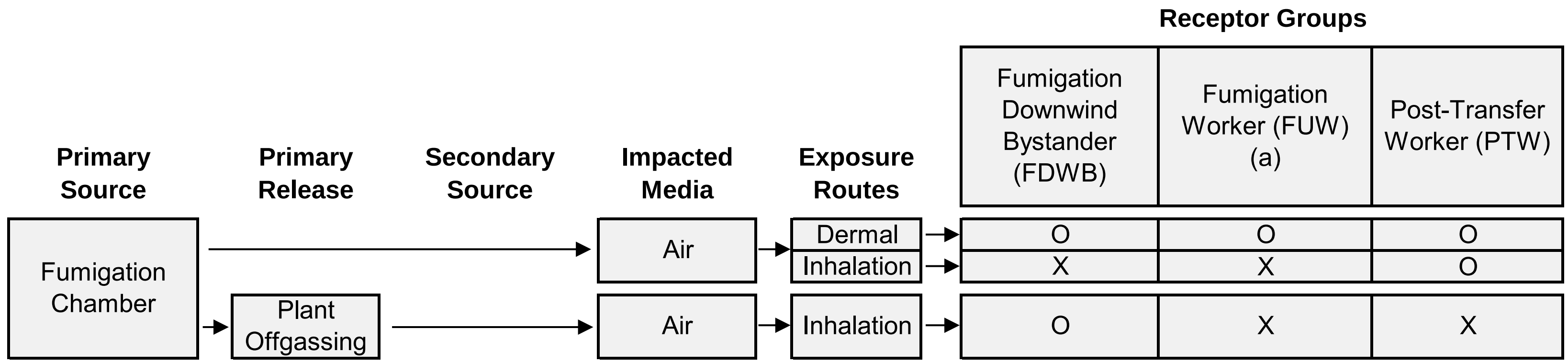
Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack)			Air	Dermal	O	X	O	X
				Inhalation	X	X	O	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X
				Incidental Ingestion	O	O	O	O
			Edible Vegetation	Dermal	O	X	X	X
				Ingestion	O	O	O	O
Traps & Lures	Trap			Dermal	O	X	O	X
				Inhalation	O	X	O	X
				Ingestion	O	O	O	O

General Notes:
CSM is for LBAM applications that take place in nursery environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB) (a)	Mixer/ Loader/Applicator (MLA) (b,c)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Sprayers (Backpack & Aerial)			Air	Dermal	X	X	O	X
Sprayers (Backpack & Aerial)			Air	Inhalation	X	X	O	X
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist		Soil	Incidental Ingestion	O	O	O	O
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist	Treated Vegetation	Ornamental Vegetation	Dermal	O	X (d)	X	X
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist	Treated Vegetation	Ornamental Vegetation	Incidental Ingestion	O	O	O	O
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist	Treated Vegetation	Edible Vegetation	Dermal	O	X (d)	X	X
Sprayers (Backpack & Aerial)	Droplets, Vapor or Mist	Treated Vegetation	Edible Vegetation	Ingestion	O	O	O	O
Spray Drench			Air	Dermal	O	X	O	X
Spray Drench			Air	Inhalation	O	X	O	X
Spray Drench	Large Droplets		Soil	Dermal	O	O	X	X
Spray Drench	Large Droplets		Soil	Incidental Ingestion	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Ornamental Vegetation	Incidental Ingestion	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O
Spray Drench	Large Droplets	Treated Vegetation	Edible Vegetation	Ingestion	O	O	O	O
Soil Drench or Injection			Air	Dermal	O	X	O	X
Soil Drench or Injection			Air	Inhalation	O	X	O	X
Soil Drench or Injection	Saturated Soil		Soil	Dermal	O	O	X	X
Soil Drench or Injection	Saturated Soil		Soil	Incidental Ingestion	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Ornamental Vegetation	Incidental Ingestion	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Edible Vegetation	Dermal	O	O	O	O
Soil Drench or Injection	Saturated Soil	Treated Vegetation	Edible Vegetation	Ingestion	O	O	O	O

General Notes:
CSM is for ACP applications that take place in a nursery environment.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:
(a) Includes DWB exposed by both ground-based and aerial applications.
(b) Included MLA exposed by both ground-based and aerial applications.
(c) Exposure to MLA includes exposure to the product itself during handling.
(d) Aerial MLA receptors do not have a complete exposure pathway.



General Notes:

CSM is for ACP - Fumigation applications that take place in sea vans and is limited only to ports (Long Beach, Los Angeles, Oakland, etc.)

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants.

Specific Notes:

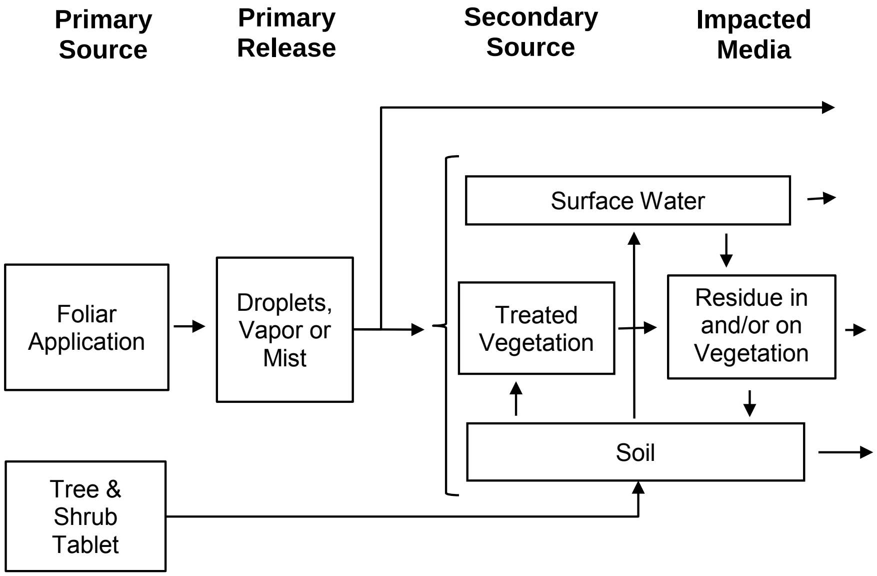
(a) Exposure to FUW includes exposure to the product itself during handling.

Program	Nursery	Agriculture	Residential	Fumigation
PDEP-E			X	
PDEP-D		X	X	
PDCP	X	X	X	
Fruit Fly	X	X	X	X
EGVM	X			
LBAM	X	X		
ACP	X			X

Abbreviations:

PDEP-E - Pest Detection / Emergency Projects - Eradication
PDEP-D - Pest Detection / Emergency Projects - Detection
PDCP - Pierce's Disease Control Program
EGVM - European Grapevine Moth
LBAM - Light Brown Apple Moth
ACP - Asian Citrus Psyllid

Receptor Groups



Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

(2) Includes sediment-dwelling invertebrates.

Abbreviations

Soil Invert: Soil Invertebrate

Terr. Insect: Terrestrial Insect

Aq. Invert: Aquatic Invertebrate

Primary Source | Primary Release | Secondary Source | Impacted Media | Exposure Routes

Traps & Lures

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o
Ingestion	o	o	o	o	o	x	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
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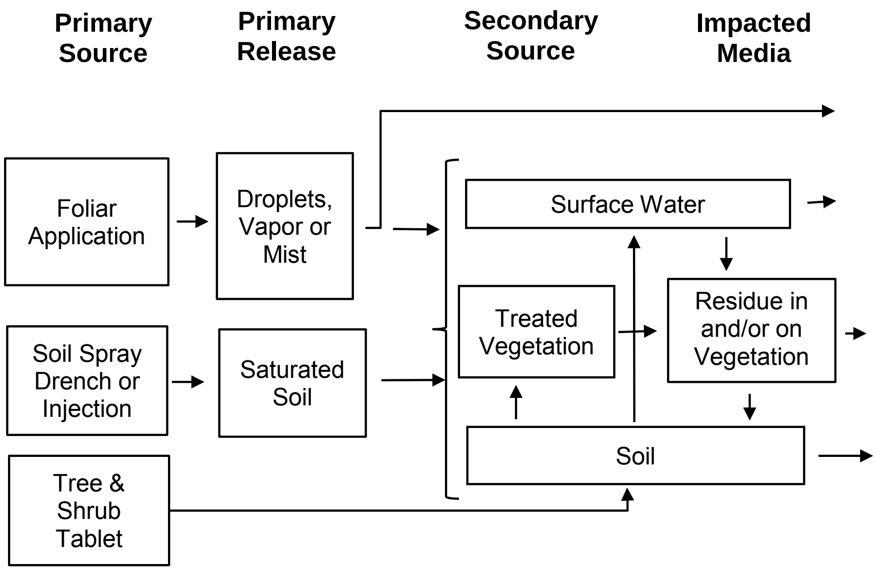
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

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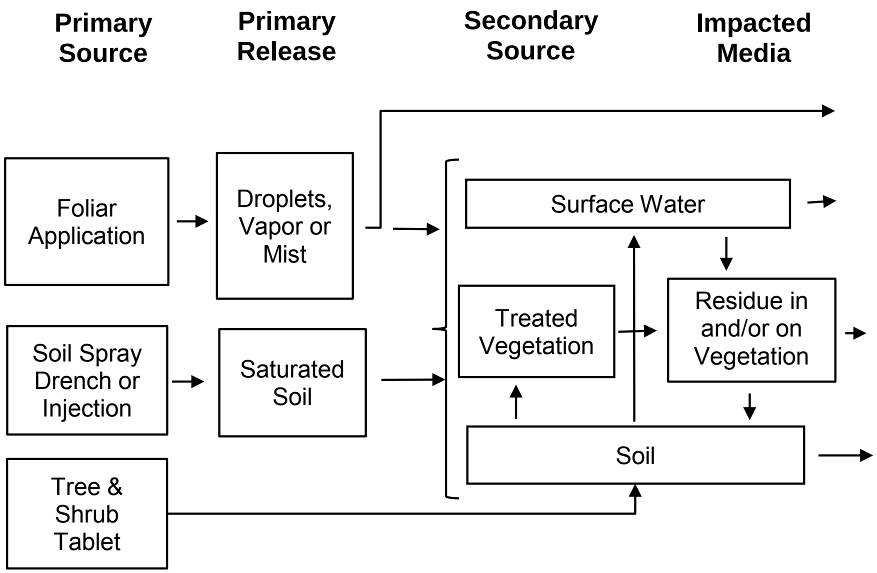

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	*	x	o	o	o
Dermal (1)	x	x	x	x	*	x	o	o	o

Notes:

x - Complete Exposure Pathway
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
* - Incomplete Exposure Pathway for Containerized Stock
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations

Soil Invert: Soil Invertebrate
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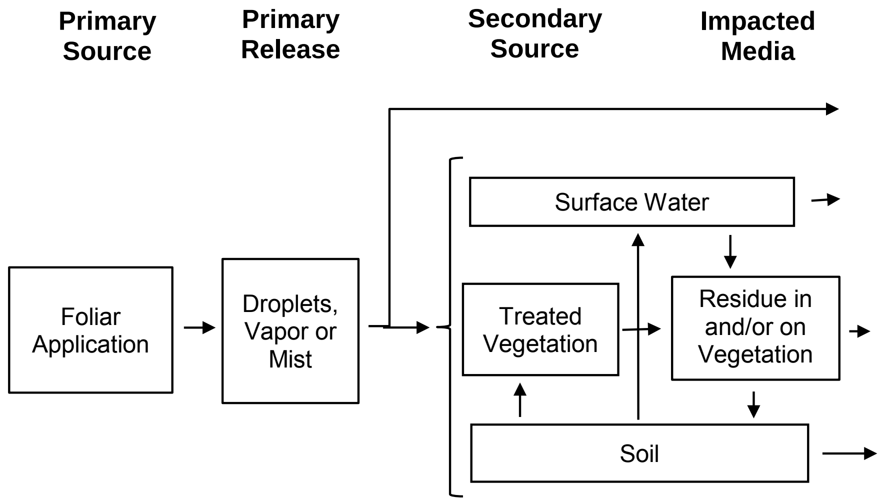

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

(2) Includes sediment-dwelling invertebrates.

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Soil Invert: Soil Invertebrate

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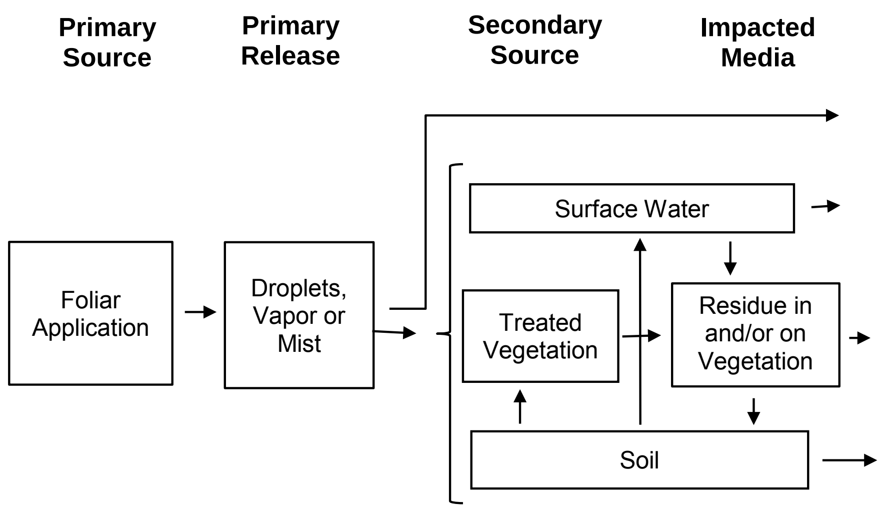

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:

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(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

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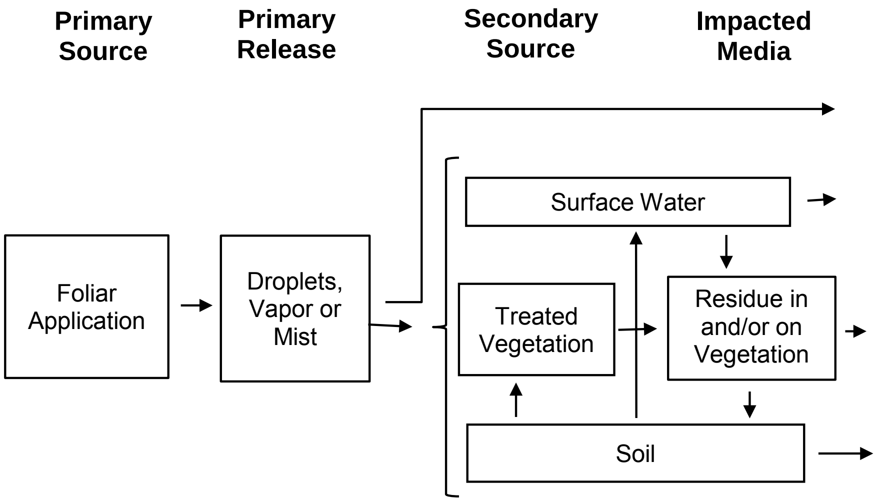
Receptor Groups



Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Abbreviations

Soil Invert: Soil Invertebrate

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Notes:

x - Complete Exposure Pathway

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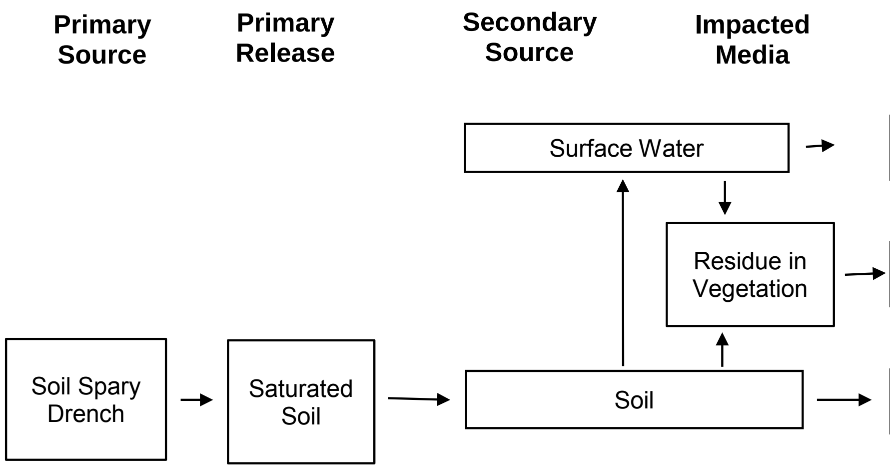
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

(2) Includes sediment-dwelling invertebrates.



Receptor Groups

Impacted Media	Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Surface Water	Ingestion	x	x	x	x	o	x	x	x	x
	Dermal (1)	x	x	x	x	o	x	x	x	x
Residue in Vegetation	Ingestion	x	x	x	x	x	x	o	o	o
	Dermal (1)	x	x	x	x	x	x	o	o	o
Soil	Ingestion	x	x	x	x	*	x	o	o	o
	Dermal (1)	x	x	x	x	*	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

* - Incomplete Exposure Pathway for Containerized Stock

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

(2) Includes sediment-dwelling invertebrates.

Abbreviations

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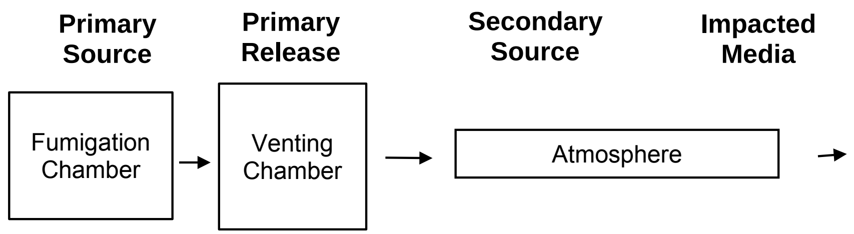

Receptor Groups

Exposure	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o

Notes:

x - Complete Exposure Pathway
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

Abbreviations

Soil Invert: Soil Invertebrate
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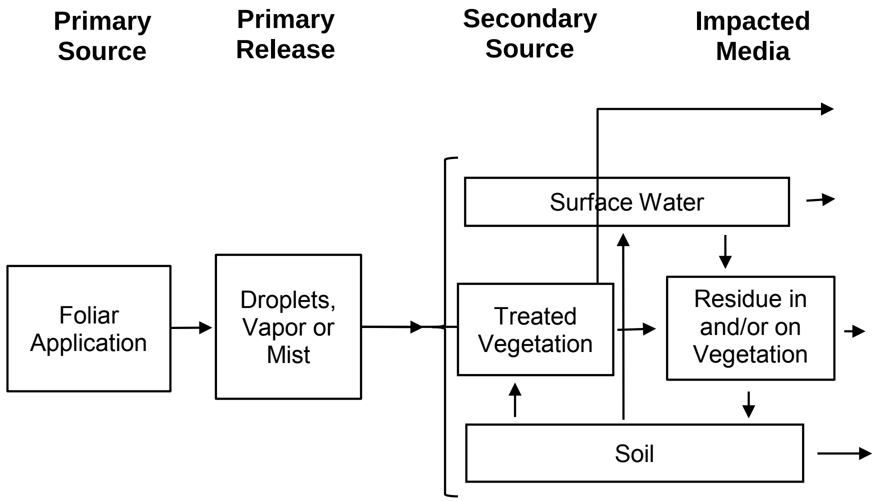

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

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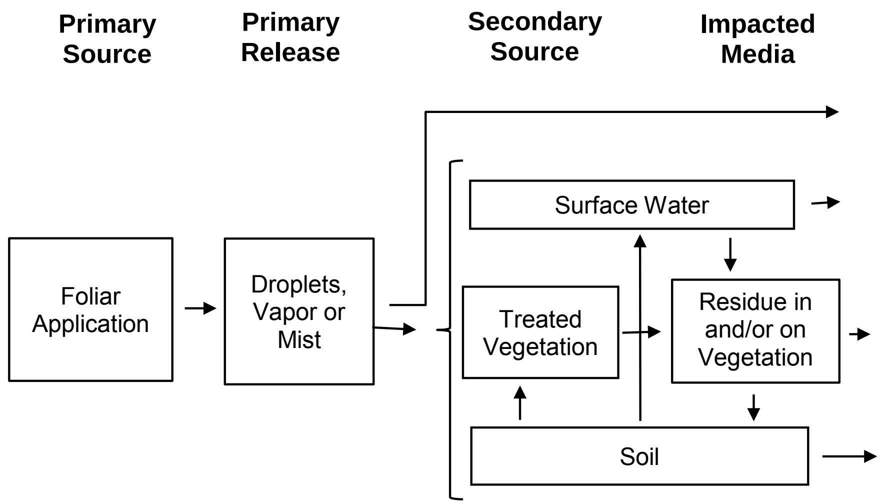

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	o	x	x	x	x
Dermal (1)	x	x	x	x	o	x	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal (1)	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	x	o	o	o
Dermal (1)	x	x	x	x	x	x	o	o	o

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Notes:

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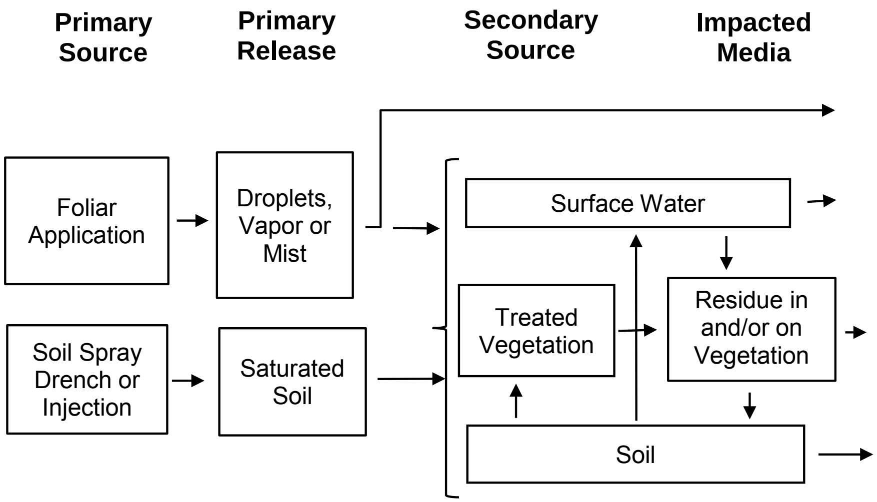

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	o	o	x	x	o	x	o	o	o
Dermal (1)	o	o	x	x	o	x	o	o	o
Ingestion	o	o	x	x	o	x	o	o	o
Dermal (1)	o	o	x	x	o	x	o	o	o
Ingestion	o	o	x	x	o	x	o	o	o
Dermal (1)	o	o	x	x	o	x	o	o	o
Ingestion	o	o	x	x	*	x	o	o	o
Dermal (1)	o	o	x	x	*	x	o	o	o

Notes:

x - Complete Exposure Pathway

o - Incomplete, Inconsequential, or De Minimus Exposure Pathway

* - Incomplete Exposure Pathway for Containerized Stock

(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.

(2) Includes sediment-dwelling invertebrates.

Abbreviations

Soil Invert: Soil Invertebrate

Terr. Insect: Terrestrial Insect

Aq. Invert: Aquatic Invertebrate

Primary Source	Primary Release	Secondary Source	Impacted Media
Fumigation Chamber →	Venting Chamber →		Atmosphere →

Receptor Groups

Exposure	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (2)
Inhalation (1)	x	x	x	x	o	x	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o

Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Although complete, the dermal and inhalation pathways cannot be evaluated due to lack of toxicological data.
(2) Includes sediment-dwelling invertebrates.

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Final Meeting Minutes

Joint OEHHA/DPR Risk Assessment Status Meeting
April 18, 2003

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro

OEHHA: Regina Linville, David Ting

DPR: Sheryl Beauvais, Randy Segawa, Jay Schneider

Horizon: Ryan Jolley, Michael Stevenson, Mike Blankinship, Joe Sullivan, Scott Dwyer, Brad Sample, Ryan Beil, Stephen Burkholder, Greg Gorder, David Bonnar, Sidney Asercion

Attachments:

- Agenda
- Attendee List
- Meeting Presentation
- Ecological Conceptual Site Models (CSMs)

Notes:

Topic #1a: Overview of Exposure and Risk Estimation Methodology via the "CRANK"

Topic #1b: Live CRANK Walk Through

- The CRANK is an Excel-based program that incorporates data stored in an Access database to estimate risk. Resulting risk estimations are then stored in the database.
- An independent run of the CRANK is performed for each chemical (e.g., active or inert ingredients) included in each application scenario. Each application scenario is defined by a particular pesticide product, setting, and application method.
- Risk assessment spreadsheets contain a series of scenario, chemical, and toxicological inputs. These inputs are used to simultaneously estimate both acute and chronic risk for human health and ecological receptors for each scenario.
- The consultant team has not modified any of the U.S. EPA models embedded in the CRANK. These models are locked in the worksheets and cannot be modified.

- Surface water concentrations are estimated using PE5, a U.S. EPA model which must be operated outside the CRANK. As such, PE5 is run prior to a CRANK run, the outputs are then entered into the database, and finally the CRANK grabs these values along with other information from database.
- Reggie/OEHHA asked if all of the risk assessment equations will be provided.
  - The methodologies previously discussed at joint CDFA OEHHA/DRP meetings drive the CRANK.
  - The worksheets show the formulas and values used for the calculations. The formulas can be difficult to understand in the worksheets. But reviewers can use existing methods/formulas provided in comparison with the CRANK for review. The formulas on which the calculations are based are also provided in the methods write-up.

Additional Topics Discussed

CDFA Statewide Program Scenarios

- Each scenario consists of a pesticide product, possibly lures/adjuvants, a specified application method, application setting (e.g., nursery, residential, etc.), and maximum application rate, among other specifications.
- CDFA will provide a roster of scenarios and chemicals for each program. At subsequent meetings, risk results will be discussed and brief overview of scenarios will be presented to provide context to the results.
- ACP/Nursery and PDCP have many more scenarios than other programs, such as the fruit fly or PDEP programs. PDCP has more scenarios due to the large number of pesticide products associated with the program and multiple settings (e.g., residential, nursery and production agriculture). ACP/Nursery has more scenarios because each treatment consists of a combination of a foliar and soil application. Each combination of foliar and soil applications are accounted for as unique scenarios.

Version Control

- OEHHA/DPR asked how the different versions of the CRANK would be managed.
  - Consultant team has a specific, agreed upon naming convention.
  - The CRANK is currently in beta form and the formal version will begin soon. As the formal versions are updated, the consultant team will compile a version tracking sheet, to identify specific changes between the versions.
  - Consultant team will have two people (Stephen Burkholder and Ryan Beil) who'll control the versions.
  - Consultant team will also identify cascading effects of any changes.

OEHHA/DRP Review of Risk Assessment Example

- Risk assessment results can be verified in orders of magnitude.
- Suggestions for OEHHA/DPR team review:

- change inputs and observe outputs, to verify functionality and accuracy of the CRANK;
- prepare a risk assessment calculation by hand, to verify the accuracy of the CRANK; and
- comment on the methodology used and alternative methods.
- Up to 3 separate meetings will be held the week of April 29th to review the fate, ecological and human worksheets in the CRANK.

Building Access: Meeting attendees outside the Cal EPA building please coordinate with Mike Blankinship or Laura Petro for access to the meeting room.

Conference Call #: 1-866-796-8081; Passcode 8025803

Invited Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Robert Leavitt, Nick Condos, Michele Dias
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais
Horizon:	Michael Stevenson, Ryan Jolley, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In and Introductions (Laura; 5 min)
II. Recap of previous meeting (Mike; 15 min)
III. **Topic #1:** Exposure and Risk Estimation Methodology via the "CRANK" (Mike & Joe 60 min)
IV. Questions, Actions and Adjourn (All; 10 min)

NOTE: The "CRANK" is an excel workbook with multiple worksheets used to perform risk assessment calculations. After our April 18th meeting, we will distribute a password protected working draft of the "CRANK" for review.

We are asking reviewers to evaluate the CRANK during the week of **April 22nd**. We will then schedule separate human health and ecological risk assessment meetings the week of **April 29th** to answer questions and discuss details of the review.

Shortly, you will be receiving a Doodle email asking for you to identify your availability during the week of **April 29th**. ~~Please respond promptly~~. Thank you.

cdfa

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 4/18/13 2-4 pm

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc	mike@envtox.com
RYAN JOLLEY	HORIZON WATER & ENVIRONM	RYAN@horizonh2o.com
Sidney Asercion	Blankinship + Associates	sidney@h2osci.com
Brad Sample	Ecological Risk, Inc.	BSAMPLE@ECORISK.com
Ryan Beil	B + A	ryan@h2osci.com
David Bogner	B&A	David@h2osci.com
Greg Gorder	Technology Sciences Group	ggorder@tsgusa.com
David Ting	OEHHA	david.ting@oehha.ca.gov
LAURA PETRO	CDFA	laura.petro@CDFA.CA.gov
Stephen Burkholder	Blankinship + Associates, Inc	stephen@h2osci.com
Regina Linville	Regina Linville	regina.linville@oehha.ca.gov
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Scott Dwyer	Kleinfelder (phone)	
Joe Sullivan	Ardea Consulting	birdtox1@ardeacon.com
Jay Schneider	DPR	jschneider@cdpr.ca.gov
Randy Segawa	DPR	rsegawa@cdpr.ca.gov
Michael Stevenson	Horizon Water + Env (phone)	

Horizon WATER and ENVIRONMENT

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #5

Thursday, April 18, 2013

Bactrocera cucurbitae

Agenda

I. Welcome, Sign-In (Laura, Mike; 5 min)
II. Meeting Schedule (Mike ; 5 min)
III. Last Meeting Recap (Mike; 5 min)
IV. Actions since last meeting (Joe; 5 min)
V. Topic #1A: Exposure and Risk Estimation Methodology via the "CRANK" (Mike; 20 min)
VI. Topic #1B: Live CRANK Walk Through (Joe; 40 min)
VII. Questions and Conclusions (All; 15 min)

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The Horizon Team
Blankinship & Associates, Inc.

Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- **April 18, 2013**
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

Legend
- Completed
- Today
- Scheduled

3

March 7, 2013 Recap

- 18 Attendees
- PDEP and EGVM Overview
- Dashboard Introduction

4

The Horizon Team
Blankinship & Associates, Inc.

Actions Since Last Meeting

- Final Eco CSMs Prepared
- Database Dashboard
  - Modified to address “pesticide products”
  - Adjuvants added

5

Topic #1

- Exposure and Risk Estimation Methodology via the “CRANK”

6

The Horizon Team
Blankinship & Associates, Inc.

- Past Presentations Exposure and Risk Estimation Methodology
  - Nov 2011 (PDCP, OEHHA)
  - Aug 2012 (PDCP, OEHHA)
  - Nov 2012 (PEIR, OEHHA, DPR)
  - Dec 2012 (PEIR, OEHHA, DPR)
  - Jan 2013 (PEIR, OEHHA, DPR)

7

CRANK Overview

Input — Worksheets 1-9

Calculations — Worksheets 14-94

Results — Worksheets 10-13

8

Input Worksheets

Input

Worksheets 1-9

WS #1: Chemical Data
WS #2-3: Ecological Tox Endpoints
WS #4-5: Human Tox Endpoints
WS #6: Application Scenario Data
WS #7: Surfacewater Estimated Environmental Concentrations
WS #8: Human Exposure Parameters
WS #9: Ecological Exposure Parameters

9

Worksheet #6: Application Scenario Data

Includes details on pesticide product, setting, application rate and method and receptors

Program	# Application Scenarios
PDCP	62
Fruit Fly	7
ACP	87
PDEP-E	14
PDEP-D	7
EGVM	11
LBAM	7
Total:	**195**

10

Calculation Worksheets: 3 Categories

Calculations

EEC — Worksheets 14-40

Exposure — Worksheets 41-47

Risk — Worksheets 48-94

11

Calculation Worksheets: 3 Categories

EEC

Worksheets 14-40

<u>Estimated Environmental Concentration (EEC)</u>

WS #14-23: Aquatic Receptors (KABAM)
WS #24-35: Vegetation & Terr. Insects (TREX)
WS #36-37: Soil
WS #38: Air (AgDrift)
WS #39-40 Terrestrial Vertebrate Prey Species

<u>Note:</u> WS #7: Surfacewater EEC is done in PE5 outside CRANK and is an “input” WS

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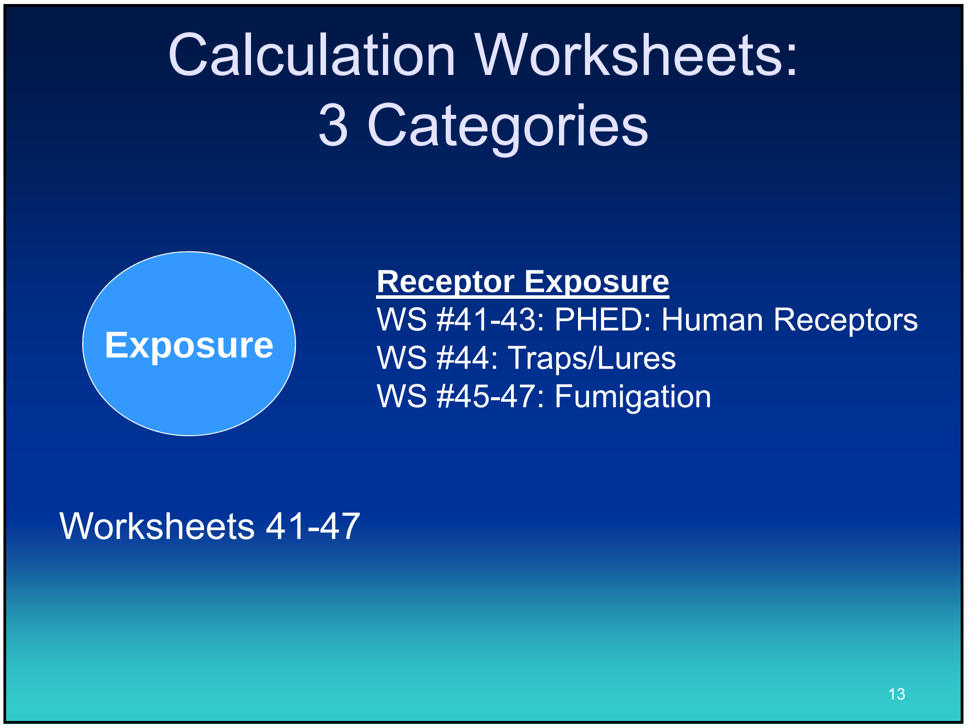
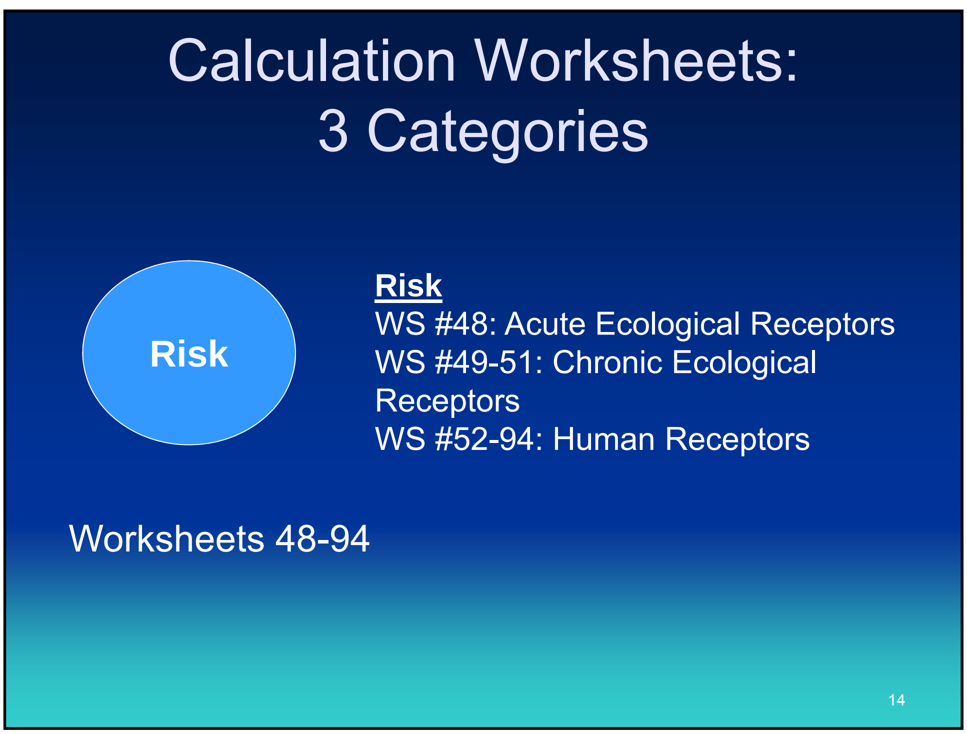
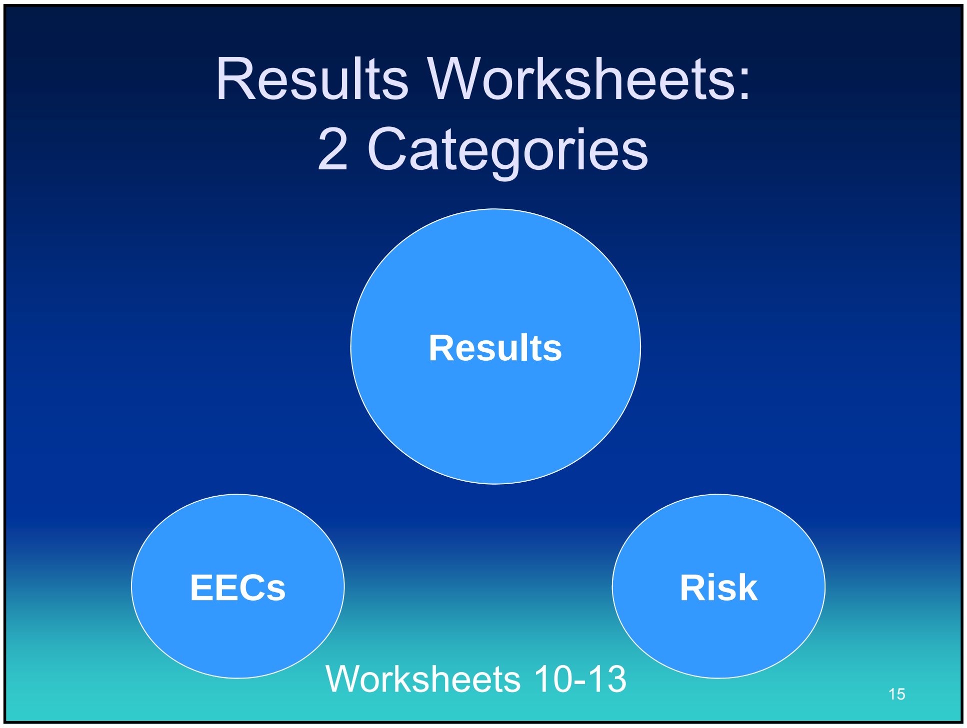
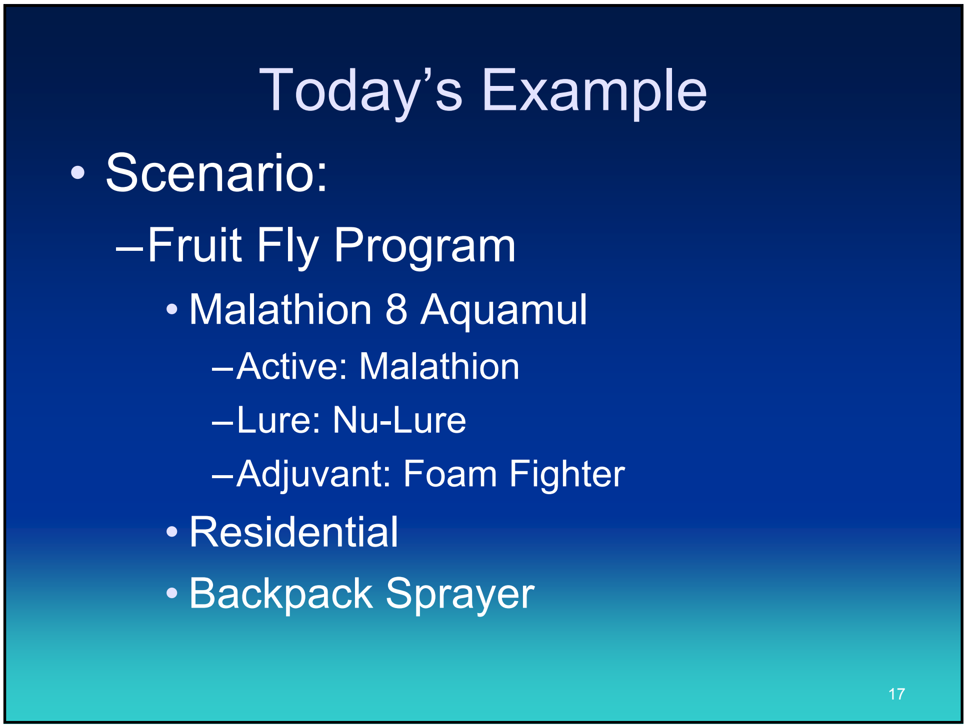
The Horizon Team
Blankinship & Associates, Inc.

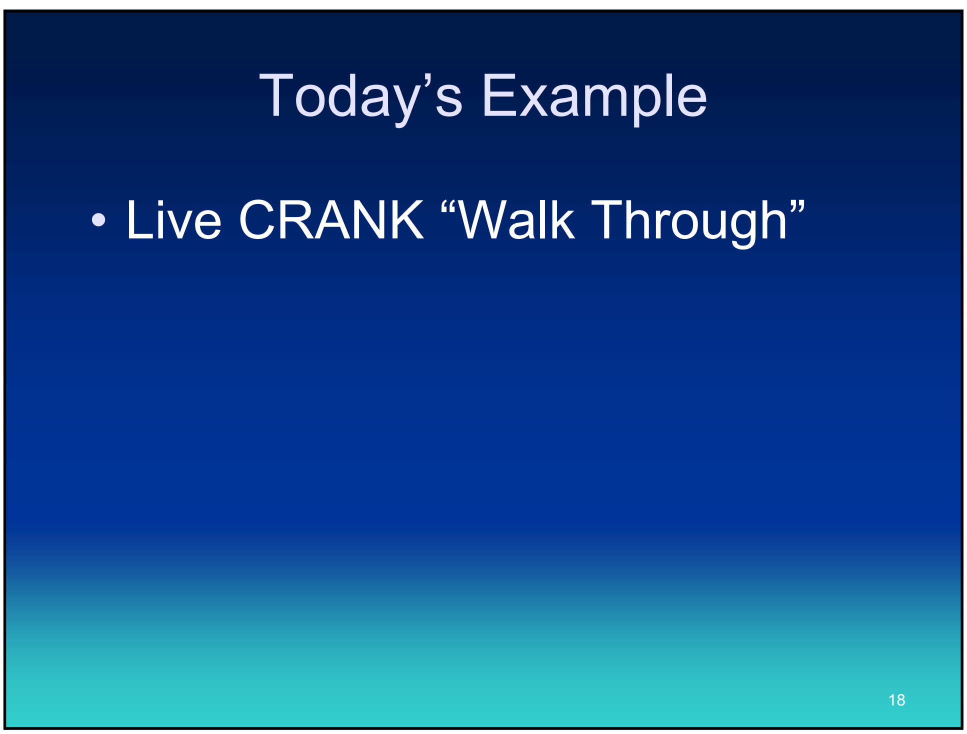

Calculation Worksheets:
3 Categories
Exposure
Receptor Exposure
WS #41-43: PHED: Human Receptors
WS #44: Traps/Lures
WS #45-47: Fumigation
Worksheets 41-47
13


Calculation Worksheets:
3 Categories
Risk
Risk
WS #48: Acute Ecological Receptors
WS #49-51: Chronic Ecological Receptors
WS #52-94: Human Receptors
Worksheets 48-94
14


Results Worksheets:
2 Categories
Results
EECs
Risk
Worksheets 10-13
15


Results Worksheets:
2 Categories
Estimated Environmental Concentrations (EECs)
WS #10-11: EECs
Risk
WS #12: Ecological Risk
WS #13: Human Risk
Results
Worksheets 10-13
16


Today's Example
• Scenario:
–Fruit Fly Program
• Malathion 8 Aquamul
–Active: Malathion
–Lure: Nu-Lure
–Adjuvant: Foam Fighter
• Residential
• Backpack Sprayer
17


Today's Example
• Live CRANK "Walk Through"
18

What You Will Get Via Email

- 3 Excel Workbooks:
  - Crank for Malathion
  - ~~Crank for Nu-Lure~~ (NOC & NDA)
  - Crank for Foam Fighter
  - Aggregating Workbook that links to the 2 Cranks and totals risk for all 2 component parts of the applied products
  - Fruit Fly Residential CSM

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What You Will Get Via Email

- Each Workbook will have a user name and password
- Please do <u>not</u> distribute!

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What You Will Get Via Email

- Suggested Review Ideas:
  - Read the "Read Me First" Worksheet
  - Note that only input worksheet cells are unlocked. All others are locked
  - Put in different inputs to see different results
  - Read comments (red triangle in cell) for additional detail
  - Explore Linkages
  - Do hand calcs and compare to the CRANK

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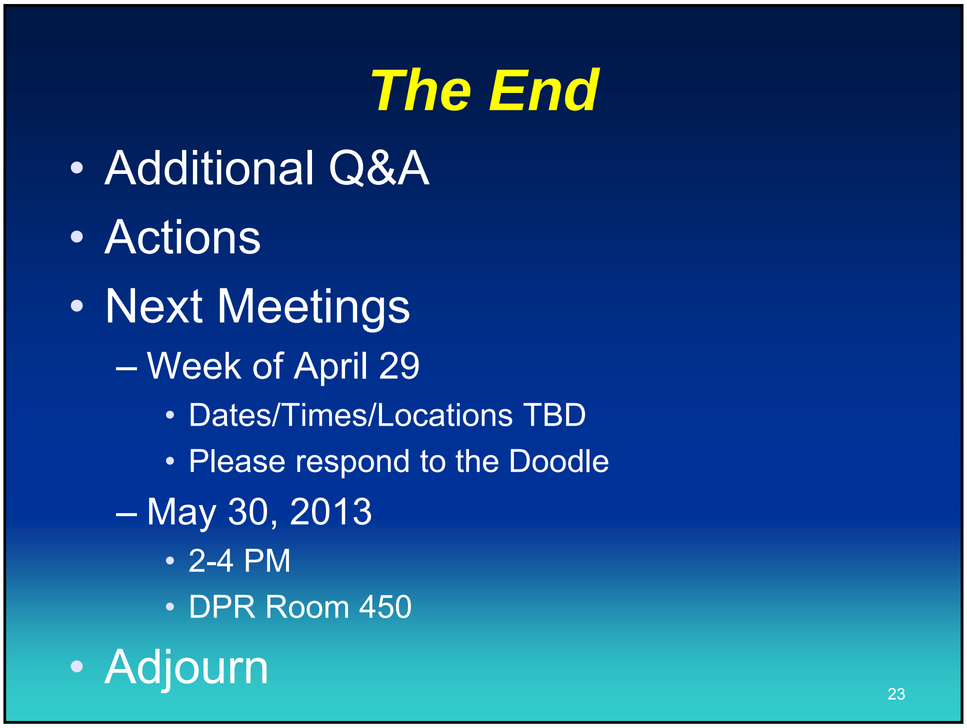
What You Will Get Via Email

- Suggested Review Ideas:
  - Pending Meeting(s) scheduled the week of April 29$^{th.}$ Options include:
    - 1 hour group meeting for environmental fate followed by:
    - 2 hour ecological and human health breakout meetings for specific topics
    - Please respond to the Doodle
    - Bring your laptop with questions!

22


The End
• Additional Q&A
• Actions
• Next Meetings
– Week of April 29
• Dates/Times/Locations TBD
• Please respond to the Doodle
– May 30, 2013
• 2-4 PM
• DPR Room 450
• Adjourn
23

Content of the “READ ME FIRST!” Worksheet in the CRANK Workbook

Welcome to the DRAFT Comprehensive Risk ANalysis Kalculator (CRANK)

The CRANK is a Microsoft Excel tool used to estimate the risk to human and ecological receptors resulting from applications made under CDFA’s Statewide Plant Pest Prevention and Management Program. The CRANK uses 94 worksheets identified below to estimate the risk from each individual pesticide product component (active, inert, or adjuvant) under a specific application scenario.

Note that related worksheets are colored the same. To make worksheets easy to find, each worksheet is color coded to match with the color code in the Table of Contents (below). To jump to a particular worksheet, simply click on the worksheet name.

Also note that worksheets #1-7 are "Input" worksheets that have blue cells. These represent scenario-specific data that are imported from the database to represent scenario-specific details and can be changed. All other cells cannot be changed and are locked.

Table of Contents (attached)

WS #	Function	Worksheet Name
0		Read Me First
1	Input	Chemical Info
2	Input	Eco Acute TRVs
3	Input	Eco Chronic TRVs
4	Input	Human CSFs
5	Input	Human NO(A)ELs
6	Input	Application Scenario Data
7	Input	Surface Water Concentration
8	Input	Human Exposure Parameters
9	Input	Species Characteristics
10	EEC Results	Eco EEC Summary
11	EEC Results	Human EEC Summary
12	Risk Results	Eco Risk Summary
13	Risk Results	Human Risk Summary
	EEC Calculation	Acute KABAM Worksheets
14		Acute KABAM Model Description
15		AcuteKABAM Chem Spec Inputs
16		Acute KABAM Ecosystem Inputs
17		Acute KABAM Parameters & Calcs
18		Acute KABAM Results
	EEC Calculation	Chronic KABAM Worksheets
19		Chronic KABAM Model Description
20		Chronic KABAM Chem Spec Inputs
21		Chronic KABAM Ecosystem Inputs
22		ChronicKABAM Parameters & Calcs
23		Chronic KABAM Results
	EEC Calculation	Terrestrial Residue EXposure (T-REX) Worksheets
24		TREX READ ME
25		TREX Points to Consider
26		TREX INPUTS
27		TREX TWA and Inst Calcs
28		TREX upper bound Kenaga
29		TREX Mean Kenaga
30		TREX LD50 ft-2
31		TREX Granular Char. Calcs
32		TREX Seed Treatments
33		TREX Graphs
34		TREX Comment Sheet
35		TREX Print Results
	EEC Calculation	Soil Concentration Worksheets
36		Soil Initial Conc
37		Soil Max Inst & TWA
38	EEC Calculation	AgDRIFT Output
39	EEC Calculation	T Vert Acute Conc
40	EEC Calculation	T Vert Chronic Conc
	Exposure Calculation	Pesticide Handler Exposure Database (PHED) Worksheets
41		PHED Parameters
42		PHED Summary List
43		PHED Input Output
44	Exposure Calculation	Traps & Lures Air Conc
	Exposure Calculation	Fumigation Exposure Worksheets
45		PTW Air Conc
46		FUW Air Conc
47		DWB Air Conc

48	Risk Calculation	Eco Acute Calcs
49	Risk Calculation	Eco Chronic Calcs - AUF
50	Risk Calculation	Eco Chronic Calcs - .5 AUF
51	Risk Calculation	Eco Chronic Calcs - No AUF
52	Risk Calculation	ML Acute
53	Risk Calculation	ML Chronic
54	Risk Calculation	ML Cancer Risk
55	Risk Calculation	A Acute
56	Risk Calculation	A Chronic
57	Risk Calculation	A Cancer Risk
58	Risk Calculation	MLA Acute
59	Risk Calculation	MLA Chronic
60	Risk Calculation	MLA Cancer Risk
61	Risk Calculation	PAW Acute
62	Risk Calculation	PAW Chronic
63	Risk Calculation	PAW Cancer
64	Risk Calculation	PAL Acute
65	Risk Calculation	PAL Chronic
66	Risk Calculation	PAL Cancer
67	Risk Calculation	PAR Acute SOP Input
68	Risk Calculation	PAR Acute SOP DermalVeg
69	Risk Calculation	PAR Chronic SOP DermalVeg
70	Risk Calculation	PAR Cancer SOP DermalVeg
71	Risk Calculation	PAR Acute SOP DermalSoil
72	Risk Calculation	PAR Chronic SOP DermalSoil
73	Risk Calculation	PAR Cancer SOP DermalSoil
74	Risk Calculation	PAR Acute SOP Veg HtM
75	Risk Calculation	PAR Chronic SOP Veg HtM
76	Risk Calculation	PAR Cancer SOP Veg HtM
77	Risk Calculation	PAR Acute SOP SoilIng
78	Risk Calculation	PAR Chronic SOP SoilIng
79	Risk Calculation	PAR Cancer SOP SoilIng
80	Risk Calculation	PAR Adult Acute RAGS
81	Risk Calculation	PAR Adult Chronic RAGS
82	Risk Calculation	PAR Adult Cancer RAGS
83	Risk Calculation	PAR Child Acute RAGS
84	Risk Calculation	PAR Child Chronic RAGS
85	Risk Calculation	PAR Child Cancer RAGS
86	Risk Calculation	DWB Acute
87	Risk Calculation	DWB Chronic
88	Risk Calculation	DWB Cancer
89	Risk Calculation	FUW Acute
90	Risk Calculation	FUW Chronic
91	Risk Calculation	FUW Cancer
92	Risk Calculation	PTW Acute
93	Risk Calculation	PTW Chronic
94	Risk Calculation	PTW Cancer

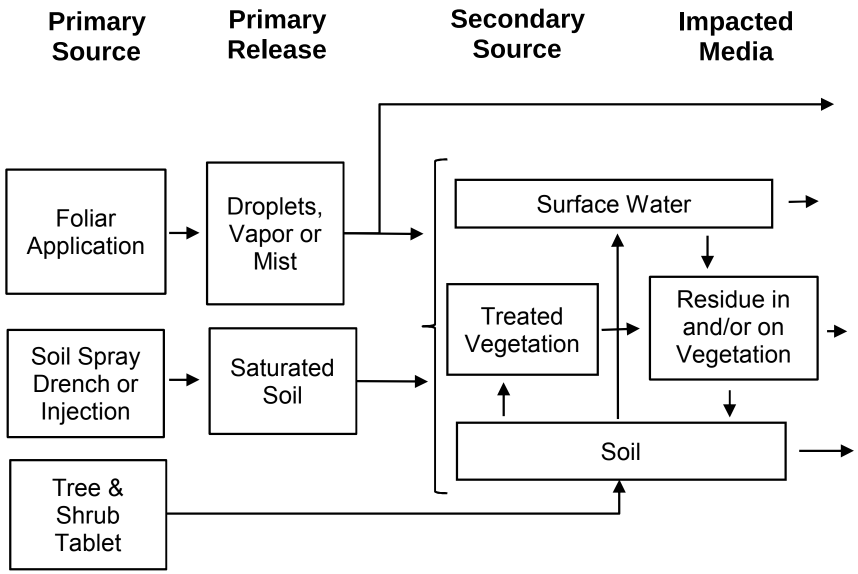
Ecological Conceptual Site Model (CSM)
Table of Contents

Application Settings by Statewide Program

Program	Nursery	Agriculture	Residential	Fumigation
PDEP-E			X	
PDEP-D		X	X	
PDCP	X	X	X	
Fruit Fly	X	X	X	X
EGVM	X			
LBAM	X	X		
ACP	X			X

Abbreviations:
PDEP-E - Pest Detection / Emergency Projects - Eradication
PDEP-D - Pest Detection / Emergency Projects - Detection
PDCP - Pierce's Disease Control Program
EGVM - European Grapevine Moth
LBAM - Light Brown Apple Moth
ACP - Asian Citrus Psyllid

Conceptual Site Model (CSM) for PDEP-Eradication - Residential
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for PDEP-Detection - Agricultural & Residential
Ecological Risk Assessment

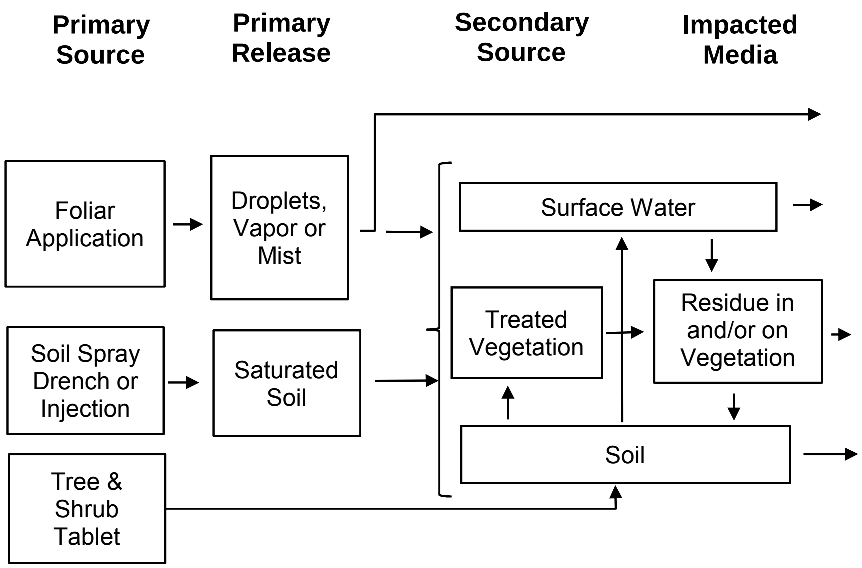
Receptor Groups

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Traps & Lures				Inhalation	‡	‡	‡	‡	o	‡	o	o	o
				Dermal	o	o	o	o	o	o	o	o	o
				Ingestion	o	o	o	o	o	o	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for PDCP - Residential
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

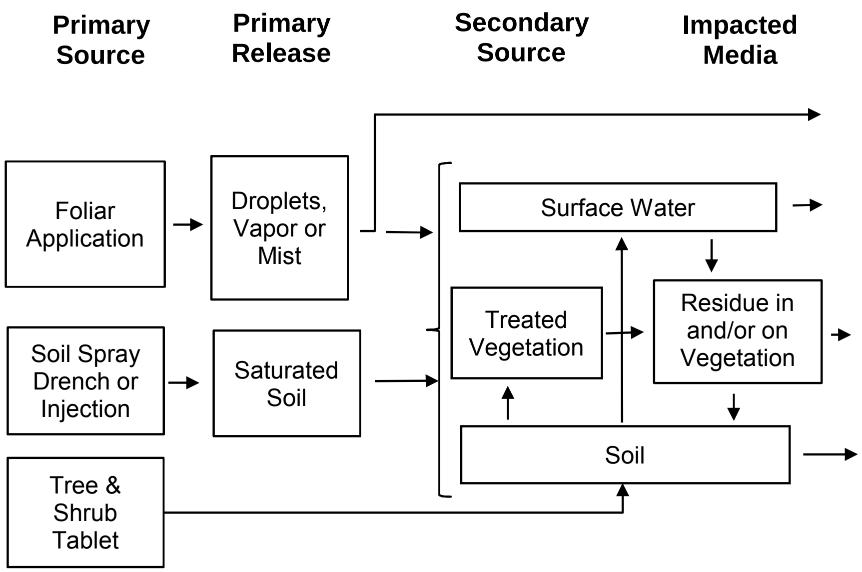
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for PDCP - Nursery
Ecological Risk Assessment



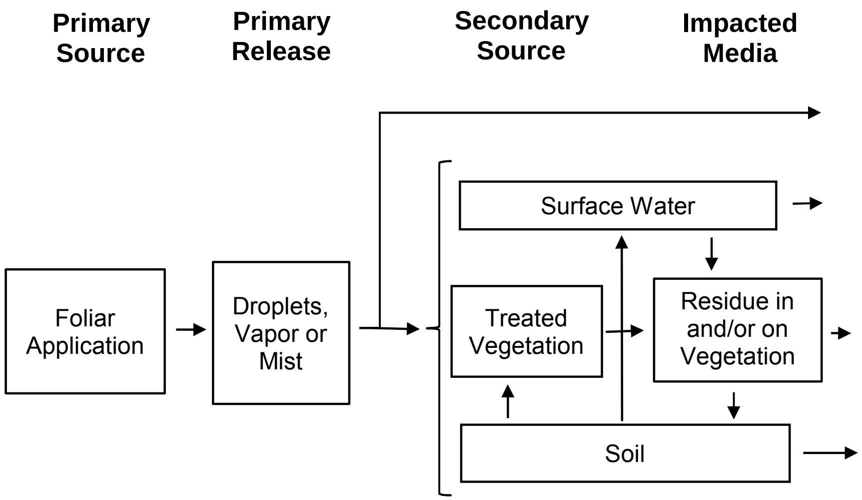
Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	*	‡	o	o	o
Dermal	‡	‡	‡	‡	*	‡	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
* - Complete Exposure Pathway for In-Ground Soil Applications; Incomplete Exposure Pathway for Containerized Stock Soil Applications
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for PDCP - Agricultural (Bulk Citrus)
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

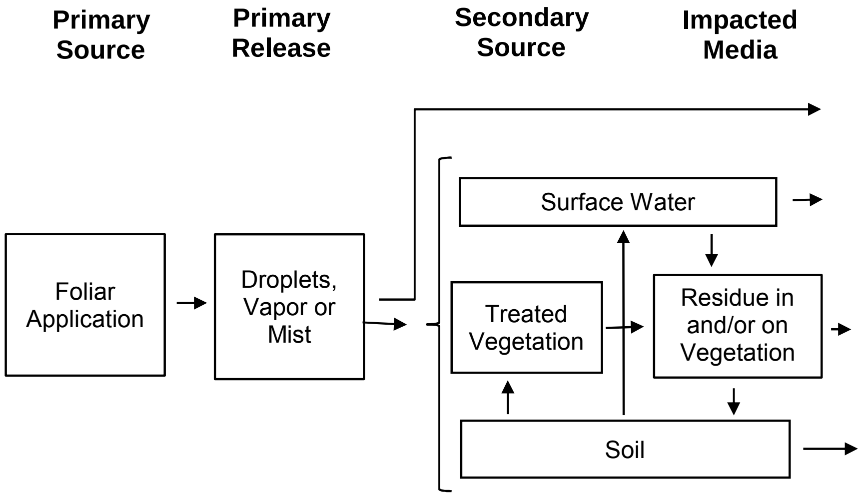
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for Fruit Fly - Residential
Ecological Risk Assessment



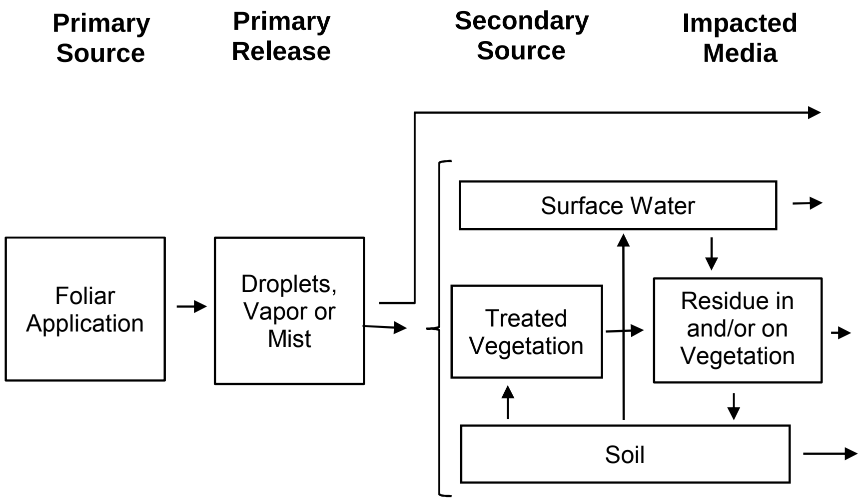
Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for Fruit Fly - Agricultural
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	x	x	x	x	o	x	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

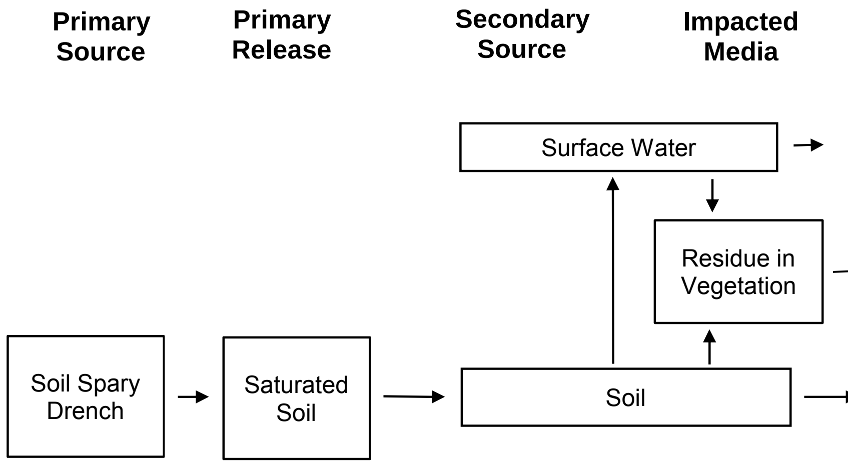
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for Fruit Fly - Nursery
Ecological Risk Assessment



Receptor Groups

Impacted Media	Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Surface Water	Ingestion	x	x	x	x	o	‡	‡	‡	‡
	Dermal	‡	‡	‡	‡	o	‡	x	x	x
Residue in Vegetation	Ingestion	x	x	x	x	o	x	o	o	o
	Dermal	‡	‡	‡	‡	o	‡	o	o	o
Soil	Ingestion	x	x	x	x	*	‡	o	o	o
	Dermal	‡	‡	‡	‡	*	‡	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
* - Complete Exposure Pathway for In-Ground Soil Applications; Incomplete Exposure Pathway for Containerized Stock Soil Applications
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for Fruit Fly - Fumigation
Ecological Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media
Fumigation Chamber →	Venting Chamber →	Atmosphere	→

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal	o	o	o	o	o	o	o	o	o

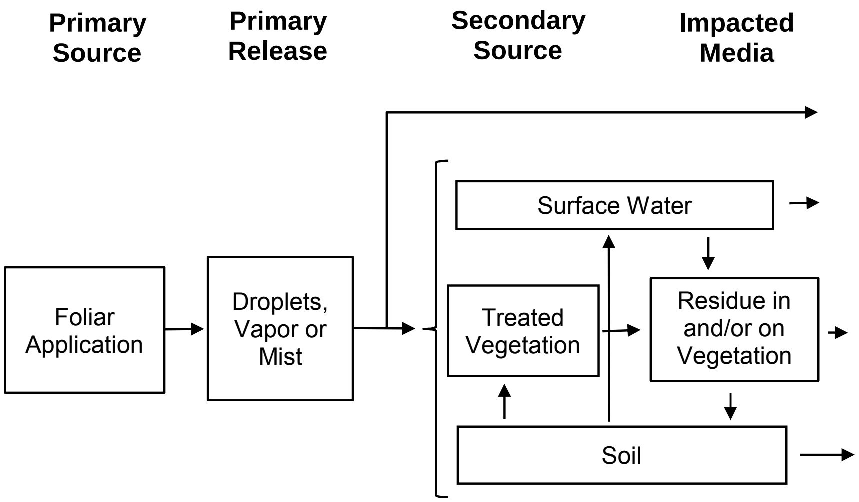
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete, Inconsequential, or De Minimus Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for EGVM - Nursery
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

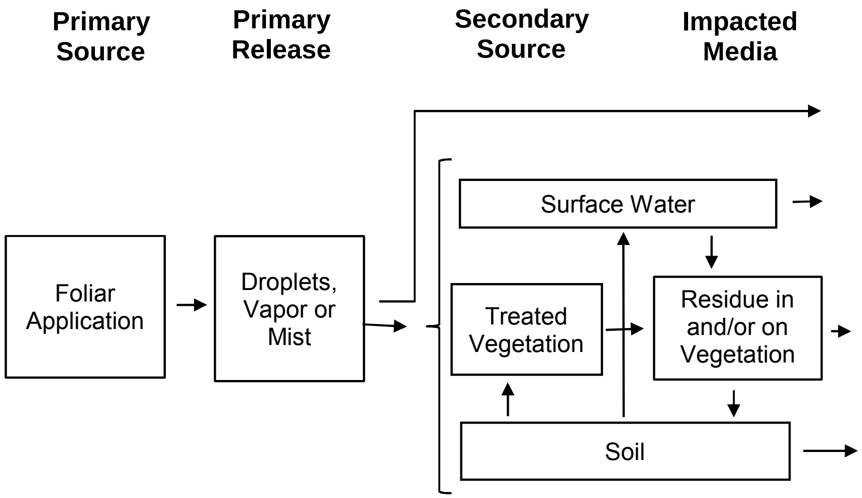
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for LBAM - Agricultural & Nursery
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	x	‡	o	o	o
Dermal	‡	‡	‡	‡	x	‡	o	o	o

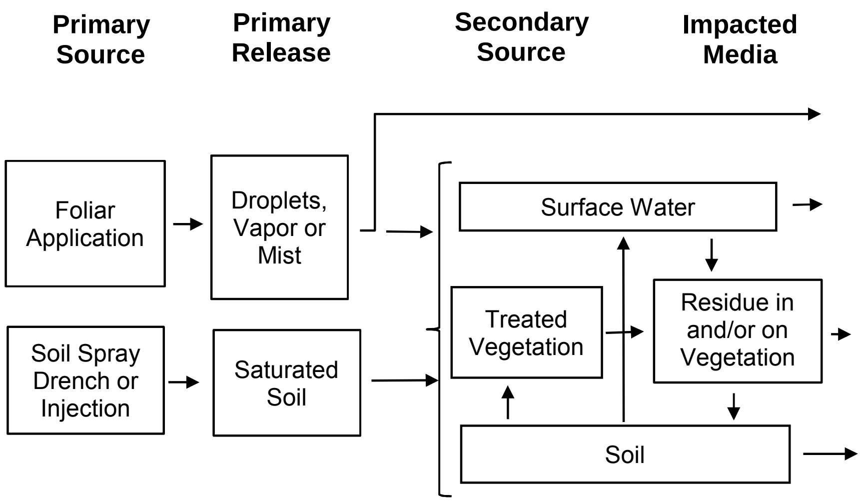
Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for ACP - Production Nursery
Ecological Risk Assessment



Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation	‡	‡	‡	‡	o	‡	o	o	o
Dermal	‡	‡	‡	‡	o	x	o	o	o
Ingestion	x	x	x	x	o	‡	‡	‡	‡
Dermal	‡	‡	‡	‡	o	‡	x	x	x
Ingestion	x	x	x	x	o	x	o	o	o
Dermal	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	x	x	x	x	*	‡	o	o	o
Dermal	‡	‡	‡	‡	*	‡	o	o	o

Abbreviations

Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:

x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
* - Complete Exposure Pathway for In-Ground Soil Applications; Incomplete Exposure Pathway for Containerized Stock Soil Applications
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

Conceptual Site Model (CSM) for ACP - Fumigation
Ecological Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media
Fumigation Chamber →	Venting Chamber →	Atmosphere	→

Receptor Groups

Exposure Routes	Amphibian (terr)	Reptile	Bird	Mammal	Soil Invert	Terr Insect	Amphibian (aq)	Fish	Aq. Invert (1)
Inhalation (1)	‡	‡	‡	‡	o	‡	o	o	o
Ingestion	o	o	o	o	o	o	o	o	o
Dermal (1)	o	o	o	o	o	o	o	o	o

Abbreviations
Soil Invert: Soil Invertebrate
Terr. Insect: Terrestrial Insect
Aq. Invert: Aquatic Invertebrate

Notes:
x - Complete Exposure Pathway
‡ - Although complete, this pathway is not evaluated due to lack of toxicological or exposure data.
o - Incomplete Exposure Pathway
(1) Includes sediment-dwelling invertebrates.

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Final Meeting Minutes

Joint OEHHA/DPR Risk Assessment Status Meetings
May 3, 2013 1-3 PM

CRANK Calculations for Human Health Risk

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

- CDPR: Sheryl Beauvais, Jay Schreider
- OEHHA: David Ting
- Blankinship & Associates: Mike Blankinship, Sidney Asercion, Ryan Beil, Greg Gorder
- Horizon: Ryan Jolley (call in)

Attachments

- Attendee list

General Discussion

- Sheryl suggested that all CRANK calculations and data gathered transparent as possible
- Mike commented that all input data, assumptions and calculation methodology will be available for review through the Dashboard via the "Methods" button.

For future users of CRANK

- Jay and David mentioned that for future users of the CRANK, it is critical to realize that data must be updated regularly in order for the CRANK to remain relevant and useful. For example, application rates, formulations, etc. are constantly changing and this information needs to be included in the CRANK.

Other Comments and Discussion

- We may anticipate questions on pollination and imidacloprid.
- For simplicity, MOEs were added independent of the mode of action; this is more conservative and is a simplifying assumption.
- Various runs of the CRANK were made to demonstrate the change in risk estimate when the NOAEL or dermal absorption factor for Malathion is changed.
- The standard values for the weight of an adult are 80 Kg.
- 40 years will be used to assess chronic exposure.

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

(Human Health Crank Eval)

Date and Time: 5/3/13 1-3 PM

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc	mike@envtox.com
Jay Schreider	DPR	jschreider@cdpr.ca.gov
David Ting	OEHHA	david.ting@oehha.ca.gov
Ryan Beil	B & A, inc.	ryan@h2osci.com
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Sidney Asercion	Blankinship & Associates	sidney@h2osci.com
Greg Gorder	TSG	ggorder@tsgusa.com

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Meeting Minutes

Joint OEHHA/DPR Risk Assessment Status Meeting
May 30, 2013

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Nick Condos, Robert Schmidt

OEHHA: Regina Linville, David Ting

DPR: Sheryl Beauvais, Randy Segawa

Horizon: Marisa Mitchell, Michael Stevenson, Mike Blankinship, Joe Sullivan, Scott Dwyer, Brad Sample, David Bonnar, Ryan Beil, Stephen Burkholder, Greg Gorder, Sidney Asercion, Judy Zaninovich

Attachments:

- Agenda
- Attendee List
- Meeting Presentation and Handout

Notes:

Topic #1: No Data Available Approach

- Team presented approach to addressing products for which no % content information is available.
- Regina asked if we are assessing the AI distinct from the inerts? Joe and Mike answered yes and that the combined risk for the combination of inert and active ingredient (i.e., the formulated product) is done.
- When drench applications are done in a nursery setting, it is assumed that 90% of the applied product gets into a potted plant and that 10% ends up on native soil.
  - Randi said he'd investigate the 10% value and see if DPR has any data to support or get us another value.

Topic #2: New Product/New Pest Decision Tree

- Question: Will EIR evaluate only specific locations for pests? Joe and Michael answered that the EIR will evaluate the potential, not actual, distribution of pests. However, the risk analysis is based upon the PMDS sheets and the scenarios supplied by CDFA.

- The Risk assessment could potentially cover species no in the scenarios covered. There is a need to evaluate specific circumstances before this could be determined. See the New Product or New Pest Decision Tree (attached).
- Laura mentioned that there may be some locations where species occurrence is possible but not in a location that could be affected by a CDFA program pesticide application.
  - Example is forest crops, for which CDFA is not generally involved in pest management.

Topic #3: Dashboard Overview

- Stephen noted that there is an updated version of the Dashboard that will be distributed that reflects a change in the % diet for ecological receptors.
- Joe pointed out that where no toxicity data exists, cells are left blank and that a text entry would affect calculations. Cannot use the value of zero because it may not be actually be zero. Group discussed how best to handle this, but needs to be clear where data doesn't exist versus an oversight (e.g. grey cells). Risk Team is looking into a solution with the team's database expert (Micah R.)
- Team discussed how to handle new information (with regards to new endpoints and PCF data). There will be need to maintain and update the data used in the CRANK and the subsequent use of the Dashboard will require professional judgment to determine accuracy of the risk estimate.
- Team discussed that Dashboard serves up pre-developed queries; there may be other information in database that would require a specific query outside the Dashboard. Team also provided suggestions for additional data to show through Dashboard.
- Stephen noted:
  - "Bee type" → Change to "Exposure type"
  - Add "Proportion" to glossary
  - Consider adding LOC info to Dashboard. Place this under or with Risk Results

Topic #4: Fruit Fly Risk Results

- Joe discussed that for each ecological receptor, risk assessment focuses on one route of exposure. For example, insects are direct exposure, animals are ingestion. This is due to lack of certain types of toxicity information (e.g., dermal exposure), and also that certain pathways are the dominant methods of exposure and the other pathways do not meaningfully affect the results.
- Group discovered an incorrect use of the term "foliar" to a PDCP fumigant.
- Group discussed that information served by the Dashboard is generally technical in nature and not intended to be easily consumed or understood by general populace. The Risk Assessment report will have more "user-friendly" information, as will the EIR. Both the risk assessment text and a CD with the Dashboard on it will be available to the public. Neither text nor the Dashboard are intended to be used alone, but instead together so that information is not taken out of context.
- Question: Is backpack sprayer actually used in FF scenarios?
  - Answer: It could be, also it was selected as the most conservative ground application technique – also captures other methods such as boom spray.

- FF results – group discussed that results incorporate personal protective equipment (PPE) required by label. Michael asked if we are able to query to find out what the label PPE is. The answer is yes. This may assist in evaluating mitigation options that for example may include consideration for the use of additional or different PPE.
- Some results suggest that there is a possibility for unacceptable risk when following the standard and Special Local Needs (SLN) labels. DPR suggested that we re-examine assumptions used to estimate risk and meet to discuss. Risk team agreed and will set up a meeting.
- Question: Does risk analysis include stormwater runoff in analysis?
    - Answer: Yes, PE5 incorporates this.
- Question: What was the assumption used for foliar?
    - Answer: A standard canopy interception rate of 80% was used.
- Bird exposure – acute exposure assumes entire diet was from contaminated insects; chronic exposure uses area use factor (AUF). Dashboard presents both with, without and with mid-point AUF. Larger home range size = lower exposure, since AUF will be lower.
- David Ting asked how ecological receptors were selected. Listed species were used, or if no good data available for those species, then common species that were representative of the suite of listed species.
- Discussed the conservative nature of the risk assessment approach. For example, it is unlikely that nurseries are located right next to the ocean and affect ocean-feeding birds. Regina pointed out that DPR does have data on concentrations of chemicals migrating through water bodies. There needs to be a method to relate level of estimated risk to level of uncertainty. In other words, risk characterization. That will be included in the risk assessment document, not the Dashboard.
- References need to be added to TRVs.

Additional Topics Discussed

How to Handle Updates to or Additional Endpoint or Toxicity Data

- Team discussed how to evaluate and incorporate new information (with regards to new endpoints and physical, chemical and fate data). This is a critical part of maintaining the functionality of the database, CRANK and Dashboard over time. Updates and maintenance will require professional expertise and judgment.

Available Times for Scheduling Follow-up Meetings

- Cheryl is out from June 6 through June 11. Maybe expand window for scheduling meeting.
- July not good for David Ting and so Chuck Salocks may stand in. David will share Dashboard with Chuck so he can get up to speed. Randy Sagawa is out most of June but okay to go forward without him.

cdfa
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 5/30/13, 2 - 4 PM

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc	mike@envtox.com
Joe Sullivan	Ardea Consulting	birdtox1@ardeacon.com
Stephen Burkholder	Blankinship + Assoc	stephen@h2osci.com
Ryan Bail	"	ryan@h2osci.com
Greg Gorder	Technology Sciences Group	ggorder@tsgusa.com
Sidney Asercion	Blankinship + Assoc	sidney@h2osci.com
David Bonnar	Blankinship & Assoc.	David@h2osci.com
Reggie Linville	OEHHA	regina.linville@oehha.ca.gov
Randy Segawa	DPR	rsegawa@cdpr.ca.gov
Laura Petro	CDFA	laura.Petro@CDFA.CA.gov
Nick Condos	CDFA	ncondos@cdfa.ca.gov
David Ting	OEHHA, Cal/EPA	david.ting@oehha.ca.gov
Robert Schmidt	CDFA Exec	robert.schmidt@cdfa.ca.gov
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Phone - Brad Sample		
Phone - Judy Zaninovich		
Phone - Scott Dwyer		
Michael Stevenson	Horizon	michael@horizonwater.com
Marisa Mitchell	Horizon	marisa@horizonh2o.com

Horizon WATER and ENVIRONMENT

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment Status Meeting
May 30, 2013

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting #6

Bactrocera cucurbitae

Thursday May 30, 2013

Agenda

I. Welcome, Sign-In (Laura, Mike; 5 min)
II. Meeting Schedule (Mike; 5 min)
III. Last Meeting Recap (Mike; 5 min)
IV. Actions since last meeting (Mike; 5 min)
V. Topic #1: New Product/Pest Decision Tree (Mike: 5 min)
VI. Topic #2: No Data Available Approach (Stephen: 10 min)
VII. Topic #3: Dashboard Overview (David, Joe: 20 min)
VIII. Topic #4: Fruit Fly Results (Ryan/Stephen/Joe: 30 min)
IX. Questions and Conclusions (All: 15 min)

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Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- **May 30, 2013**
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 14, 2013

Legend
- Completed
- Today
- Scheduled

3

April 18, 2013 Recap
- CRANK Walk Through & Example (17 attendees)

May 5, 2013 Recap
- Fate CRANK (11 attendees)
- Human CRANK (8 attendees)

May 10, 2013 Recap
- Ecological CRANK (5 attendees)

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The Horizon Team
Blankinship & Associates, Inc.

Actions Since Last Meeting

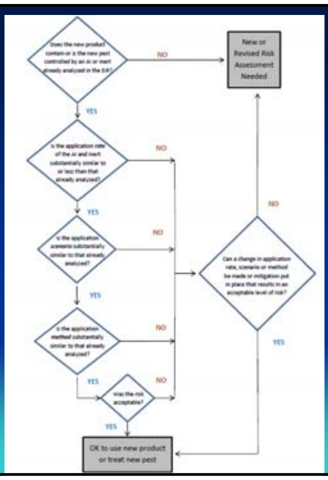
- CRANK Enhancements
  - Input corrections
  - Documentation added
  - Version Control
  - Need for Maintenance
- CRANK/Access Database Integration
  - ~85% done
- Dashboard Preparation
  - ~75% Done

5

Topic #1

- New Product/Pest Decision Tree

6



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Topic #2

- No Data Available Approach
  - Several Products Give Only Partial Information on Content via label and MSDS
  - Risk Assessment requires exact amounts in order to estimate EECs and subsequently exposure

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Topic #2

- Inert content was estimated for:
  - Baythroid XL: Inert listed without %
  - Flagship 25WG: Multiple inerts listed without %
  - Tombstone: MSDS lists "Other ingredients including _____"

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Topic #2

- Baythroid XL: Inert listed without percent
  - MSDS Contents:

• beta-Cyfluthrin	12.70%
• Cyclohexanone	20.00%
• Naphthalene	8.56%
• Solvent Naphtha	??
Total Contents Listed	41.26%

- Assume that Solvent Naphtha was 100% - 41.26% = 58.74%

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Topic #2

- Flagship 25WG: Multiple inerts listed without %
  - MSDS Contents:

• Crystalline Silica, Quartz, Cristobalite	?? %
• Diatomaceous Earth	?? %
• Starch	?? %
• Thiamethoxam	25.0%
Total Contents Listed	25.0%

  - Assumed remaining 75% of product was divided equally among remaining listed ingredients
  - 25% for each inert

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Topic #2

- Tombstone: "Inert ingredients, including _____"
  - MSDS Contents:

• Cyfluthrin	24.74%
• Inert ingredients, including Naphthalene	75.26%
Total Contents Listed	100.00%

  - Assume **half** of the 74.26% of "Inert ingredients, including naphthalene" is naphthalene
  - Naphthalene is 75.26/2= 37.63% of Tombstone

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The Horizon Team
Blankinship & Associates, Inc.

Topic #3

- Dashboard
  - –Map
  - –Demonstration

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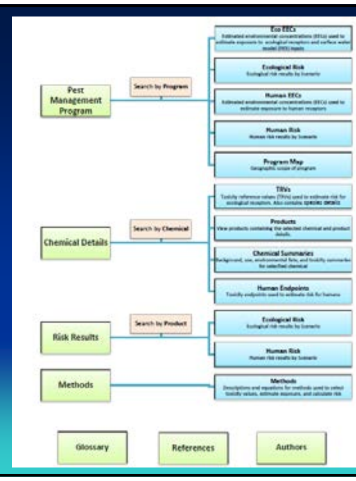

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Topic #4

- Fruit Fly Program Risk Results
  - 8 Scenarios
    - FF01: Sea Van Fumigation
    - FF02: Nursery Drench
    - FF03: Residential Backpack Sprayer
    - FF04: Production Ag Aerial Application
    - FF05: Production Ag Backpack Sprayer
    - FF06: Residential Backpack Sprayer
    - FF07: Production Ag Backpack Sprayer
    - FF08: Production Ag Aerial

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Topic #4

- Fruit Fly Program Risk Results
- Human

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Topic #4

CDFA Fruit Fly (FF) Program

Scenario	Duration	Receptor	Dermal MOE (unitless)	Inhalation MOE (unitless)	Summed MOE (unitless)
FF-02	Acute Non-cancer	Mixer-Loader	9.30E+02	2.51E+02	1.97E+02
FF-02	Acute Non-cancer	Applicator	2.19E+01	3.47E+00	2.99E+00
FF-02	Acute Non-cancer	Mixer-Loader-Applicator	2.19E+01	3.47E+00	2.99E+00
FF-02	Acute Non-cancer	Combined-Nursery-Worker	2.19E+01	3.47E+00	2.99E+00
FF-02	Chronic Non-cancer	Mixer-Loader	1.13E+04	3.05E+03	2.40E+03
FF-02	Chronic Non-cancer	Applicator	2.67E+02	4.22E+01	3.64E+01
FF-02	Chronic Non-cancer	Mixer-Loader-Applicator	2.67E+02	4.22E+01	3.64E+01
FF-02	Chronic Non-cancer	Combined-Nursery-Worker	2.67E+02	4.22E+01	3.64E+01

Notes:
1.) Shaded cells denote MOEs below the level of concern of 100, which suggest the potential for unacceptable risk.
2.) Diazinon AG500, used in FF-02, was the only product and scenario in the Fruit Fly program that showed the potential for unacceptable risk.
3.) Diazinon was the chemical driving the risk for the product Diazinon AG500. Two other chemicals (1,2,4-trimethylbenzene and xylenes) exist in Diazinon AG500 but they did not have a significant contribution (<0.1%) to the overall risk.

Topic #4

- Acute Inhalation NOAEL (mg/kg-day)
  2.6×10^{-3}
- Chronic Inhalation NOAEL (mg/kg-day)
  2.6×10^{-4}
- NOAEL Selection Process (See handout)

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Agency	Year	Title	Study Details	NOAEL? LOAEL?	Original NOAEL or LOAEL in Study (units)	Observed Endpoints	HEC-adjusted Child Chronic Inhalation NOAEL (mg/kg-day)	HEC-adjusted Adult Chronic Inhalation NOAEL (mg/kg-day)	Conversion	UF Applied?	Final HEC-adjusted Child Chronic Inhalation NOAEL (mg/kg-day)	Final HEC-adjusted Adult Chronic Inhalation NOAEL (mg/kg-day)
U.S. Environmental Protection Agency	2006	Interim Reregistration Eligibility Decision Diazinon	21-day whole body rat inhalation study (6 hours/day)	LOAEL	0.026 mg/kg-day	Significant serum and RBC cholinesterase inhibition	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026
National Pesticide Information Center	2009	Diazinon Technical Fact Sheet	-	-	-	-	-	-	-	-	-	-
Extension Toxicology Network	1996	Pesticide Information Profiles	-	-	-	-	-	-	-	-	-	-
U.S. Environmental Protection Agency	2000	Occupational and Residential Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Diazinon	21-day whole body rat inhalation study (6 hours/day)	LOAEL	0.026 mg/kg-day	Significant serum and RBC cholinesterase inhibition	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	4-hour inhalation rat study	LOAEL	2330 mg/m3	Nasal discharge, polyuria, decreased activity, salivation	436	358	LOAEL to NOAEL (10x); acute to chronic (10x)	100	4.36	3.58
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	4-hour inhalation rat study	NOAEL	2330 mg/m3	Body weight	436	358	acute to chronic (10x)	10	43.63	35.8[illegible]
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	3-week inhalation rat study; 5 days/week, 6 hours/day	NOAEL	11.6 mg/m3	Treatment-related damage to the heart, hematological parameters (erythrocyte count, hemoglobin, packed red cell volume)	2	1	subchronic to chronic (10x)	10	0.2	0.1
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	3-week inhalation rat study; 5 days/week, 6 hours/day	NOAEL	1.57 mg/m3	16-39% RBC acetylcholinesterase inhibition	0.315	0.258	subchronic to chronic (10x)	10	0.032	0.026
Hazardous Substances Data Bank	2013	Diazinon	21-day inhalation rat study; 7 days/week, 6 hours/day	LOAEL	0.026 mg/kg-day	Plasma cholinesterase inhibition in male and female rats, and red blood cell cholinesterase inhibition in males	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026

Conversions:
1. NOA(E)L(HEC adjusted) = (AC*DAI /BW)*(ARR/HRR)*(HE/24 hour)*(DE/7 day)

NOA(E)L(HEC adjusted) = Human Equivalent Concentration (HEC) Adjusted Inhalation NOA(E)L (mg/kg-day)
ARR = Animal Respiration Rate
i. Rat - 0.96 m3/kg-day
HRR = Human Respiration Rate
i. Child - 0.46 m3/kg-day
ii. Adult - 0.26 m3/kg-day
AC = Air Concentration (mg/m3)
DAI = Daily Air Intake
i. Child - 10 m3/day
ii. Adult - 20 m3/day

BW = Body Weight
i. Child - 18.6 kg
ii. Adult - 80 kg
HE = Hours Exposed per Day (hour)
DE = Days Exposed per Week (day)

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Topic #4

- Fruit Fly Program Risk Results
- Ecological

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The Horizon Team
Blankinship & Associates, Inc.

- **What You Will Get Via Email**
  - –1 zipped Access file
  - –Please do not distribute
- **What You Will Need**
  - –Microsoft Access

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- **What You Can Do**
  - –Double click to unzip and save
  - –Open with Access
  - –Use the Dashboard to Investigate features
- **What We Need from You**
  - –Review comments on:
    - Ease of use
    - Accuracy
    - Other

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- **What We Need from You (con't)**
  - –Reply to the Doodle Request
  - –Do review week of 6/3
  - –Meeting(s) week of 6/10
- **What You Can Expect Next**
  - –The same approach for the other 7 programs

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The End

- Additional Q&A
- Actions
- Next Meetings
  - – Week of June 10th
    - Dates/Times/Locations TBD
    - Please respond to the Doodle
  - – July 11, 2013
    - 2-4 PM
    - DPR Room 450
- Adjourn

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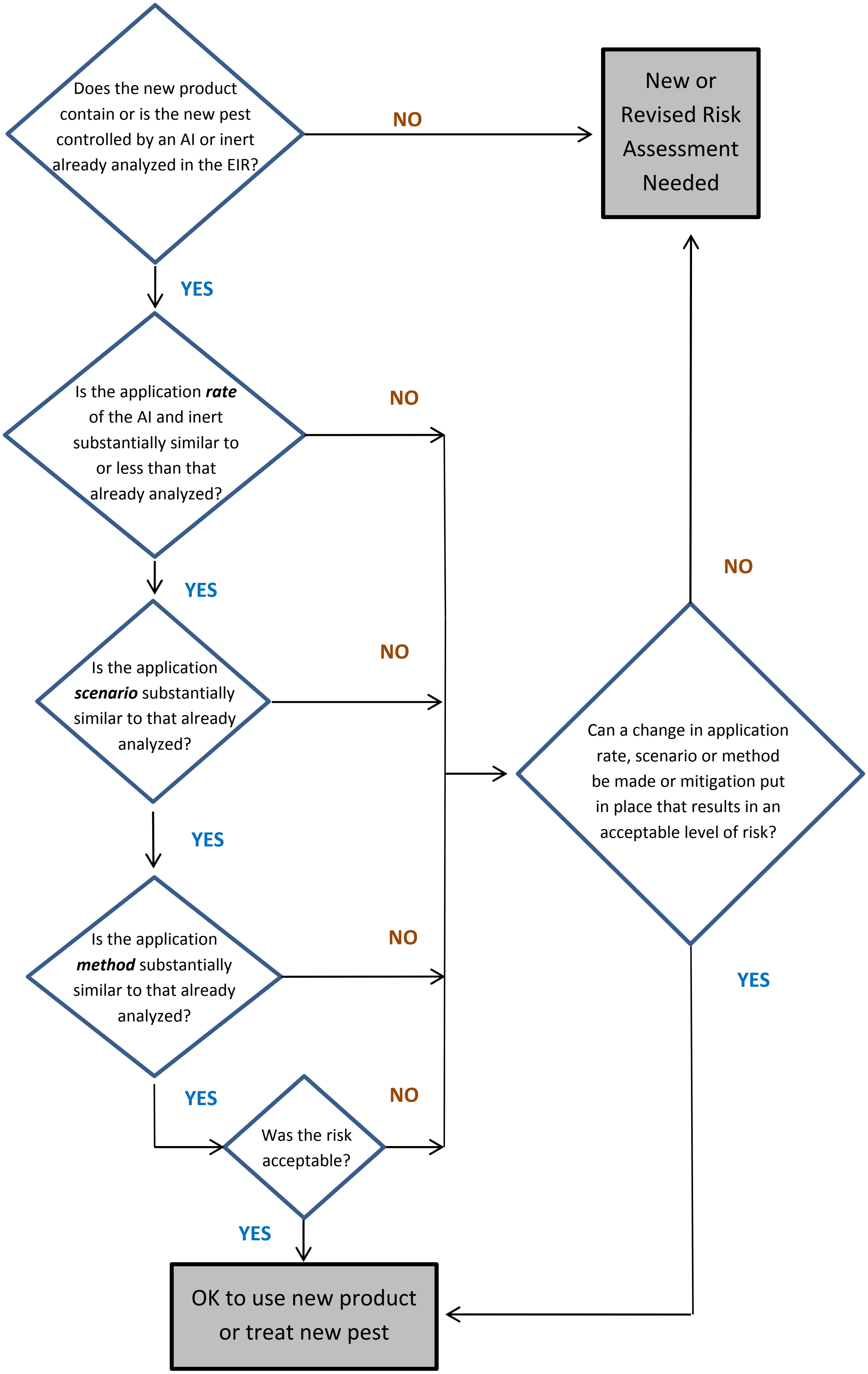
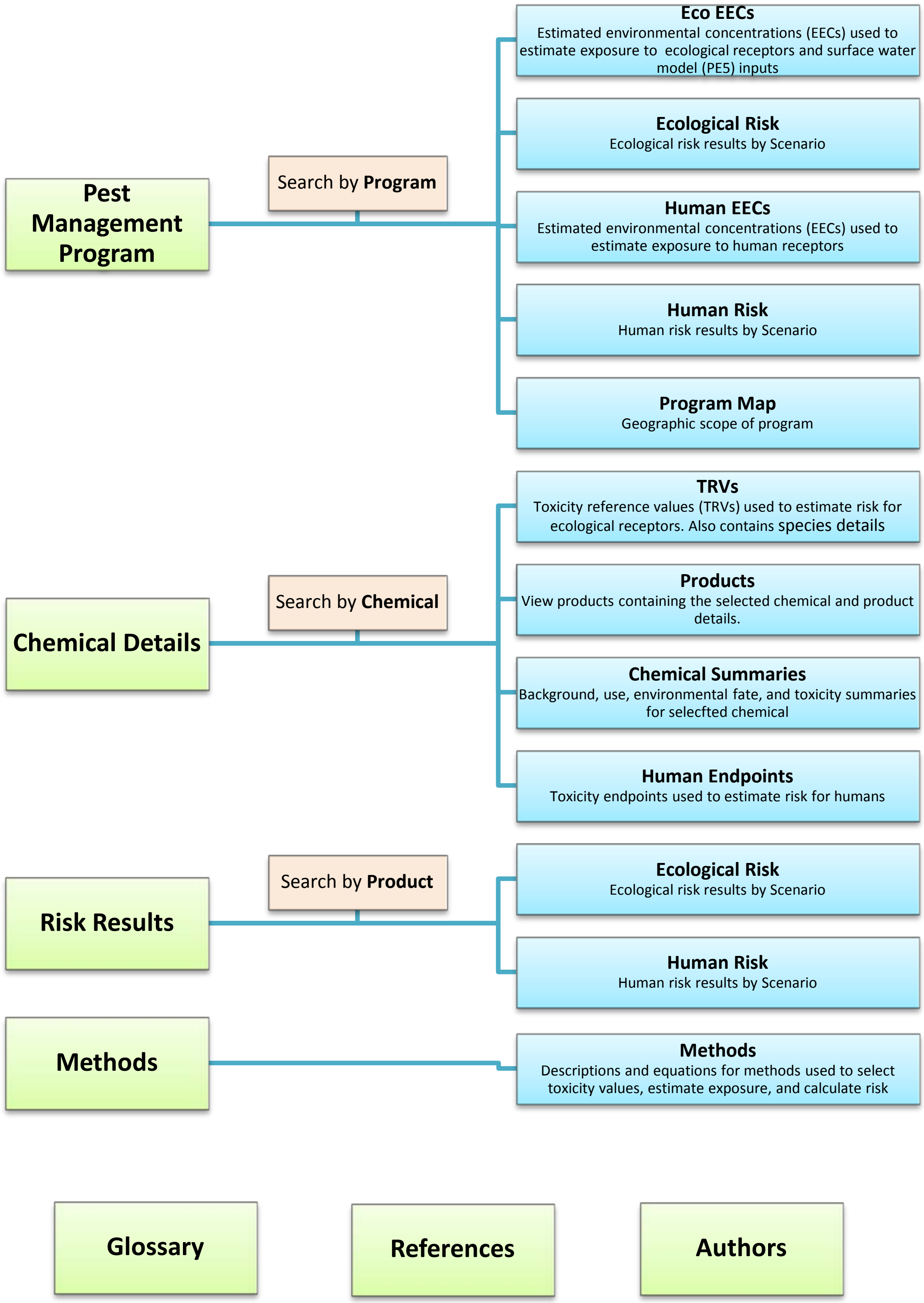
The Horizon Team
Blankinship & Associates, Inc.

CDFA New Product or New Pest
Risk Assessment Decision Tree
(Revised 5/20/13)



Dashboard Road Map



CDFA Fruit Fly (FF) Program

Scenario	Duration	Receptor	Dermal MOE (unitless)	Inhalation MOE (unitless)	Summed MOE (unitless)
FF-02	Acute Non-cancer	Mixer-Loader	9.30E+02	2.51E+02	1.97E+02
FF-02	Acute Non-cancer	Applicator	2.19E+01	3.47E+00	2.99E+00
FF-02	Acute Non-cancer	Mixer-Loader-Applicator	2.19E+01	3.47E+00	2.99E+00
FF-02	Acute Non-cancer	Combined-Nursery-Worker	2.19E+01	3.47E+00	2.99E+00
FF-02	Chronic Non-cancer	Mixer-Loader	1.13E+04	3.05E+03	2.40E+03
FF-02	Chronic Non-cancer	Applicator	2.67E+02	4.22E+01	3.64E+01
FF-02	Chronic Non-cancer	Mixer-Loader-Applicator	2.67E+02	4.22E+01	3.64E+01
FF-02	Chronic Non-cancer	Combined-Nursery-Worker	2.67E+02	4.22E+01	3.64E+01

Notes:

1.) Shaded cells denote MOEs below the level of concern of 100, which suggest the potential for unacceptable risk.

2.) Diazinon AG500, used in FF-02, was the only product and scenario in the Fruit Fly program that showed the potential for unacceptable risk.

3.) Diazinon was the chemical driving the risk for the product Diazinon AG500. Two other chemicals (1,2,4-trimethylbenzene and xylenes) exist in Diazinon AG500 but they did not have a significant contribution (<0.1%) to the overall risk.

Diazinon Inhalation NOAEL Summary

Agency	Year	Title	Study Details	NOAEL? LOAEL?	Original NOAEL or LOAEL in Study (units)	Observed Endpoints	HEC-adjusted Child Chronic Inhalation NOAEL (mg/kg-day)	HEC-adjusted Adult Chronic Inhalation NOAEL (mg/kg-day)	Conversion	UF Applied?	Final HEC-adjusted Child Chronic Inhalation NOAEL (mg/kg-day)	Final HEC-adjusted Adult Chronic Inhalation NOAEL (mg/kg-day)
U.S. Environmental Protection Agency	2006	Interim Reregistration Eligibility Decision Diazinon	21-day whole body rat inhalation study (6 hours/day)	LOAEL	0.026 mg/kg-day	Significant serum and RBC cholinesterase inhibition	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026
National Pesticide Information Center	2009	Diazinon Technical Fact Sheet	-	-	-	-	-	-	-	-	-	-
Extension Toxicology Network	1996	Pesticide Information Profiles	-	-	-	-	-	-	-	-	-	-
U.S. Environmental Protection Agency	2000	Occupational and Residential Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Diazinon	21-day whole body rat inhalation study (6 hours/day)	LOAEL	0.026 mg/kg-day	Significant serum and RBC cholinesterase inhibition	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	4-hour inhalation rat study	LOAEL	2330 mg/m3	Nasal discharge, polyuria, decreased activity, salivation	436	358	LOAEL to NOAEL (10x); acute to chronic (10x)	100	4.36	3.59
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	4-hour inhalation rat study	NOAEL	2330 mg/m3	Body weight	436	358	acute to chronic (10x)	10	43.63	35.89
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	3-week inhalation rat study; 5 days/week, 6 hours/day	NOAEL	11.6 mg/m3	Treatment-related damage to the heart, hematological parameters (erythrocyte count, hemoglobin, packed red cell volume)	2	1	subchronic to chronic (10x)	10	0.2	0.1
Agency for Toxic Substances and Disease Registry	2008	Diazinon Toxicity Profile	3-week inhalation rat study; 5 days/week, 6 hours/day	NOAEL	1.57 mg/m3	36-39% RBC acetycholinesterase inhibition	0.315	0.259	subchronic to chronic (10x)	10	0.032	0.026
Hazardous Substances Data Bank	2012	Diazinon	21-day inhalation rat study; 7 days/week, 6 hours/day	LOAEL	0.026 mg/kg-day	Plasma cholinesterase inhibition in male and female rats, and red blood cell cholinesterase inhibition in males	0.026	0.026	LOAEL to NOAEL (10x); subchronic to chronic (10x)	100	0.00026	0.00026

Conversions:

1. NO(A)EL[HEC-adjusted] = (AC*DAI /BW)*(ARR/HRR)*(HE/24 hour)*(DE/7 day)

NO(A)EL[HEC-adjusted] = Human Equivalent Concentration (HEC) Adjusted Inhalation NO(A)EL (mg/kg-day)

ARR = Animal Respiration Rate
- i. Rat - 0.96 m3/kg-day

HRR = Human Respiration Rate
- i. Child - 0.46 m3/kg-day
- ii. Adult - 0.26 m3/kg-day

AC = Air Concentration (mg/m3)

DAI = Daily Air Intake
- i. Child - 10 m3/day
- ii. Adult - 20 m3/day

BW = Body Weight
- i. Child - 18.6 kg
- ii. Adult - 80 kg

HE = Hours Exposed per Day (hour)

DE = Days Exposed per Week (day)

Fruit Fly Program – DRAFT Ecological Risk Results

Table 1. Acute risk quotients for aquatic phase amphibians.

Scenario	Risk Category	Pesticide Product	California Tiger Salamander	Southern Torrent Salamander	California Red-legged Frog	Foothill Yellow-legged Frog	Arroyo Toad	Western Spadefoot
FF-01	Acute	Brom-O-Gas						
FF-02	Acute	Diazinon AG500	0.01	0.01	0.01	0.01	0.01	0.01
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.09	0.09	0.01	0.01	0.04	0.04
FF-07	Acute	Malathion 8 Aquamul	0.16	0.16	0.01	0.01	0.08	0.08
FF-08	Acute	Malathion 8 Aquamul	0.18	0.18	0.02	0.02	0.09	0.09

Table 2. Chronic risk quotients for aquatic phase amphibians.

Scenario	Risk Category	Pesticide Product	California Tiger Salamander	Southern Torrent Salamander	California Red-legged Frog	Foothill Yellow-legged Frog	Arroyo Toad	Western Spadefoot
FF-01	Chronic Midpoint AUF	Brom-O-Gas						
FF-02	Chronic Midpoint AUF	Diazinon AG500	0.00	0.00	0.00	0.00	0.00	0.00
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.14	0.14	0.01	0.01	0.07	0.07
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.16	0.16	0.01	0.01	0.08	0.08
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.43	0.43	0.04	0.04	0.20	0.20

Table 3. Acute risk quotients for terrestrial phase amphibians.

Scenario	Risk Category	Pesticide Product	California Tiger Salamander	Southern Torrent Salamander	California Red-legged Frog	Foothill Yellow-legged Frog	Arroyo Toad	Western Spadefoot
FF-01	Acute	Brom-O-Gas						
FF-02	Acute	Diazinon AG500	0.00	0.05	0.02	0.03	0.00	0.01
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.04	0.03	0.01	0.02	0.02	0.02
FF-07	Acute	Malathion 8 Aquamul	0.04	0.05	0.01	0.03	0.02	0.02
FF-08	Acute	Malathion 8 Aquamul	0.04	0.06	0.01	0.03	0.02	0.02

Table 4. Chronic risk quotients for terrestrial phase amphibians.

Scenario	Risk Category	Pesticide Product	California Tiger Salamander	Southern Torrent Salamander	California Red-legged Frog	Foothill Yellow-legged Frog	Arroyo Toad	Western Spadefoot
FF-01	Chronic Midpoint AUF	Brom-O-Gas						
FF-02	Chronic Midpoint AUF	Diazinon AG500	0.00	0.10	0.03	0.06	0.00	0.02
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.02	0.15	0.03	0.06	0.03	0.03
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.02	0.19	0.04	0.07	0.03	0.03
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.02	0.37	0.08	0.13	0.03	0.03

Table 5. Acute risk quotients for aquatic Invertebrates.

Scenario	Risk Category	Pesticide Product	Vernal Pool Fairy Shrimp	Tomales Isopod	California Freshwater Shrimp	Shasta Crayfish	Mimic Tryonia	Black Abalone
FF-01	Acute	Brom-O-Gas						
FF-02	Acute	Diazinon AG500	35.80	171.83	1.23	1.23	0.04	0.04
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.00	0.74	4.74	0.09	0.00	0.00
FF-07	Acute	Malathion 8 Aquamul	0.00	1.40	8.97	0.18	0.00	0.00
FF-08	Acute	Malathion 8 Aquamul	0.00	1.59	10.17	0.20	0.00	0.00

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Table 6. Chronic risk quotients for aquatic invertebrates.

Scenario	Risk Category	Pesticide Product	Vernal Pool Fairy Shrimp	Tomales Isopod	California Freshwater Shrimp	Shasta Crayfish	Mimic Tryonia	Black Abalone
FF-01	Chronic Midpoint AUF	Brom-O-Gas						
FF-02	Chronic Midpoint AUF	Diazinon AG500	30.10	144.46	1.04	1.04	0.03	0.03
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.00	2.01	1.29	0.26	0.00	0.00
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.00	2.61	1.67	0.33	0.00	0.00
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.00	5.01	3.20	0.64	0.01	0.01

Table 7. Acute risk quotients for fish.

Scenario	Risk Category	Pesticide Product	Tidewater Goby	Delta smelt	Sacramento splittail	Arroyo Chub	Coastal Cutthroat Trout	Desert Pupfish	Chinook Salmon--Central Valley spring-run ESU
FF-01	Acute	Brom-O-Gas							
FF-02	Acute	Diazinon AG500	0.02	0.02	0.38	0.08	0.38	0.08	0.17
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.33	0.33	4.26	0.57	0.10	0.57	0.10
FF-07	Acute	Malathion 8 Aquamul	0.63	0.63	8.07	1.08	0.19	1.08	0.19
FF-08	Acute	Malathion 8 Aquamul	0.72	0.72	9.15	1.22	0.21	1.22	0.22

Table 8. Chronic risk quotients for fish.

Scenario	Risk Category	Pesticide Product	Tidewater Goby	Delta smelt	Sacramento splittail	Arroyo Chub	Coastal Cutthroat Trout	Desert Pupfish	Chinook Salmon--Central Valley spring-run ESU
FF-01	Chronic Midpoint AUF	Brom-O-Gas							
FF-02	Chronic Midpoint AUF	Diazinon AG500	0.02	0.02	0.25	0.05	0.25	0.05	0.11
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.03	0.03	0.01	0.92	0.16	0.92	0.16
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.04	0.04	0.01	1.06	0.18	1.06	0.19
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.11	0.11	0.02	2.84	0.49	2.84	0.50

Table 9. Acute risk quotients for reptiles.

Scenario	Risk Category	Pesticide Product	Giant Garter Snake	Alameda Whipsnake	Northern red-diamond rattlesnake	Western Pond Turtle	Desert Tortoise	East Pacific Green Sea Turtle	Western Fence Lizard	Blunt-nosed Leopard Lizard
FF-01	Acute	Brom-O-Gas								
FF-02	Acute	Diazinon AG500	29.91	0.22	0.21	21.49	0.00	1.67	0.01	0.01
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.02	0.00	0.00	0.02	0.04	0.00	0.05	0.05
FF-07	Acute	Malathion 8 Aquamul	0.05	0.00	0.00	0.04	0.04	0.00	0.05	0.05
FF-08	Acute	Malathion 8 Aquamul	0.05	0.00	0.00	0.04	0.04	0.00	0.05	0.05

Table 10. Chronic risk quotients for reptiles.

Scenario	Risk Category	Pesticide Product	Giant Garter Snake	Alameda Whipsnake	Northern red-diamond rattlesnake	Western Pond Turtle	Desert Tortoise	East Pacific Green Sea Turtle	Western Fence Lizard	Blunt-nosed Leopard Lizard
FF-01	Chronic Midpoint AUF	Brom-O-Gas								
FF-02	Chronic Midpoint AUF	Diazinon AG500	25.34	0.00	0.00	36.08	0.00	1.41	0.02	0.02
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.04	0.00	0.00	0.05	0.01	0.00	0.03	0.04
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.05	0.01	0.00	0.07	0.01	0.00	0.03	0.04
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.09	0.01	0.00	0.13	0.01	0.00	0.03	0.04

Table 11. Acute risk quotients for birds.

Scenario	Risk Category	Pesticide Product	Tricolored Blackbird	Mourning Dove	Osprey	California Brown Pelican	California Condor	White-tailed Kite	Cooper's Hawk	Fulvous Whistling-duck	Western Yellow-billed Cuckoo	Purple Martin	Yellow rail
FF-01	Acute	Brom-O-Gas											
FF-02	Acute	Diazinon AG500	423.39	0.07	763.00	435.9	0.05	0.25	20.89	10.71	0.16	584.60	348.11
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.13	0.01	0.19	0.22	0.01	0.03	0.03	0.00	0.49	0.25	0.36
FF-07	Acute	Malathion 8 Aquamul	0.20	0.01	0.36	0.43	0.01	0.03	0.04	0.00	0.49	0.36	0.52
FF-08	Acute	Malathion 8 Aquamul	0.22	0.01	0.41	0.47	0.01	0.03	0.04	0.00	0.49	0.40	0.57

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Table 12. Chronic risk quotients for birds.

Scenario	Risk Category	Pesticide Product	Tricolored Blackbird	Mourning Dove	Osprey	California Brown Pelican	California Condor	White-tailed Kite	Cooper's Hawk	Fulvous Whistling-duck	Western Yellow-billed Cuckoo	Purple Martin	Yellow rail
FF-01	Chronic Midpoint AUF	Brom-O-Gas											
FF-02	Chronic Midpoint AUF	Diazinon AG500	364.15	0.06	321.28	367.10	0.04	0.11	0.11	18.06	0.02	502.56	324.27
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.25	0.02	0.52	0.60	0.01	0.02	0.02	0.00	0.38	0.46	0.80
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.31	0.02	0.67	0.77	0.01	0.02	0.03	0.00	0.42	0.59	1.18
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.0.55	0.02	1.30	1.48	0.01	0.02	0.04	0.01	0.43	10.5	2.11

Table 13. Acute risk quotients for mammals.

Scenario	Risk Category	Pesticide Product	Mule Deer	Riparian brush rabbit	Southern sea otter	Southwestern River Otter	American Badger	Northwestern San Diego Pocket Mouse	Big Free-tailed Bat	Southern (Ramona) Grasshopper Mouse	Nelson's Antelope Squirrel
FF-01	Acute	Brom-O-Gas									
FF-02	Acute	Diazinon AG500	0.00	0.01	3.09	5.93	0.00	0.00	0.00	0.00	0.00
FF-03	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-05	Acute	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Acute	Malathion 8 Aquamul	0.61	3.62	15.78	30.05	2.44	5.79	66.10	58.90	51.59
FF-07	Acute	Malathion 8 Aquamul	0.61	3.62	29.75	56.32	2.44	5.79	66.10	58.90	51.59
FF-08	Acute	Malathion 8 Aquamul	0.61	3.62	33.83	63.96	2.44	5.79	66.10	58.90	51.59

Table 14. Chronic risk quotients for mammals.

Scenario	Risk Category	Pesticide Product	Mule Deer	Riparian brush rabbit	Southern sea otter	Southwestern River Otter	American Badger	Northwestern San Diego Pocket Mouse	Big Free-tailed Bat	Southern (Ramona) Grasshopper Mouse	Nelson's Antelope Squirrel
FF-01	Chronic Midpoint AUF	Brom-O-Gas									
FF-02	Chronic Midpoint AUF	Diazinon AG500	0.00	0.01	1.35	2.53	0.00	0.00	0.00	0.00	0.00
FF-03	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-04	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
FF-05	Chronic Midpoint AUF	GF-120-Naturalyte Fruit Fly Bait*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FF-06	Chronic Midpoint AUF	Malathion 8 Aquamul	0.04	0.50	2.23	4.08	0.08	0.81	4.60	7.15	4.54
FF-07	Chronic Midpoint AUF	Malathion 8 Aquamul	0.04	0.50	2.94	5.26	0.09	0.81	4.60	8.13	5.48
FF-08	Chronic Midpoint AUF	Malathion 8 Aquamul	0.04	0.50	5.67	10.14	0.09	0.81	4.60	8.13	5.48

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Meeting Minutes

Joint OEHHA/DPR Risk Assessment Status Meeting
June 19, 2013

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Robert Schmidt, Casey Estep

OEHHA: David Ting, Ana Fan

DPR: Sheryl Beauvais, Jay Schreider, Pam Wofford

Horizon: Marisa Mitchell, Mike Blankinship, Joe Sullivan, Scott Dwyer, Brad Sample, David Bonnar, Ryan Beil, Stephen Burkholder, Greg Gorder, Sidney Asercion, Rebecca Veriday

Attachments:

- Agenda
- Attendee List
- Meeting Presentation and Handout

Notes:

- **General Notes**
  - All future delivery of the Dashboard will be via the Blankinship FTP site as a result of firewall issues with the zipped file
- **Dashboard Glitches**
  - Laura: Scroll box needed on the Chemical Details page
  - Joe already fixed drop down on Risk Results and Chemical Details
  - Laura & Casey: Sizing images & text button on screen not working when put on a large screen (55')
  - Sheryl: Glossary definitions are incomplete and method description box is missing
  - Need to address the Runtime error – Risk Results → Brom-O-Gas → Eco Risk Results → Acute/Chronic → "Runtime Error 3021"
  - Laura:– Risk Results → Chloropicrin – double click = blank chem details
  - Endpoints → Note Double Click → Does not work
  - References – Scroll bar needs to be added
  - Laura – FF-02 EEC's show too many chemicals.
  - In "Risk Results" if you double click on ingredient for "chemical details" the pop-up chemical details page does not select the appropriate chemical for you.
  - In "Risk Results" the notes in the NOAEL summary do not pop-up when you double-click

- **Dashboard Format**
  - Recurring issue of blank fields – need fields to contain NA or be grayed out so that it is clear that no numeric output belongs there
  - Rebecca: Add clarifying language to help interpret results. Ex. "Potential for Unacceptable Risk May Exist if the RQ > 1.0"
    - Eco – numbers shown should be described as RQ
    - Human – Describe #'s as either an MOE or Slope Factor and describe significance.
  - David T: Spell out application interval units (e.g. 3@14D → 3 applications; 14 days apart)
    - Prepare an example sheet with annotations and field descriptions as to how a calculation is done
    - Avoid abbreviations
  - Include Abbreviations tab like the glossary tab on each page for easy access
  - Make Glossary globally accessible
    - Not present in Human Risk Output Summary and need to check other pages
  - David T: Describe what the numbers in field mean
    - "Summed Risk" → Describe what is being summed
  - Provide additional critical pesticide product label information
    - Spray buffer distances to water or sensitive habitat?
    - Bee language?
- **Methodology**
  - Group: Chronic exposure for humans should be 1 year, not 90 days
  - Jay: USEPA makes this confusing because they are not consistent between definitions of chronic, subchronic, long term, medium term, etc.
  - David Ting: Need to clarify what is being summed
  - David and Ana: Cancer Risk
    - Age-specific factor used to assess exposure to specific development stages
    - Look online for OEHHA research to determine applicability
    - Ryan to check on how CRANK can support the changes
- **Diazinon Risk Estimates**
  - 80 acres/day in RED, 2 acres/day for CDFA
  - Consider new acronym for USEPA's Occupational Pesticide Handler Unit Exposure Surrogate Reference Table instead of PHED.
  - DPR uses mixer-loader liquid to model mix & pour drench applications
    - Sheryl B and Jeff Evans (U.S. Environmental Protection Agency) believe these are reasonable PHED values
    - Diazinon risk is acceptable if a mix & pour technique is used
  - Sheryl – The updated USEPA Handler Exposure Policy values maybe different than PHED March 2013 version
    - PHED suggest use of old data since PHED is gradually being replaced by new data from ORETF and AHETF
    - Update PHED definition and values where appropriate
  - Some applications are being modeled in PE5 with the CA Nursery crop scenario file. Alternatives may need to be considered given that the default soil type (cieneba) is highly porous and this may not be representative.
  - AgDRIFT
    - Not reflecting new aerial data and technology
    - Booms do not extend longer than wings anymore

    - Use of “fine to medium drop size” is done now. Change to “medium to course” instead is legitimate
    - Use of old data adds to uncertainty
    - Dave Johnson – Spray drift task force consultant
    - Risk Team to check if Dave or Terry Gage (CAAA) or others have info on AgDRIFT update
  - Literature Search
    - Diazinon buffers to water
      - ✓ Issues: Soil types → won’t necessarily be able to extrapolate via modeling and may need to use a qualitative comparison
    - Pam – Environmental fate document for diazinon is available and she will send via Laura Petro.
    - Ken Goh (DPR) may have information on buffer performance. Pam and Laura to look into it and forward to the risk team
  - Team will be sending information to Sheryl, Pam, Randy and Harvard regarding methyl bromide exposure and assumptions used.

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Fruit Fly Dashboard Review Meeting Agenda

Date: June 19, 2013 Time: 3-5 PM
CalEPA Building, Conference Room 450, Sacramento
(Mtg Room Contact: Leslie Reed at 916-445-3984 or 916 445-5000)

Conference Call #: 1-866-796-8081; Passcode 8025803

Invited Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Robert Leavitt, Nick Condos
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais
Horizon:	Michael Stevenson, Marisa Mitchell, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In and Introductions (Laura, Mike; 5 min)
II. **Topic #1:** Dashboard Review (All: 60 min)
III. **Topic #2:** Changes Since 5/30/13 Meeting (Risk Team: 20 min)
IV. Questions Actions and Adjourn (All; 15 min)

Note: For those not attending in person, a WebEX on-line meeting invitation has been sent to you. Meeting # 220159826

cdfa

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 6/19/2013 3-5 PM

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc.	mike@envtox.com
Sidney Asercion	" "	sidney@h2osci.com
David Bonnar	" "	David@h2osci.com
Greg Gorder	TSG	ggorder@tsgusa.com
Ryan Beil	Blankinship + Assoc.	ryan@h2osci.com
Stephen Burkholder	" "	stephen@h2osci.com
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LAURA Petro	CDFA	Laura.Petro@CDFA.CA.GOV
Robert Schmidt	CDFA	robert.schmidt@cdfa.ca.gov
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David Ting	OEHHA	david.ting@oehha.ca.gov
Anna Fan	oehha	anna.fan@oehha.ca.gov
Pam Wofford	DPR	Pam.Wofford@cdpr.ca.gov
Jay Schreider	DPR	Jay.Schreider@cdpr.ca.gov
Sheryl Beauvais	DPR	SBeauvais@cdpr.ca.gov
Scott Dwyer	Kleinfelder	Call-In/WebEx
Brad Sample	Eco Risk	" "
Marisa Mitchell	Horizon	" "
Rebecca Vereday	URS	"

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
June 19, 2013

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Fruit Fly Dashboard Review Meeting

Bactrocera cucurbitae

Wednesday June 19, 2013

Agenda

I. Welcome, Sign-In (Laura, Mike; 5 min)
II. Topic #1: Dashboard Review (All: 60 min)
III. Topic #2: Changes Since 5/30 (Risk Team 20 min)
IV. Questions, Actions & Adjourn (All: 15 min)

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Topic #1

- Dashboard Review
  - Ease of use
  - Accuracy
  - Other

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Topic #2: Changes Since 5/30/13

- Dashboard
  - Various spot fixes, mainly aesthetic
  - Review and testing
- #2A Human Risk
  - Diazinon
- #2B Ecological Risk
  - Buffers and Drift

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The Horizon Team
Blankinship & Associates, Inc.

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
June 19, 2013

Topic #2A

- Human: Review of diazinon risk
  - NOAEL changed to stay consistent with USEPA RED
  - Weighing options for adjusting application scenario

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Topic #2A

Diazinon – Statewide Program

- Product: Diazinon AG 500
- Used in the **Fruit Fly** program
- **Nursery** applications only
- Applied via **Drench Hudson Sprayer**
  - PHED equivalent: Manually Pressurized Handgun
- Application Rate: **5 lb a.i./acre**
- Application Interval: **3 applications 14 days apart**
- Detailed in: Special Local Need (Section 24(c)) Label

Topic #2A

Diazinon Application Rate Comparisons

- **Special Local Needs (SLN) Label**
  - 5 lb a.i./acre
- **Diazinon AG 500 Label**
  - Cherry Fruit Fly: 2 lb a.i./acre
  - Almond Pests: 3 lb a.i./acre
- **U.S. EPA RED for Diazinon (2006)**
  - Evaluated a maximum of 4 lb a.i./acre

Topic #2A

USEPA RED Risk Assessment for Diazinon

- **RED did not evaluate chronic risk**
  - USEPA: "no uses of diazinon would result in chronic exposures (more than 180 days)."
- **RED application methods evaluated:**
  - Aerial
  - Groundboom
  - Airblast
  - Tractor drawn spreader (granules)
- **All RED scenarios utilized engineering controls**
  - Closed mixing/loading systems for liquids and granulars and enclosed cabs/trucks
- **All RED risk estimates were unacceptable with PPE**
  - Includes double layer clothing and gloves and/or a dust/mist respirator

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Blankinship & Associates, Inc.

CDFA Statewide Pest Prevention Program EIR
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Topic #2A

USEPA RED Risk Assessment for Diazinon

- **Toxicity Endpoints**
  - Dermal
    - NOAEL = 1 mg/kg-day
    - Effect: Significant serum and brain cholinesterase inhibition
    - Target MOE ≥ 100
  - Inhalation
    - LOAEL = 0.026 mg/kg-day
    - Effect: Significant serum and RBC cholinesterase inhibition
    - Target MOE ≥ 300
      - x3 LOAEL → NOAEL adjustment factor
- **SLN use canceled and then retained**
  - SLN registration for drenching of residential fruit trees for control of the Mediterranean Fruit Fly was initially canceled by the IRED (2002) but then retained in the RED (2006).

Table 6. Agricultural Uses: Remaining Risk Concerns (combined dermal & inhalation MOEs) with Engineering Controls.

Crop	App. Rate (lb ai/A)	Acres treated	Application method / formulation	Short-Term ARI: Mixer/Loader	Short-Term ARI: Applicator	Dermal MOE Mixer-Loader/Applicator	Inhalation MOE Mixer-Loader/Applicator
Almonds	3.00	350	aerial / liquid	0.032	0.052	8.6 / 14.3	55.7 / 87.5
		40	airblast / liquid	0.43	0.082	74.8 / 34.1	**306** / 119
		350	aerial / WP	0.026	0.052	7.40 / 14.3	12.24 / 87.5
		40	airblast / WP	0.23	0.082	66 / 34.1	107.1 / 119
Apples Pears	2.00	350	aerial / WP	0.040	0.15	11 / 22	18.7 / 135
		40	airblast / WP	0.35	0.27	97.9 / 50.6	162.5 / 178.5
Apricots Nectarines Peaches Plums Prunes Walnuts	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 38
		40	airblast / liquid	0.64	0.27	**318** / 50.6	**439** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 38
		40	airblast / WP	0.35	0.27	97.9 / 50.6	161.5 / 178.5
Beets (red) Onions Spinach	3	350	aerial / liquid	0.30	0.59	51.7 / 88	211 / **325**
		80	groundboom / liquid	**1.29**	**2.97**	**226 / 385**	**935 / 2659**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **325**
		80	groundboom / WP	0.70	**2.97**	**198 / 385**	**323 / 2659**
	4	80	tractor-drawn spreader / granular	0.90	0.24	**1430 / 121**	289 / 91
Blackberries Boysenberries Dewberries Loganberries Raspberries Cherries (sweet)	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 135
		40	airblast / liquid	0.64	0.12	**318** / 50.6	**439** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 135
		40	airblast / WP	0.35	0.12	97.9 / 50.6	161.5 / 178.5
Blueberries Grapes Hops	1.00	350	aerial / liquid	0.15	0.29	25.3 / 44	107.1 / 126.6
		40	airblast / liquid	**1.29**	0.54	**226 / 1001.2**	**935 / 359**
		350	aerial / WP	0.080	0.29	22 / 44	37.4 / 126.6
		40	airblast / WP	0.70	0.54	**198 / 1001.2**	**323 / 359**
Broccoli Brussels Sprouts Cabbage	3	350	aerial / liquid	0.30	0.59	51.7 / 88	221 / **325**
		80	groundboom / liquid	**1.29**	**2.97**	**226 / 385**	**935 / 2659**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **325**
		80	groundboom / WP	0.70	**2.97**	**198 / 385**	**323 / 2659**
	3	80	tractor drawn spreader / granular	**1.17**	0.32	**1070 / 154**	**374** / 119

Acceptable Risk: Highlight & Bold

Unacceptable Risk: All Other

Source: U.S. Environmental Protection Agency (USEPA) Diazinon RED, 2006. (page 1/3)

Topic #2A

CDFA Fruit Fly (FF) Program - FF-02 - Diazinon AG500 - Applicator Risk

Option #	Adjustment Made	Acute Non-cancer: Dermal MOE (unitless)	Acute Non-cancer: Inhalation MOE (unitless)	Acute Non-cancer: Summed MOE (unitless)	Approximate Significance of Adjustment (Factor)
Original	None: unmodified from 5/30 meeting	2.19E+01	3.47E+00	2.99E+00	
Benchmark	Change UF for acute inhalation NOAEL from 10 to 3 (USEPA RED). NOAEL changed from 0.0026 to 0.0087	2.19E+01	1.16E+01	7.59E+00	Dermal= 1 Inhalation= 3
Option 1	Keep PHED Manually-pressurized handgun. Change PPE from respirator PF5 to PF10	2.19E+01	2.32E+01	1.13E+01	Dermal= 1 Inhalation= 2
Option 2	Use PHED Backpack sprayer drench	1.94E+00	1.35E+02	1.91E+00	Dermal= 0.09 Inhalation= 12
Option 2a	Use PHED Backpack sprayer drench Change PPE from respirator PF5 to PF10	1.94E+00	2.70E+02	1.93E+00	Dermal= 0.09 Inhalation= 23
Option 3	Use PHED Termiticide injection (surrogate for soil injection)	3.20E+01	1.58E+02	2.66E+01	Dermal= 1.5 Inhalation= 14
Option 3a	Use PHED Termiticide injection Change PPE from respirator PF5 to PF10	3.20E+01	3.16E+02	2.91E+01	Dermal= 1.5 Inhalation= 27
Option 4	Use PHED Mixing/loading - Liquids (surrogate for drench mix & pour)	2.75E+02	1.58E+03	2.34E+02	Dermal= 13 Inhalation= 136
Option 5	Use PHED Groundboom -closed cab (label required)	1.57E+03 PAL=2.97E+00	1.62E+03	7.97E+02	Dermal= 72 Inhalation= 139
Option 6	Use max label app rate for fruit fly instead of SLN app rate. App rate changed from 5 lbs/acre to 2 lbs/acre.	5.48E+01	2.90E+01	1.90E+01	Dermal= 2.5 Inhalation= 2.5

Notes:
1.) Preliminary data subject to change and additional analysis. Risk estimates are based on conservative assumptions.
2.) The original unadjusted scenario for applying diazinon is: Drench, Manually-pressurized handgun; Double-layer clothes, gloves and respirator PF5
3.) Diazinon AG500 is used in a nursery setting.
4.) Chronic duration exposure to diazinon was not expected to occur.
5.) The approximate significance of adjustment was calculated by dividing the "adjusted MOE" by the "benchmark MOE."

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Topic #2B

- Ecological:
  - Buffers
  - Drift

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The Horizon Team
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CDFA Statewide Pest Prevention Program EIR
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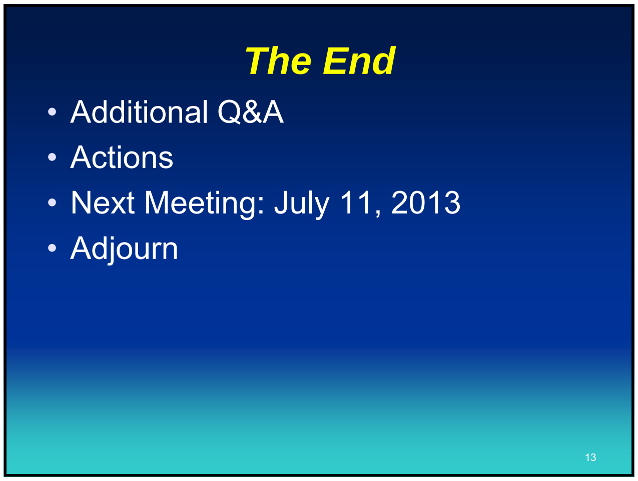

DRAFT for Discussion Purposes Only

CDFA Fruit Fly (FF) Program - FF-02 - Diazinon AG500 - Applicator Risk

Option #	Adjustment Made	Acute Non-cancer Dermal MOE (unitless)	Acute Non-cancer Inhalation MOE (unitless)	Acute Non-cancer Summed MOE (unitless)	Approximate Significance of Adjustment (Factor)
Original	None: unmodified from 5/30 meeting	2.19E+01	3.47E+00	2.99E+00	
Benchmark	Change UF for acute inhalation NOAEL from 10 to 3 (USEPA RED). NOAEL changed from 0.0026 to 0.0087	2.19E+01	1.16E+01	7.59E+00	Dermal= 1 Inhalation= 3
Option 1	Keep PHED Manually-pressurized handgun. Change PPE from respirator PF5 to PF10	2.19E+01	2.32E+01	1.13E+01	Dermal= 1 Inhalation= 2
Option 2	Use PHED Backpack sprayer drench	1.94E+00	1.35E+02	1.91E+00	Dermal= 0.09 Inhalation= 12
Option 2a	Use PHED Backpack sprayer drench Change PPE from respirator PF5 to PF10	1.94E+00	2.70E+02	1.93E+00	Dermal= 0.09 Inhalation= 23
Option 3	Use PHED Termiticide injection (surrogate for soil injection)	3.20E+01	1.58E+02	2.66E+01	Dermal= 1.5 Inhalation= 14
Option 3a	Use PHED Termiticide injection Change PPE from respirator PF5 to PF10	3.20E+01	3.16E+02	2.91E+01	Dermal= 1.5 Inhalation= 27
Option 4	Use PHED Mixing/loading - Liquids (surrogate for drench mix & pour)	2.75E+02	1.58E+03	2.34E+02	Dermal= 13 Inhalation= 136
Option 5	Use PHED Groundboom -closed cab (label required)	1.57E+03 *PAL=2.97E+00*	1.62E+03	7.97E+02	Dermal= 72 Inhalation= 139
Option 6	Use max label app rate for fruit fly instead of SLN app rate. App rate changed from 5 lbs/acre to 2 lbs/acre.	5.48E+01	2.90E+01	1.90E+01	Dermal= 2.5 Inhalation= 2.5

Notes:

1.) Preliminary data subject to change and additional analysis. Risk estimates are based on conservative assumptions.

2.) The original unadjusted scenario for applying diazinon is: Drench, Manually-pressurized handgun; Double-layer clothes, gloves and respirator PF5

3.) Diazinon AG500 is used in a nursery setting.

4.) Chronic duration exposure to diazinon was not expected to occur.

5.) The approximate significance of adjustment was calculated by dividing the "adjusted MOE" by the "benchmark MOE."

Table 6. Agricultural Uses: Remaining Risk Concerns (combined dermal & inhalation MOEs) with Engineering Controls.

Crop	App. Rate (lb ai/A)[1]	Acres treated	Application method / formulation	Short-Term ARI		Dermal MOE Mixer-Loader/ Applicator	Inhalation MOE Mixer-Loader/ Applicator
				Mixer/Loader	Applicator		
Almonds	3.00	350	aerial / liquid	0.042	0.052	8.6 / 14.3	35.7 / 87.5
		40	airblast / liquid	0.43	0.082	74.8 / 34.1	**306** / 119
		350	aerial / WP	0.026	0.052	7.48 / 14.3	12.24 / 87.5
		40	airblast / WP	0.23	0.082	66 / 34.1	107.1 / 119
Apples Pears	2.00	350	aerial / WP	0.040	0.15	11 / 22	18.7 / 133
		40	airblast / WP	0.35	0.27	97.9 / 50.6	161.5 / 178.5
Apricots Nectarines Peaches Plums Prunes Walnuts	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 38
		40	airblast / liquid	0.64	0.27	**110** / 50.6	**459** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 38
		40	airblast / WP	0.35	0.27	97.9 / 50.6	161.5 / 178.5
Beets (red) Onions Spinach	.5	350	aerial / liquid	0.30	0.59	51.7 / 88	221 / **525**
		80	groundboom / liquid	**1.29**	**2.97**	**220 / 385**	**935 / 3850**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **525**
		80	groundboom / WP	0.70	**2.97**	**198 / 385**	**323 / 3850**
	4	80	tractor-drawn spreader / granular	0.90	0.24	**1430 / 121**	289 / 91
Blackberries Boysenberries Dewberries Loganberries Raspberries Cherries (sweet)	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 133
		40	airblast / liquid	0.64	0.12	**110** / 50.6	**459** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 133
		40	airblast / WP	0.35	0.12	97.9 / 50.6	161.5 / 178.5
Blueberries Grapes Hops	1.00	350	aerial / liquid	0.15	0.29	25.3 / 44	107.1 / 126.6
		40	airblast / liquid	**1.29**	0.54	**220 / 101.2**	**935 / 350**
		350	aerial / WP	0.080	0.29	22 / 44	37.4 / 126.6
		40	airblast / WP	0.70	0.54	**198 / 101.2**	**323 / 350**
Broccoli Brussels Sprouts Cabbage	.5	350	aerial / liquid	0.30	0.59	51.7 / 88	221 / **525**
		80	groundboom / liquid	**1.29**	**2.97**	**220 / 385**	**935 / 3850**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **525**
		80	groundboom / WP	0.70	**2.97**	**198 / 385**	**323 / 3850**
	3	80	tractor drawn spreader / granular	**1.17**	0.32	**1870 / 154**	**374** / 119

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Table Eco-1. Risk Quotients for Aquatic Invertebrates for Fruit Fly Malathion Applications.

Application Scenario	Scenario Setting	Application Type or Equipment	Run No.	Risk Category	Pesticide Product	Vernal Pool Fairy Shrimp	Tomales Isopod	California Freshwater Shrimp	Shasta Crayfish	Mimic Tryonia	Black Abalone
FF-06	Residential	Backpack Sprayer	Run 1	Acute	Malathion 8 Aquamul	0.00	0.71	4.55	0.09	0.00	0.00
FF-06	Residential	Backpack Sprayer	Run 2	Acute	Malathion 8 Aquamul	0.00	0.71	4.55	0.09	0.00	0.00
FF-06	Residential	Backpack Sprayer	Run 3	Acute	Malathion 8 Aquamul	0.00	0.71	4.55	0.09	0.00	0.00
FF-07	Production Ag (Fruit Fly)	Backpack Sprayer	Run 1	Acute	Malathion 8 Aquamul	0.00	1.40	8.97	0.18	0.00	0.00
FF-07	Production Ag (Fruit Fly)	Backpack Sprayer	Run 2	Acute	Malathion 8 Aquamul	0.00	1.40	8.97	0.18	0.00	0.00
FF-07	Production Ag (Fruit Fly)	Backpack Sprayer	Run 3	Acute	Malathion 8 Aquamul	0.00	1.40	8.97	0.18	0.00	0.00
FF-08	Production Ag (Fruit Fly)	Aerial	Run 1	Acute	Malathion 8 Aquamul	0.00	1.59	10.17	0.20	0.00	0.00
FF-08	Production Ag (Fruit Fly)	Aerial	Run 2	Acute	Malathion 8 Aquamul	0.00	1.59	10.17	0.20	0.00	0.00
FF-08	Production Ag (Fruit Fly)	Aerial	Run 3	Acute	Malathion 8 Aquamul	0.00	1.59	10.17	0.20	0.00	0.00

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Table Eco-2. Malathion Water and Sediment Concentrations Following Aerial Application.

			Concentration (ug/L)			
Chemical	**Matrix**	**Buffer Distance**	**Instantaneous**	**21-Day**	**60-day**	**90-Day**
Malathion	Water	0	1.83	0.577	0.427	**0.347**
		25	1.61	0.474	0.336	0.270
		50	1.58	0.420	0.283	0.226
	Sediment	0	0.199	0.192	0.182	0.165
		25	0.157	0.152	0.144	0.130
		50	0.134	0.129	0.122	0.111

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Table Eco-3. Spray Drift (Fraction) from AgDRIFT.

Application	0 Feet	25 Feet	50 Feet	1000 Feet
Aerial	0.125	0.092	0.073	0.011
Ground	0.027	0.01	0.008	
Airblast	0.015	0.007	0.001	

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

FINAL Meeting Minutes

CDFA Risk Assessment Status Meeting
July 31, 2013, 1-3, CDFA Room 220

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Nick Condos, Michele Dias
Horizon: Michael Stevenson, Mike Blankinship, Joe Sullivan, David Bonnar, Ryan Beil, Stephen Burkholder, Greg Gorder

Attachments:

- Agenda
- Attendee List
- Meeting Presentation, Flow Diagram and Schedule

Notes:

- **Debrief on CDFA/DPR Meeting on 7/18/13**
  - CDFA met with DPR to discuss preliminary analysis of the fruit fly program quarantine chemicals presented on 5/30 and 6/19
  - DPR will continue to attend the Risk Assessment Review 2hr meetings held every 6 weeks and provide their input as our subject matter experts.
  - It was pointed out that an iterative process is common in risk assessment wherein an initial assessment is done and refined as more is learned about specific receptors and exposure routes
  - Strategy for future meetings includes time for CDFA to look at initial risk results, refine them based on close examination of the scenario description, and the risk team will re-evaluate the risk. Based on this iterative approach, several outcomes are possible.
  - Although not presented in the meeting, this above concept is depicted on the attached flow diagram.
  - A schedule will be prepared by the risk team that shows the detail of review dates, requirements for feedback, etc. (See attached).
- **Fruit Fly Scenario Review**
  - Federal law allows states to issue certain special registrations and emergency exemptions for pesticide use under specific circumstances. Under criteria outlined in Section 24(c) of the Federal Food, Drug and Cosmetic ACT, (FIFRA) these uses can be approved outside the lengthy regular U.S. EPA registration process. The Special Local Need (SLN) is a state-specific registration, through which states can register a new pesticide product for any use, or additional use of a federally-registered product, as long as there is a demonstrated "special local need" and a tolerance, exemption from a tolerance or another clearance under FiFRA has been established. For example, the Fruit Fly Section 24(c), SLN, requires treatment at 5 lbs/ac. This is more than the standard label; however, an SLN must be justified and supported by knowledgeable experts. Once issued, an SLN remains in effect indefinitely until withdrawn by the registrant, manufacturer or DPR or until U.S. EPA cancels the use.
  - Assumptions used to estimate risk were briefly reviewed and shown to be the same as those used by the U.S. Environmental Protection Agency in their RED.
  - DPR does not have a Risk Characterization Document (RCD) for diazinon.

- Discussion was had on performance-based treatments as opposed to prescriptive treatment requirements. For example, the use of performance-based language like “applications will be made in a manner that prevents material from entering water” compared to prescriptive language - “25 foot buffer to water”.
- It was pointed out that pesticide product registration takes into account both risk and benefit.

- **Ecological Toxicity and Pollinators**
  - Everyone agreed that bees are a sensitive receptor.
  - CDFA has formed a Pollinator Work Group comprised of members of the Beekeeping community, native pollinator groups and related researchers nationwide, to focus on topics for California that ultimately will be faced at the national level. Topics include improving forage diversity, pollinator health and generating practical solutions for helping farmers on a wide range of crops.
  - CDFA has reached out to the Apiary Board President to discuss the needs of the pollinator community. The CDFA Secretary recently selected Integrated Pest Control Branch Chief, Duane Schnabel as the new Apiary Board Liaison.

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Risk Assessment Status Meeting Agenda

Date: July 31, 2013 Time: 1-3 PM
CDFA Headquarters Room 220

Invited Attendees:

CDFA: Laura Petro, Nick Condos, Michele Dias
Horizon: Michael Stevenson, Mike Blankinship, Joe Sullivan, Greg Gorder, Stephen Burkholder, Ryan Beil, David Bonnar

Agenda:

I. Welcome, Sign-In and Introductions
II. Fruit Fly Scenario Review
III. Strategy for DPR/OEHHA Meetings
IV. Ecological Tox & Pollinator Issues
V. Questions, Actions and Adjourn

cdfa

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: ______________________

CalEPA Bldg, Conference Room:______ Sacramento

Name	Affiliation	Email
Nick Condos	CDFA	nick.condos@cdfa.ca.gov
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Mike Blankinship	"	mike@h2osci.com
Joe Sullivan	Ardea	birdtox1@ardea.com
Greg Gorder	Technology Sciences Group	ggorder@tsgusa.com

CDFA Statewide Pest Prevention Program EIR
CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Fruit Fly Risk and CDFA/DPR Meeting Debrief

Bactrocera cucurbitae

Wednesday July 31, 2013

Agenda

I. Welcome, Sign-In
II. FF Scenarios
  1. Eco Risk
  2. Human Risk
III. Strategy for future DPR/OEHHA Meetings
IV. Ecological Tox & Pollinator Issues
V. Questions, Actions & Adjourn

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Fruit Fly—Application Scenarios

Scenario	ProductID	ScenarioSettingID	AppPerYear	AppInterval	PMDSAppRate	PMDSAppUnits	RA AppRate (lb ai/A)	Drench	Equipment	Acres
FF-01	Brom-O-Gas	Sea Van/Fumigation Chamber	1	per year	3	lbs/1000 cu ft		No	Fumigation	
FF-02	Diazinon AG500	Small, Medium and most Large Nurseries	3	14 Days	3.67	fl oz/1000 ft2	5	Yes	Drench-Hudson Sprayer	2
FF-03	GF-120-Naturalyte Fruit Fly Bait*	Residential	8	5@7D, then 3@14D	20	fl oz/ac	0.000312	No	Backpack Sprayer	5
FF-04	GF-120-Naturalyte Fruit Fly Bait*	Production Ag (Fruit Fly)	8	5@7D, then 3@14D	20	fl oz/ac	0.000312	No	Aerial	10
FF-05	GF-120-Naturalyte Fruit Fly Bait*	Production Ag (Fruit Fly)	8	5@7D, then 3@14D	20	fl oz/ac	0.000312	No	Backpack Sprayer	10
FF-06	Malathion 8 Aquamul	Residential	8	10 days	2.8	fl oz/ac	0.175	No	Backpack Sprayer	5
FF-07	Malathion 8 Aquamul	Production Ag (Fruit Fly)	8	10 days	2.8	fl oz/ac	0.175	No	Backpack Sprayer	10
FF-08	Malathion 8 Aquamul	Production Ag (Fruit Fly)	8	10 days	2.8	fl oz/ac	0.175	No	Aerial	10

Ecological Modeling Assumptions

- Water Concentrations (USEPA PE5)
  - Movement to Farm Pond
    - one-hectare body of water (2.47 acres)
    - 2.00 meters (6.56 feet) deep
    - 20,000 cubic meters (706,293 cubic feet)
  - Quantify Aerial Drift
  - Qualitatively discuss Movement Across Soil Buffer

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Ecological Modeling Assumptions

- Aquatic Prey (USEPA KABAM)
  - Uptake from Water Based on K_{ow}
- Terrestrial Prey
  - Tissue Concentration equal Concentration in Diet
- Soil Concentration
  - Simple Dilution into upper 15 cm (6 in.)
    - Drench Application → Full Rate
    - Foliar Application → Reduced Rate

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Ecological Modeling Assumptions

- Terrestrial Plants
  - Deposition to Plant Surface (USEPA T-REX)
    - Linear Residue Change with Rate
  - Uptake from Soil Based on K_{ow}
- Pollen & Nectar
  - Equivalent to Terrestrial Plants

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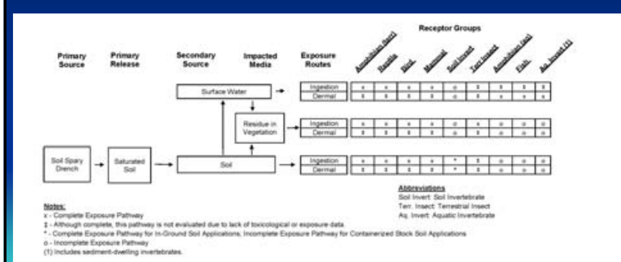
Fruit Fly--Ecological Risk

Conceptual Site Model

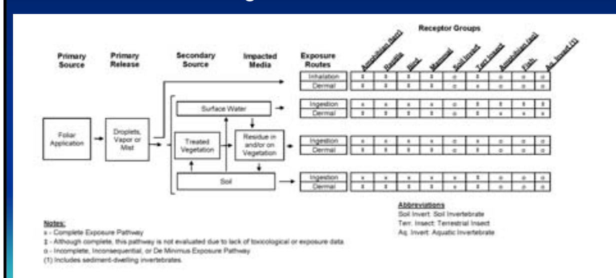
Nursery



Fruit Fly--Ecological Risk

Conceptual Site Model

Production Ag and Rural Residential



CDFA Statewide Pest Prevention Program EIR
CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

Human Exposure Assumptions

Mixer-Loader-Applicator

Acute

- Based on amount handled per day (no exposure time in calculation but assumed to be working 8 hours/day)
- OPHED Dermal (diazinon):
  - Mixer-Loader – Liquid - Dermal - Engineering control (closed loading system) *
  - MLA, Manually-pressurized Handwand - Double layer clothes, gloves
- OPHED Inhalation (diazinon):
  - Mixer-Loader - Liquid - Inhalation - Engineering control (closed loading system) *
  - MLA, Manually-pressurized Handwand - PF5

Chronic

EF = # apps/year (days/year) ED = 40 years AT = 40 years

*Mixer-Loader exposure provided for informational purposes; not added to MLA exposure

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Human Exposure Assumptions

Post-Application-Worker

Dermal vegetation, Dermal soil, Incidental ingestion from vegetation, Incidental ingestion of soil, and Inhalation traps/lures

Acute

- Exposure for a single days work
- USEPA ExpoSAC Tc = 1400 (harvesting hand)
- Pesticide retained to foliage = 80% (PE5)
- Dissipation fraction from foliage = 0
- Same day as application
- Exposure time = 8 hours/day
- Constant exposure to trap/lure entire work day, every day trap is in place
- Inhalation rate = 0.834 m3/hour (DTSC, 2011)
- Exposed surface area = 0.131 cm2/event (95th percentile Hand- EFH, 2011)
- Hand-to-mouth transfer factor = 0.159 (Kissel et al., 1998)

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Human Exposure Assumptions

Post-Application-Worker

Dermal vegetation, Dermal soil, Incidental ingestion from vegetation, Incidental ingestion of soil, and Inhalation traps/lures

Chronic

- EF = # apps/year (days/year)
- ED = 40 years
- AT = 40 years
- Trap/Lure EF = Reapplications/year x Reapplication interval (days/year)

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Human Exposure Assumptions

Post-Application-Loader

Dermal vegetation, Dermal soil

Acute

- Exposure for a single days work
- USEPA ExpoSAC Tc = 100 (orchard maintenance)
- Pesticide retained to foliage = 60% (PE5)
- Dissipation fraction from foliage = 0
- Same day as application
- Exposure time = 1 hour/day
- Exposed surface area = 0.0262 cm2/event (1/5 of 95th percentile hand – EFH, 2011)

Chronic

EF = # apps/year ED = 40 years AT = 40 years

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CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

Human Exposure Assumptions

Combined-Nursery-Worker

Mixes/loads pesticide, applies pesticide, and loads transport containers (MLA + PAL)

Sum of MLA risk and PAL risk

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Human Exposure Assumptions

Adult and Child Downwind-Bystander

Inhalation, Dermal for aerial and airblast treatments

25 feet away from application

Acute

- Flagger used as surrogate
- AgDRIFT 2.1.1 used to estimate fraction off-site drift 25 feet from application
- OPHED Dermal: Flagger - Liquids - Single layer clothes, no gloves
- OPHED Inhalation: Flagger - Liquids - No respirator

Chronic

EF = # apps/year ED = 40 years AT = 40 years

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Human Exposure Assumptions

Adult Post-Application-Resident

Acute

- Dermal soil - USEPA Lawns/Turf SOP standard values
- Dermal vegetation - USEPA Gardens/Trees SOP standard values
- Edible vegetation ingestion – USEPA RAGS
  - Single day exposure
  - Ingestion Rate = 0.57 g/kg-day (EFH, 2011)
  - USEPA TREX used to calculate EEC
- Inhalation trap/lure (USEPA RAGS)
  - Single day exposure
  - Exposure Time = 16 hours/day
  - Inhalation Rate = 0.834 m3/hour

Chronic

EF = # apps/year ED = 24 years AT = 24 years

Trap/Lure EF = Refreshes per year x Refresh interval (days/year)

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Human Exposure Assumptions

Child Post-Application-Resident

Age: 2 - <16 years old *

Acute

- Dermal soil - USEPA Lawns/Turf SOP standard values
- Dermal vegetation - USEPA Gardens/Trees SOP standard values
- Incidental ingestion soil – USEPA Lawns/Turf SOP standard values
- Incidental ingestion veg – USEPA Lawns/Turf SOP standard values
  - Exposure factors for child age 3 to <6 years old
- Edible vegetation ingestion – USEPA RAGS
  - Single day exposure
  - Ingestion Rate = 2.5 g/kg-day (EFH, 2011)
  - USEPA TREX used to calculate EEC
- Inhalation trap/lure (USEPA RAGS)
  - Single day exposure
  - Exposure Time = 16 hours/day
  - Inhalation Rate = 0.4167 m3/hour

*Infant: age 0 - <2 years old (de minimis exposure)

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July 31, 2013

Human Exposure Assumptions

Child Post-Application-Resident

Age: 2 - <16 years old

Chronic

- EF = # apps/year
- ED = 14 years
- AT = 14 years

- Trap/Lure EF = Refreshes per year x Refresh interval (days/year)

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Human Exposure Assumptions

Adult During-and-Post-Application-Resident

- Sum of Adult PAR risk and Adult DWB risk

Child During-and-Post-Application-Resident

- Sum of Child PAR risk and Child DWB risk

Aggregate Adult and Child During-and-Post-Application-Resident

Individual who grows from childhood to adulthood

- Assessed from age 0 to 40 years old for cancer risk only
- Sum of Adult DPAR cancer risk and Child DPAR cancer risk

EF = # apps/year
ED = 2 years (infant); 14 years (child); 24 years (adult)
AT = 70 year lifetime
Age-Dependent-Potency Factor = 3 (applied from age 2-<16 years)(USEPA)

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Human Exposure Assumptions

Fumigation-Worker

Acute

- Single day exposure
- Exposure time = 1 hour/day
- Inhalation Rate = 0.834 m3/hour
- Breathing-Zone Air Concentrations taken from CDPR, 2002 study

Chronic

- ET = 8 hours/day
- EF = # apps/year
- ED = 40 years
- AT = 40 years

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Human Exposure Assumptions

Fumigation-Downwind-Bystander

- Methods Pending

Post-Transfer-Worker

- Methyl bromide residue levels obtained from CDPR, 2002 RCD

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CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

Fruit Fly Human Conceptual Site Model (CSM)
Residential

Primary Source: Sprayers (Backpack) → Primary Release: Droplets, Vapor or Mist → Secondary Source: Treated Vegetation

Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Air	Dermal	O	X	O	O	O	O
Air	Inhalation	X	X	O	O	X	X
Soil	Dermal	O	O	X	X	X	X
Soil	Incidental Ingestion	O	O	O	X	O	X
Ornamental Vegetation	Dermal	O	X	X	X	X	X
Ornamental Vegetation	Hand-to-Mouth	O	O	O	X	O	X
Edible Vegetation	Dermal	O	X	X	X	X	X
Edible Vegetation	Hand-to-Mouth	O	O	O	X	O	X
Edible Vegetation	Intentional Ingestion	O	O	X	X	X	X

General Notes:
CSM is for Fruit Fly applications that take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Fruit Fly Human Conceptual Site Model (CSM)
Production Agriculture

Primary Source: Sprayers (Backpack & Aerial) → Primary Release: Droplets, Vapor or Mist → Secondary Source: Treated Vegetation

Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Worker (PAW)
Air	Dermal	X (b)	X	O
Air	Inhalation	X	X	O
Soil	Dermal	O	O	X
Soil	Incidental Ingestion	O	O	X
Edible Vegetation	Dermal	O	X (c)	X
Edible Vegetation	Hand-to-Mouth	O	O	O
Edible Vegetation	Intentional Ingestion	O	O	O

General Notes:
CSM is for Fruit Fly applications that take place in agricultural environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.
(b) Exposure to DWB limited to aerial applications.
(c) Aerial MLA receptors do not have a complete exposure pathway.

Fruit Fly Human Conceptual Site Model (CSM)
Nursery

Primary Source: Spray Drench → Primary Release: Large Droplets → Secondary Source: Treated Vegetation

Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Air	Dermal	O	X	O	X
Air	Inhalation	O	X	O	X
Soil	Dermal	O	O	X	X
Soil	Incidental Ingestion	O	O	O	O
Ornamental Vegetation	Dermal	O	O	O	O
Ornamental Vegetation	Hand-to-Mouth	O	O	O	O
Edible Vegetation	Dermal	O	O	O	O
Edible Vegetation	Hand-to-Mouth	O	O	O	O
Edible Vegetation	Intentional Ingestion	O	O	O	O

General Notes:
CSM is for Fruit Fly applications that take place in nursery environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No exposure was evaluated for the post-purchase consumer to treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Fruit Fly Human Conceptual Site Model (CSM)
Fumigation

Primary Source: Fumigation Chamber → Primary Release: Plant Offgassing

Primary Release	Impacted Media	Exposure Routes	Fumigation Downwind Bystander (FDWB)	Fumigation Worker (FUW)	Post-Transfer Worker (PTW)
	Air	Dermal	O	O	O
	Air	Inhalation	X	X	O
Plant Offgassing	Air	Inhalation	O	O	X

General Notes:
CSM is for Fruit Fly - Fumigation applications take place in shipping, packaging, and transport environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants.

The Horizon Team
Blankinship & Associates, Inc.

CDFA Statewide Pest Prevention Program EIR
CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

Fruit Fly Risk Results
Human Summary
Diazinon

Mixer-Loader		
Acute MOE (unitless)		
Dermal	Inhalation	Summed
9.30E+02	8.39E+02	4.41E+02
Applicator		
Acute MOE (unitless)		
Dermal	Inhalation	Summed
2.19E+01	1.16E+01	7.59E+00

- Chronic or cancer assessment deemed non-applicable

Diazinon Human Risk Assessment Methods Comparison

Parameter	Statewide	USEPA RED (2006)	DPR RCD
Exposure Data	OPHED (2013)	PHED (v1.1)	(a)
Endpoints	Dermal: NOAEL = 1 mg/kg-day Inhalation: LOAEL = 0.026 mg/kg-day	Dermal: NOAEL = 1 mg/kg-day Inhalation: LOAEL = 0.026 mg/kg-day	(a)
Target MOEs and Adjustment Factors	Dermal: Target MOE ≥ 100 Inhalation: LOAEL → NOAEL: 3x Target MOE ≥ 100	Dermal: Target MOE ≥ 100 Inhalation: Target MOE ≥ 300 (b)	(a)
Application Rate	SLN (5 lb/ac)	Label Rates (0.5 - 4 lb/acre)	(a)
Acres Treated	2 ac/day	40-350 ac/day	(a)
Application Methods	Soil drench using manually pressurized handgun (c)	Aerial, Groundboom, Airblast, Tractor drawn spreader (granules) (d)	(a)
PPE	Diazinon AG 500 label requirements: Respirator PF5, Double-layer Clothes w/Gloves, closed mixing/loading system	Engineering controls for all scenarios, Double layer clothing and gloves and/or a dust/mist respirator, closed mixing-loading systems for liquids and granulars (e)	(a)
Work Hours	8 hr/day	8 hr/day	(a)

Specific Notes:
(a) DPR is currently in the process of conducting a risk assessment for diazinon
(b) The target MOE was adjusted by a factor of 3 (100 →300) to account for the LOAEL → NOAEL adjustment factor. This is mathematically equivalent to the adjustments made in the Statewide risk assessment.
(c) OPHED values for manually pressurized handwand are used.
(d) Based on the use patterns and potential exposures at the time, these major occupational exposure scenarios for agricultural uses were identified in the USEPA RED (2006) to represent the extent of diazinon uses.
(e) The scenarios presented in the RED are only for engineering controls because risk estimates were unacceptable with maximum PPE.
Abbreviations:
OPHED - Occupational Pesticide Handler Exposure Database
PHED - Pesticide Handler Exposure Database
SLN - Special Local Needs

Diazinon – Statewide Program

- Product: Diazinon AG 500
- Used in the Fruit Fly program
- Nursery applications only
- Applied via **Drench Hudson Sprayer**
  - PHED equivalent: Manually Pressurized Handgun
- Application Rate: **5 lb a.i./acre**
- Application Interval: **3 applications 14 days apart**
- Detailed in: Special Local Need (Section 24(c)) Label

Diazinon Application Rate Comparisons

- **Special Local Needs (SLN) Label**
  - 5 lb a.i./acre
- **Diazinon AG 500 Label**
  - Cherry Fruit Fly: 2 lb a.i./acre
  - Almond Pests: 3 lb a.i./acre
- **U.S. EPA RED for Diazinon (2006)**
  - Evaluated a maximum of 4 lb a.i./acre

The Horizon Team
Blankinship & Associates, Inc.

CDFA Statewide Pest Prevention Program EIR
CDFA/DPR Meeting Debrief & Fruit Fly Risk Assessment Review Meeting
July 31, 2013

USEPA RED Risk Assessment for Diazinon

- **RED did not evaluate chronic risk**
  - USEPA: "no uses of diazinon would result in chronic exposures (more than 180 days)."
- **RED application methods evaluated:**
  - Aerial
  - Groundboom
  - Airblast
  - Tractor drawn spreader (granules)
- **All RED scenarios utilized engineering controls**
  - Closed mixing/loading systems for liquids and granulars and enclosed cabs/trucks
- **All RED risk estimates were unacceptable with PPE**
  - Includes double layer clothing and gloves and/or a dust/mist respirator

USEPA RED Risk Assessment for Diazinon

- **Toxicity Endpoints**
  - Dermal
    - NOAEL = 1 mg/kg-day
    - Effect: Significant serum and brain cholinesterase inhibition
    - Target MOE ≥ 100
  - Inhalation
    - LOAEL = 0.026 mg/kg-day
    - Effect: Significant serum and RBC cholinesterase inhibition
    - Target MOE ≥ 300
      - x3 LOAEL → NOAEL adjustment factor
- **SLN use canceled and then retained**
  - SLN registration for drenching of residential fruit trees for control of the Mediterranean Fruit Fly was initially canceled by the IRED (2002) but then retained in the RED (2006).

Table 6. Agricultural Uses: Remaining Risk Concerns (combined dermal & inhalation MOEs) with Engineering Controls.

Crop	App. Rate (lb ai/A)	Acres treated	Application method / formulation	Short-Term ARI Mixer/Loader	Short-Term ARI Applicator	Dermal MOE Mixer-Loader/Applicator	Inhalation MOE Mixer-Loader/Applicator
Almonds	3.00	350	aerial / liquid	0.042	0.052	8.6 / 14.3	55.7 / 87.5
		40	airblast / liquid	0.43	0.082	74.8 / 34.1	**306** / 119
		350	aerial / WP	0.026	0.052	7.40 / 14.3	21.24 / 87.5
		40	airblast / WP	0.23	0.082	46 / 34.1	107.1 / 119
Apples Pears	2.00	350	aerial / WP	0.040	0.15	11 / 22	18.7 / 133
		40	airblast / WP	0.33	0.27	97.9 / 50.6	161.5 / 178.5
Apricots Nectarines Peaches Plums Prunes Walnuts	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 38
		40	airblast / liquid	0.64	0.27	**118** / 50.6	**459** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 38
		40	airblast / WP	0.33	0.27	97.9 / 50.6	161.5 / 178.5
Beets (red) Onions Spinach	3	350	aerial / liquid	0.30	0.59	51.7 / 88	221 / **525**
		80	groundboom / liquid	**1.29**	**2.97**	**226 / 303**	**935 / 3850**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **525**
		80	groundboom / WP	0.70	**2.97**	**198 / 303**	**323 / 3850**
	4	80	tractor-drawn spreader / granular	0.90	0.24	**1430 / 121**	289 / 91
Blackberries Boysenberries Dewberries Loganberries Raspberries Cherries (sweet)	2.00	350	aerial / liquid	0.075	0.15	13.2 / 22	52.7 / 133
		40	airblast / liquid	0.64	0.12	**118** / 50.6	**459** / 178.5
		350	aerial / WP	0.040	0.15	11 / 22	18.7 / 133
		40	airblast / WP	0.33	0.12	97.9 / 50.6	161.5 / 178.5
Blueberries Grapes Hops	1.00	350	aerial / liquid	0.15	0.29	25.3 / 44	107.1 / 126.6
		40	airblast / liquid	**1.29**	0.54	**226 / 101.2**	**935 / 359**
		350	aerial / WP	0.080	0.29	22 / 44	37.4 / 126.6
		40	airblast / WP	0.70	0.54	**198 / 101.2**	**323 / 359**
Broccoli Brussels Sprouts Cabbage	3	350	aerial / liquid	0.30	0.59	51.7 / 88	221 / **525**
		80	groundboom / liquid	**1.29**	**2.97**	**226 / 303**	**935 / 3850**
		350	aerial / WP	0.16	0.59	45.1 / 88	73.1 / **525**
		80	groundboom / WP	0.70	**2.97**	**198 / 303**	**323 / 3850**
	3	80	tractor drawn spreader / granular	**1.17**	0.32	**1870 / 156**	**376** / 119

Acceptable Risk: Highlight & Bold

Unacceptable Risk: All Other

Source: U.S. Environmental Protection Agency (USEPA) Diazinon RED, 2006. (page 1/3)

The End

- Additional Q&A
- Actions
- Next Meeting: August 22, 2013
- Adjourn

The Horizon Team
Blankinship & Associates, Inc.

Conceptual Site Model (CSM) for Fruit Fly - Residential Human Health Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Adult Post-Application Resident (PAR)	Child Post-Application Resident (PAR)	Adult During & Post-Application Residents (DPAR)	Child During & Post-Application Residents (DPAR)
Sprayers (Backpack)			Air	Dermal	O	X	O	O	O	O
				Inhalation	X	X	O	O	X	X
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X	X	X	X
				Incidental Ingestion	O	O	O	X	O	X
		Treated Vegetation	Ornamental Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
			Edible Vegetation	Dermal	O	X	X	X	X	X
				Hand-to-Mouth	O	O	O	X	O	X
				Intentional Ingestion	O	O	X	X	X	X

Receptor Groups

General Notes:
CSM is for Fruit Fly applications that take place in residential environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants in nursery.
Specific Notes:
(a) Exposure to MLA includes exposure to the product itself during handling.

Conceptual Site Model (CSM) for Fruit Fly - Residential Human Health Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Downwind Bystander (DWB)	Receptor Groups: Mixer/ Loader/Applicator (MLA) (a)	Receptor Groups: Post-Application Worker (PAW)
Sprayers (Backpack & Aerial)			Air	Dermal	X (b)	X	O
				Inhalation	X	X	O
	Droplets, Vapor or Mist		Soil	Dermal	O	O	X
				Incidental Ingestion	O	O	X
		Treated Vegetation	Edible Vegetation	Dermal	O	X (c)	X
				Hand-to-Mouth	O	O	O
				Intentional Ingestion	O	O	O

General Notes:

CSM is for Fruit Fly applications that take place in agricultural environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No consumer exposure was evaluated post-purchase of treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

(b) Exposure to DWB limited to aerial applications.

(c) Aerial MLA receptors do not have a complete exposure pathway.

Conceptual Site Model (CSM) for Fruit Fly - Residential Human Health Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Downwind Bystander (DWB)	Mixer/ Loader/Applicator (MLA) (a)	Post-Application Loader (PAL)	Combined Nursery Worker (CNW)
Spray Drench			Air	Dermal	O	X	O	X
				Inhalation	O	X	O	X
	Large Droplets		Soil	Dermal	O	O	X	X
				Incidental Ingestion	O	O	O	O
		Treated Vegetation	Ornamental Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
			Edible Vegetation	Dermal	O	O	O	O
				Hand-to-Mouth	O	O	O	O
				Intentional Ingestion	O	O	O	O

Receptor Groups: Downwind Bystander (DWB); Mixer/Loader/Applicator (MLA) (a); Post-Application Loader (PAL); Combined Nursery Worker (CNW)

General Notes:

CSM is for Fruit Fly applications that take place in nursery environments.

X - Complete Exposure Pathway

O - Incomplete, Inconsequential, or De Minimis Exposure Pathway

No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.

Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.

No exposure was evaluated for the post-purchase consumer to treated plants in nursery.

Specific Notes:

(a) Exposure to MLA includes exposure to the product itself during handling.

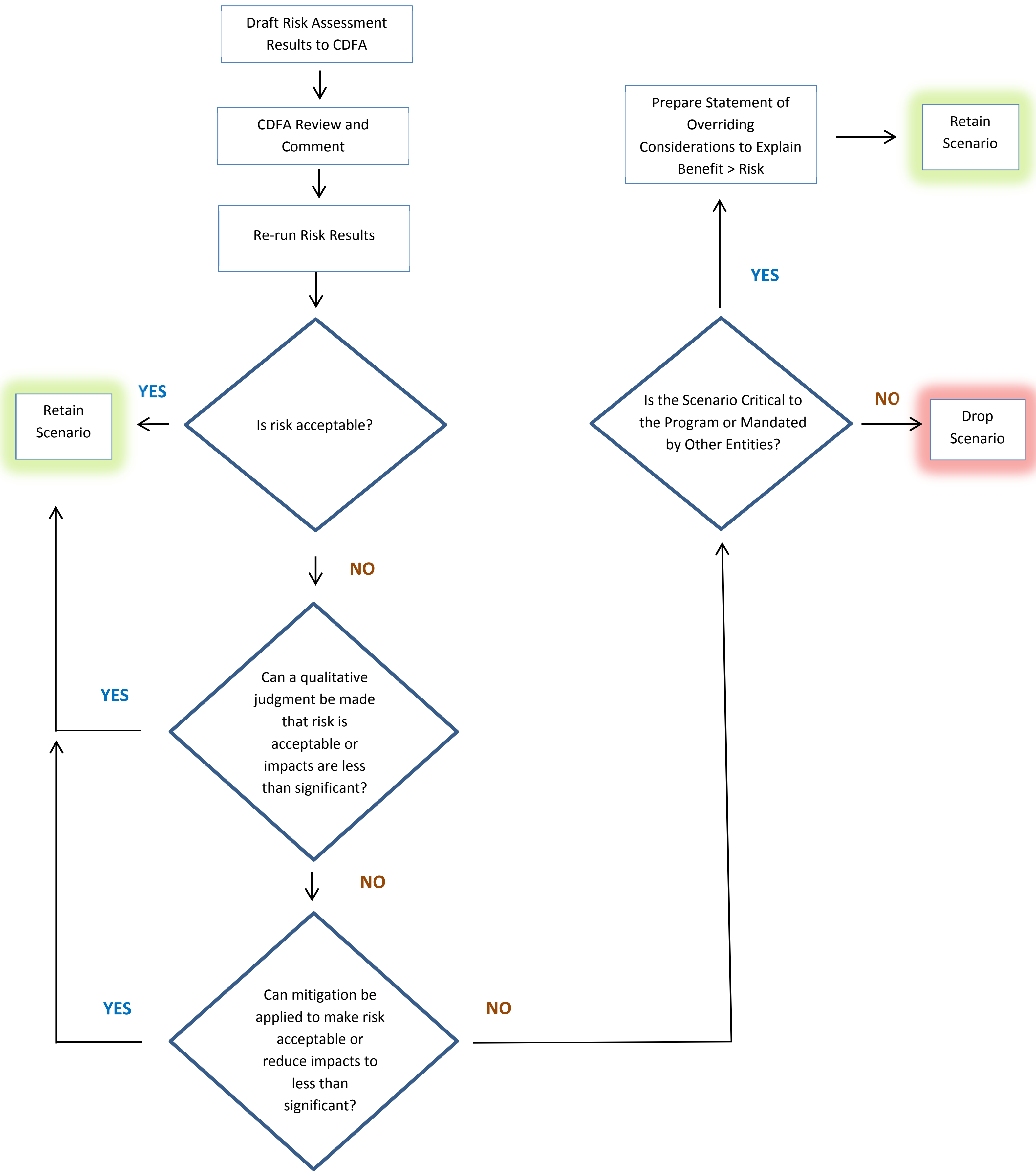
Conceptual Site Model (CSM) for Fruit Fly - Residential Human Health Risk Assessment

Primary Source	Primary Release	Secondary Source	Impacted Media	Exposure Routes	Receptor Groups: Fumigation Downwind Bystander (FDWB)	Fumigation Worker (FUW)	Post-Transfer Worker (PTW)
Fumigation Chamber			Air	Dermal	O	O	O
				Inhalation	X	X	O
	Plant Offgassing		Air	Inhalation	O	O	X

General Notes:

CSM is for Fruit Fly - Fumigation applications take place in shipping, packaging, and transport environments.
X - Complete Exposure Pathway
O - Incomplete, Inconsequential, or De Minimis Exposure Pathway
No exposure to pesticides or inert ingredients considered via ingestion of drinking water due to data showing the absence of these pesticides in surface and groundwater.
Worker exposure scenarios assume that all appropriate personal protective equipment (PPE) is worn according to the product label.
No consumer exposure was evaluated post-purchase of treated plants.

Draft
CDFA Risk Evaluation Decision Tree
(Revised 8/8/13)



Date	CDFA Gets Draft Risk Results (1)	CDFA Completes Review and Returns Comments (2)	Program(s)	Joint CDFA/OEHHA/DPR Meeting (duration)
< 8/12/13	X		FF, ACP	
< 8/15/13		X	“	
8/22/13			“	X (2 Hours)
< 9/23/13	X		PDCP	
< 9/26/13		X	“	
10/3/13			“	X (2 Hours)
< 11/4/13	X		EGVM, LBAM, PDEP, IPC	
< 11/7/13		X	“	
11/21/13			“	X (3 Hours)

Notes:

(1) Base scenario risk will be estimated using PMDS and scenario information supplied by CDFA. Risk estimated as unacceptable will be summarized in tables by scenario showing receptor(s) and associated risk magnitude(s). If apparent, we may identify and implement mitigation(s) and present risk results of this modified scenario.

(2) Comments must identify change(s) in base or modified scenario application rate, material or method. Once received, we will re-run and prepare final risk results.

Meeting Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting Status Meeting Notes
August 22, 2013, 2- 4 pm

The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting

Attendees:

CDFA: Laura Petro

OEHHA: David Ting, Anna Fan

DPR: Sheryl Beauvais, Jay Schreider, Yuzhou Luo, Dave Kim

Horizon: Michael Stevenson, Marisa Mitchell, Joe Sullivan, Greg Gorder, Stephen Burkholder, Ryan Beil, David Bonnar, Sidney Asercion, Lindsey Curley, Judy Zaninovich

Attachments:

- Agenda
- Attendee List
- Meeting Presentation

Notes:

- **Meeting hand outs are large (> 250 pages) and can be provided on request**
- **VFS-MOD**
  - o Model was used in lieu of a literature search. It is more flexible; literature is too site specific and difficult to use for specific CDFA scenario.
  - o Yuzhou: Agrees that this is a legitimate model for purposes of this project.
  - o David B: The VFSMod model reports the % reduction of a chemical, not the resulting concentration after it passes through/over a buffer.
  - o After explanation of the VFSMod model, the group discussed the merits of the model v. the use of literature values. Because literature values are highly variable or may not be available, use of the literature will be limited. The model provides consistency and continuity and as a result is preferred.
  - o Joe: EPA doesn't model buffer strips. Although Dirk Young (U.S. Environmental Protection Agency) doesn't endorse the model, he mentioned it as a buffer strip model approach.
- **Plant Off-gassing Model (POM)**
  - o Laura: Will find the amount of basil leaves that are actually being fumigated. Also agreed that it takes one hour to unload and put on fork lift.
  - o Sheryl: The fumigant builds up in commodity. Commodities that are being fumigated are often in air tight containers which would probably mean they are refrigerated.

- Laura: Peppers are the commodity in the current fruit fly quarantine program in Anaheim. Not sure if they are refrigerated. She will need to check the quarantine program.
- The model for PTW assumes a cargo container that is not air tight. Check whether commodities such as fruit from the fruit fly program would be transported in a refrigerated truck thus reducing the air exchange during transport.
- Sheryl: Chloropicrin is not a commodity fumigation. Brom-O-Gas MSDS shouldn't contain chloropicirin if used for commodity fumigation.
- Laura: Regarding the use of Brom-O-Gas, she will check on the label for the current Fruit Fly Program. It should be a Q label.
- Laura will also check on use of refrigerated trucks and related air turn-over

- **CDFA Feedback and Group Discussion**
  - The group had a general discussion. Topics included: quarantine as being a subset of treatments and DPR brought up the issue that these should probably be short-term exposures. DPR suggested a rationale by RA toxicologists be included to provide support for any refinements in these program scenarios.
  - Need to reconsider when chronic assessment is done. If only sporadic short-term exposures occur, do not need to conduct chronic assessment.
  - No chronic exposure is expected to occur for use of methyl bromide in programs.
  - A rationale should be provided to support the number of fumigations that would occur within any program.
  - Laura: The worst case scenario for exposure duration for a fumigation worker is 20 years under a CDFA quarantine program. Support for the 20 year exposure duration includes: Fumigations don't typically occur every year, are often a last resort approach and quarantines don't last for a year or occur every year.
  - Sheryl: Because the exposure duration is deviating from what's standard in risk assessment, the RA team needs to gather as much evidence as possible to support the claim that 20 years is the longest for a fumigation worker doing work in compliance with a quarantine.
  - Greg: In the Hot Spots Program, 25 years is used for occupational exposure.
  - David T: Hot Spot information is used more as a surrogate, and is not specific. To find the parameters and how much you can reduce from the standard, it depends on the nature of the job and model as a whole.
  - David discussed the use of the 20-25 year exposure duration and the group agreed that this was an appropriate estimate as the nature of the job reflects that quarantines are a subset of every day fumigation and not the standard.
  - Laura: It is highly likely that more than one person is doing the same treatment. Large production nurseries have more than one person.
  - Group discussed uncertainties associated with the relationship of methyl bromide concentration and the distance from chamber.
- **Risk being shown from Tombstone**
  - Laura stated that including the recommendation that higher protection PPE may reduce the risk as reflected by preliminary analysis may not always be possible as CDFA is not a regulatory agency and can't enforce more than what is required by law. CDFA may suggest BMPs for nursery workers but the better approach would be to refine the conservative estimates at the field level.
  - Sheryl: You need the ability to specify the PPEs and BMPs.
  - Is there another Tombstone product that does not contain naphthalene?
  - Because this product contains other ingredients besides naphthalene, DPR will find out the % of naphthalene. Since the % of naphthalene is proprietary information, they will find out how much they can tell the risk team about the % in the product.

- **Assessing Fumigation**
    - For fumigation exposures, the FF exposure is 1 for 30 days (subchronic exposure) and ACP-16 scenario does not have a subchronic exposure.
    - Regarding Fumigation Challenges slide, methyl bromide quarantine is different from regular label applications.
    - Regarding Maximum Methyl Bromide Air Concentration From Various Commodity Fumigations Table, need to ask Randy Segawa if the concentration data are before or since the risk assessment and mitigations.
    - Chloropicrin has a 1-hour exposure value because it is an irritant.
    - DPR has developed mitigations to keep concentration at 210 ppb or below.
    - Although not in CDPR Risk Assessment, the 210 ppb value IS based on mitigation and not on empirical data.
    - The 210 exposure for MeBr is a 24 hr time-weighted average. If exposure is only for 4 hour, it sounds like that might allow for the assumed exposure to be averaged over 24 hrs.
    - David T: There may be an issue with the FDWB and FUW.
    - Greg: How far is methyl bromide releases from the chamber?
    - Joe: Height of stack is dependent on chamber.
    - Ryan: FUW and FDWB have same EEC but different exposure time.
    - Sheryl: Assume no protection from structure for FDWB or FUW.
    - David T: Not appropriate to use maximum concentration from Randy Segawa slide for subchronic and chronic exposure because of different meteorological factors such as wind variation.
- **Additional Miscellaneous Notes**
    - For chronic risk assessment, need to take into account whether or not the effects are cumulative or do the effects go away?
    - Sheryl: Diazinon contains naphthalene according to label.
    - Laura: Alternative methods of pouring diazinon instead of backpack sprayer is not likely to work as CDFA is not a regulatory agency and can't require a nursery to change standard lawful business practices. CDFA must assume that nurseries are using a backpack sprayer as required by law and it is incumbent upon the user to follow all label directions when using any of the products listed below for quarantine certification purposes.
    - Laura: there may not be an opportunity for additional meetings or discussions with DPR outside of the hexaweekly meetings.
    - Greg indicated that his co-workers may be able to provide MSDS guidance; RE: % composition, etc. He will evaluate the Tombstone MSDS and report back.

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Fruit Fly and Asian Citrus Psyllid Risk Results Review Meeting Agenda

Date: August 22, 2013 Time: 2-4 PM
CalEPA Building, Conference Room 450, Sacramento
(Mtg Room Contact: Leslie Reed at 916-445-3984 or 916 445-5000)

Conference Call #: 1-866-796-8081; Passcode 8025803

Invited Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Robert Leavitt, Nick Condos, Michele Dias
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais, Yuzhou Luo
Horizon:	Michael Stevenson, Marisa Mitchell, Mike Blankinship, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In and Introductions (Laura, Joe; 5 min)
II. **Topic #1:** Fruit Fly and ACP Human Health Risk Review (All: 40 min)
III. **Topic #2:** Fruit Fly and ACP EcoRisk Review (All: 40 min)
IV. **Topic #3:** Changes Since 6/19/13 Meeting (Risk Team: 20 min)
V. Questions Actions and Adjourn (All; 15 min)

Note: For those not attending in person, a WebEX on-line meeting invitation has been sent to you. Meeting # 197 314 460

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Thursday August 22, 2013 2-4 PM
CalEPA Bldg, Conference Room 350, Sacramento (Mtg Rm Contact: Leslie Reed, DPR (916) 445-3984)

Name	Affiliation	Email
David Bonnar	Blankinship & Associates	David@h2osci.com
Greg Gorder	TSG	ggorder@tsgusa.com
Stephen Burkholder	Blankinship & Assoc.	stephen@h2osci.com
Ryan Beil	"	Ryan@h2osci.com
Joe Sullivan	Harden Consulting	birdfox1@cardenas.com
LAURA PETRO	CDFA	Laura.Petro@CDFA.CA.gov
Michael Stevenson	Horizon	michael@horizonwater.com
Marisa Mitchell	Horizon	marisa@horizonh2o.com
Jay Schreider	DPR	jschreider@cal.net
Judy Zaninovich (WebEx)		
Yuzhou Luo (WebEx)		
Dave Kim (WebEx)		
Sidney (phone)		
Anna Fan (WebEx w David Ting)		
David Ting		
Sheryl Beauvais	DPR	sbeauvais@cdpr.ca.gov
Lindsey Curley (phone)		

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Fruit Fly & Asian Citrus Psyllid Review Meeting

Thursday August 22, 2013

Bactrocera cucurbitae

Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- May 30, 2013
- ~~July 11, 2013~~
- August 22, 2013
- October 3, 2013
- November 21, 2013

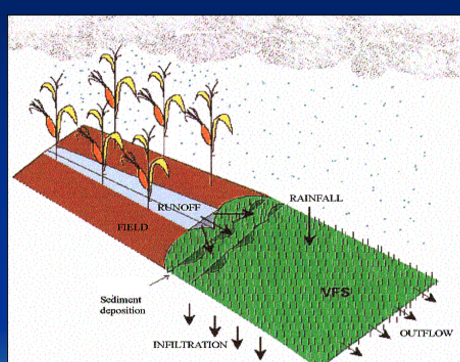
The Horizon Team
Blankinship & Associates, Inc.

Agenda

I. Welcome, Sign-In (Laura, Joe; 5 min)
II. Topic #1: Updates Since 6/19 (Risk Team: 20 min)
   I. VFSMOD-W (Soil Buffer Strips)
   II. Plant Off-gassing Model
   III. Scenario Refinements Following Preliminary
   IV. AnalysesInterpretation of Risk Numbers
III. Fruit Fly and ACP Human Health Risk Review (All: 60 min)
IV. Topic #2: Fruit Fly and ACP EcoRisk Review (All: 20 min)
V. Questions, Actions & Adjourn (All: 15 min)

VFSMOD-W

Vegetative Filter Strip Modeling System



Answers the Question:

"How effectively do soil buffers reduce pesticide transport into the environment?"

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VFSMOD-W
Vegetative Filter Strip Modeling System

- What it does:
  - Simulates hydrology, sediment and pollutant transport through vegetative filter strips (i.e. soil buffers).
  - Predicts pesticide reductions (%) across buffer strip.
- What it does *not* do:
  - Simulate aerial transport of pesticide.
    - AgDRIFT is used to simulate spray drift of pesticide.
  - Model multiple pesticide applications

VFSMOD-W
Vegetative Filter Strip Modeling System

- Why VFSMOD-W?
  - Has been tested in a variety of settings with good model predictions against measured buffer trapping efficiency for pesticides.
  - Allows the user to model the site-specific conditions and a greater variety of chemicals
    - Literature values may not be representative of the actual project site conditions or available at all

VFSMOD-W
Vegetative Filter Strip Modeling System

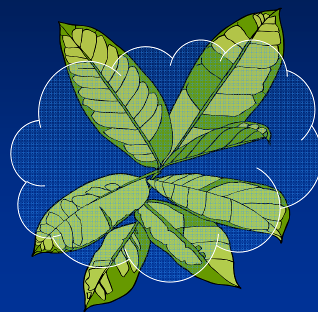
- Limitations:
  1. Accumulation of contaminants in the buffer is not considered.
     - None of the independent variables in the regression equation reflect the effects of continuous operation.
  2. Field dissipations are not considered
     - No metabolism, volatilization, soil photolysis, hydrolysis, etc.

Both limitations are two sides of the same coin
- No accumulation ( ) or degradation ( )

VFSMOD-W
Vegetative Filter Strip Modeling System

- Modeling a Nursery
  - Nursery buffer strips assumed “unvegetated”
    - **Problem:** VFSMOD does not allow the user to remove plants from buffer strip
    - **Solution:** Minimize the impact of plants by decreasing the height of plants to 0.1 cm and increase the spacing between plants to 1m.
    - **Effect:** Buffer effectiveness is reduced substantially compared to vegetated buffers (e.g. >80% reductions with vegetation to <40% reduction without)

Plant Off-gassing Model (POM)



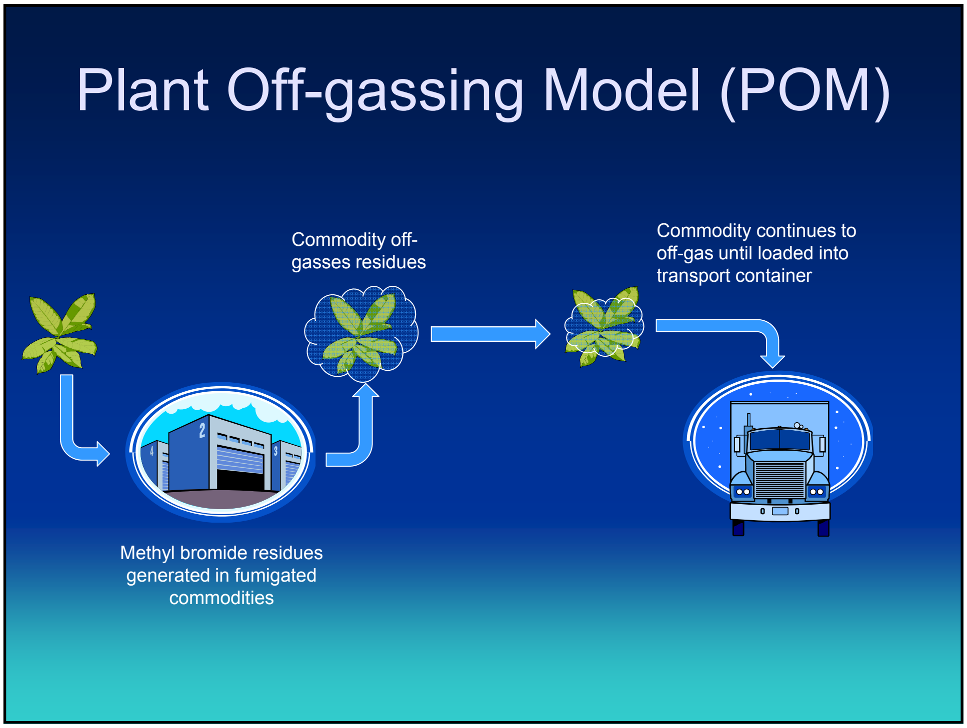
- Calculates the Estimated Exposure Concentration (EEC) used to estimate Post-Transfer Worker (PTW) exposure.

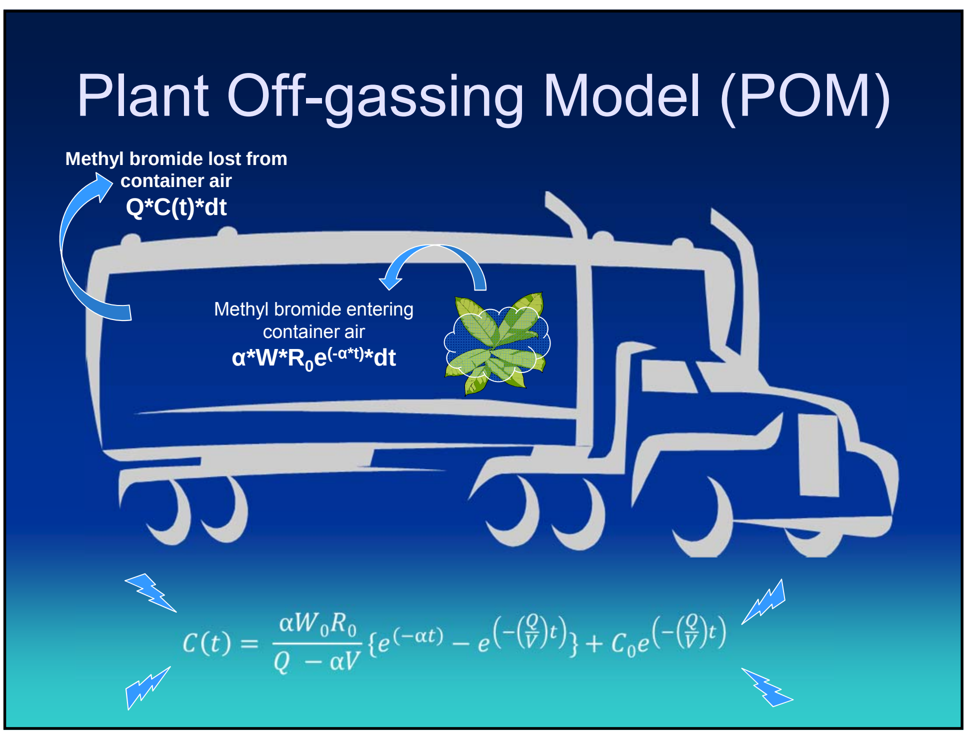
Post-Transfer Worker (PTW) Recap

- The PTW is a worker employed at a post-transfer receiving facility who may be exposed to fumigant that has off-gassed from treated commodity during transport.

The Horizon Team
Blankinship & Associates, Inc.

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
August 22, 2013





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Plant Off-gassing Model (POM)

Post-Transfer Worker (PTW) Inhalation Exposure

Variable	Unit	Value	Description	Formula	Specific Notes
W	kg	907	Total weight of commodity fumigated	-	
R_0	mg/kg	2.2	Methyl bromide residue levels in commodity at time of sampling (may be sampled during or after aeration period)	-	
λ_{MB}	hr	40.8	Methyl bromide residue half-life in commodity	-	(a)
TL	hr	1	Time period between when methyl bromide residue level (R_0) was sampled and when commodity is loaded into post-fumigation transport container	-	
TT	hr	8	Transit duration for transport container containing treated commodity.	-	
VT	m^3	38.5	Volume of post-fumigation commodity transport container	-	
n	hr^{-1}	26.2	Air exchange rate in transport container.	-	(b)
α	hr^{-1}	0.016989	Per hour release rate from commodity	$\alpha = \ln(2)/\lambda_{mb}$	
Q	m^3/hr	1008.7	Air flow through transport container	Q = n*VT	
M_0	mg	1995	Total mass of methyl bromide in commodity at time of sampling	$M_0 = (W)*(R_0)$	
M(TL)	mg	1962	Total mass of methyl bromide in commodity immediately after loading into post-fumigation transport container	$M(TL) = (M_0)*e^{(-\alpha*TL)}$	
C_{mb}	**mg/m^3**	**0.029**	**Post-transport methyl bromide air concentration in transport container.**	$C_{mb} = [\alpha*M(TL)/(Q-\alpha*V)]*[e^{(-\alpha*TT)}-e^{(-n*TT)}]$	**(c)**
C_{cp}	**mg/m^3**	**5.89E-04**	**Post-transport chloropicrin air concentration in transport container.**	$C_{cp}=C_{mb}*(2/98)$	**(d)**
C_{dme}	**mg/m^3**	**5.80E-05**	**Post-transport dimethyl ether air concentration in transport container.**	$C_{dme}=C_{mb}*(0.2/99.6)$	**(e)**
C_{mc}	**mg/m^3**	**5.80E-05**	**Post-transport methyl chloride air concentration in transport container.**	$C_{mc}=C_{mb}*(0.2/99.6)$	**(e)**

Plant Off-gassing Model (POM)

- Assumptions and Inputs
  - W_0 – Weight of commodity fumigated
    - 1 ton (907 kg)
  - R_0 – Methyl bromide residue in commodity at time of sampling
    - 2.2 mg/kg
      - Methyl bromide residue measured in basil leaves (CDPR, 2002)
  - λ – Methyl bromide residue half-life
    - 40.8 hr
      - Methyl bromide residue half-life for basil leaves (CDPR, 2002)

California Department of Pesticide Regulation (CDPR). 2002. Methyl bromide risk characterization document, volume I, inhalation exposure: Attachment C. Medical Toxicology Branch. Sacramento, CA. 403 pp. Available http://www.cdpr.ca.gov/docs/emon/methbrom/rafnl/attach_c.pdf

Plant Off-gassing Model (POM)

- Assumptions and Inputs (cont.)
  - TL – Time period between when methyl bromide residue levels (R_0) was sampled and when commodity is loaded into post-fumigation transport container.
    - 1 hr
  - TT – Transport duration for transport container containing treated commodity
    - 8 hr

Plant Off-gassing Model (POM)

- Assumptions and Inputs (cont.)
  - VT – Volume of post-fumigation commodity transport container
    - 38.5 m^3
    - Volume of a standard intermodal transport container (20x8x8 ft^3)
  - n – Air exchange rate in transport container
    - 26.2 hr^{-1}
    - The air exchange rate in a moving truck (Bethke et al., 2012)

Bethke, J., T. Goedecke, and W. Jahnke. 2012. Permeation through plastic dangerous goods packaging during transport in freight containers - Detection of potentially explosive mixtures in containers under normal conditions of carriage. *Packaging Technology and Science* 26: 1-15

Plant Off-gassing Model (POM)

- Other fumigant components
  - Brom-O-Gas
    - 98% methyl bromide; 2% chloropicrin
  - Meth-O-Gas Q
    - 99.6% methyl bromide; 0.2% dimethyl ether; 0.2% methyl chloride

- Due to lack of chemical specific data, the concentration of the other fumigants are assumed to be proportional to methyl bromide at the same ratio found in the product.

Plant Off-gassing Model (POM)

- PROPORTIONALITY EXAMPLE:
  - Brom-O-Gas: 98% methyl bromide; 2% chloropicrin
  - C_{MB} = 1 mg/m^3
  - $C_{CP} = C_{MB}$*(2/98)
  - C_{CP} = 0.0204 mg/m^3

Scenario Refinements Following Preliminary Analyses

CDFA Feedback

Fruit Fly Scenarios

FF-01 (Brom-O-Gas)

Parameter	Reasoning	Suggested Change*
Fumigations/year (exp. freq.)	Max of 1 app/day for 30 days/year	365 apps/year → 30 apps/year
Exposure Time	FDWB: 4 hours/day (fumigation/aeration) FUW: 1 hour/day (opening container & unloading)	24 hours/day → 4 hours/day 24 hours/day →1 hour/day
FDWB & FUW calculations	Calculations should be different between the two receptors because exposure times are different	Assume same exposure for FDWB & FUW → Adjust calculations for specific exposure times
Exposure Duration	CDFA worker career length is more realistically 20 years long	40 years → 20 years
*If we change certain parameters, we will no longer be mirroring CDPR's MeBr RCD risk assessment		

FDWB = Fumigation Downwind Bystander
FUW = Fumigation Worker

FF-02 (Diazinon AG500)

Parameter	Reasoning	Suggested Change
Acres Treated per Day	10,000 ft2 (0.23 acres) is realistic treatment area	2 acres/day → 0.23 acres/day
Exposure Duration	CDFA worker career length is more realistically 20 years long	40 years → 20 years

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CDFA Feedback

Asian Citrus Psyllid Scenarios

ACP-16 (Meth-O-Gas Q)

Parameter	Reasoning	Suggested Change*
Fumigations/year (exp. freq.)	Max of 17-24 apps/year (1 fumigation every 2-3 weeks)	365 apps/year → 24 apps/year
Exposure Time	FDWB: 4 hours/day (fumigation/aeration) FUW: 1 hour/day (opening container & unloading)	24 hours/day → 4 hours/day 24 hours/day → 1 hour/day
FDWB & FUW calculations	Calculations should be different between the two receptors because exposure times are different	Assume same exposure for FDWB & FUW → Adjust calculations for specific exposure times
Exposure Duration	CDFA worker career length is more realistically 20 years long	40 years → 20 years
*If we change certain parameters, we will no longer be mirroring CDPR's MeBr RCD risk assessment		

ACP-24 (Sevin SL)

Parameter	Reasoning	Suggested Change
Apps per year (exp. freq.)	Willing to reduce # apps/year to no risk level (Sevin SL has more restrictions so is less popular)	150 apps/year → __* apps/year
Exposure Duration	CDFA worker career length is more realistically 20 years long	40 years → 20 years
*Number of apps/year to show no risk depends on change to exposure duration		

CDFA Feedback

Asian Citrus Psyllid Scenarios

ACP-27 (Tombstone)

Parameter	Reasoning	Suggested Change
Apps per year (exp. freq.)	Hesitant to reduce # apps/year; try PPE increases or equipment change to reduce risk (Tombstone more popular product)	No respirator → Respirator PF5 150 apps/year → __* apps/year
Exposure Duration	CDFA worker career length is more realistically 20 years long	40 years → 20 years
*Number of apps/year to show no risk depends on change to exposure duration		

Interpretation of Risk Numbers

Human

- Non-Cancer Risk is estimated by the Margin of Exposure (MOE)
- $MOE = \frac{\text{Benchmark Dose}}{\text{Exposure Dose}}$
  - ➢ MOE < 100 ☹
- Cancer risk is estimated by calculating an excess lifetime cancer risk
  - ➢ Cancer risk > 1 x 10^{-6} ☹

Ecological

- Risk is estimated by the Risk Quotient (RQ)
- $RQ = \frac{\text{Estimated Exposure}}{\text{Toxic Reference Value}}$
  - ➢ For standard species
    - RQ > 1.0 ☹
  - ➢ For special status species
    - RQ > 0.5 ☹

Fruit Fly and ACP Human Health Risk Review

CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
August 22, 2013

Human Risk Results
FF-01 Acute Risk Summary

FF-01 - Brom-O-Gas		Fumigation-Worker FUW	Fumigation Downwind-Bystander FDWB	Post-Transfer-Worker PTW
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide	☺	☺	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☹	☹	☺
20-year career; 3-year program	Methyl Bromide	☺	☺	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☹	☹	☺
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide	☺	☺	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☺	☺	☺

Key:

☺	Probable Acceptable Risk
☹	Possibility of Unacceptable Risk
	N/A

Human Risk Results
FF-01 Acute Risk Details

FF-01 - Brom-O-Gas		Fumigation-Worker FUW	Fumigation Downwind-Bystander FDWB	Post-Transfer-Worker PTW
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide	1.00E+02	1.00E+02	3.02E+02
	chloropicrin	1.49E+02	1.49E+02	4.51E+02
	Summed Chemicals	5.99E+01	5.99E+01	1.81E+02
20-year career; 3-year program	Methyl Bromide	1.00E+02	1.00E+02	6.78E+04
	chloropicrin	1.49E+02	1.49E+02	1.01E+05
	Summed Chemicals	5.99E+01	5.99E+01	4.06E+04
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide	8.00E+02	2.00E+02	6.78E+04
	chloropicrin	1.19E+03	2.98E+02	1.01E+05
	Summed Chemicals	4.79E+02	1.20E+02	4.06E+04

Notes:
If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

The Horizon Team
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Human Risk Results
FF-01 Chronic Risk Summary

FF-01 - Brom-O-Gas		Fumigation-Worker FUW	Fumigation Downwind-Bystander FDWB	Post-Transfer-Worker PTW
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide	☹	☹	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☹	☹	☺
20-year career; 3-year program	Methyl Bromide	☹	☹	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☹	☹	☺
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide	☹	☹	☺
	chloropicrin	☺	☺	☺
	Summed Chemicals	☹	☹	☺

Key:

☺	Probable Acceptable Risk
☹	Possibility of Unacceptable Risk
	N/A

Human Risk Results
FF-01 Chronic Risk Details

FF-01 - Brom-O-Gas		Fumigation-Worker FUW	Fumigation Downwind-Bystander FDWB	Post-Transfer-Worker PTW
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide	2.30E+00	2.30E+00	8.31E+04
	chloropicrin	1.22E+02	1.22E+02	4.41E+06
	Summed Chemicals	2.26E+00	2.26E+00	8.16E+04
20-year career; 3-year program	Methyl Bromide	2.30E+00	2.30E+00	6.39E+02
	chloropicrin	1.22E+02	1.22E+02	3.39E+04
	Summed Chemicals	2.26E+00	2.26E+00	6.27E+02
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide	1.84E+01	4.60E+00	6.39E+02
	chloropicrin	9.76E+02	2.44E+02	3.39E+04
	Summed Chemicals	1.81E+01	4.51E+00	6.27E+02

Notes:
If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

Proposed Mitigation: 365 apps/year → 30 apps/year

The Horizon Team
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CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
August 22, 2013

Human Risk Results

FF-01 Cancer Risk Summary

FF-01 - Brom-O-Gas		Fumigation-Worker **FUW**	Fumigation Downwind-Bystander **FDWB**	Post-Transfer-Worker **PTW**
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide			
	chloropicrin	☹	☹	☺
	Summed Chemicals	☹	☹	☺
20-year career; 3-year program	Methyl Bromide			
	chloropicrin	☹	☹	☹
	Summed Chemicals	☹	☹	☹
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide			
	chloropicrin	☹	☹	☹
	Summed Chemicals	☹	☹	☹

Key:

☺	Probable Acceptable Risk
☹	Possibility of Unacceptable Risk
	N/A

Human Risk Results

FF-01 Cancer Risk Details

FF-01 - Brom-O-Gas		Fumigation-Worker **FUW**	Fumigation Downwind-Bystander **FDWB**	Post-Transfer-Worker **PTW**
Run	Ingredient	Inhalation	Inhalation	Inhalation
Base Run 40-year career; 40-year program	Methyl Bromide			
	chloropicrin	1.71E-03	1.71E-03	4.74E-08
	Summed Chemicals	1.71E-03	1.71E-03	4.74E-08
20-year career; 3-year program	Methyl Bromide			
	chloropicrin	8.57E-04	1.71E-03	3.09E-06
	Summed Chemicals	8.57E-04	1.71E-03	3.09E-06
1-hour worker shift; 4-hour downwind bystander exposure	Methyl Bromide			
	chloropicrin	1.07E-04	8.57E-04	3.09E-06
	Summed Chemicals	1.07E-04	8.57E-04	3.09E-06

Notes:
A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Proposed Mitigation: 365 apps/year → 30 apps/year

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Fumigation Challenges

- **Methyl Bromide is Not Alone**
  - Meth-O-Gas Q: 99.6% Methyl bromide, 0.2% dimethyl ether, 0.2% methyl chloride
  - Brom-O-Gas: 98% Methyl bromide, 2% chloropicrin
  - Issue: Potential risk is due not just to MB
- **For Fumigation Chambers**
  - Does fumigation worker need mitigation?
  - What is the downwind bystander exposure?

Fumigation Worker Exposure

Table 25. Margins of exposure for occupational exposures to methyl bromide in commodity fumigation.[a]

Type of Application	n[b]	Acute	Short-term	Subchronic	Chronic
a. Greenhouse potting soil- hot gas method					
Tarp ventor	4	100	>100000	n/a	n/a
Tarp remover	4	100	85714	n/a	n/a
b. Fumigation of grain products					
Aerator (sea container/trailer)	3	100	27907	667	667
Aerator (tarp)	3	100	>100000	20000	20000
Forklift driver (container/trailer)	3	100	1091	25	25
Forklift driver (chamber)	3	100	3000	67	67
c. Fumigation of dried fruit and tree nut products					
1. Raisins					
Fumigator	2	100	222	5	8
Aerator	2	100	300	6	11
Clear chamber	0	100	67	1	2
Stem picker	2	100	500	10	17
Forklift driver	1	100	4000	100	200
Hopper operator	1	100	750	15	25

Source: DPR Methyl Bromide RCD Vol. I Inhalation Exposure- February 14, 2002

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Downwind Bystander Exposure

Fumigation Chamber

Fumigation Worker (FUW)

Downwind Bystander (DWB)

1. Concentration v. Distance/Time Relation ?
2. FUW = DWB?
3. Models (AERSCREEN)?
4. Data (DPR 2002)?

Table H2. Maximum methyl bromide air concentration from various commodity fumigations.

Type	Study ID	Date	Volume (ft^3)	Aeration method	Total MeBr (lbs)	Max conc. and distance from source (ppm)[a]	Furthest measured conc. (ppm)
Chamber	Segawa et al, 1992	5/21/92	21,280	Stack	64	0.235 for 30 min at 108m	same
Chamber	Segawa et al, 1992	6/1/92	16,000	Stack	50	1.005 for 5 min at 75m	0.031 for 5 min at 125m
Chamber	Segawa et al, 1992	6/5/92	14,000	Stack	30	0.786 for 5 min at 52m	0.11 for 5 min at 250m
Chamber	Segawa et al, 1992	6/23/92	16,000	Stack	50	0.012 for 5 min at 152m	same
Chamber	Segawa et al, 1992	6/25/92	18,000	Stack	45	6.79 for 5 min at 116m	0.375 for 5 min at 152m
Chamber	Radian Corp., 1992	8/11/92 8/17/92	15,000	Stack	12	1.8 for 120 min at 2m (fumigation)	0.10 for 15 min 50m
Chamber (2)	Wofford and Segawa, 1997	10/23/96	11,000 11,970	Stack	22 32	0.228 for 12 hr at 12m (fumigation)	0.009 for 12 hr at 22m (fumigation)

For distances at roughly 100 m from the chamber at 5 min, wide variability in maximum concentration.

Source: DPR Attachment H, 2002

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CDFA Statewide Pest Prevention Program EIR
Joint OEHHA/DPR Risk Assessment
Fruit Fly Dashboard Review Meeting
August 22, 2013

Human Risk Results
FF-02 Acute Risk Summary

FF-02 - Diazinon AG500		Applicator A			Mixer-Loader-Applicator MLA			Combined Nursery Worker CNW		
Run	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Base Run 40-year career; 40-year program	diazinon	☹	☹	☹	☹	☹	☹	☹	☹	☹
	Xylenes	☺	☺	☺	☺	☺	☺	☺	☺	☺
	1,2,4-Trimethylbenzene	☺	☺	☺	☺	☺	☺	☺	☺	☺
	Summed Chemicals	☹	☹	☹	☹	☹	☹	☹	☹	☹
20-year career; 3-year program	diazinon	☹	☹	☹	☹	☹	☹	☹	☹	☹
	Xylenes	☺	☺	☺	☺	☺	☺	☺	☺	☺
	1,2,4-Trimethylbenzene	☺	☺	☺	☺	☺	☺	☺	☺	☺
	Summed Chemicals	☹	☹	☹	☹	☹	☹	☹	☹	☹
0.23 acres/day; 20-year career; 3-year program	diazinon	☺	☺	☹	☺	☺	☹	☺	☺	☹
	Xylenes	☺	☺	☺	☺	☺	☺	☺	☺	☺
	1,2,4-Trimethylbenzene	☺	☺	☺	☺	☺	☺	☺	☺	☺
	Summed Chemicals	☺	☺	☹	☺	☺	☹	☺	☺	☹

Key:

☺	Probable Acceptable Risk
☹	Possibility of Unacceptable Risk
	N/A

Human Risk Results
FF-02 Acute Risk Details

FF-02 - Diazinon AG500		Applicator A			Mixer-Loader-Applicator MLA			Combined Nursery Worker CNW		
Run	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Base Run 40-year career; 40-year program	diazinon	2.19E+01	1.16E+01	7.59E+00	2.19E+01	1.16E+01	7.59E+00	2.19E+01	1.16E+01	7.59E+00
	Xylenes	2.92E+04	6.82E+05	2.80E+04	2.92E+04	6.82E+05	2.80E+04	2.92E+04	6.82E+05	2.80E+04
	1,2,4-Trimethylbenzene	1.91E+04	5.26E+04	1.40E+04	1.91E+04	5.26E+04	1.40E+04	1.91E+04	5.26E+04	1.40E+04
	Summed Chemicals	2.19E+01	1.16E+01	7.58E+00	2.19E+01	1.16E+01	7.58E+00	2.19E+01	1.16E+01	7.58E+00
20-year career; 3-year program	diazinon	2.19E+01	1.16E+01	7.59E+00	2.19E+01	1.16E+01	7.59E+00	2.19E+01	1.16E+01	7.59E+00
	Xylenes	2.92E+04	6.82E+05	2.80E+04	2.92E+04	6.82E+05	2.80E+04	2.92E+04	6.82E+05	2.80E+04
	1,2,4-Trimethylbenzene	1.91E+04	5.26E+04	1.40E+04	1.91E+04	5.26E+04	1.40E+04	1.91E+04	5.26E+04	1.40E+04
	Summed Chemicals	2.19E+01	1.16E+01	7.58E+00	2.19E+01	1.16E+01	7.58E+00	2.19E+01	1.16E+01	7.58E+00
0.23 acres/day; 20-year career; 3-year program	diazinon	1.91E+02	1.01E+02	6.60E+01	1.91E+02	1.01E+02	6.60E+01	1.91E+02	1.01E+02	6.60E+01
	Xylenes	1.66E+05	4.57E+05	1.22E+05	1.66E+05	4.57E+05	1.22E+05	1.66E+05	4.57E+05	1.22E+05
	1,2,4-Trimethylbenzene	2.54E+05	5.93E+06	2.43E+05	2.54E+05	5.93E+06	2.43E+05	2.54E+05	5.93E+06	2.43E+05
	Summed Chemicals	1.90E+02	1.01E+02	6.59E+01	1.90E+02	1.01E+02	6.59E+01	1.90E+02	1.01E+02	6.59E+01

Notes:
If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

The Horizon Team
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Human Risk Results

ACP-01-27 Cancer Risk Summary

ACP-01-27 - Admire Pro (Drench) & Tombstone (Foliar)		Mixer-Loader-Applicator MLA			Combined Nursery Worker CNW		
Run	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Base Run 40-year career; 40-year program	Imidacloprid						
	cyfluthrin						
	Naphthalene		☹	☹		☹	☹
	Summed Chemicals		☹	☹		☹	☹
20-year career; 3-year program	Imidacloprid						
	cyfluthrin						
	Naphthalene		☹	☹		☹	☹
	Summed Chemicals		☹	☹		☹	☹

Key:

☺	Probable Acceptable Risk
☹	Possibility of Unacceptable Risk
	N/A

Human Risk Results

ACP-01-27 Cancer Risk Details

ACP-01-27 - Admire Pro (Drench) & Tombstone (Foliar)		Mixer-Loader-Applicator MLA			Combined Nursery Worker CNW		
Run	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Base Run 40-year career; 40-year program	Imidacloprid						
	cyfluthrin						
	Naphthalene		3.18E-06	3.18E-06		3.18E-06	3.18E-06
	Summed Chemicals		3.18E-06	3.18E-06		3.18E-06	3.18E-06
20-year career; 3-year program	Imidacloprid						
	cyfluthrin						
	Naphthalene		1.59E-06	1.59E-06		1.59E-06	1.59E-06
	Summed Chemicals		1.59E-06	1.59E-06		1.59E-06	1.59E-06

Notes:

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Proposed Mitigation: No respirator → Respirator PF5

Fruit Fly and ACP EcoRisk Review

Application FF-02
Diazinon AG 500—Drench

Acute Risk Results

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
FF-02 (2 acres)	10% Leach to Native Soil	All Species	☺ 0.00	☺ 0.05	☹ **73.50**	☺ 0.16	☹ **76.04**	☹ **1177.36**	☹ **33.65**	☹ **54.65**	☹ **153.41**
		T&E Species	☺	☺	☹	☺	☹	☹	☹	NA	☹
	25 feet to Terrestrial Habitat; No Water Residues	All Species			☺ 0.00		☺ 0.63	☹ **9.77**	☺ 0.28	☹ **21.74**	☹ **1.27**
		T&E Species			☺		☹	☹	☺	NA	☹
FF-02 (0.23 acres)	10% Leach to Native Soil	All Species	☺ 0.00	☺ 0.05	☹ **8.18**	☺ 0.02	☹ **76.04**	☹ **1177.36**	☹ **33.65**	☹ **54.65**	☹ **153.41**
		T&E Species	☺	☺	☹	☺	☹	☹	☹	NA	☹
	25 feet to Terrestrial Habitat; No Water Residues	All Species			☺ 0.00		☺ 0.63	☹ **9.77**	☺ 0.28	☹ **21.74**	☹ **1.27**
		T&E Species			☺		☹	☹	☺	NA	☹

The Horizon Team
Blankinship & Associates, Inc.

Application FF-02
Diazinon AG 500—Drench

Chronic Risk Results (Mid-point AUF)

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
FF-02 (2 acres)	10% Leach to Native Soil	All Species	☺ 0.01	☺ 0.9	☹ 580.99	☹ 17.54	☹ 1180.67	☹ 9632.25	☹ 792.82	☺ 0.49
		T&E Species	☺	☺	☹	☹	☹	☹	☹	NA
	No Water Residues	All Species			☺ 0.00	☺ 0.00	☹ 9.80	☹ 79.88	☹ 3.86	
		T&E Species			☺	☺	☹	☹	☹	
FF-02 (0.23 acres)	10% Leach to Native Soil	All Species	☺ 0.00	☺ 0.05	☹ 64.63	☺ 0.02	☹ 1074.67	☹ 9294.20	☹ 462.74	☺ 0.49
		T&E Species	☺	☺	☹	☺	☹	☹	☹	NA
	No Water Residues	All Species			☺ 0.00	☺ 0.00	☹ 8.92	☹ 77.16	☹ 3.84	
		T&E Species			☺	☺	☹	☹	☹	

VFSMOD-W
Reduction Across Buffer

Chemical	K_{oc}	Reduction Across Buffer
Cyfluthrin	1.90E+04	40.07%
Malathion	1.06E+03	39.84%
Diazinon	8.86E+02	39.79%
Dinotefuran	3.14E+01	36.40%

WARNING: Froude number greater than 2
WARNING: Top of vegetation reached - trapezoidal wedge starts
WARNING : Strip filled up!

The Horizon Team
Blankinship & Associates, Inc.

Application FF-08
Malathion 8 Aquamul—Aerial

Acute Risk Results

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
FF-08	Base Scenario	All Species	☺ 0.16	☺ 0.05	☹ **8.71**	☹ **7.84**	☺ 0.05	☺ 0.52	☹ **67.60**	☹ **228.46**	☹ **38.18**
		T&E Species	☺	☺	☹	☹	☺	☹	☹	NA	☹
	25 feet to Terrestrial Habitat and Surface Water	All Species			☹ **8.62**	☹ **7.76**		0.40	☹ **53.71**	☹ **1.90**	☺ 0.32
		T&E Species			☹	☹		☺	☹	NA	☺
	25 feet to Terrestrial Habitat; No Water Residues	All Species			☺ 0.00	☺ 0.00			☺ 0.56	☹ **1.90**	
		T&E Species			☺	☺			☹	NA	

Application FF-08
Malathion 8 Aquamul—Aerial

Chronic Risk Results (Mid-point AUF)

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
FF-08	Base Scenario	All Species	☺ 0.23	☺ 0.23	☹ **3.16**	☹ **1.52**	☺ 0.18	☹ **2.13**	☹ **39.56**	☺ 0.17
		T&E Species	☺	☺	☹	☹	☺	☹	☹	NA
	25 feet to Terrestrial Habitat and Surface Water	All Species			☹ **2.48**	☹ **1.00**		☺ 0.95	☹ **5.01**	
		T&E Species			☹	☹		☹	☹	
	25 feet to Terrestrial Habitat; No Water Residues	All Species			☺ 0.00	☺ 0.00		0.02	☺ 0.33	
		T&E Species			☺	☺		☺	☹	

The Horizon Team
Blankinship & Associates, Inc.

Drift Reduction

Drift Setting	Application Efficiency	Spray Drift	AgDRIFT Details
Ground, 25 ft Buffer	0.996	0.003	Low Boom, ASAE Fine to Medium/Coarse
Ground, 50 ft Buffer	0.996	0.002	Low Boom, ASAE Fine to Medium/Coarse
Ground, 100 ft Buffer	0.996	0.001	Low Boom, ASAE Fine to Medium/Coarse
Ground, 150 ft Buffer	0.996	0.001	Low Boom, ASAE Fine to Medium/Coarse
Aerial, 25 ft Buffer	0.950	0.025	All default values
Aerial, 50 ft Buffer	0.950	0.015	All default values
Aerial, 100 ft Buffer	0.950	0.008	All default values
Aerial, 150 ft Buffer	0.950	0.006	All default values
Airblast, 25 ft Buffer	0.980	0.007	Dense (Citrus, Tall Trees)
Airblast, 50 ft Buffer	0.980	0.005	Dense (Citrus, Tall Trees)
Airblast, 100 ft Buffer	0.980	0.003	Dense (Citrus, Tall Trees)
Airblast, 150 ft Buffer	0.980	0.002	Dense (Citrus, Tall Trees)

Application ACP-20-27 Safari 20 SG—Drench Tombstone—Backpack Sprayer

Acute Risk Results

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
ACP-20-27	Base Scenario	All Species	☺ 0.77	☹ **1.36**	☹ **652.31**	☹ **1.34**	☹ **1679**	☹ **79.51**	☹ **4603**	☹ **20.74**	☹ **165.91**
		T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
	25 feet to Terrestrial Habitat and Surface Water	All Species	☺ 0.52	☹ 0.88	☹ **432.05**	☹ **1.08**	☹ **1103**	☹ **52.30**	☹ **3023**	☺ 0.07	☹ **60.39**
		T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
	25 feet to Terrestrial Habitat; No Water Residues	All Species	0.00	☺ 0.00	☺ 0.00	☺ 0.00	☺ 0.01	☺ 0.01	☺ 0.15		☹ **60.39**
		T&E Species	☺	☺	☺	☺	☺	☺	☺		☹

The Horizon Team
Blankinship & Associates, Inc.

Application ACP-20-27 Safari 20 SG—Drench Tombstone—Backpack Sprayer

Chronic Risk Results (Mid-point AUF)

Scenario	Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
ACP-20-27	Base Scenario	All Species	☹ <u>18.73</u>	☹ <u>17.63</u>	☹ <u>5912.22</u>	☹ <u>22.09</u>	☹ <u>14,558</u>	☹ <u>721.41</u>	☹ <u>20,849</u>	☺ 0.20
		T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
	25 feet to Terrestrial Habitat and Surface Water	All Species	☹ <u>6.80</u>	☹ <u>6.73</u>	☹ <u>2280.60</u>	☹ <u>9.13</u>	☹ <u>5606.41</u>	☹ <u>278.35</u>	☹ <u>8031</u>	
		T&E Species	☹	☹	☹	☹	☹	☹	☹	
	25 feet to Terrestrial Habitat; No Water Residues	All Species	☺ 0.00	☺ 0.01	☺ 0.00	☺ 0.00	☺ 0.10	☺ 0.06	☺ 0.84	
		T&E Species	☺	☺	☺	☺	☺	☺	☹	

The End

- Additional Q&A
- Actions
- Next Meeting: October 3, 2013
- Adjourn

The Horizon Team
Blankinship & Associates, Inc.

Meeting Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting
October 3, 2013, 2-4 PM, DPR Room 450

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Nick Condos, Sara Khalid, Sean Veling, Stacie Oswalt

OEHHA: Regina Linville, David Ting

DPR: Jay Schreider, Randy Segawa, Dave Kim

Horizon: Michael Stevenson, Marisa Mitchell

Blankinship: Mike Blankinship, Stephen Burkholder, Ryan Beil, David Bonnar, Joe Sullivan (Ardea Consulting), Brad Sample (Ecological Risk, Inc.), Scott Dwyer (Kleinfelder)

Attachments:

- Agenda
- Attendee List
- Meeting Presentation

Notes:

Topic #1: PDCP Human Risk Review

PDCP-02 Risk Results and Reductions

- Options for adjusting MOE:
  - Qualitatively assess – RA assumptions are conservative so risk is over-estimated
  - Require double-layer-clothes/Tyvek (Laura P. suggested that CDFA may use Tyveks). Additional clarity is needed on actual BMPs used
- Jay S.: Be careful when assuming that employees wear double-layer clothes all the time because it may not necessarily be true. If it's hot outside, workers may take off the extra layer of clothing.

- David B.: 50 acre/day treatment at a high application rate is a large driving force for the risk
- Laura P.: Will check to see if acres treated per day can be lowered from 50 acres/day
- Jay S.: If MOE is just below target level then the exposure assessment should be refined to be less conservative and more realistic. Occupational assessments give more flexibility and control with exposure adjustments than general population assessments. Give reasoning for why MOE is an over-estimate.
    - In this case, you can do both a quantitative and qualitative assessment of risk
- Dermal absorption factor for imidacloprid could be adjusted down from 100%
- Risk team should review the dermal NOAEL for imidacloprid to see if it can be refined

PDCP-35 Risk Results and Reductions

- Laura P.: CDFA contracted workers will not be wearing respirators in a residential setting if not required by the product label.
- Sheryl B. may have information about transfer of pesticide residues when dry vs. when wet. Risk team to contact her.
- David T.: Possibly try doing a reality check. Use own soil concentration, transfer factor, surface area, etc. and see how results compare to USEPA SOP. DTSC may have resources for soil to skin exposure assessment
- David K.: A turf-model is not a good representation of soil drench. DPR has soil concentrations available for ACP drench applications, but not soil injection.
    - Randy S will send information for soil concentrations
- The purpose of soil drench is to get the pesticide underneath the top layer of soil so not all of the application will be available for transfer
    - Search for a more accurate residential transfer coefficient
- OPHED gives the same exposure values for drench and foliar applications using a mechanically-pressurized handgun
    - Termiticide injection OPHED value may be a closer estimate to a realistic exposure
- Jay S.: For scenarios where it is hard to estimate a realistic exposure, provide the results to an over-exposure and the results to an under-exposure.
    - May not be able to quantify, but can put limits on realistic exposure
- Randy S.: Monitoring soil drench applications would be most accurate
    - Budget and time constraints prevent this
- Laura P.: Will check with PDCP staff on the accuracy of a 15 ac/day application rate

PDCP-44 Risk Results and Reductions

- Changing from a backpack sprayer to a manually-pressurized handgun would reduce the dermal risk
    - Is this change reasonable to assume?
- Randy S. (regarding backpack vs. manually-pressurized handgun): Talk to Sheryl Beauvais about exposure differences in OPHED. May have had issues with backpack sprayers leaking.

Topic #2: PDCP Ecological Risk Review

PDCP-27 Discus Nursery Loading Dock

- Mike B.: Reminded the group that the risk estimation values are different for human than for ecological:
    - Human Risk uses MOEs for non-cancer assessment: the larger the better; typically >100 is a target
    - Human Risk uses Probability for cancer assessment: the smaller the better; typically < 1/1,000,000 (10-6) is a target
    - Ecological Risk uses risk quotients (RQs): the smaller the better:
        - typically less than 1 for non-T&E species is a target
        - typically less than 0.5 for T&E species is a target
- Nursery loading dock is a unique habitat where many ecological receptors may not be present.
- Reggie L.: Using the AUF rather than Mid-Point AUF is more appropriate for nursery scenarios.
    - Midpoint is an overestimate of risk at a loading dock
    - Loading dock assumptions otherwise seem reasonable

PDCP-52 Tempo SC Ultra Residential

- Laura P.:
    - CDFA has BMPs for possible rain events and seasonal stream beds.
    - BMPs require postponement of a treatment event if there is a 50% chance of rain within 48 hrs of the event.
    - BMPs include consideration of site specific situations such as certain sensitive areas.
    - Activities are consistent with USFWS biological opinion
- Michael S.: The PEIR will have a crosswalk table that relates the selected ecological receptor surrogates to other species

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

PDCP Preliminary Risk Results Review Meeting Agenda

Date: October 3, 2013 Time: 2-4 PM
CalEPA Building, Conference Room 450, Sacramento
(Mtg Room Contact: Leslie Reed at 916-445-3984 or 916 445-5000)

Invited Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Nick Condos, Michele Dias
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais, Yuzhou Luo
Horizon:	Michael Stevenson, Marisa Mitchell, Mike Blankinship, Stephen Burkholder, Ryan Beil, David Bonnar, Lindsey Curley, Sidney Asercion, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In and Introductions (Laura; 5 min)
II. **Topic #1:** PDCP Human Risk Review (Mike, Ryan: 40 min)
III. **Topic #2:** PDCP Ecological Risk Review (Joe, Stephen: 40 min)
IV. Follow-up, Planning and Adjourn (All; 15 min)

If you are not able to attend the meeting in-person, please take the following steps to participate:

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1. No less than 10 minutes prior to the meeting, test your browser's ability to use WebEx by going here: http://www.webex.com/test-meeting.html
   a. On the webpage, enter your name and email address, then click "Join"
   b. WebEx will load the necessary software onto your computer. If successful, you will see a screen that says "Congratulations! Your system is now set up properly…"
   c. If you did not see that message, contact Tech Support at 1-866-229-3239
2. To join the WebEx meeting, click on the URL below, or copy and paste it into your browser
   a. https://meetings.webex.com/collabs/#/meetings/detail?uuid=MBU8Z1UZ400WRXT5NA5NY69ONK-BXKJ
   b. At 2:00, click "Join" in the upper right corner of the page
3. If the above is not successful:
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   b. In the Meeting Number box, enter "196535564", and then click "Join".
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Audio By "Conference Calling Center"

1. For the audio portion of the meeting,
   a. Call: 1-866-796-8081
   b. Enter the passcode 8025803
2. At this point, you will be able to speak to the group and listen to the meeting discussion.

cdfa
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 10/3/13 2-4 PM

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc	mike@envtox.com
Ryan Beil	" "	ryan@h2osci.com
Stephen Burkholder	" "	stephen@h2osci.com
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Brad Sample	phone	
Sean Veling	"	
Stacie Oswalt	"	
Dave Kim	"	
Joe Sullivan	Arden Consulting	birdtox1@ardencon.com
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Scott Dwyer	Kleinfelder	
Randy Segawa	DPR	

Horizon

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

Pierce's Disease Control Program Review Meeting

Thursday October 03, 2013

Bactrocera cucurbitae

Overall DPR/OEHHA Meeting Schedule

- November 1, 2012
- December 13, 2012
- January 24, 2013
- March 7, 2013
- April 18, 2013
- May 30, 2013
- July 11, 2013
- August 22, 2013
- October 3, 2013
- November 21, 2013

Agenda

I. Welcome, Sign-In and Introductions (Laura: 5 min)
II. PDCP Human Risk Review (Mike, Ryan: 40 min)
III. PDCP Ecological Risk Review (Joe, Stephen: 40 min)
IV. Follow-up, Planning and Adjourn (All: 15 min)

Human Risk Results

- PDCP-02: Nursery; Soil Injection
- PDCP-35: Residential; Mechanically-pressurized Handgun
- PDCP-44: Residential; Backpack Sprayer

1. Risk results and assumptions made
2. Possible risk reduction adjustments

Human Risk Results

PDCP-02 Risk Results

Scenario	PDCP-02		**A.I. App Rate** (lbs/acre)	5.12
Run	Baseline- Single-LCG, No resp		**Apps per Year**	2
Product	Alias 4F		**Acres per Day**	50
Adjuvant	None		**App Interval** (days)	180
Setting	Large Production Nurseries			
App Method	Soil injection			

		Applicator			Mixer-Loader-Applicator			Combined Nursery Worker		
		A			**MLA**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.76E+01	1.16E+03	9.00E+01
Acute MOE	Summed Chemicals	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.76E+01	1.16E+03	9.00E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Human Risk Results

PDCP-02 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)		Adjustment Needed for acceptable risk
PDCP-02	Alias 4F	imidacloprid	A	Dermal	a.	Qualitatively assess. State that MOE is just below target level and our conservative assessment over-estimates exposure and risk to receptors.
					b.	Single layer clothes -> Double layer clothes

Human Risk Results

PDCP-35 Risk Results

Scenario	PDCP-35	**A.I. App Rate** (lbs/acre)	0.4
Run	Baseline- Single-LCG, No resp; ML WSP	**Apps per Year**	1
Product	Merit 75 WSP	**Acres per Day**	15
Adjuvant	None	**App Interval** (days)	0
Setting	Residential		
App Method	Drench-Mechanically Pressurized Handgun		

		Applicator A			Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	3.84E+02	3.05E+01	2.83E+01	3.84E+02	3.05E+01	2.83E+01
Acute MOE	Summed Chemicals	3.84E+02	3.05E+01	2.83E+01	3.84E+02	3.05E+01	2.83E+01

		Adult Post-Application-Resident Adult PAR				Child Post-Application-Resident Child PAR					
	Ingredient	Soil Dermal	Vegetation Dermal	Edible Vegetation Ingestion	Summed	Soil Dermal	Vegetation Dermal	Incidental Soil Ingestion	Incidental Vegetation Ingestion	Edible Vegetation Ingestion	Summed
Acute MOE	Imidacloprid	6.00E+01		5.26E+04	5.99E+01	4.36E+01		1.93E+06		1.20E+04	4.35E+01
Acute MOE	Summed Chemicals	6.00E+01		5.26E+04	5.99E+01	4.36E+01		1.93E+06		1.20E+04	4.35E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Human Risk Results

PDCP-35 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)		Adjustment Needed for acceptable risk
PDCP-35	Merit 75 WSP	imidacloprid	PAR-Adult PAR-Child	Soil-Dermal	a.	Assume pesticide residue is dry when contacted, therefore dermal transfer is reduced. *Need to estimate percent reduction
					b.	Adult Resident cannot enter area for 5 days Child Resident cannot enter area for 8 days
			Applicator	Inhalation	a.	*OPHED methods does not allow splitting mixing/loading from applicating even though product is mixed/loaded with water-soluble packaging (minimal exposure) *MLA exposure is likely overestimated b/c we assume product mixed/loaded <u>without</u> water-soluble packaging
					b.	Drench-Mechanically Pressurized Handgun -> Drench-Soil Injection *OPHED provides same unit exposure values for drench as foliar. Drench-Soil Injection (OPHED: termiticide injection) may be more representative of a soil directed drench application.
					c.	No repirator -> Respirator PF5

Human Risk Results
PDCP-35 OPHED Limitations

PPE:

- Mixer-Loader: Use water-soluble packaging
- Applicator: Drench applied using a mechanically-pressurized handgun wearing single-layer clothes, gloves and no respirator

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table (OPHED)

Mixer-Loader:

Mixing / Loading Wettable Powders

Inhalation	No Respirator	PHED	"Best fit"	43.4
	PF5 (C)	PHED	"Best fit"	8.68
	PF10 (D)	PHED	"Best fit"	4.34
	Engineering control (water-soluble packaging)	PHED	"Best fit"	0.24

Applicator:

Mixer / Loader / Applicator, Mechanically-pressurized Handgun Sprayer

Inhalation	No Respirator	PHED	"Best fit"	3.9
	PF5 (C)	PHED	"Best fit"	0.78
	PF10 (D)	PHED	"Best fit"	0.39

Mixer-Loader-Applicator: Only uses applicator Unit Exposure because it accounts for mixing-loading as well as applying

Human Risk Results
PDCP-35 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)		Adjustment Needed for acceptable risk
PDCP-35	Merit 75 WSP	imidacloprid	PAR-Adult PAR-Child	Soil-Dermal	a.	Assume pesticide residue is dry when contacted, therefore dermal transfer is reduced. *Need to estimate percent reduction
					b.	Adult Resident cannot enter area for 5 days Child Resident cannot enter area for 8 days
			Applicator	Inhalation	a.	*OPHED methods does not allow splitting mixing/loading from applicating even though product is mixed/loaded with water-soluble packaging (minimal exposure) *MLA exposure is likely overestimated b/c we assume product mixed/loaded without water-soluble packaging
					b.	Drench-Mechanically Pressurized Handgun -> Drench-Soil Injection *OPHED provides same unit exposure values for drench as foliar. Drench-Soil Injection (OPHED: termiticide injection) may be more representative of a soil directed drench application.
					c.	No repirator -> Respirator PF5

Human Risk Results

PDCP-35 OPHED Limitations

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

General Broadcast/Foliar Applications		Dermal	Single layer, no gloves	PHED	"Best fit"	1300
			Single layer, gloves	PHED	"Best fit"	390
			Double layer, gloves (B)	PHED	"Best fit"	290
		Inhalation	No Respirator	PHED	"Best fit"	3.9
			PF5 (C)	PHED	"Best fit"	0.78
			PF10 (D)	PHED	"Best fit"	0.39
Drench/Soil-directed Applications	All formulations, except wettable powders	Dermal	Single layer, no gloves	PHED	"Best fit"	1300
			Single layer, gloves	PHED	"Best fit"	390
			Double layer, gloves (B)	PHED	"Best fit"	290
		Inhalation	No Respirator	PHED	"Best fit"	3.9
			PF5 (C)	PHED	"Best fit"	0.78
			PF10 (D)	PHED	"Best fit"	0.39
	Wettable Powders	Dermal	Single layer, no gloves (A)	MRID 45773201	Mean	4310
			Single layer, gloves	MRID 45773201	Mean	4310
			Double layer, gloves (B)	MRID 45773201	Mean	2160
		Inhalation	No Respirator	MRID 45773201	Mean	3931
			PF5 (C)	MRID 45773201	Mean	786
			PF10 (D)	MRID 45773201	Mean	393

CDFA has BMP that states low-pressure spray should be used to reduce inhalation

CDFA Application Techniques

#1: Drench soil injection

#2: Drench mechanically-pressurized handgun

#3: Foliar mechanically-pressurized handgun

For #s 1 and 2, note the lack of volatilization, atomization and vapor generation and the distance from source to breathing zone

Human Risk Results

PDCP-44 Risk Results

Scenario	PDCP-44	**A.I. App Rate** (lbs/acre)	1
Run	Baseline- Single-LCG, No resp	**Apps per Year**	1
Product	Sevin SL	**Acres per Day**	15
Adjuvant	No Foam B	**App Interval** (days)	NA
Setting	Residential		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator			Adult Post-Application-Resident			Child Post-Application-Resident			
		MLA			**Adult PAR**			**Child PAR**			
	Ingredient	Dermal	Inhalation	Summed	Vegetation Dermal	Edible Vegetation Ingestion	Summed	Vegetation Dermal	Incidental Vegetation Ingestion	Edible Vegetation Ingestion	Summed
Acute MOE	1,2-propanediol	3.65E+04		3.65E+04	8.80E+04		8.80E+04	1.29E+05			1.29E+05
Acute MOE	carbaryl	1.29E+01	2.07E+03	1.28E+01	3.12E+01	2.34E+03	3.07E+01	4.55E+01	7.87E+01	5.33E+02	2.74E+01
Acute MOE	Dodecylbenzene sulfonate	1.73E+03	7.55E+02	5.26E+02	4.18E+03		4.18E+03	6.11E+03			6.11E+03
Acute MOE	Ethanolamine	8.45E+02	6.01E+05	8.43E+02	2.04E+03	6.80E+05	2.03E+03	2.98E+03	2.29E+04	1.55E+05	2.59E+03
Acute MOE	Isopropyl alcohol		2.48E+06	2.48E+06		2.97E+06	2.97E+06		1.00E+05	6.77E+05	8.71E+04
Acute MOE	POE Nonylphenol	6.25E+03		6.25E+03	1.51E+04	2.26E+07	1.51E+04	2.20E+04	7.62E+05	5.16E+06	2.13E+04
Acute MOE	Sodium xylene sulfonate	1.82E+04	7.90E+03	5.51E+03	4.38E+04	4.87E+07	4.38E+04	6.40E+04	1.64E+06	1.11E+07	6.13E+04
Acute MOE	Summed Chemicals	1.26E+01	5.16E+02	1.23E+01	3.04E+01	2.33E+03	3.00E+01	4.44E+01	7.84E+01	5.31E+02	2.69E+01

Human Risk Results

PDCP-44 Risk Reductions

		Risk due to:				
Scenario	**Scenario Details**	**Chemical (Product)**	**Receptor**	**Route(s)**		**Adjustment Needed for acceptable risk**
PDCP-44	Sevin SL No Foam B	carbaryl (Sevin SL)	MLA	Dermal	a.	Single layer clothes -> Double layer clothes 15 acres/day -> 3.83 acres/day (per applicator)
					b.	Backpack sprayer -> Manually pressurized handwand
			PAR-Adult PAR-Child	Veg-Dermal	a.	Assume pesticide residue is dry when contacted, therefore dermal transfer is reduced. *Need to estimate what percent reduction
					b.	Adult Resident cannot enter area for 12 days Child Resident cannot enter area for 14 days (based on degredation of chemical on leaf surfaces)

Human Risk Results

PDCP-44 Risk Reductions

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

Backpack Sprayer

Wildlife management, Rights-of-way, Forestry, Landscaping (turf), Outdoor residential areas, Aquatic areas[4]	Dermal	Single layer, no gloves (A)	MRID 44339801	Mean	8260
		Single layer, gloves	MRID 44339801	Mean	8260
		Double layer, gloves (B)	MRID 44339801	Mean	4120
	Inhalation	No Respirator	MRID 44339801	Mean	2.58
		PF5 (C)	MRID 44339801	Mean	0.516
		PF10 (D)	MRID 44339801	Mean	0.258

Manually-pressurized Handwand

Greenhouses, Wildlife management, Nurseries, Landscaping, Industrial/Commercial areas, Poultry/livestock houses,	Dermal	Single layer, no gloves	PHED	"Best fit"	100000
		Single layer, gloves	PHED	"Best fit"	430
		Double layer, gloves (B)	PHED	"Best fit"	365
	Inhalation	No Respirator	PHED	"Best fit"	30
		PF5 (C)	PHED	"Best fit"	6.0
Animal treatments, Outdoor residential areas, Interior landscaping, Aquatic areas, Structural		PF10 (D)	PHED	"Best fit"	3.0

Human Risk Results

PDCP-44: Risk Reductions

USEPA 1998 PHED Surrogate Exposure Guide Definitions

Backpack

"A spray tank that fits comfortably on the back like a knapsack. It contains a hand operated pump, a pressure chamber and a lance with an on/off tap or trigger valve and one or more nozzles. There is usually a UV-light inhibitor incorporated into the plastic. The usual tank capacity is about 15 litres so that the tank weight is not excessive to the handler. The volume of the tank is indicated by graduated marks, moulded in plastic tanks."

Handwand (manually-pressurized handwand)

"Light weight, hand operated sprayers. Their name is derived from the long metal extension which ends in an adjustable nozzle. A hose attaches the "wand" to a small portable tank or larger, stationary one. This type of sprayer can vary widely in type and pressure. The most commonly seen hand wands are compressed-air sprayers. The portable tanks may require occasional "shaking" by the applicator to assure a proper mixing of chemicals. They are often utilized for spot herbicide application in fields, crack and crevice treatments, along roadsides and in greenhouses."

Ecological Risk Results

- PDCP-27: Nursery Loading Dock
- PDCP-52: Residential

Nursery Loading Dock

Application PDCP-27
Discus Nursery Loading Dock

Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☺	☺	☹	☺	☹	☹	☹		☹
	T&E Species	☺	☺	☹	☺	☹	☹	☹		☹
		0.18	0.33	**158.52**	0.23	**407.84**	**19.27**	**1117.84**		**1047.21**
Reduced Exp.- 25 ft Drift Buffer to Water	All Species			☹		☹	☹	☹		☹
	T&E Species			☹		☹	☹	☹		☹
				105.05		**268.02**	**12.66**	**734.29**		**1047.21**
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species			☹		☹	☹	☹	☹	☹
	T&E Species			☹		☹	☹	☹	NA	☹
				105.05		**268.02**	**12.66**	**734.29**	**4.36**	**29.86**
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species			☹		☹	☹	☹	☹	☹
	T&E Species			☹		☹	☹	☹	NA	☹
				158.52		**407.84**	**19.27**	**1117.83**	**4.36**	**29.86**
Reduced Exp.- No Residue to Water	All Species			☺		☺	☺	☹		☹
	T&E Species			☺		☺	☺	☹		☹
				0.00		0.07	0.32	**1.31**		**1047.21**
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species			☺		☺	☺	☺	☹	☹
	T&E Species			☺		☺	☺	☺	NA	☹
				0.00		0.00	0.00	0.03	**4.36**	**29.86**

Application PDCP-27
Discus Nursery Loading Dock

Chronic Risk Results (Mid-point AUF)

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		4.50	**4.26**	**1436.22**	**4.50**	**3534.42**	**174.88**	**5062.17**	
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		1.62	**1.66**	**554.28**	**1.62**	**1361.54**	**67.37**	**1949.91**	
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		1.62	**1.63**	**554.28**	**1.62**	**1361.52**	**67.37**	**1949.90**	0.04
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		4.50	**4.22**	**1436.22**	**4.50**	**3534.39**	**174.88**	**5062.16**	0.04
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☹	☹	☹	
	T&E Species	☺	☺	☺	☺	☹	☹	☹	
		0.00	0.35	0.00	0.00	**1.17**	**5.90**	**7.63**	
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☺	NA
		0.00	0.01	0.00	0.00	0.03	0.15	0.19	0.04

Application PDCP-52
Tempo SC Ultra Residential

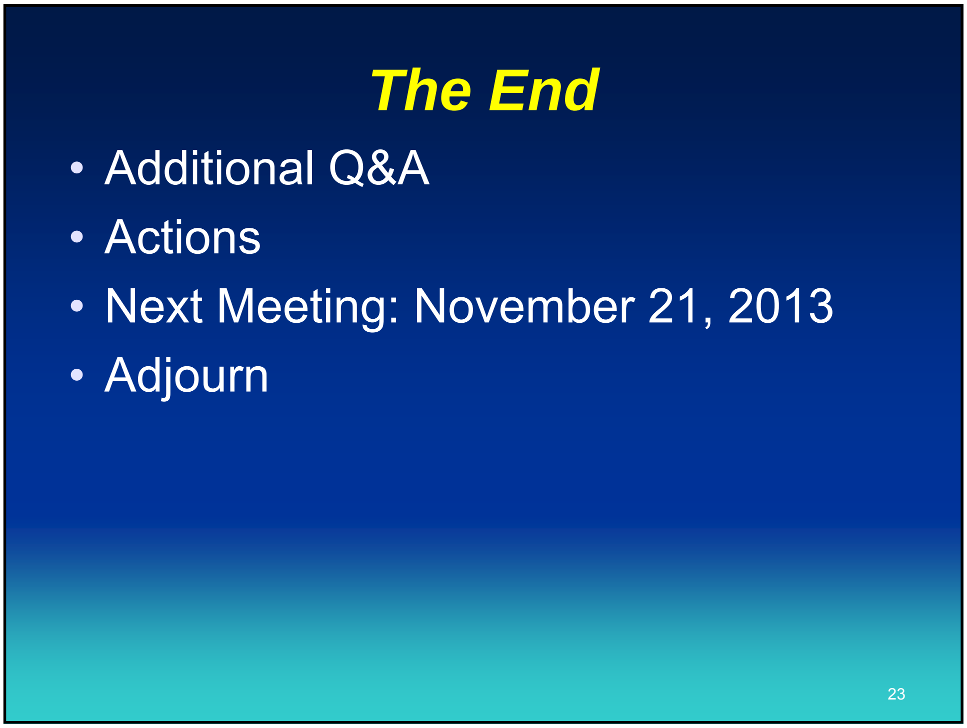
Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☺	☺	☹	☺	☹	☹	☹	☺	☹
	T&E Species	☺	☺	☹	☺	☹	☹	☹	NA	☹
		0.26	0.47	230.01	0.33	583.52	27.56	1598.04	0.36	6.67
Reduced Exp.- 25 ft Drift Buffer to Water	All Species			☹		☹	☹	☹		☹
	T&E Species			☹		☹	☹	☹		☹
				227.31		576.52	27.23	1578.86		6.67
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species			☹		☹	☹	☹		☺
	T&E Species			☹		☹	☹	☹		☺
				227.31		576.52	27.23	1578.84		0.06
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species			☹		☹	☹	☹		☺
	T&E Species			☹		☹	☹	☹		☺
				230.01		583.52	27.56	1598.03		0.06
Reduced Exp.- No Residue to Water	All Species			☺		☺	☺	☹		☹
	T&E Species			☺		☺	☺	☹		☹
				0.00		0.19	0.01	3.95		6.67
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species			☺		☺	☺	☺		☺
	T&E Species			☺		☺	☺	☺		☺
				0.00		0.00	0.00	0.03		0.06

Application PDCP-52
Tempo SC Ultra Residential

Mid-Point AUF Chronic Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		1.06	2.43	596.28	1.06	1519.86	71.95	2113.02	0.00
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☺	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		0.94	2.16	528.88	0.94	1348.25	63.82	1874.45	
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☺	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		0.94	2.15	528.88	0.94	1348.20	63.82	1874.44	
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		1.06	2.43	596.28	1.06	1519.80	71.95	2113.01	
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☺	☺	☹	
	T&E Species	☺	☺	☺	☺	☹	☺	☹	
		0.00	0.01	0.00	0.00	0.57	0.03	6.15	
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	
	T&E Species	☺	☺	☺	☺	☺	☺	☺	
		0.00	0.00	0.00	0.00	0.00	0.00	0.05	


The End
• Additional Q&A
• Actions
• Next Meeting: November 21, 2013
• Adjourn
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Human Risk Results

PDCP-02 Risk Results

Scenario	PDCP-02	**A.I. App Rate** (lbs/acre)	5.12
Run	Baseline- Single-LCG, No resp	**Apps per Year**	2
Product	Alias 4F	**Acres per Day**	50
Adjuvant	None	**App Interval** (days)	180
Setting	Large Production Nurseries		
App Method	Soil injection		

		Applicator			Mixer-Loader-Applicator			Combined Nursery Worker		
		A			**MLA**			**CNW**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.76E+01	1.16E+03	9.00E+01
Acute MOE	Summed Chemicals	1.08E+02	1.28E+03	9.94E+01	9.76E+01	1.16E+03	9.00E+01	9.76E+01	1.16E+03	9.00E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Human Risk Results

PDCP-02 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)	Adjustment Needed for acceptable risk	
PDCP-02	Alias 4F	imidacloprid	A	Dermal	a.	Qualitatively assess. State that MOE is just below target level and our conservative assessment over-estimates exposure and risk to receptors.
					b.	Single layer clothes -> Double layer clothes

Human Risk Results

PDCP-35 Risk Results

Scenario	PDCP-35	**A.I. App Rate** (lbs/acre)	0.4
Run	Baseline- Single-LCG, No resp; ML WSP	**Apps per Year**	1
Product	Merit 75 WSP	**Acres per Day**	15
Adjuvant	None	**App Interval** (days)	0
Setting	Residential		
App Method	Drench-Mechanically Pressurized Handgun		

		Applicator			Mixer-Loader-Applicator		
		A			**MLA**		
	Ingredient	Dermal	Inhalation	Summed	Dermal	Inhalation	Summed
Acute MOE	Imidacloprid	3.84E+02	3.05E+01	2.83E+01	3.84E+02	3.05E+01	2.83E+01
Acute MOE	Summed Chemicals	3.84E+02	3.05E+01	2.83E+01	3.84E+02	3.05E+01	2.83E+01

		Adult Post-Application-Resident				Child Post-Application-Resident					
		Adult PAR				**Child PAR**					
	Ingredient	Soil Dermal	Vegetation Dermal	Edible Vegetation Ingestion	Summed	Soil Dermal	Vegetation Dermal	Incidental Soil Ingestion	Incidental Vegetation Ingestion	Edible Vegetation Ingestion	Summed
Acute MOE	Imidacloprid	6.00E+01		5.26E+04	5.99E+01	4.36E+01		1.93E+06		1.20E+04	4.35E+01
Acute MOE	Summed Chemicals	6.00E+01		5.26E+04	5.99E+01	4.36E+01		1.93E+06		1.20E+04	4.35E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Human Risk Results

PDCP-35 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)		Adjustment Needed for acceptable risk
PDCP-35	Merit 75 WSP	imidacloprid	PAR-Adult PAR-Child	Soil-Dermal	a.	Assume pesticide residue is dry when contacted, therefore dermal transfer is reduced. *Need to estimate percent reduction
					b.	Adult Resident cannot enter area for 5 days Child Resident cannot enter area for 8 days
			Applicator	Inhalation	a.	*OPHED methods does not allow splitting mixing/loading from applicating even though product is mixed/loaded with water-soluble packaging (minimal exposure) *MLA exposure is likely overestimated b/c we assume product mixed/loaded <u>without</u> water-soluble packaging
					b.	Drench-Mechanically Pressurized Handgun -> Drench-Soil Injection *OPHED provides same unit exposure values for drench as foliar. Drench-Soil Injection (OPHED: termiticide injection) may be more representative of a soil directed drench application.
					c.	No repirator -> Respirator PF5

Human Risk Results

PDCP-44 Risk Results

Scenario	PDCP-44	**A.I. App Rate** (lbs/acre)	1
Run	Baseline- Single-LCG, No resp	**Apps per Year**	1
Product	Sevin SL	**Acres per Day**	15
Adjuvant	No Foam B	**App Interval** (days)	NA
Setting	Residential		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator			Adult Post-Application-Resident			Child Post-Application-Resident			
		MLA			**Adult PAR**			**Child PAR**			
	Ingredient	Dermal	Inhalation	Summed	Vegetation Dermal	Edible Vegetation Ingestion	Summed	Vegetation Dermal	Incidental Vegetation Ingestion	Edible Vegetation Ingestion	Summed
Acute MOE	1,2-propanediol	3.65E+04		3.65E+04	8.80E+04		8.80E+04	1.29E+05			1.29E+05
Acute MOE	carbaryl	1.29E+01	2.07E+03	1.28E+01	3.12E+01	2.34E+03	3.07E+01	4.55E+01	7.87E+01	5.33E+02	2.74E+01
Acute MOE	Dodecylbenzene sulfonate	1.73E+03	7.55E+02	5.26E+02	4.18E+03		4.18E+03	6.11E+03			6.11E+03
Acute MOE	Ethanolamine	8.45E+02	6.01E+05	8.43E+02	2.04E+03	6.80E+05	2.03E+03	2.98E+03	2.29E+04	1.55E+05	2.59E+03
Acute MOE	Isopropyl alcohol		2.48E+06	2.48E+06		2.97E+06	2.97E+06		1.00E+05	6.77E+05	8.71E+04
Acute MOE	POE Nonylphenol	6.25E+03		6.25E+03	1.51E+04	2.26E+07	1.51E+04	2.20E+04	7.62E+05	5.16E+06	2.13E+04
Acute MOE	Sodium xylene sulfonate	1.82E+04	7.90E+03	5.51E+03	4.38E+04	4.87E+07	4.38E+04	6.40E+04	1.64E+06	1.11E+07	6.13E+04
Acute MOE	Summed Chemicals	1.26E+01	5.16E+02	1.23E+01	3.04E+01	2.33E+03	3.00E+01	4.44E+01	7.84E+01	5.31E+02	2.69E+01

Human Risk Results

PDCP-44 Risk Reductions

Scenario	Scenario Details	Risk due to: Chemical (Product)	Receptor	Route(s)		Adjustment Needed for acceptable risk
PDCP-44	Sevin SL No Foam B	carbaryl (Sevin SL)	MLA	Dermal	a.	Single layer clothes -> Double layer clothes 15 acres/day -> 3.83 acres/day (per applicator)
					b.	Backpack sprayer -> Manually pressurized handwand
			PAR-Adult PAR-Child	Veg-Dermal	a.	Assume pesticide residue is dry when contacted, therefore dermal transfer is reduced. *Need to estimate what percent reduction
					b.	Adult Resident cannot enter area for 12 days Child Resident cannot enter area for 14 days (based on degredation of chemical on leaf surfaces)

Application PDCP-27
Discus Nursery Loading Dock

Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☺	☺	☹	☺	☹	☹	☹		☹
	T&E Species	☺	☺	☹	☺	☹	☹	☹		☹
		0.18	0.33	**158.52**	0.23	**407.84**	**19.27**	**1117.84**		**1047.21**
Reduced Exp.- 25 ft Drift Buffer to Water	All Species			☹		☹	☹	☹		☹
	T&E Species			☹		☹	☹	☹		☹
				105.05		**268.02**	**12.66**	**734.29**		**1047.21**
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species			☹		☹	☹	☹	☹	☹
	T&E Species			☹		☹	☹	☹	NA	☹
				105.05		**268.02**	**12.66**	**734.29**	**4.36**	**29.86**
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species			☹		☹	☹	☹	☹	☹
	T&E Species			☹		☹	☹	☹	NA	☹
				158.52		**407.84**	**19.27**	**1117.83**	**4.36**	**29.86**
Reduced Exp.- No Residue to Water	All Species			☺		☺	☺	☹		☹
	T&E Species			☺		☺	☺	☹		☹
				0.00		0.07	0.32	**1.31**		**1047.21**
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species			☺		☺	☺	☺	☹	☹
	T&E Species			☺		☺	☺	☺	NA	☹
				0.00		0.00	0.00	0.03	**4.36**	**29.86**

Application PDCP-27
Discus Nursery Loading Dock

Chronic Risk Results (Mid-point AUF)

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		4.50	**4.26**	**1436.22**	**4.50**	**3534.42**	**174.88**	**5062.17**	
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		1.62	**1.66**	**554.28**	**1.62**	**1361.54**	**67.37**	**1949.91**	
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		1.62	**1.63**	**554.28**	**1.62**	**1361.52**	**67.37**	**1949.90**	0.04
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		4.50	**4.22**	**1436.22**	**4.50**	**3534.39**	**174.88**	**5062.16**	0.04
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☹	☹	☹	
	T&E Species	☺	☺	☺	☺	☹	☹	☹	
		0.00	0.35	0.00	0.00	**1.17**	**5.90**	**7.63**	
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☺	NA
		0.00	0.01	0.00	0.00	0.03	0.15	0.19	0.04

Application PDCP-52
Tempo SC Ultra Residential

Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☺	☺	☹	☺	☹	☹	☹	☺	☹
	T&E Species	☺	☺	☹	☺	☹	☹	☹	NA	☹
		0.26	0.47	**230.01**	0.33	**583.52**	**27.56**	**1598.04**	0.36	**6.67**
Reduced Exp.- 25 ft Drift Buffer to Water	All Species			☹		☹	☹	☹		☹
	T&E Species			☹		☹	☹	☹		☹
				227.31		**576.52**	**27.23**	**1578.86**		**6.67**
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species			☹		☹	☹	☹		☺
	T&E Species			☹		☹	☹	☹		☺
				227.31		**576.52**	**27.23**	**1578.84**		0.06
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species			☹		☹	☹	☹		☺
	T&E Species			☹		☹	☹	☹		☺
				230.01		**583.52**	**27.56**	**1598.03**		0.06
Reduced Exp.- No Residue to Water	All Species			☺		☺	☺	☹		☹
	T&E Species			☺		☺	☺	☹		☹
				0.00		0.19	0.01	**3.95**		**6.67**
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species			☺		☺	☺	☺		☺
	T&E Species			☺		☺	☺	☺		☺
				0.00		0.00	0.00	0.03		0.06

Application PDCP-52
Tempo SC Ultra Residential
Mid-Point AUF Chronic Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		1.06	2.43	596.28	1.06	1519.86	71.95	2113.02	0.00
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		0.94	2.16	528.88	0.94	1348.25	63.82	1874.45	
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		0.94	2.15	528.88	0.94	1348.20	63.82	1874.44	
Reduced Exp.- No Drift Buffer to Water, 25 ft Drift Buffer to Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	
	T&E Species	☹	☹	☹	☹	☹	☹	☹	
		1.06	2.43	596.28	1.06	1519.80	71.95	2113.01	
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☺	☺	☹	
	T&E Species	☺	☺	☺	☺	☹	☺	☹	
		0.00	0.01	0.00	0.00	0.57	0.03	6.15	
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	
	T&E Species	☺	☺	☺	☺	☺	☺	☺	
		0.00	0.00	0.00	0.00	0.00	0.00	0.05	

Meetin∃ Minutes

California Department of Food and Agriculture

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

Joint OEHHA/DPR Risk Assessment Status Meeting Status Meeting Notes
November 22, 2013, 1- 4 pm

****The notes below supplement information provided in the meeting presentation and handouts, by focusing on clarifications and additional discussion which occurred during the meeting****

Attendees:

CDFA: Laura Petro, Sarah Khalid
OEHHA: David Ting, Regina Linville
DPR: Sheryl Beauvais, Randy Segawa, Dave Kim
Horizon: Mike Blankinship, Stephen Burkholder, Ryan Beil, Michael Stevenson, Greg Gorder, Scott Dwyer

Attachments:

- Agenda
- Attendee List
- Meeting Presentation

Notes:

- **LBAM Human Risk Analysis**
  - LBAM analyzed in the PEIR is limited to quarantine (nursery and field crops); the earlier separate EIR (Environ/Entrix July 2009) addressed LBAM residential treatments which are not included in the PEIR.
  - Group discussed reduced exposure option.
    - Reduced the area that an individual applicator would apply.
    - Determined that original estimate was probably larger than necessary.
    - Manually pressurized handwand indicated acceptable risk. Risk also acceptable for mechanically pressurized handgun.
- **LBAM-05 Human Risk Analysis**
  - LP: LBAM program has new internal CDFA management with a new program manager.
  - LP to ask:
    - Setting and specific application method for LBAM for Field Crop
    - Acreage (10 acres/day) is too high for a backpack- backpack treatments are usually 0.5 acres
  - RS: Indicated that this scenario didn't seem consistent with a field crop treated with a backpack sprayer. Seems inefficient in an ag setting. More sensible to use a boom sprayer.
  - LP: May need to go back to LBAM nursery individuals to determine application setting. Multiple application methods possible (including boom sprayer)

- Baseline risk analysis used backpack sprayer that assumes a conservatively high exposure. Application technique could be determined on area treated in order to get acceptable risk. (e.g., backpack sprayer limited to 5 acres max).
- MB suggested that the area treated is a aggregation of "spots" treated in a larger areaor field
- Sheryl B: DPR assumes 40 gallon/day for a 5 gal backpack sprayer for 8 hour/day (USEPA Std).
- LP: Doubts boom sprayer would be used in a nursery setting. More likely mechanically pressurized handgun.
- Application rate is 5 gallons/acre, which makes 50 gallons over 10 acres by backpack sprayer unlikely. Certainly not feasible to do in one day.
- Use of a backpack unreasonable for > 5 acres
- LP: LBAM production ag setting field crop protocol is used for a nursery
- Sheryl B: For Production Ag, makes sense to use ground boom or mechanically pressurized handgun.
- Sheryl B: May want to consider 2 scenarios – 1 for field crops and 1 for nursery
- LP to check whether reported acreage is actual treated crops or the property area
- Mineral oil risk results (inhalation/dermal exposure pathway)
  - Sheryl B: These are generally innocuous substances that would be low priority for DPR to be concerned about (mineral oil, kaolin clay)
  - Mineral oil's dermal pathway will be eliminated due to USEPA finding no adverse effects in the NOAEL derivation (USEPA RED)
  - GG: Dermal exposure risk is unlikely to be significant and will be removed based on EPA's NOAEL>2000 mg/kg-day
  - DT: Mineral oil particle size makes a big difference in toxicity when considering respirable materials
  - The group postulated that the NOAEL study uses aerosolized mineral oil
  - In uncertainty section, discuss that OPHED may or may not use a range of particle sizes, from respirable to non-respirable, when deriving the unit exposure. In the field, mineral oil may be applied as a non-respirable particle so risk is likely overestimated through both the NOAEL and the OPHED unit exposure.

- **PDEP-D-Tr Human Risk Analysis**
  - LP: Often times trapper = baiter
  - For hanging traps in trees, trappers use a 12' pole to place trap high up in tree.
  - DT: 4m assumption came from twist ties that are deployed every 8 meters.
  - LP: Trapper does not use a ladder, but instead uses a pole to hang the trap, so applicator wouldn't be in the "box."
  - RB: Figure hanging trap in tree represents the post-application worker (PAW) and post-application resident (PAR).
  - RB: "Box Model" doesn't apply to MLA.

- DT's air turnover rate (1/hr) was low; DPR determined this rate was at least 10 times more conservative than reality.
- Sheryl B: OPHED numbers are dated for MLA. OPHED study for Mixing/Loading Liquids monitored individuals standing over an open mixing tank and pouring a container of material into the tank. This clearly doesn't represent our trapping MLA for this scenario.
- From slide #29 PDEP-DTr-04 OPHED Mixing/Loading; Option #1: RB clarified slide. Acres per day is really traps per day on all trapping scenario forms.

- **PDEP-E Human Risk Analysis**
  - Group discussed that the detailed calculations on the google earth map could be avoided by understanding the quantity of AI that a worker is handling per day. Laura may have this info.
  - Group discussed that treatment of all ornamentals is an overestimate and it is more likely just be a few fruit trees
  - For residential treatments, applicators use truck mounted rig with a low pressure handgun (aka a mechanically pressurized handgun) for treatments, including lawns
  - Sheryl B/LP: 10 hrs/day is probably a high estimate and it is more likely 5 hours/day
  - LP: Residential treatments rely on the schedules of the residents living in the neighborhoods. Treatment duration is limited when school gets is in; typically from 8 am to 2pm.

- **PDEP-E-06 Human Risk Analysis**
  - DT/LP: Backpack sprayer may not be the actual method of application.
  - Sheryl B: Agrees that PHED "trapping" is much too high of a unit exposure for mix/load of liquids.
    - LP will investigate. May more likely be a truck mounted mechanically pressurized handgun. This is because Sevin SL is almost always used in fruit trees that require a mechanically pressurized-handgun.
  - LP: Rate of treatment/day limited to 20 minutes/property. Sounds reasonable. DK agrees.
  - Sheryl B: Right of way (ROW) PHED = combo of boom and handgun spraying. This is probably not a likely representation of this scenario's application technique. Mechanically pressurized handgun is a closer representation.
  - DK: If >25 trees, considered commercial, not residential
  - LP to check the number of applications per year
    - Thinks 2-3 apps/year at 14 day interval and only during the summer
    - Number of applications per year will not address acute risk, but changing application methods will
    - LP will investigate application method(s) used (backpack sprayer, v. manually pressurized handwand v. mechanically pressurized hand gun, etc.)
  - RS: Questioned if the program is still using diazinon or malathion?
    - LP: She understands that they are still using both and will confirm.

- PDEP-E-Tr, IPC-Tr – same concepts (OPHED switch) apply as previously discussed for PDEP-D-Tr

- **Ecological Risk Analysis**
  - LBAM-06
    - RL, JS, LP, BS, and Stephen B. will further discuss potential to birds
  - Mineral oil
    - Group discussed inappropriateness of model for chemicals with Kow > 10^6. The amount of chemical in an organism in excess of 100% does not make sense.
    - Assumes very low organic content in soil
    - RL would like to discuss mineral oil risk results later, she thinks there may be a straightforward way to address it.
    - MS: the risk assessment is not concerned about the earthworm per se (not a surrogate for a listed species), but whether it is resulting in overstated risk to other surrogates as a diet item
  - PDEP-E Trapping
    - Risk analysis not done on traps because exposure considered de minimis and only inhalation exposure. Data does not exist for proper analysis.
  - PDEP-E-07 (Tempo SC Ultra)
    - Group discussed how 497 acres were derived.
    - LP indicated that an 800 m radius is established around a "find." The area of this circle is 497 acres.
    - Discussed that stock pond would not be adjacent to entire side of 497 acre box
    - Stephen B used 10 acres as a comparison in dry weather conditions
    - Japanese Beetle treatment occur in the summer so run-off to water would be from irrigation of lawns.
      - During summer applications, most vegetation is sprayed (except bearing fruit)
      - Cyfluthrin is used on trees so it would not be expected to run-off of lawns into a pond
    - Not entire area would actually be treated (not all is vegetation like driveways, walkways, patios, etc.)
    - RL/LP: Buffer to water is realistic but buffer to habitat in residential settings may not be
    - Stephen: Data of truck volume/acreage would be helpful for determining how many gallons of a.i. are applied to a certain area.

California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

EGVM, LBAM, PDEP-E/D, IPC Risk Results Review Meeting Agenda

Date: November 21, 2013 Time: 1-4 PM
CalEPA Building, Conference Room 450, Sacramento
(Mtg Room Contact: Leslie Reed at 916-445-3984 or 916 445-5000)

Invited Attendees:

CDFA:	Laura Petro, Craig Hanes, Roger Spencer, Nick Condos, Michele Dias
OEHHA:	Allan Hirsch, Regina Linville, Chuck Salocks, David Ting, Anna Fan
DPR:	Dave Kim, Lisa Ross, Dave Duncan, Randy Segawa, Marylou Verder-Carlos, Jay Schreider, Sheryl Beauvais, Yuzhou Luo
Horizon:	Michael Stevenson, Marisa Mitchell, Mike Blankinship, Stephen Burkholder, Ryan Beil, David Bonnar, Lindsey Curley, Sidney Asercion, Joe Sullivan, Brad Sample, Greg Gorder, Scott Dwyer, Judy Zaninovich

Agenda:

I. Welcome, Sign-In and Introductions (Laura; 5 min)
II. **Topic #1:** EGVM, LBAM, PDEP-E/D IPC Human Risk Review (Mike, Ryan: 70 min)
III. **Topic #2:** EGVM, LBAM, PDEP-E Ecological Risk Review (Stephen: 70 min)
IV. Follow-up, Planning and Adjourn (All; 35 min)

If you are not able to attend the meeting in-person, please take the following steps to participate:

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1. No less than 10 minutes prior to the meeting, test your browser's ability to use WebEx by going here: http://www.webex.com/test-meeting.html
   a. On the webpage, enter your name and email address, then click "Join"
   b. WebEx will load the necessary software onto your computer. If successful, you will see a screen that says "Congratulations! Your system is now set up properly…"
   c. If you did not see that message, contact Tech Support at 1-866-229-3239
2. To join the WebEx meeting, click on the URL below, or copy and paste it into your browser
   a. https://meetings.webex.com/collabs/#/meetings/detail?uuid=MCNIW2RI3DZTXKGMZZ5J8N9HJA-BXKJ
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   b. Enter the passcode 8025803
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California Department of Food and Agriculture
Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment Status Meeting

Date and Time: 11/21/13

CalEPA Bldg, Conference Room: 450 Sacramento

Name	Affiliation	Email
Mike Blankinship	Blankinship + Assoc.	mike@envtox.com
Ryan Beil	" "	ryan@h2osci.com
Stephen Burkholder	" "	stephen@h2osci.com
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Dave Kim	CDPR	Phone-in
Scott ~~D~~ DWYER	Kleinfelder	" "
Sara Khalid	CDFA	sara.khalid@cdfa.ca.gov

Horizon WATER and ENVIRONMENT

CDFA Statewide Pest Prevention Program EIR

Joint OEHHA/DPR Risk Assessment

LBAM, EGVM, PDEP-E/D, IPC Review Meeting

Tomato Fruit Fly

Thursday November 21, 2013
1pm-4pm

Overall DPR/OEHHA Meeting Schedule

- ~~November 1, 2012~~
- ~~December 13, 2012~~
- ~~January 24, 2013~~
- ~~March 7, 2013~~
- ~~April 18, 2013~~
- ~~May 30, 2013~~
- ~~July 11, 2013~~
- ~~August 22, 2013~~
- ~~October 3, 2013~~
- November 21, 2013

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Agenda

I. Welcome, Sign-In and Introductions (Laura: 5 min)
II. EGVM, LBAM, PDEP-E/D, IPC Human Risk Review (Mike, Ryan: 70 min)
III. LBAM, PD/EP-Eradication Ecological Risk Review (Stephen: 70 min)
IV. Follow-up, Planning and Adjourn (All: 35 min)

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Programs Considered Today

I. European Grape Vine Moth (EGVM)
II. Light Brown Apple Moth (LBAM)
III. Pest Detection/Emergency Projects-Detection/Trapping (PDEP-D-tr)
IV. Pest Detection/Emergency Projects-Eradication (PDEP-E)
V. Pest Detection/Emergency Projects-Eradication/Trapping (PDEP-E-tr)
VI. Integrated Pest Control-Trapping (IPC-tr)

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Human Risk Analysis

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EGVM

Figure 1. Adult EGVM (photo by Marc Epstein, CDFA)

- Setting: Nursery
- 4 Scenarios
- No Unacceptable Risk

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EGVM Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Application Method
EGVM-01	All Nurseries	Intrepid 2F	Methoxyfenozide, 1,2-propanediol	Backpack Sprayer
EGVM-02	All Nurseries	Conserve SC Turf and Ornamental	Spinosad, 1,2-propanediol	Backpack Sprayer
EGVM-03	All Nurseries	Conserve SC Turf and Ornamental	Spinosad, 1,2-propanediol	Mechanically Pressurized Handgun
EGVM-04	All Nurseries	DuPont Acelepryn	Chlorantraniliprole	Backpack Sprayer

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EGVM Human Risk Results

- All 4 application scenarios quantitatively assessed showed no unacceptable risk.
- Isomate consists of a twist tie and straight chain lepidopteran pheromones (SCLPs), which are similar to fatty acids.
- SCLPs have a history of safe use as pesticides. No adverse effects reported after more than 10 years.
- Isomate qualitative assessment by OEHHA showed little to no risk for child and adult from oral, inhalation, and dermal exposure.
- Based on available data showing no evidence of toxicity, no human risk analysis was done.

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LBAM

(Photo courtesy of SARDI, Greg Baker)

- Settings: Nursery & Production Ag
- 7 Scenarios
- 2 Scenarios with potential for unacceptable risk
- Potential unacceptable risk mitigated

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LBAM Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Application Method
LBAM-01	Small, Medium and most Large Nurseries	Conserve SC Turf and Ornamental	Spinosad, 1,2-propanediol Adjuvant: Mineral oil	Mechanically Pressurized Handgun
LBAM-02	Field Crop	DiPel DF	Baciilus thuringiensis	Backpack Sprayer
LBAM-03	Small, Medium and most Large Nurseries	Dipel Pro DF	Baciilus thuringiensis	Backpack Sprayer
LBAM-04	Small, Medium and most Large Nurseries	DuPont Acelepryn	Chlorantraniliprole Adjuvant: Mineral oil	Backpack Sprayer
LBAM-05	Field Crop	Entrust Naturalyte Insect Control	Spinosad, kaolin clay Adjuvant: Mineral oil	Backpack Sprayer
LBAM-06	Field Crop	Intrepid 2F	Methoxyfenozide, 1,2-propanediol Adjuvant: Mineral oil	Mechanically Pressurized Handgun
LBAM-07	Small, Medium and most Large Nurseries	Scimitar GC	Cumene, lambda-cyhalothrin, 1,2,4-trimethylbenzene, 1,2-propanediol, solvent naphtha, xylenes Adjuvant: Mineral oil	Mechanically Pressurized Handgun

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LBAM Scenarios with Potential Risk

Scenario	Setting	Product	Ingredients	Application Method
LBAM-01	Small, Medium and most Large Nurseries	Conserve SC Turf and Ornamental	Spinosad, 1,2-propanediol Adjuvant: Mineral oil	Mechanically Pressurized Handgun
LBAM-02	Field Crop	DiPel DF	Baciilus thuringiensis	Backpack Sprayer
LBAM-03	Small, Medium and most Large Nurseries	Dipel Pro DF	Baciilus thuringiensis	Backpack Sprayer
LBAM-04	Small, Medium and most Large Nurseries	DuPont Acelepryn	Chlorantraniliprole Adjuvant: Mineral oil	Backpack Sprayer
LBAM-05	Field Crop	Entrust Naturalyte Insect Control	Spinosad, kaolin clay Adjuvant: Mineral oil	Backpack Sprayer
LBAM-06	Field Crop	Intrepid 2F	Methoxyfenozide, 1,2-propanediol Adjuvant: Mineral oil	Mechanically Pressurized Handgun
LBAM-07	Small, Medium and most Large Nurseries	Scimitar GC	Cumene, lambda-cyhalothrin, 1,2,4-trimethylbenzene, 1,2-propanediol, solvent naphtha, xylenes Adjuvant: Mineral oil	Mechanically Pressurized Handgun

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LBAM-05

Scenario	LBAM-05	**Mineral Oil App Rate** (lbs/acre)	8.378
Run	Baseline- Single-LCG, No resp; ML resp PF5	**Apps per Year**	2
Product	Entrust Naturalyte Insect Control	**Acres per Day**	10
Adjuvant	Bonide All Seasons Horticultural and Dormant Spray Oil	**App Interval** (days)	6
Setting	Field Crop (LBAM)		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator MLA			Post-Application-Worker PAW					
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Incidental Soil Ingestion	Incidental Vegetation Ingestion	Trap/Lure Inhalation	Summed
Acute MOE	mineral oil	1.71E+02	1.78E+02	8.71E+01		1.93E+02				1.93E+02
Acute MOE	kaolin clay		3.15E+02	3.15E+02						
Acute MOE	Spinosad		1.87E+03	1.87E+03			3.71E+04	1.66E+02		1.66E+02
Acute MOE	Summed Chemicals	1.71E+02	1.07E+02	6.58E+01		1.93E+02	3.71E+04	1.66E+02		8.93E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

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LBAM-05 Reduced Exposure Option #1

Scenario	LBAM-05	**Mineral Oil App Rate** (lbs/acre)	8.378
Run	Reduced Exp.- 6.4 acres/day per applicator; 7.1 hours/day per harvester	**Apps per Year**	2
Product	Entrust Naturalyte Insect Control	**Acres per Day**	10
Adjuvant	Bonide All Seasons Horticultural and Dormant Spray Oil	**App Interval** (days)	6
Setting	Field Crop (LBAM)		
App Method	Backpack Sprayer		

		Mixer-Loader-Applicator MLA			Post-Application-Worker PAW					
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Incidental Soil Ingestion	Incidental Vegetation Ingestion	Trap/Lure Inhalation	Summed
Acute MOE	mineral oil	2.66E+02	2.78E+02	1.36E+02		2.18E+02				2.18E+02
Acute MOE	kaolin clay		4.92E+02	4.92E+02						
Acute MOE	Spinosad		2.92E+03	2.92E+03			3.71E+04	1.88E+02		1.87E+02
Acute MOE	Summed Chemicals	2.66E+02	1.67E+02	1.03E+02		2.18E+02	3.71E+04	1.88E+02		1.01E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

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LBAM-05 Reduced Exposure Option #2

Scenario	LBAM-05	**Mineral Oil App Rate** (lbs/acre)	8.378
Run	Reduced Exp.- Manually-Pressurized-HW; 7.1 hours/day per harvester	**Apps per Year**	2
Product	Entrust Naturalyte Insect Control	**Acres per Day**	10
Adjuvant	Bonide All Seasons Horticultural and Dormant Spray Oil	**App Interval** (days)	6
Setting	Field Crop (LBAM)		
App Method	Manually-pressurized Handwand		

		Mixer-Loader-Applicator MLA			Post-Application-Worker PAW					
	Ingredient	Dermal	Inhalation	Summed	Soil Dermal	Vegetation Dermal	Incidental Soil Ingestion	Incidental Vegetation Ingestion	Trap/Lure Inhalation	Summed
Acute MOE	mineral oil	4.44E+03	8.31E+02	7.00E+02		2.18E+02				2.18E+02
Acute MOE	kaolin clay		1.47E+03	1.47E+03						
Acute MOE	Spinosad		8.71E+03	8.71E+03			3.71E+04	1.88E+02		1.87E+02
Acute MOE	Summed Chemicals	4.44E+03	5.00E+02	4.49E+02		2.18E+02	3.71E+04	1.88E+02		1.01E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

Human Risk Results

PDCP-44: Risk Reductions

USEPA 1998 PHED Surrogate Exposure Guide Definitions

Backpack

"A spray tank that fits comfortably on the back like a knapsack. It contains a hand operated pump, a pressure chamber and a lance with an on/off tap or trigger valve and one or more nozzles. There is usually a UV-light inhibitor incorporated into the plastic. The usual tank capacity is about 15 litres so that the tank weight is not excessive to the handler. The volume of the tank is indicated by graduated marks, moulded in plastic tanks."

Manually Pressurized Handwand

"Light weight, hand operated sprayers. Their name is derived from the long metal extension which ends in an adjustable nozzle. A hose attaches the "wand" to a small portable tank or larger, stationary one. This type of sprayer can vary widely in type and pressure. The most commonly seen hand wands are compressed-air sprayers. The portable tanks may require occasional "shaking" by the applicator to assure a proper mixing of chemicals. They are often utilized for spot herbicide application in fields, crack and crevice treatments, along roadsides and in greenhouses."

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Backpack Sprayer vs. Manually Pressurized Handwand

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

USEPA / Office of Pesticide Programs / Health Effects Division
Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

Exposure Scenario (Activity, Equipment, Formulation, Site, etc.)[1]	Exposure Route	Personal Protective Equipment (PPE) Level[2]	Data Source[3]	Statistic	Unit Exposure (µg/lb ai)
Backpack Sprayer					
Wildlife management, Rights-of-way, Forestry, Landscaping (turf), Outdoor residential areas, Aquatic areas[4]	Dermal	Single layer, no gloves (A)	MRID 44339801	Mean	8260
		Single layer, gloves	MRID 44339801	Mean	8260
		Double layer, gloves (B)	MRID 44339801	Mean	4120
	Inhalation	No Respirator	MRID 44339801	Mean	2.58
		PF5 (C)	MRID 44339801	Mean	0.516
		PF10 (D)	MRID 44339801	Mean	0.258
Manually-pressurized Handwand					
Greenhouses, Wildlife management, Nurseries, Landscaping, Industrial/Commercial areas, Poultry/livestock houses,	Dermal	Single layer, no gloves	PHED	"Best fit"	100000
		Single layer, gloves	PHED	"Best fit"	430
		Double layer, gloves (B)	PHED	"Best fit"	365
	Inhalation	No Respirator	PHED	"Best fit"	30
		PF5 (C)	PHED	"Best fit"	6.0
Animal treatments, Outdoor residential areas, Interior landscaping, Aquatic areas, Structural		PF10 (D)	PHED	"Best fit"	3.0

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PDEP-D-Tr

- Settings: Residential & Production Ag
- 12 Scenarios
- 12 Scenarios with potential for unacceptable risk
- Potential unacceptable risk addressed

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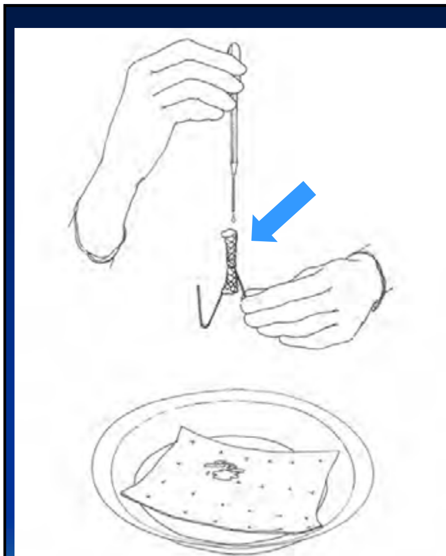

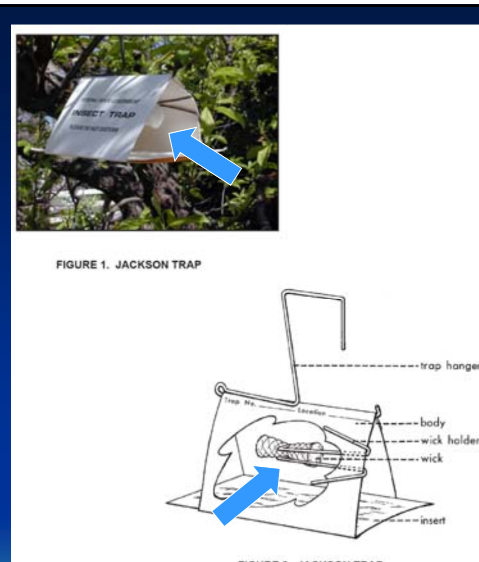

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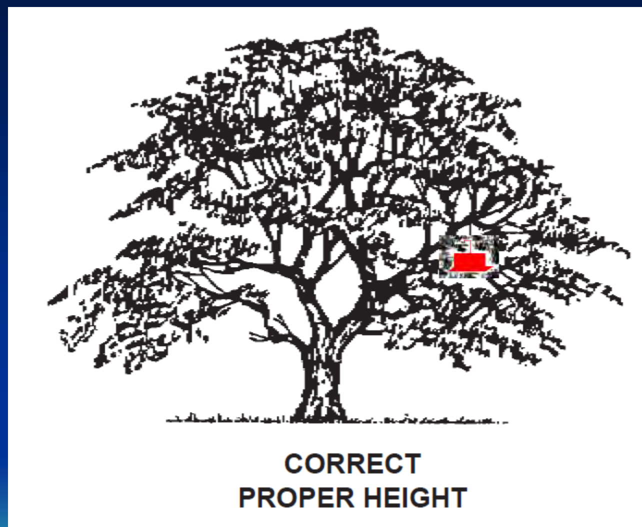
Source: CDFA PDEP Trapping Guide 2010



Source: CDFA PDEP Trapping Guide 2010

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PDEP-D-Tr Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Trapping Method
PD/EP-DTr-01	Production Ag	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-02	Residential	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-03	Production Ag	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-04	Residential	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-05	Production Ag	Sirex Lure	70:30 blend of alpha and beta pinenes; propylene glycol	hung on a 6' metal pole, 4-6' off ground near pine/fir tree
PD/EP-DTr-06	Residential	Sirex Lure	70:30 blend of alpha and beta pinenes; propylene glycol	hung on a 6' metal pole, 4-6' off ground near pine/fir tree
PD/EP-DTr-07	Production Ag	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-08	Residential	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-09	Production Ag	SSM Sex Pheromone	Z,E,5,7-12:ALD; Z,E,5,7-12:OH; BHT (Bulyated hydroxytoluene); Tinuvin; Hercon Vaportape II DDVP	placed in lower canopy of conifers, out of normal reach
PD/EP-DTr-10	Residential	SSM Sex Pheromone	Z,E,5,7-12:ALD; Z,E,5,7-12:OH; BHT (Bulyated hydroxytoluene); Tinuvin; Hercon Vaportape II DDVP	placed in lower canopy of conifers, out of normal reach
PD/EP-DTr-11	Production Ag	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-12	Residential	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf

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PDEP-D-Tr

- Settings: Residential & Production Ag
- 12 Scenarios with potential for unacceptable risk limited to Mixer Loader
- No Risk to the Post Application Worker or Resident

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PDEP-D-Tr

- Post Application Worker or Resident Exposure Estimation
- The “Box Model”

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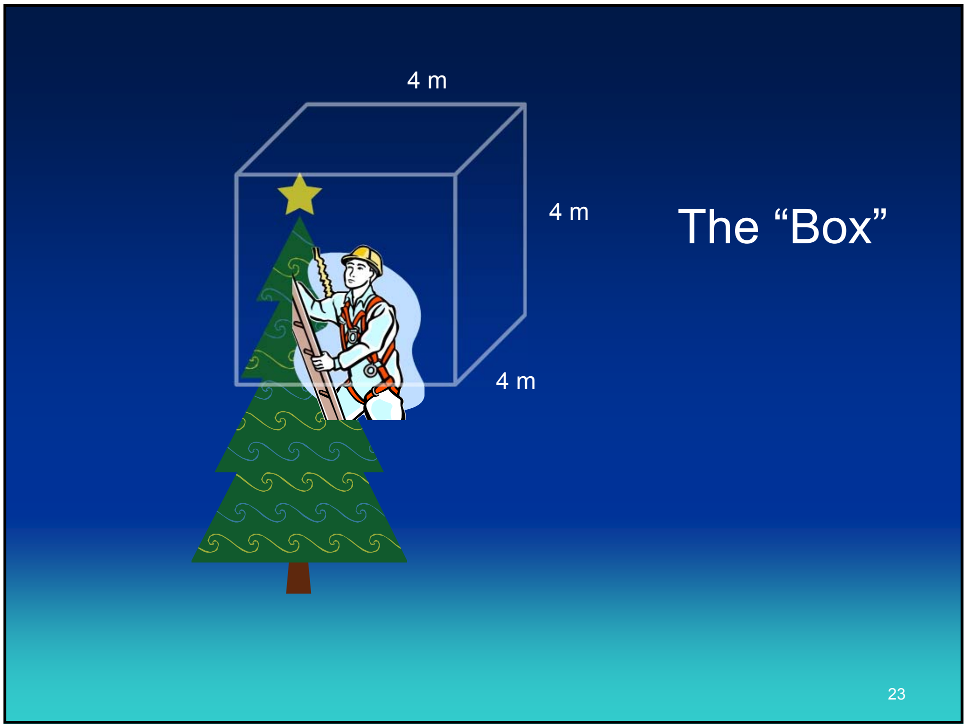

PDEP-D-Tr

- The "Box Model" considers:
  - Weight of Product per trap (1.6 x 10-6 lbs)
  - Replacement interval (42 days)
  - Box Volume (64 m^3)
  - Air Turnover ("light" wind = 1 mph = 400 t.o./hr)
  - 8 hr work day of which 8 hours are in the "box"
  - 30m^3/d breathing rate

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PDEP-D-Tr Scenarios with Potential Risk

Scenario	Setting	Product	Ingredients	Trapping Method
PD/EP-DTr-01	Production Ag	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-02	Residential	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-03	Production Ag	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-04	Residential	FT-Methyl Eugenol	methyl eugenol; Naled; Stikem Special	hung 8 - 10' in trees
PD/EP-DTr-05	Production Ag	Sirex Lure	70:30 blend of alpha and beta pinenes; propylene glycol	hung on a 6' metal pole, 4-6' off ground near pine/fir tree
PD/EP-DTr-06	Residential	Sirex Lure	70:30 blend of alpha and beta pinenes; propylene glycol	hung on a 6' metal pole, 4-6' off ground near pine/fir tree
PD/EP-DTr-07	Production Ag	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-08	Residential	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-09	Production Ag	SSM Sex Pheromone	Z,E,5,7-12:ALD; Z,E,5,7-12:OH; BHT (Bulyated hydroxytoluene); Tinuvin; Hercon Vaportape II DDVP	placed in lower canopy of conifers, out of normal reach
PD/EP-DTr-10	Residential	SSM Sex Pheromone	Z,E,5,7-12:ALD; Z,E,5,7-12:OH; BHT (Bulyated hydroxytoluene); Tinuvin; Hercon Vaportape II DDVP	placed in lower canopy of conifers, out of normal reach
PD/EP-DTr-11	Production Ag	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf
PD/EP-DTr-12	Residential	Dual Lure	Eugenol; Geraniol; 2-Phenyl Ethyl Proponate; 1(R,Z) -5- (1-Decenyl) duhydro-2(3H) Furanone	using a 6' pole, traps are placed near roses on lawn, 11-22" above turf

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PDEP-D-Tr-04: OPHED Trapping

Scenario	PD/EP-DTr-04	**A.I. App Rate** (lbs/acre)	0.0000016
Run	Baseline- Single-LCG, No resp	**Apps per Year**	8
Product	Dibrom 8 Emulsive	**Acres per Day**	40
Adjuvant	FT-Methyl Eugenol	**App Interval** (days)	42
Setting	Residential		
App Method	Impregnated Wick		

		Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed
Chronic MOE	DDVP		4.56E+03	4.56E+03
Cancer Risk	DDVP		1.82E-06	1.82E-06
Chronic MOE	Naled		2.28E+03	2.28E+03
Cancer Risk	Naled			
Chronic MOE	Naphthalene		3.58E+06	3.58E+06
Cancer Risk	Naphthalene		2.08E-08	2.08E-08
Chronic MOE	methyl eugenol	9.79E+00	8.74E+03	9.78E+00
Cancer Risk	methyl eugenol			
Chronic MOE	Summed Chemicals	9.79E+00	1.29E+03	9.72E+00
Cancer Risk	Summed Chemicals		1.84E-06	1.84E-06

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

OPHED Trapping Data

CDFA 2010 Dibrom Wick Handler Data

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OPHED Trapping Issues

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

USEPA / Office of Pesticide Programs / Health Effects Division
Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

Exposure Scenario (Activity, Equipment, Formulation, Site, etc.)[1]		Exposure Route	Personal Protective Equipment (PPE) Level[2]	Data Source[3]	Statistic	Unit Exposure (µg/lb ai)
Trap/bait station	Re-fillable	Dermal	Single layer, no gloves (A)	PHED	"Best fit"	104000
			Single layer, gloves	PHED	"Best fit"	71000
			Double layer, gloves (B)	PHED	"Best fit"	40280
		Inhalation	No Respirator	PHED	"Best fit"	470
			PF5 (C)	PHED	"Best fit"	94
			PF10 (D)	PHED	"Best fit"	47
	Single-use	Applicator exposure expected to be negligible.				
Applicator, Granules by Hand		Dermal	Single layer, no gloves (A)	PHED	"Best fit"	104000
			Single layer, gloves	PHED	"Best fit"	71000
			Double layer, gloves (B)	PHED	"Best fit"	40280
		Inhalation	No Respirator	PHED	"Best fit"	470
			PF5 (C)	PHED	"Best fit"	94
			PF10 (D)	PHED	"Best fit"	47

- OPHED assumes "Trapping" is the same as "Granules By Hand"

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OPHED Trapping Alternatives

USEPA 2013 Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

USEPA / Office of Pesticide Programs / Health Effects Division
Occupational Pesticide Handler Unit Exposure Surrogate Reference Table

Exposure Scenario (Activity, Equipment, Formulation, Site, etc.)[1]	Exposure Route	Personal Protective Equipment (PPE) Level[2]	Data Source[3]	Statistic	Unit Exposure (µg/lb ai)
Mixing / Loading Liquids	Dermal	Single layer, no gloves (A)	AHETF	Mean	220
		Single layer, gloves	AHETF	Mean	37.6
		Double layer, gloves (B)	AHETF	Mean	29.1
		Engineering control (closed loading system)	PHED	"Best fit"	8.6
	Inhalation	No Respirator	AHETF	Mean	0.219
		PF5 (C)	AHETF	Mean	0.044
		PF10 (D)	AHETF	Mean	0.022
		Engineering control (closed loading system)	PHED	"Best fit"	0.083

- Replace "Trapping" with "Mix/Load Granules" or "Mix/Load Liquid"
- Assumes trappers pour directly into station, not via hand

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PDEP-D-Tr-04: OPHED Mixing/Loading; Option #1

Scenario	PD/EP-DTr-04	**A.I. App Rate** (lbs/acre)	0.0000016
Run	Baseline- Mixer-Loader-Trapper; ML Double-LCG, Resp PF5; Trap Single-LCG, No resp	**Apps per Year**	8
		Acres per Day	40
Product	Dibrom 8 Emulsive	**App Interval** (days)	42
Adjuvant	FT-Methyl Eugenol		
Setting	Residential		
App Method	Impregnated Wick		

		Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed
Chronic MOE	DDVP		4.56E+03	4.56E+03
Cancer Risk	DDVP		1.82E-06	1.82E-06
Chronic MOE	Naled		2.28E+03	2.28E+03
Cancer Risk	Naled			
Chronic MOE	Naphthalene	3.48E+08	6.39E+09	3.30E+08
Cancer Risk	Naphthalene		1.16E-11	1.16E-11
Chronic MOE	methyl eugenol	1.04E+04	1.56E+07	1.04E+04
Cancer Risk	methyl eugenol			
Chronic MOE	Summed Chemicals	1.04E+04	1.52E+03	1.33E+03
Cancer Risk	Summed Chemicals		1.82E-06	1.82E-06

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

OPHED Mixing/Loading Data

CDFA 2010 Dibrom Wick Handler Data

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Option #1: CDFA Empirical Data vs. OPHED

Department of Food & Agriculture – PDEP
Statewide Detection Trapping Program

Table 1 – Exposure Results For San Diego County

Sample ID	Sample Time (minutes)	Airborne Contaminant	Exposure Level
2010023593	420	1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene Mesitylene Xylenes	ND ND ND ND
2010023594	420	1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene Mesitylene Xylenes	ND ND ND ND
2010023595	420	1,2,3-Trimethylbenzene 1,2,4-Trimethylbenzene Mesitylene Xylenes	ND ND ND ND
1018331001	420	Dichlorvos Naled	<0.00048 mg/m3 <0.00048 mg/m3
1018331002	420	Dichlorvos Naled	<0.00048 mg/m3 <0.00048 mg/m3
1018331003	420	Dichlorvos Naled	<0.00048 mg/m3 <0.00048 mg/m3

- Source: CDFA 2010 PDEP Report
- Personal breathing zone conc. used for wick handler exposure to Naled/DDVP
- This is the DL and can reasonably be halved.
- Recalc of risk shows acceptable values

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PDEP-D-Tr-04: OPHED; Option #2

Scenario	10029	**A.I. App Rate** (lbs/acre)	0.0000016
Run	Baseline- OPHED; ML Double-LCG, Resp PF5; Trap Single-LCG, No resp	**Apps per Year**	8
		Acres per Day	40
Product	Dibrom 8 Emulsive	**App Interval** (days)	42
Adjuvant	FT-Methyl Eugenol		
Setting	Residential		
App Method	Impregnated Wick		

		Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed
Chronic MOE	DDVP	2.28E+07	6.94E+08	2.21E+07
Cancer Risk	DDVP	5.14E-10	1.19E-11	5.26E-10
Chronic MOE	Naled	4.42E+05	5.61E+06	4.10E+05
Cancer Risk	Naled			
Chronic MOE	Naphthalene	3.48E+08	6.39E+09	3.30E+08
Cancer Risk	Naphthalene		1.16E-11	1.16E-11
Chronic MOE	methyl eugenol	1.04E+04	1.56E+07	1.04E+04
Cancer Risk	methyl eugenol			
Chronic MOE	Summed Chemicals	1.02E+04	4.10E+06	1.02E+04
Cancer Risk	Summed Chemicals	5.14E-10	2.36E-11	5.37E-10

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

OPHED Mixing/Loading Data

OPHED Mixing/Loading Data

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PDEP-E

- Settings: Residential
- 7 Scenarios
- 1 Scenario with potential for unacceptable risk
- Potential Unacceptable risk mitigated

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PDEP-E Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Application Method
PD/EP-E-01	Residential	CoreTect Tree & Shrub Tablets Insecticide	imidacloprid, copper(II)-sulphate pentahydrate	Tablet-Soil Insertion
PD/EP-E-02	Residential	Dipel Pro DF	Bacillus thuringiensis	Backpack Sprayer
PD/EP-E-03	Residential	GF-120-Naturalyte Fruit Fly Bait*	spinosad, 1,2-propanediol	Backpack Sprayer
PD/EP-E-04	Residential	Merit 2F	imidacloprid	Drench-Mechanically Pressurized Handgun
PD/EP-E-05	Residential	RoundUp	glyphosate	Hudson Sprayer
PD/EP-E-06	Residential	Sevin SL	carbaryl, 1,2-propanediol	Backpack Sprayer
PD/EP-E-07	Residential	Tempo SC Ultra	cyfluthrin, 1,2-propanediol	Backpack Sprayer

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PDEP-E Scenarios with Potential Risk

Scenario	Setting	Product	Ingredients	Application Method
PD/EP-E-01	Residential	CoreTect Tree & Shrub Tablets Insecticide	imidacloprid, copper(II)-sulphate pentahydrate	Tablet-Soil Insertion
PD/EP-E-02	Residential	Dipel Pro DF	Bacillus thuringiensis	Backpack Sprayer
PD/EP-E-03	Residential	GF-120-Naturalyte Fruit Fly Bait*	spinosad, 1,2-propanediol	Backpack Sprayer
PD/EP-E-04	Residential	Merit 2F	imidacloprid	Drench-Mechanically Pressurized Handgun
PD/EP-E-05	Residential	RoundUp	glyphosate	Hudson Sprayer
PD/EP-E-06	Residential	Sevin SL	carbaryl, 1,2-propanediol	Backpack Sprayer
PD/EP-E-07	Residential	Tempo SC Ultra	cyfluthrin, 1,2-propanediol	Backpack Sprayer

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PDEP-E-06 Risk

Scenario	PD/EP-E-06		**A.I. App Rate** (lbs/acre)	1.02
Run	Baseline- Single-LCG, No resp		**Apps per Year**	6
Product	Sevin SL		**Acres per Day**	6
Adjuvant	none		**App Interval** (days)	14
Setting	Residential			
App Method	Backpack Sprayer			

		Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed
Acute MOE	1,2-propanediol			
Acute MOE	carbaryl	3.17E+01	5.07E+03	3.15E+01
Acute MOE	Summed Chemicals	3.17E+01	5.07E+03	3.15E+01

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

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PDEP-E-06 Reduced Exposure; Option #1

Scenario	PD/EP-E-06		**A.I. App Rate** (lbs/acre)	1.02
Run	Reduced Exp.- 1.88 acres/day per applicator		**Apps per Year**	6
Product	Sevin SL		**Acres per Day**	6
Adjuvant	none		**App Interval** (days)	14
Setting	Residential			
App Method	Backpack Sprayer			

		Mixer-Loader-Applicator MLA		
	Ingredient	Dermal	Inhalation	Summed
Acute MOE	1,2-propanediol			
Acute MOE	carbaryl	1.01E+02	1.62E+04	1.00E+02
Acute MOE	Summed Chemicals	1.01E+02	1.62E+04	1.00E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

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Property Acreage vs. Treated Acreage

- Property Acreage = The total area in which treatments may occur
- Treated Acreage = The total area to which product is actually applied
  - Applicators make spot treatments
  - There may only be 2 acres of host plants on a 10 acre property

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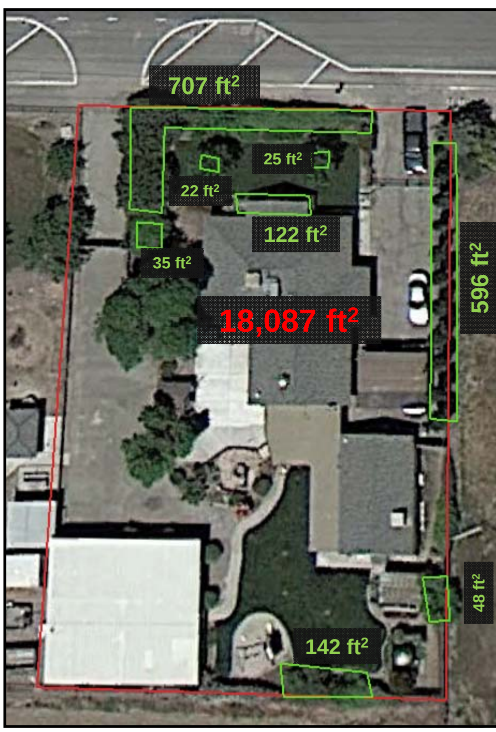

Total Treated Area per Property = 1697 ft²

Treated Area / Property Area
~1800 ft² / ~18000 ft² = ~0.1

~10% of property is actually treated

PD/EP-E-06 Current Assumptions:

Total Treated Area per property = ~1800 ft²

Acres treated per day= 6 acres/day

6 acres/day = ~260,000 ft²/day

260,000 ft²/day / 1800 ft² treated/property =
144 properties/day

PD/EP-E-06 Alternative Assumptions:

Acres treated per day= 1.88 acres/day

1.88 acres/day = ~82,000 ft²/day

82,000 ft²/day / 1800 ft² treated/property =
45 properties/day

Worker works 10 hours/day and spends 20 minutes at each property

10 hours/day x 60 mins/hour = 600 mins/day

600 mins/day / 20 mins/property =
30 properties/day

PDEP-E-06 Reduced Exposure; Option #2

Scenario	PD/EP-E-06	**A.I. App Rate** (lbs/acre)	1.02
Run	Reduced Exp.- Manually-Pressurized-HW	**Apps per Year**	6
Product	Sevin SL	**Acres per Day**	6
Adjuvant	none	**App Interval** (days)	14
Setting	Residential		
App Method	Manually-pressurized Handwand		

		Mixer-Loader-Applicator		
		MLA		
	Ingredient	Dermal	Inhalation	Summed
Acute MOE	1,2-propanediol			
Acute MOE	carbaryl	7.16E+02	4.36E+02	2.71E+02
Acute MOE	Summed Chemicals	7.16E+02	4.36E+02	2.71E+02

Notes:

If the MOE value is greater than 100, it is unlikely that exposure will cause adverse health effects. Non-cancer MOE values greater than 100 generally do not warrant further investigation or mitigation.

A cancer risk of 1E-06 is a theoretical lifetime upper-bound probability of one extra case of cancer in a population of one million. Cancer risk estimates equal to or less than 1E-06 are considered to be acceptable under California Environmental Protection Agency policy and do not generally warrant further investigation or mitigation.

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PDEP-E-Tr

- Settings: Residential
- 8 Scenarios
- 4 Scenarios with potential for unacceptable risk
- Potential unacceptable risk addressed in the same manner as PDEP-D Trapping

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PDEP-E-Tr Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Trapping Method
PD/EP-Etr-01	Production Ag	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-02	Residential	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-03	Production Ag	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-04	Residential	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-05	Production Ag	Dibrom Concentrate	Methyl eugenol; Naled; Min-U-Gel 400	sprayed bait station on a pole / splat
PD/EP-Etr-06	Residential	Dibrom Concentrate	Methyl eugenol; Naled; Min-U-Gel 400	sprayed bait station on a pole / splat
PD/EP-Etr-07	Production Ag	STATIC Spinosad ME	STATIC Spinosad ME	sprayed bait station on a tree
PD/EP-Etr-08	Residential	STATIC Spinosad ME	STATIC Spinosad ME	sprayed bait station on a tree

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PDEP-E-Tr Scenarios Showing Potential Risk

Scenario	Setting	Product	Ingredients	Trapping Method
PD/EP-Etr-01	Production Ag	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-02	Residential	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-03	Production Ag	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up
PD/EP-Etr-04	Residential	Dibrom 8 Emulsive	Cuelure; 25% Naled; DDVP, Naphthalene, Stikem Special	hung in host tree 6-10' up

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IPC-Tr

- Settings: Residential & Production Ag
- 4 Scenarios
- 4 Scenarios with potential for unacceptable risk
- Potential unacceptable risk addressed in the same manner as PDEP-D Trapping

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IPC-Tr Scenarios Analyzed

Scenario	Setting	Product	Ingredients	Trapping Method
IPC-Tr-01	Production Ag	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed at edge of commercial cotton field on 4' stake.
IPC-Tr-02	Residential	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed at edge of commercial cotton field on 4' stake.
IPC-Tr-03	Production Ag	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed on top of 4' stake at 5 mile intervals along designated Highway or road ways
IPC-Tr-04	Residential	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed on top of 4' stake at 5 mile intervals along designated Highway or road ways

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IPC-Tr Scenarios Showing Potential Risk

Scenario	Setting	Product	Ingredients	Trapping Method
IPC-Tr-01	Production Ag	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed at edge of commercial cotton field on 4' stake.
IPC-Tr-02	Residential	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed at edge of commercial cotton field on 4' stake.
IPC-Tr-03	Production Ag	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed on top of 4' stake at 5 mile intervals along designated Highway or road ways
IPC-Tr-04	Residential	Grandlure	Grandlure (Components I - IV); Hercon Vaportape II DDVP	Trap is placed on top of 4' stake at 5 mile intervals along designated Highway or road ways

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Ecological Risk Analysis

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Ecological Risk Results

- LBAM-02: DiPel DF
- LBAM-03: DiPel Pro DF
- PD/EP-02: DiPel Pro DF
- LBAM-06: Field Crop
- PD/EP-Eradication-07: Residential

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DiPel DF and DiPel Pro DF

- Biological Insecticide
- Cannot model:
  - movement to water
  - environmental disappearance
  - trophic transfer
- Therefore, cannot conduct quantitative assessment
- So, conducted a qualitative assessment based on literature review

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LBAM – Field Crop

Product: **Intrepid 2F (methoxyfenozide)**
Active Ingredient Rate: **0.25 lb methoxyfenozide/acre**
Application Technique: **Mechanically Pressurized Handgun**
Application Area: **10 acres**

Adjuvant: **Bonide All Seasons Horticultural and Dormant Spray Oil**
Adjuvant Rate: **6.445 lbs mineral oil/acre**

Target Pests (target veg.): **Light Brown Apple Moth** (field crops)

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Application LBAM-06 Intrepid 2F Field Crop

Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat **Intrepid 2F**	All Species	☺	☺	☺	☺	☺	☺	☹	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☹	NA	☺
		0.00	0.02	0.01	0.00	0.01	0.22	10.69	0.46	0.47
Baseline- No Drift Buffer to Water or Habitat **Bonide (Mineral Oil)**	All Species	☺	☹	☺	☺	☹	☹	☹		☺
	T&E Species	☺	☹	☺	☺	☹	☹	☹		☺
		0.00	23887571460	0.07	0.00	17048231	132164915811	2205843394		0.44
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat **Intrepid 2F**	All Species	☺	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☺	☺	☺
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat **Bonide (Mineral Oil)**	All Species	☺	☹	☺	☺	☹	☹	☹		☺
	T&E Species	☺	☹	☺	☺	☹	☹	☹		☺
		0.00	198266843	0.00	0.00	141500	1096968798	18308491		0.00

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Application LBAM-06
Intrepid 2F Field Crop

Chronic Risk Results (Mid-point AUF)

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat **Intrepid 2F**	All Species	☺	☺	☺	☺	☺	**☹**	**☹**	☺
	T&E Species	☺	**☹**	**☹**	☺	☺	**☹**	**☹**	NA
		0.00	**0.55**	**0.63**	0.06	0.16	**3.66**	**6.93**	0.01
Baseline- No Drift Buffer to Water or Habitat **Bonide (Mineral Oil)**	All Species	☺	**☹**	**☹**	☺	**☹**	**☹**	**☹**	
	T&E Species	☺	**☹**	**☹**	☺	**☹**	**☹**	**☹**	
		0.00	**1180869069196**	**1.95**	0.00	**133**	**1180869069196**	**2338**	
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat **Intrepid 2F**	All Species	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☺	NA
		0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat **Bonide (Mineral Oil)**	All Species	☺	**☹**	☺	☺	☺	**☹**	☺	
	T&E Species	☺	**☹**	☺	☺	☺	**☹**	**☹**	
		0.00	**3541184528**	0.00	0.00	0.03	**9801213263**	**0.84**	

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Application LBAM-06
Mineral Oil EEC Issues

- Mineral Oil Log K_{ow} = 19
- KABAM suggests using the model for 4.0 < Log K_{ow} < 8.0
  - Acute Fish diet item concentration = **2.56E+05**
- Briggs Equation for vegetation limited to Log K_{ow} < 7.0
- EPA Combustion Facilities Terr. Invert. (earthworm) Equation:

$$(10^{((0.819*\text{Log Kow})-1.146))}*\text{Soil Concentration})$$

  - Acute Food item mineral oil concentration = **7.12E+15 mg/Kg**

Number calc'd < 1E+6 mg/Kg (aka, 100%)

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PD/EP-Eradication-07 Residential

Product: **Tempo SC Ultra (cyfluthrin)**
Active Ingredient Rate: **0.06875 lb cyfluthrin/acre**
Application Technique: **Backpack Sprayer**
Application Area: **497 acres**
Target Pests (target veg.): **Asian citrus psyllid** (citrus foliage),
Japanese beetle (trees/shrubs/landscape)

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Application PD/EP-E-07 Tempo SC Ultra Residential

Acute Risk Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☹	☹
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
		100	35.67	88175	125	44630	2114	612987	2.57	27.30
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☹	☹	☹	☹	☹	☹	☹	☹	☹
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
		100	35.67	88171	125	44628	2114	612960	2.57	27.30
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☺
		100	35.67	88171	125	44628	2114	612960	0.02	0.23
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☺	☺	☹	☹	☹
	T&E Species	☺	☺	☺	☺	☺	☺	☹	NA	☹
		0.00	0.00	0.00	0.00	0.06	0.00	6.97	2.57	27.30
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☺	NA	☺
		0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.23

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Application PD/EP-E-07
Tempo SC Ultra Residential

Mid-Point AUF Chronic Results

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		452	307	251873	452	391236	9137	3973938	0.02
Reduced Exp.- 25 ft Drift Buffer to Water	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		451	307	251649	451	390885	9129	3970374	0.02
Reduced Exp.- 25 ft Drift Buffer to Water and Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		451	307	251649	451	390885	9129	3970374	0.00
Reduced Exp.- No Residue to Water	All Species	☺	☺	☺	☺	☺	☺	☹	☺
	T&E Species	☺	☺	☺	☺	☹	☺	☹	NA
		0.00	0.02	0.00	0.00	0.88	0.05	90.06	0.02
Reduced Exp.- No Residue to Water, 25 ft Drift Buffer to Habitat	All Species	☺	☺	☺	☺	☺	☺	☺	☺
	T&E Species	☺	☺	☺	☺	☺	☺	☹	NA
		0.00	0.00	0.00	0.00	0.01	0.00	0.75	0.00

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Estimated Water Concentrations
Cyfluthrin
497 Ac vs 10 Ac

Application Area		Max. Instantaneous Conc. (ug/L)	21 Day/31 Day Conc. (ug/L)	60 Day Conc. (ug/L)
10 Acres	Benthic	0.067	0.061	0.030
	Limnetic	0.52	0.51	0.22
497 Acres	Benthic	2.96	2.86	1.45
	Limnetic	25.13	23.53	9.95

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Application Assumption Issues

- Assumes full coverage of application area
  - HUGE catchment area for a 2.47 acre pond
  - Not realistic that entire area is sprayed

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Application PD/EP-E-07a

Acute Risk Results – 10 acre application area

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☺	☹	☹	☹	☹	☹	☹	☹
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
		2.09	0.74	1835	2.62	929	44.04	12766	2.57	27.30

Acute Risk Results – 497 acre application area

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms	Insects
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺	☹
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA	☹
		452	307	251873	452	391236	9137	3973938	0.02	452

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Application PD/EP-E-07a

Mid-Point AUF Chronic Risk Results – 10 acre application area

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☺
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		10.89	6.94	5674.74	10.89	4541.47	205.58	60178.44	0.02

Mid-Point AUF Chronic Risk Results – 497 acre application area

Analysis	Category	Aquatic Phase Amphibians	Terrestrial Phase Amphibians	Aquatic Invertebrates	Fish	Reptiles	Birds	Mammals	Earthworms
Baseline- No Drift Buffer to Water or Habitat	All Species	☹	☹	☹	☹	☹	☹	☹	☹
	T&E Species	☹	☹	☹	☹	☹	☹	☹	NA
		100.52	35.67	88175.44	125.65	44630.63	2114.48	612987.58	2.57

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The End

- Additional Q&A
- Actions
- Adjourn

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Appendix C

CEQA Tiering Strategy

1. Introduction and Purpose

Pursuant to the California Environmental Quality Act (CEQA), the California Department of Food and Agriculture (CDFA) is preparing a Program Environmental Impact Report (PEIR) for future activities proposed under its Statewide Plant Pest Prevention and Management Program (Statewide Program). The Statewide Program is ongoing, and future activities that may be conducted following completion of this CEQA process are referred to as the "Proposed Program." The PEIR evaluates the potential environmental impacts that could result from implementation of the range of activities that CDFA may conduct or oversee as part of the Proposed Program. The PEIR is intended to serve as a program-level, first-tier CEQA document, and be a flexible and efficient vehicle to facilitate implementation of Proposed Program activities and if needed, preparation of tiered, project-level CEQA analysis. Such future activities include both the Proposed Program activities that are specifically identified in the PEIR as well as other plant pest prevention and management activities not specifically identified in the PEIR.

CDFA conducts the Statewide Program in a manner which is safe for humans and the natural environment. The Tiering Strategy described in this document is intended to help ensure that Statewide Program safeguards continue with implementation of the Proposed Program. Thus, this Tiering Strategy is a companion document to the PEIR, to be used as a tool to assist in timely implementation of Proposed Program activities. The specific objectives in support of this goal are to assist CDFA in determining: (1) the extent to which a specific activity has been evaluated in the PEIR; (2) the management practices (MPs), mitigation measures, and other requirements from the PEIR to apply to each activity; and (3) the level and focus of any additional CEQA analysis (and related documentation) that may be necessary before beginning the activity. The intended audience and users of this Tiering Strategy are CDFA's program staff.

This Tiering Strategy focuses on CEQA compliance and related documentation. For activities involving adoption of regulations, additional compliance steps and public notification may be required pursuant the Administrative Procedures Act (APA). The process for APA compliance would occur separate from (and potentially in parallel with) the CEQA compliance process, and is beyond the scope of this strategy document.

The actions which may be evaluated using this Tiering Strategy include:

1. Implementation of the Proposed Program activities described and evaluated in the PEIR, and variations on these activities;
2. Addition of new specific activities to the Proposed Program (e.g., a new management approach for a given pest);
3. Addition of a suite of new activities to the Proposed Program (e.g., for a new pest); and
4. Activities overseen or conducted by another lead agency.

The remainder of the Tiering Strategy is presented in the following sections:

- Section 2: Tiering Strategy Guidelines

- Section 3: Use of the PEIR by Other Public Agencies
- Section 4: Maintenance of the PEIR
- Attachments:
    - Attachment 1: Tiering Strategy Checklist
    - Attachment 2: Summary of Management Practices, Mitigation Measures, and Other PEIR Requirements
    - Attachment 3: Tiered CEQA Compliance Approaches

2. Tiering Strategy Guidelines

The following Tiering Strategy Guidelines and Tiering Strategy Checklist (Attachment 1) have been developed to assist in determining whether an activity is consistent with the PEIR; what management practices, mitigation measures or other requirements from the PEIR may apply to the activity; and what additional CEQA analysis/documentation may be necessary. A schematic showing the overall process is provided in Figure 1. This is guidance only, and certain circumstances not covered in this checklist may warrant a different approach.

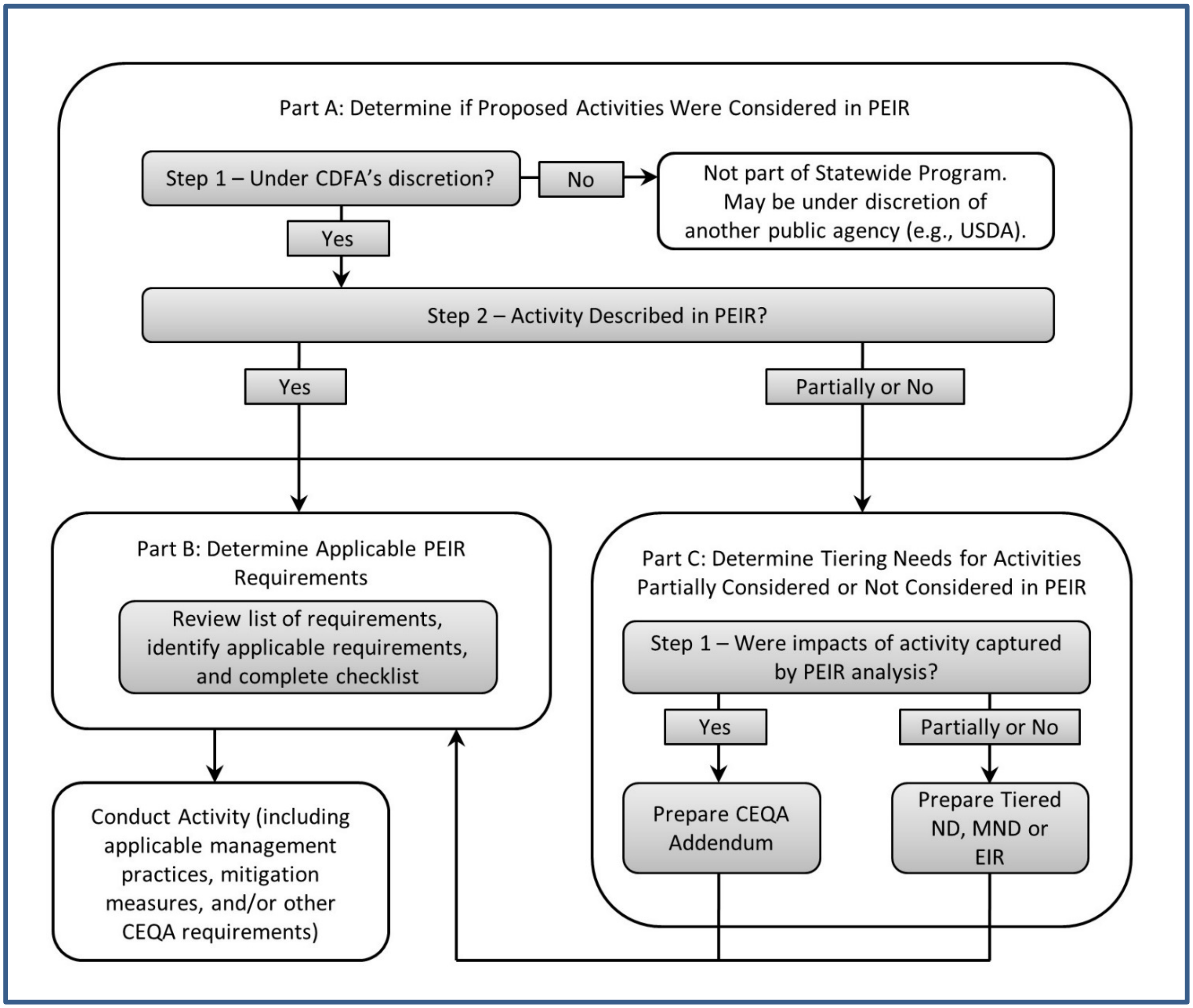

Figure 1. Flow Chart of Tiering Strategy Approach

These guidelines are divided into three parts, each of which has a set of questions or directions, as follows:

Part A: Determine if Proposed Activities Were Considered in PEIR

Part B: Determine Applicable PEIR Requirements

Part C: Determine Tiering Needs for Activities Partially Considered or Not Considered in PEIR

Within each part, a set of questions is presented to assist in completing the checklist. All referenced tables are provided at the end of the main body of the document (preceding the attachments). The Tiering Strategy Checklist should be used to document the conclusions reached using the Tiering Strategy Guidelines.

Part A – Determine if Proposed Activities Were Considered in PEIR

Step 1: Determine whether the activity is under the jurisdiction and discretion of CDFA, by answering the following questions:

Question	Response	Action	Examples
1. Is the activity conducted or funded by CDFA?	Yes	*Go to Step 2.*	• Urban containment and rapid response programs
	No	Go to Question 2.	
2. Is the activity conducted to meet requirements established by CDFA?	Yes	*Go to Step 2.*	• Regulations established by CDFA – e.g., interior quarantines, State exterior quarantines
	No	Not under jurisdiction of CDFA; compliance with PEIR not required.	• Regulations enforced by CDFA but established by others – e.g., foreign or federal domestic quarantines or federal orders established by USDA. • CDFA serving in advisory capacity

Step 2: Determine whether the activity was described and evaluated in the PEIR. See Chapters 2 and 3 of the PEIR. Answer the following question:

Question	Response	Action
1. Was the activity described and evaluated in the PEIR? Find your activity on Table 1 and review the related questions to assist in your determination.	Yes	*Go to Part B.*
	Partially or No	*Go to Part C.*

Part B – Determine Applicable PEIR Requirements

Using Tables 2 through 4, find your activity, identify applicable requirements, and check them off on the tiering strategy checklist. In some cases, you may need to refer to the text of a particular measure in the PEIR to determine applicability and specific requirements (see Attachment 1, *Summary of Management Practices, Mitigation Measures, and Other PEIR Requirements*).

Table 2: *Physical Management Activities*

Table 3: *Biological Management Activities*

Table 4: *Chemical Management Activities*

Part C – Determine Tiering Needs for Activities Partially Considered or Not Considered in PEIR

Step 1. Answer the following questions about your activity:

Question	Response	Action
1. Is activity substantially similar to that considered in the PEIR? See description of "substantially similar" in the text box below.	Yes	*Go to Step 2.*
	No	Go to Question 2.
2. If a mitigation measure that was not included in the PEIR is being considered, would it be equivalent or more effective to the mitigation measure originally considered in the PEIR? "Equivalent or more effective" means that the new measure will avoid or reduce the significant effect to at least the same degree as, or to a greater degree than, the original measure and will create no more adverse effect of its own than would have the original measure. See Attachment 1 for a description of PEIR mitigation measures.	Yes	*Go to Step 2.*
	No	Go to Question 3.
3. Would the activity result in potentially significant impacts which were (1) not considered in the PEIR, (2) not considered to be significant in the PEIR, or (3) would be more substantially more significant than disclosed in the PEIR? See Tables 5 through 7; if the activity is not listed on these tables, review all PEIR impacts for applicability.	Yes	*Go to Step 3.*
	No	*Go to Step 2.*

Step 2. Prepare CEQA Addendum and identify applicable PEIR requirements:

The activity is covered by the PEIR. This determination should be documented using a CEQA Addendum, following the guidance in Attachment 1. In addition, go back to Part B of the Tiering Strategy Guidelines to identify applicable PEIR requirements.

Step 3. Prepare tiered CEQA document:

The activity is only partially covered, or not covered, by the PEIR. Review Attachment 1 to determine the appropriate CEQA document needed, and prepare this document. Identify applicable PEIR requirements (refer to Part B of the Tiering Strategy Guidelines) and/or new requirements arising from the tiered CEQA document.

The tiered CEQA document need only focus on significant impacts which were either (1) not considered in the PEIR, (2) not considered to be significant in the PEIR, or (3) would be more substantially more significant than disclosed in the PEIR. In addition, it should document which impacts from the PEIR are applicable, and why.

Substantially Similar Pesticides and Activities to Those Considered in the PEIR

The Tiering Strategy Guidelines can be used to help determine whether impacts of a new pesticide or activity are substantially similar to or different than those considered in the PEIR. Although the definition of "substantially similar" primarily focuses on pesticide products, the concept is applicable to all Proposed Program activity types, including physical and biological management activities

Substantially Similar Pesticides

For pesticide products, a definition of substantially similar has been developed and is used by the U.S. Environmental Protection Agency (USEPA) and the California Department of Pesticide Regulation (CDPR) in the context of pesticide registration. In its Pesticide Registration Manual, USEPA defines a "substantially similar" pesticide product as being identical or substantially similar in its uses and formulation to one or more products that are currently registered and marketed in the United States or differs only in ways that would not significantly increase the risk of unreasonable adverse effects on the environment (http://www2.epa.gov/pesticide-registration/pesticide-registration-manual).

Example questions that are generated by this definition include:

- Ingredients – do the pesticide formulations differ?
- Concentration – is the quantity of chemicals similar?
- Labeling – is the amount and method of application similar?
- Risk on environment – is there any change in risk to humans or the environment?

Substantially Similar Activities

A determination of what constitutes substantially similar activity may be more flexible and less stringent than the determination for a pesticide product. Several examples are informative.

As a first example, potential exists that in the future, fruit stripping may be conducted in response to a pest that was not considered in the PEIR. If the methods and related impacts are similar to the fruit stripping activities considered in the PEIR, the activity may be considered "substantially similar" for the purposes of this Tiering Strategy. The key question would be whether fruit stripping in response to a new pest would result in environmental impacts that would be different or greater than those of the fruit stripping activities evaluated in the PEIR.

As a second example, a new interior quarantine may be established in the future in response to changing distribution of a pest, or a new pest. If the treatment methods to be used under this quarantine would be similar to quarantine treatments considered in the PEIR, and would not result in impacts that are different or greater than those evaluated in the PEIR, then the new quarantine could be considered "substantially similar."

Sterile insect releases are considered as a final example. Use of a different container to transport sterile insects would likely result in substantially similar impacts as those considered in the PEIR. Changes in the location or type of aircraft used to release sterile insects would be less similar, but if the impacts are comparable, still may result in the determination that the activity is "substantially similar."

3. Use of the PEIR by Other Public Agencies

Public agencies other than CDFA implement or oversee pest prevention and management activities, or may be a responsible agency for some of the activities that are part of the Proposed Program. These public agencies also may be able to use the PEIR for CEQA compliance or as a source of information.

Those using the PEIR in this manner may include county agricultural commissioner offices and various state or local agencies. County agricultural commissioners serve as the primary local enforcement agents for State agricultural laws and regulations. These commissioners carry out detection, eradication, exclusion, and other related regulatory activities in their respective counties, pursuant to California Food and Agriculture Code. They are responsible for enforcement of laws and regulations pertaining to the use of pesticides in any setting, whether for agricultural, institutional or other uses.

If a public agency other than CDFA intends to use the PEIR as a basis for CEQA compliance, it must adopt the PEIR as its own document, following the process described in Section 15096 of the CEQA Guidelines. After the PEIR is adopted by the public agency, the agency may use the PEIR as part of its own tiering strategy for CEQA compliance.

In addition, the PEIR may be used as a source of information for a public agency's independent environmental review of its proposed activities, through mechanisms such as incorporation by reference (see CEQA Guidelines Section 15150).

4. Maintenance of the PEIR

The PEIR evaluates the potential environmental impacts of the Proposed Program using the best information available at the time of its preparation. In the future, regulatory requirements or the environmental setting may change; similarly, the level of scientific information, technology, and understanding of the potential environmental impacts of Proposed Program activities may evolve, including knowledge gained during implementation of the Proposed Program. To ensure that the PEIR continues to be a useful tool for implementation of the Proposed Program over time, CDFA anticipates conducting regular review of the environmental analysis in the PEIR in the context of changed regulations, environmental setting, and scientific understanding as well as relevant changes to Proposed Program activities.

Examples of items that would be considered and may require updates resulting from maintenance reviews are as follows:

- Proposed Program activities
    - New or emerging pests
    - New or changed pest management programs
    - New or changed pest management techniques
    - Elimination of aspects of the Proposed Program (e.g., pests that have been eradicated, management techniques that are no longer in use)
- Regulatory requirements, environmental setting, and new scientific information
    - Pesticide registration status
    - Toxicity information for chemicals used in the Proposed Program
    - Regulatory thresholds (e.g., water quality or air quality standards)
    - Status of threatened and endangered species
    - Cumulative pesticide use
- Methodologies for evaluation of environmental impacts
    - Models used in the PEIR
        - Risk assessment
        - Air and greenhouse gas emissions

To the extent necessary, CDFA would prepare additional CEQA documentation, such as an addendum or tiered environmental document, to update the information required under CEQA and to support the continued use of the PEIR as the basis for CEQA compliance, to evaluate Proposed Program activities in the future.

Tables

Table 1. Questions to Assist in Determining Whether an Activity Was Described and evaluated in the PEIR

Activity Type	**Questions**
Physical Management Activities	
Inspection	Inspection activities have generally been covered by the PEIR. Answer "yes."
Trapping	Was the type of trap, its method of use, and if applicable, the chemicals it contains, described in Chapter 3 of the PEIR?
Pest Removal	Does the activity involve hand removal of egg masses or immersion in hot water?
Host Removal	Does the activity involve removal of host fruit or flowers, or fruit stripping? Is the host material going to be disposed of at a landfill, buried, or composted?
Cleaning	Will equipment cleaning be conducted using a power washer?
Restricted Movement (Quarantine)	The quarantine itself would not have impacts; rather, the activities that would be conducted in response to the quarantine must be evaluated to determine PEIR coverage. Identify these activities and evaluate using this table.
Biological Management Activities	
Biological Control Agents (BCAs)	Is the BCA to be released one of those listed in Chapter 3 of the PEIR, or has it been subjected to the approval process described in Chapter 2 of the PEIR?
Sterile Insect Technique	Is the sterile insect to be released using light aircraft or helicopter?
Chemical Management Activities	
Ground-Based Spray Applications Aerial Spray Applications Soil Applications Fumigation Mating Disruption	Is the activity described in one of the scenarios considered in the risk assessment document? Specifically, is the answer to the following questions "yes": • Are the active and inert ingredients in the chemical formulations to be used (including any adjuvants) the same? • Is the application method the same? Note that for scenarios involving a backpack sprayer, a groundboom may be used for foliar applications, and mechanically-pressurized sprayer may be used for either foliar or drench applications, as these methods would result in the same or reduced risk compared to the backpack sprayer. • Is the rate of application the same or less? • Is the area of application the same or less? • Is the number of applications the same or less? • Is the interval between applications the same or greater? • Is the application setting consistent with scenario's Conceptual Site Model?

Activity Type	Questions
	• Are there site-specific factors relative to the proposed activity which reduces potential for impacts compared to the scenario evaluated in the PEIR (e.g., intervening topography between application site and receptors, absence of water bodies, absence of receptors, etc.)? AND/OR Does the activity comply with Mitigation Measure HAZ-CHEM-3 See Attachment 1 to this Tiering Strategy.
Disinfection	Does the activity consist of the application of steam, alcohol, bleach, or Lysol onto farm equipment or tools?

Table 2. Checklist of PEIR Requirements for Physical Management Activities

PEIR Requirement	Physical Management Activity					
	Inspection	**Trapping**	**Pest Removal**	**Host Removal**	**Cleaning**	**Restricted Movement (Quarantine)**
General Requirements						
Conduct activity as described in Chapters 2 and 3 of PEIR[1]	Y	Y	Y	Y	Y	Y
Include applicable PEIR requirements in Compliance Agreements with regulated entities, based on the activities the entities may conduct in response to quarantine		Y				Y
Obtain technical assistance from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife						M[2]
Management Practices						
MP-SPRAY-1: Conduct a Site Assessment						M[2]
MP-SPRAY-2: Properly clean and calibrate all equipment to apply chemicals uniformly and in the correct quantities		Y				M[2]
MP-SPRAY-3: Follow pesticide application laws and regulations, and label directions.		Y				M[2]
MP-SPRAY-4: Apply chemicals only under favorable weather conditions						M[2]
MP-SPRAY-5: Follow integrated pest management and drift reduction techniques						M[2]
MP-SPRAY-6: Clean equipment and dispose of rinse water per label directions		Y				M[2]
MP-SPRAY-7: Follow appropriate product storage procedures		Y				M[2]
MP-AERIAL-1: Use appropriate aerial spray treatment procedures						M[2]
MP-GROUND-1: Follow appropriate ground-rig foliar treatment procedures						M[2]
MP-GROUND-2: Follow appropriate low-pressure backpack treatment procedures						M[2]
MP-GROUND-3: Train personnel in proper use of pesticides		Y				M[2]
MP-GROUND-4: Enforce runoff and drift prevention						M[2]
MP-HAZ-1: Implement a Spill Contingency Plan		Y				M[2]
MP-HAZ-2: Use a safety and cleanup materials checklist		Y				M[2]
MP-HAZ-3: Implement decontamination		Y				M[2]
MP-HAZ-4: Follow appropriate disposal procedures		Y				M[2]
Mitigation Measures						
Mitigation Measure BIO-CHEM-2: CDFA will obtain technical assistance from USFWS, CDFW and NMFS to identify site-specific buffers and other measures to protect habitats utilized by special-status species, and document compliance with these measures						M[2]
Mitigation Measure HAZ-GEN-4a: Determine Potential for Hazardous Materials Exposure	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-GEN-4b: Conduct a Hazardous Materials Records Search before Beginning Proposed Program Activities at a Given Site	M[3]	M[3]	M[3]	M[3]	M[3]	M[2]
Mitigation Measure HAZ-GEN-4c: Stop work and implement hazardous materials investigations/remediation for contamination health risks	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-CHEM-1a: Conduct Public Information Sessions Regarding Pesticide Safety Practices						M[2]
Mitigation Measure HAZ-CHEM-1b: Conduct Training Sessions and Prepare Educational Materials Regarding Safe Handling and Application of Pesticides						M[2]
Mitigation Measure HAZ-CHEM-3: Require Compliance with the Proposed Program's Authorized Chemical Application Scenarios						M[2]
Mitigation Measure NOISE-PHYS-1: Conduct Activities during the Daytime		M[4]		M[5]		M[2]
Mitigation Measure WQ-CHEM-2: Track Emerging Water Quality Standards and Implement Additional Mitigation as Appropriate						
Mitigation Measure WQ-CHEM-5: Require Implementation of Proposed Program MPs as Part of Compliance Agreements						Y
Mitigation Measure WQ-CUM-1: Identify whether Proposed Program Pesticide Applications May Occur in Proximity to Impaired Waterbodies, and Implement Appropriate MPs						Y

Key:
Y = requirement applies
M = requirement may apply, depending upon the nature of the activity (see notes)
Blank = requirement does not apply

Notes:

1. If activity would not be conducted as described in Chapters 2 and 3 of the PEIR, then use the Tiering Strategy Checklist to determine what, if any, additional requirements may apply.

	Physical Management Activity					
PEIR Requirement	Inspection	Trapping	Pest Removal	Host Removal	Cleaning	Restricted Movement (Quarantine)
2. Applicability of measure depends upon the nature of the activity being conducted. Identify the specific activities that would be conducted in the response to the quarantine, and use these tables to identify applicable requirements. 3. Only applies if Mitigation Measure HAZ-GEN-4a concludes that potential exists for exposure to hazardous materials contamination. 4. For use of SPLAT/Sprayed Bait, only if conducting activity within 220ft of a sensitive receptor at night. Otherwise, only if conducting activity within 415ft of a sensitive receptor at night. 5. Only if conducting activity within 375ft of a sensitive receptor at night.						

Table 3. Checklist of PEIR Requirements for Biological Management Activities

PEIR Requirement	Biological Management Activities	
	Biological Control Agents	**Sterile Insect Technique**
General Requirements		
Conduct activity as described in Chapters 2 and 3 of PEIR[1]	Y	Y
Include applicable PEIR requirements in Compliance Agreements with regulated entities, based on the activities the entities may conduct in response to quarantine		
Obtain technical assistance from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife		
Management Practices		
MP-SPRAY-1: Conduct a Site Assessment		
MP-SPRAY-2: Properly clean and calibrate all equipment to apply chemicals uniformly and in the correct quantities		
MP-SPRAY-3: Follow pesticide application laws and regulations, and label directions.		
MP-SPRAY-4: Apply chemicals only under favorable weather conditions		
MP-SPRAY-5: Follow integrated pest management and drift reduction techniques		
MP-SPRAY-6: Clean equipment and dispose of rinse water per label directions		
MP-SPRAY-7: Follow appropriate product storage procedures		
MP-AERIAL-1: Use appropriate aerial spray treatment procedures		
MP-GROUND-1: Follow appropriate ground-rig foliar treatment procedures		
MP-GROUND-2: Follow appropriate low-pressure backpack treatment procedures		
MP-GROUND-3: Train personnel in proper use of pesticides		
MP-GROUND-4: Enforce runoff and drift prevention		
MP-HAZ-1: Implement a Spill Contingency Plan		
MP-HAZ-2: Use a safety and cleanup materials checklist		
MP-HAZ-3: Implement decontamination		
MP-HAZ-4: Follow appropriate disposal procedures		
Mitigation Measures		
Mitigation Measure BIO-CHEM-2: CDFA will obtain technical assistance from USFWS, CDFW and NMFS to identify site-specific buffers and other measures to protect habitats utilized by special-status species, and document compliance with these measures		
Mitigation Measure HAZ-GEN-4a: Determine Potential for Hazardous Materials Exposure	Y	Y
Mitigation Measure HAZ-GEN-4b: Conduct a Hazardous Materials Records Search before Beginning Proposed Program Activities at a Given Site	M[2]	M[2]
Mitigation Measure HAZ-GEN-4c: Stop work and implement hazardous materials investigations/remediation for contamination health risks	Y	Y
Mitigation Measure HAZ-CHEM-1a: Conduct Public Information Sessions Regarding Pesticide Safety Practices		
Mitigation Measure HAZ-CHEM-1b: Conduct Training Sessions and Prepare Educational Materials Regarding Safe Handling and Application of Pesticides		
Mitigation Measure HAZ-CHEM-3: Require Compliance with the Proposed Program's Authorized Chemical Application Scenarios		
Mitigation Measure NOISE-PHYS-1: Conduct Activities during the Daytime	M[3]	M[4]
Mitigation Measure WQ-CHEM-2: Track Emerging Water Quality Standards and Implement Additional Mitigation as Appropriate		
Mitigation Measure WQ-CHEM-5: Require Implementation of Proposed Program MPs as Part of Compliance Agreements		
Mitigation Measure WQ-CUM-1: Identify whether Proposed Program Pesticide Applications May Occur in Proximity to Impaired Waterbodies, and Implement Appropriate MPs		

Key:
Y = requirement applies
M = requirement may apply, depending upon the nature of the activity
Blank = requirement does not apply

Notes:
1. If activity would not be conducted as described in Chapters 2 and 3 of the PEIR, then use the Tiering Strategy Checklist to determine what, if any, additional requirements may apply.
2. Only applies if Mitigation Measure HAZ-GEN-4a concludes that potential exists for exposure to hazardous materials contamination.
3. Only if conducting activity within 280ft of a sensitive receptor at night.
4. Only if conducting activity within 6,900ft of a sensitive receptor at night.

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Table 4. Checklist of PEIR Requirements for Chemical Management Activities

PEIR Requirement	Chemical Management Activities					
	Ground-Based Spray Applications	Aerial Spray Applications	Soil Applications	Fumigation	Mating Disruption	Disinfection
General Requirements						
Conduct activity as described in Chapters 2 and 3 of PEIR[1]	Y	Y	Y	Y	Y	Y
Include applicable PEIR requirements in Compliance Agreements with regulated entities, based on the activities the entities may conduct in response to quarantine	Y	Y	Y	Y	Y	Y
Obtain technical assistance from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife	Y	Y	Y			
Do not conduct in urban/residential areas		Y				
Management Practices						
MP-SPRAY-1: Conduct a Site Assessment	Y	Y	Y			
MP-SPRAY-2: Properly clean and calibrate all equipment to apply chemicals uniformly and in the correct quantities	Y	Y	Y	Y		
MP-SPRAY-3: Follow pesticide application laws and regulations, and label directions.	Y	Y	Y	Y	Y	Y
MP-SPRAY-4: Apply chemicals only under favorable weather conditions	Y	Y				
MP-SPRAY-5: Follow integrated pest management and drift reduction techniques	Y	Y				
MP-SPRAY-6: Clean equipment and dispose of rinse water per label directions	Y	Y	Y	Y	Y	Y
MP-SPRAY-7: Follow appropriate product storage procedures	Y	Y	Y	Y	Y	Y
MP-AERIAL-1: Use appropriate aerial spray treatment procedures		Y				
MP-GROUND-1: Follow appropriate ground-rig foliar treatment procedures	Y[2]					
MP-GROUND-2: Follow appropriate low-pressure backpack treatment procedures	Y[2]					
MP-GROUND-3: Train personnel in proper use of pesticides	Y	Y	Y	Y	Y	Y
MP-GROUND-4: Enforce runoff and drift prevention	Y	Y	Y			
MP-HAZ-1: Implement a Spill Contingency Plan	Y	Y	Y	Y	Y	Y
MP-HAZ-2: Use a safety and cleanup materials checklist	Y	Y	Y	Y	Y	Y
MP-HAZ-3: Implement decontamination	Y	Y	Y	Y	Y	Y
MP-HAZ-4: Follow appropriate disposal procedures	Y	Y	Y	Y	Y	Y
Mitigation Measures						
Mitigation Measure BIO-CHEM-2: CDFA will obtain technical assistance from USFWS, CDFW and NMFS to identify site-specific buffers and other measures to protect habitats utilized by special-status species, and document compliance with these measures	Y	Y	Y			
Mitigation Measure HAZ-GEN-4a: Determine Potential for Hazardous Materials Exposure	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-GEN-4b: Conduct a Hazardous Materials Records Search before Beginning Proposed Program Activities at a Given Site	M[3]	M[3]	M[3]	M[3]	M[3]	M[3]
Mitigation Measure HAZ-GEN-4c: Stop work and implement hazardous materials investigations/remediation for contamination health risks	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-CHEM-1a: Conduct Public Information Sessions Regarding Pesticide Safety Practices	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-CHEM-1b: Conduct Training Sessions and Prepare Educational Materials Regarding Safe Handling and Application of Pesticides	Y	Y	Y	Y	Y	Y
Mitigation Measure HAZ-CHEM-3: Require Compliance with the Proposed Program's Authorized Chemical Application Scenarios	Y	Y	Y	Y	Y	Y
Mitigation Measure NOISE-PHYS-1: Conduct Activities during the Daytime	M[4]	M[5]	M[6]	M[7]		
Mitigation Measure WQ-CHEM-2: Track Emerging Water Quality Standards and Implement Additional Mitigation as Appropriate						
Mitigation Measure WQ-CHEM-5: Require Implementation of Proposed Program MPs as Part of Compliance Agreements						
Mitigation Measure WQ-CUM-1: Identify whether Proposed Program Pesticide Applications May Occur in Proximity to Impaired Waterbodies, and Implement Appropriate MPs						

Key:
Y = requirement applies
M = requirement may apply, depending upon the nature of the activity
Blank = requirement does not apply

Notes:

PEIR Requirement	Chemical Management Activities: Ground-Based Spray Applications	Aerial Spray Applications	Soil Applications	Fumigation	Mating Disruption	Disinfection

1. If activity would not be conducted as described in Chapters 2 and 3 of the PEIR, then use the Tiering Strategy Checklist to determine what, if any, additional requirements may apply.
2. Applicability depends upon the type of application equipment being used.
3. Only applies if Mitigation Measure HAZ-GEN-4a concludes that potential exists for exposure to hazardous materials contamination.
4. For airblast, only if conducting activity within 2,300ft of a sensitive receptor at night. For boom spray, only if conducting activity within 2,250ft of a sensitive receptor at night. Does not apply to other ground-based spray application techniques.
5. Only if conducting activity within 9,500ft of a sensitive receptor at night.
6. For tablet soil injection, only if conducting activity within 280ft of a sensitive receptor at night. For other types of soil injection, only if conducting activity within 600ft of a sensitive receptor at night. For chemigation, only if conducting activity within 1,850ft of a sensitive receptor at night. Does not apply to other soil application techniques.
7. Only if conducting activities within 625ft of a sensitive receptor at night.

Table 5. List of PEIR Impacts, Physical Management Activities

Impact Topic	Activity: Inspection	Trapping	Pest Removal	Host Removal	Cleaning	Restricted Movement (Quarantine)
Topics Considered in Detail in PEIR						
Agricultural Resources	AG-PHYS-1, AG-CUM-3					AG-PHYS-2, AG-CUM-3
Air Quality	All Impacts					
Biological Resources	BIO-PHYS-3, BIO-CUM-1	BIO-PHYS-4, BIO-PHYS-5, BIO-CHEM-6, BIO-CUM-1	BIO-CUM-1	BIO-PHYS-2, BIO-PHYS-6, BIO-CUM-1	BIO-CUM-1	BIO-PHYS-1, BIO-PHYS-2, BIO-PHYS-7, BIO-CUM-1
Global Climate Change	All Impacts					
Hazards & Hazardous Materials	HAZ-GEN-1, HAZ-GEN-2, HAZ-GEN-3, HAZ-GEN-4, HAZ-GEN-5, HAZ-GEN-6, HAZ-PHYS-1, HAZ-CUM-1, HAZ-CUM-2					
Noise	NOISE-PHYS-1, NOISE-PHYS-2, NOISE-PHYS-3, NOISE-CUM-1					
Water Quality	WQ-ALL-1					
Topics Not Considered in Detail in PEIR						
Aesthetics	Review the questions from CEQA Guidelines Appendix G for applicability. Consider the rationale for dismissal from PEIR, as presented in PEIR Section 6.0.5.					
Cultural Resources						
Geology and Soils						
Hydrology						
Land Use/Planning						
Mineral Resources						
Population/Housing						
Public Services						
Recreation						
Transportation/Traffic						
Utilities/Service Systems						

Table 6. List of PEIR Impacts, Biological Management Activities

Impact Topic	Activity	
	Biological Control Agents	**Sterile Insect Technique**
Topics Considered in Detail in PEIR		
Agricultural Resources	AG-BIO-1, AG-CUM-3	AG-CUM-3
Air Quality	All Impacts	
Biological Resources	BIO-BIO-3, BIO-CUM-1	BIO-BIO-1, BIO-BIO-2, BIO-CUM-1
Global Climate Change	All Impacts	
Hazards & Hazardous Materials	HAZ-GEN-1, HAZ-GEN-2, HAZ-GEN-3, HAZ-GEN-4, HAZ-GEN-5, HAZ-GEN-6, HAZ-BIO-1, HAZ-CUM-1, HAZ-CUM-2	
Noise	NOISE-BIO-1, NOISE-BIO-2, NOISE-CUM-1	
Water Quality	WQ-ALL-1	
Topics Not Considered in Detail in PEIR		
Aesthetics	Review the questions from CEQA Guidelines Appendix G for applicability. Consider the rationale for dismissal from PEIR, as presented in PEIR Section 6.0.5.	
Cultural Resources		
Geology and Soils		
Hydrology		
Land Use/Planning		
Mineral Resources		
Population/Housing		
Public Services		
Recreation		
Transportation/Traffic		
Utilities/Service Systems		

Table 7. List of PEIR Impacts, Chemical Management Activities

<table>
<tr><th rowspan="2">Impact Topic</th><th colspan="6">Activity</th></tr>
<tr><th>Ground-Based Spray Applications</th><th>Aerial Spray Applications</th><th>Soil Applications</th><th>Fumigation</th><th>Mating Disruption</th><th>Disinfection</th></tr>
<tr><td colspan="7">Topics Considered in Detail in PEIR</td></tr>
<tr><td>Agricultural Resources</td><td colspan="6">AG-CHEM-1, AG-CHEM-2, AG-CHEM-3, AG-CUM-1, AG-CUM-2, AG-CUM-3</td></tr>
<tr><td>Air Quality</td><td colspan="6">All Impacts</td></tr>
<tr><td>Biological Resources</td><td colspan="6">BIO-CHEM-2, BIO-CHEM-3, BIO-CHEM-4, BIO-CHEM-5,
BIO-CUM-1, BIO-CUM-2, BIO-CUM-3</td></tr>
<tr><td>Global Climate Change</td><td colspan="6">All Impacts</td></tr>
<tr><td>Hazards & Hazardous Materials</td><td colspan="6">HAZ-GEN-1, HAZ-GEN-2, HAZ-GEN-3, HAZ-GEN-4, HAZ-GEN-5, HAZ-GEN-6,
HAZ-CHEM-1, HAZ-CHEM-2, HAZ-CHEM-3, HAZ-CUM-1, HAZ-CUM-2</td></tr>
<tr><td>Noise</td><td colspan="6">NOISE-CHEM-1, NOISE-CHEM-2, NOISE-CUM-1</td></tr>
<tr><td>Water Quality</td><td colspan="6">All Impacts</td></tr>
<tr><td colspan="7">Topics Not Considered in Detail in PEIR</td></tr>
<tr><td>Aesthetics</td><td colspan="6" rowspan="11">Review the questions from CEQA Guidelines Appendix G for applicability.
Consider the rationale for dismissal from PEIR, as presented in PEIR Section 6.0.5.</td></tr>
<tr><td>Cultural Resources</td></tr>
<tr><td>Geology and Soils</td></tr>
<tr><td>Hydrology</td></tr>
<tr><td>Land Use/Planning</td></tr>
<tr><td>Mineral Resources</td></tr>
<tr><td>Population/Housing</td></tr>
<tr><td>Public Services</td></tr>
<tr><td>Recreation</td></tr>
<tr><td>Transportation/Traffic</td></tr>
<tr><td>Utilities/Service Systems</td></tr>
</table>

Attachment 1 - Tiering Strategy Checklist

Start Date:	
Project Leader:	
Description of Activity:	
Activity Surroundings (Residential, agriculture, mixed use, other regulated entities):	

Part A

	Response	Justification/Rationale
Is the proposed activity under CDFA's discretion?		
Is the activity described in the PEIR?		(If the Response is "Partially" or "No" skip to Part C)

Part B

			Check Applicable Requirements
General Requirements			
Conduct activity as described in Chapters 2 and 3 of PEIR			
Include applicable PEIR requirements in Compliance Agreements with regulated entities, based on the activities the regulated entities may conduct in response to quarantine			
Activity Site Specific Review			
Database	**Date Reviewed**	**Mitigation If Any**	
California Natural Diversity Database			
303(d) List of Impaired Waters			
EnviroStor Hazardous Site			

	Check Applicable Requirements
Management Practices	
MP-SPRAY-1: Conduct a Site Assessment	
MP-SPRAY-2: Properly clean and calibrate all equipment to apply chemicals uniformly and in the correct quantities	
MP-SPRAY-3: Follow pesticide application laws and regulations, and label directions	
MP-SPRAY-4: Apply chemicals only under favorable weather conditions	
MP-SPRAY-5: Follow integrated pest management and drift reduction techniques	
MP-SPRAY-6: Clean equipment and dispose of rinse water per label directions	
MP-SPRAY-7: Follow appropriate product storage procedures	
MP-AERIAL-1: Use appropriate aerial spray treatment procedures	
MP-GROUND-1: Follow appropriate ground-rig foliar treatment procedures	
MP-GROUND-2: Follow appropriate low-pressure backpack treatment procedures	
MP-GROUND-3: Train personnel in proper use of pesticides	
MP-GROUND-4: Enforce runoff and drift prevention	
MP-HAZ-1: Implement a Spill Contingency Plan	
MP-HAZ-2: Use safety and cleanup materials checklist	
MP-HAZ-3: Implement decontamination	
MP-HAZ-4: Follow appropriate disposal procedures	
Mitigation Measures	
Mitigation Measure BIO-CHEM-2: CDFA will obtain technical assistance from USFWS, CDFW and NMFS to identify site-specific buffers and other measures to protect habitats utilized by special-status species	
Mitigation Measure HAZ-GEN-4a: Determine Potential for Hazardous Materials Exposure	
Mitigation Measure HAZ-GEN-4b: Conduct a Hazardous Materials Records Search before Beginning Proposed Program Activities at a Given Site	
Mitigation Measure HAZ-GEN-4c: Stop work and implement hazardous materials investigations/ remediation for contamination health risks	
Mitigation Measure HAZ-CHEM-1a: Conduct Public Information Sessions Regarding Pesticide Safety Practices	
Mitigation Measure HAZ-CHEM-1b: Conduct Training Sessions and Prepare Educational Materials Regarding Safe Handling and Application of Pesticides	
Mitigation Measure HAZ-CHEM-3: Require Compliance with the Proposed Program's Authorized Chemical Application Scenarios	
Mitigation Measure NOISE-PHYS-1: Conduct Activities during the Daytime	
Mitigation Measure WQ-CHEM-2: Track Emerging Water Quality Standards and Implement Additional Mitigation as Appropriate	
Mitigation Measure WQ-CHEM-5: Require Implementation of Proposed Program MPs as Part of Compliance Agreements	
Mitigation Measure WQ-CUM-1: Identify whether Proposed Program Pesticide Applications May Occur in Proximity to Impaired Waterbodies, and Implement Appropriate MPs	

Part C

	Y/N	Justification/Rationale
Step 1		
Is the Activity substantially similar to that considered in the PEIR?		(If yes go to Step 2, if no move to the next question)
If a management practice that was not included in the PEIR is being considered, would it be equivalent or more effective to the management practice originally considered in the PEIR?		(If yes go to Step 2, if no move to the next question)
If a mitigation measure that was not included in the PEIR is being considered, would it be equivalent or more effective to the mitigation measure originally considered in the PEIR?		(If yes go to Step 2, if no move to the next question)
Would the activity result in potentially significant impacts which were not considered in the PEIR, not considered to be significant in the PEIR, or would be substantially more significant than disclosed in the PEIR?		(If yes go to Step 3, if no go to Step 2)
Step 2	Attach supporting documentation for determination, and CEQA Addendum, as applicable	
Step 3	Attach tiered CEQA document, and identify additional requirements from that document	

Confirmation of Implementation (following completion of activity)	
Project Leader Name:	
Signature*:	
End Date:	

*This signature confirms that all applicable requirements identified on this checklist and related documentation has been properly implemented.

Attachment 2 - Summary of Management Practices, Mitigation Measures, and Other PEIR Requirements

Requirement	Description
	General Requirements
Conduct activity as described in Chapters 2 and 3 of PEIR	Activities covered by the PEIR are described in PEIR Chapters 2 and 3. Activities must be implemented in accordance with these descriptions, unless an Addendum or tiered CEQA document has been prepared pursuant to Part B of the Tiering Strategy.
Include applicable PEIR requirements in Compliance Agreements with growers, based on the activities the growers may conduct in response to quarantine	When a regulated entity (e.g., grower) wishes to ship host material outside of an established quarantine area, CDFA and the regulated entity enter into a Compliance Agreement to ensure the orderly marketing of regulated hosts or articles. The Compliance Agreement must include any relevant PEIR requirements, such as descriptions of authorized chemical treatments, protective measures related to special-status species, MPs, applicable PEIR mitigation measures, etc.
Obtain technical assistance from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife	CDFA designs its pest eradication protocols to meet or exceed recommendations from USFWS and the California Department of Fish and Wildlife (CDFW) concerning special-status species and sensitive natural communities (as defined in Section 6.3, Biological Resources). CDFA also coordinates with NMFS to address control programs for non-native pest outbreaks that may impact species under their jurisdiction (i.e., ocean coastlines or streams that empty into the ocean). Under the existing Statewide Program, no impacts on special-status species or sensitive natural communities have been identified from pest management activities to date. Under the Proposed Program, CDFA would continue to coordinate with USFWS, NMFS, and CDFW to avoid “take” of threatened and endangered species and to minimize adverse environmental impacts on other special-status species and sensitive natural communities. Prior to making the decision to treat, CDFA would consult the California Natural Diversity Database (CNDDB) for special-status species previously reported inside or in close proximity to the treatment area boundaries, as well as check for the potential for presence of special-status species habitat and/or sensitive natural communities. CDFA would report the results to USFWS, NMFS, and/or CDFW. CDFA, in conjunction with the county agricultural commissioner, would provide USFWS, NMFS, and/or CDFW with maps showing the proposed treatment areas and identifying the treatment activity. CDFA would develop measures to avoid adverse environmental impacts on these resources and would notify USFWS, NMFS, and/or CDFW (depending on the potentially affected species) of pest control activities and the protective measures proposed for use. If any of these wildlife agencies responded to CDFA with a conclusion that the proposed activities would pose potential for “take” of threatened or endangered species, or other special-status species, CDFA would coordinate further with these agencies regarding the appropriate measures to avoid

Requirement	Description
	impacts. The presence of special-status species or sensitive natural communities may require treatment regimen alterations so that take of the species, or adverse modification of sensitive natural communities, would not occur. Treatment plans are designed so that "take" of special-status species would not occur. This may mean that a section of riparian area would be treated only partially (e.g., no insecticides sprayed on trees above a certain height level so that no drift would occur into the associated waterbody) or no treatment would occur at all, however, this would likely lead to full establishment of the invasive pest.
Management Practices	
MP-SPRAY-1: Conduct a Site Assessment	▪ Verify site to be treated. ▪ Take note of site conditions, such as soil texture, slope, water bodies, host plants, irrigation, and storm drains. ▪ Identify and make plans to avoid streamside management areas and surface water. ▪ Consider integrated pest management methods designed to minimize the scale and number of pesticide applications. Consider multiple measures such as sterile release, host removal, and bait stations. ▪ Choose the least persistent and lowest toxicity pesticide that will efficaciously treat the target pest.
MP-SPRAY-2: Properly clean and calibrate all equipment to apply chemicals uniformly and in the correct quantities	▪ Calibrate spray equipment per label instructions. ▪ Perform equipment screening tests and tank sampling when appropriate. ▪ Use dedicated specific equipment for specific products when appropriate. ▪ Ensure equipment is cleaned properly per the manufacturer's specifications and any pesticide label directions. ▪ Select the appropriate nozzle to ensure proper coverage. ▪ Maintain an equipment log to track calibration, cleaning, and repairs. ▪ Conduct visual inspections of equipment before use. Check all equipment for leaking hoses, connections, and nozzles. ▪ Monitor the operation of the nozzles during the application. ▪ Request county agricultural commissioner pesticide use enforcement inspections and monitoring of applications. ▪ Discontinue use immediately if equipment malfunctions or fails to pass screening tests.
MP-SPRAY-3: Follow pesticide application laws and regulations, and label directions.	▪ Comply with Pesticide label. ▪ Require employees who supervise the handling and application of pesticides to maintain a Qualified Applicator License issued by CDPR. ▪ Be aware of any regulations or internal procedures before application. ▪ Use appropriate application methods and rates.

Requirement	Description
	▪ Mix and load chemicals in areas where spills can be contained. Limit mixing and loading in the field. ▪ Provide annual safety training for all treatment personnel.
MP-SPRAY-4: Apply chemicals only under favorable weather conditions	▪ Monitor wind conditions. Delay or do not apply foliar sprays if wind speeds are over 10 miles per hour. ▪ Check weather service prior to application. Delay or do not apply foliar treatments if there is a 40% or higher chance of rain forecast to occur 24 hours before or after the planned application.
MP-SPRAY-5: Follow integrated pest management and drift reduction techniques	▪ Use buffer zones where applicable to protect sensitive areas, such as bodies of water, critical habitat for threatened and endangered species, and other identified sensitive areas. ▪ Use low pressure application equipment if applicable. ▪ Use “bait station” application methods when possible.
MP-SPRAY-6: Clean equipment and dispose of rinse water per label directions	▪ Rinse equipment according to manufacturer’s label instructions. ▪ Discharge rinse water only in areas that are part of the application site or at a certified waste treatment facility. ▪ Dispose of surplus chemicals and containers according to label instructions.
MP-SPRAY-7: Follow appropriate product storage procedures	▪ Ensure proper storage of all pesticides per label instructions. ▪ Ensure all pesticides removed from their original container are properly sealed for use within a service container. ▪ Seal all service containers within a tool box. ▪ Lock tool boxes when unattended.
MP-AERIAL-1: Use appropriate aerial spray treatment procedures	▪ Do not make direct application to water bodies. ▪ Use dripless nozzles if available. ▪ Verify the calibration of the contractor’s spray equipment before the start of each treatment campaign. ▪ Make sure that the aircraft pilot is in radio communication with Proposed Program personnel on the ground, to verify wind speed and direction and location of non-target sites, including water bodies, people, vehicles, and buildings. ▪ Supervise mixing and loading of the aircraft.
MP-GROUND-1: Follow appropriate ground-rig foliar treatment procedures	▪ Avoid direct applications to water bodies unless the material is registered for such use. ▪ Maintain a 30-foot buffer around water bodies per NPDES permit. ▪ Use dripless nozzles or fan-type nozzles at low psi if applicable. ▪ When using a blower boom, direct the blower boom to the precise angle needed to treat host plants. ▪ Ensure the spray boom is equipped with an electric on/off switch to treat the precise target areas where host plants occur. ▪ Monitor wind conditions. Delay or do not apply foliar sprays if

Requirement	Description
	wind speeds are over 10 miles per hour. ▪ Perform ground-rig foliar treatments at low pressure, to reduce the quantity of fine droplet particles where applicable. ▪ Allow only staff or private entities under contract that are appropriately trained and licensed to perform ground-rig spot treatments. ▪ Check weather service prior to application. Delay foliar treatments if there is a 40% or higher chance of rain forecast to occur 24 hours before or after the planned application.
MP-GROUND-2: Follow appropriate low-pressure backpack treatment procedures	▪ Avoid direct applications to water bodies unless material is registered for such use. ▪ Maintain a 30-foot buffer from water bodies per NPDES permit. ▪ Use dripless nozzles where applicable. ▪ Direct the nozzle at the target to minimize drift. ▪ Monitor wind conditions. Delay or do not apply foliar sprays if wind speeds are over 10 miles per hour. ▪ Allow only trained staff to perform backpack spot treatments. ▪ Monitor weather conditions. Delay foliar treatments if there is a 40% or higher chance of rain forecast to occur in the next 24 hours.
MP-GROUND-3: Train personnel in proper use of pesticides	▪ Conduct training for personnel in the safe and proper mixing, loading, and application of pesticides, in compliance with both federal and State pesticide regulations and the product label. ▪ Require employees who supervise the handling and application of pesticides maintain a Qualified Applicator Certificate, issued by CDPR or have a County License for Pesticide Regulation. ▪ Contractors will be appropriately trained and licensed.
MP-GROUND-4: Enforce runoff and drift prevention	▪ Carefully monitor and evaluate weather conditions within potential treatment areas to determine the effectiveness of control applications immediately before deciding whether to proceed with a treatment and during the course of a treatment. o Monitor weather conditions before and during applications o Comply with NPDES Permit.
MP-HAZ-1: Implement a Spill Contingency Plan	▪ Contain spill immediately to minimize the risk of further pesticide exposure to people, animals, and the environment. ▪ Be prepared to respond to pesticide spills. ▪ Provide clean-up of small spills (50 gallons or less) and properly dispose of residual materials. For larger spills notify the Chemical Transportation Emergency Center at 800-424-9300. ▪ Use established protocols in determining the appropriate action in the event of an accidental crash of a spray rig, tanker, or aircraft. ▪ Follow instructions for First Aid Measures as listed on the Material Safety Data Sheet.

<table>
<tr><th>Requirement</th><th>Description</th></tr>
<tr><td></td><td>

Call an ambulance in the event of a spill involving severe personal injury.
Remove anyone exposed to pesticides to a safe location. If applicable, remove their clothing and wash contaminated skin with soap and water.
Do not move a seriously injured person unless it is absolutely essential because of the risk of further injury.
Do not leave injured or incapacitated persons until proper medical assistance arrives.
Provide a pesticide label and/or material safety data sheet for medical personnel.
For any spill incident, contact the California State Warning Center/Governor's Office of Emergency Services at 916-845-8911 or warning.center@oes.ca.gov.
Call the fire department and notify department personnel of the presence of pesticides for a spill involving fire, if a fire hazard exists. Eliminate all sources of ignition (electric motors, gasoline engines, or smoking) to prevent fire or explosion.
Contact the California Highway Patrol by calling 911 for a spill occurring on a highway.
Call local police or the county sheriff for a spill occurring off-road.
Stop the leak and contain the spill of a punctured tank.
For minor spills of 50 gallons or less:

Wear rubber boots, coveralls, rubber gloves, and eye protection.
Confine the leak or spill to the smallest area possible by using natural terrain, soil, or absorbent material.
Shovel contaminated material into a leak-proof container.
Do not hose down the area.
Work carefully and safely; do not hurry.
Dispose contaminated material in the same manner as for excess pesticides or hazardous wastes.

For major spills of 50 gallons or more:

Follow the steps listed for all above and include the additional number below.
If the spill is too big, or uncertainty exists as to the appropriate action, notify the Chemical Transportation Emergency Center at 800-424-9300.

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<tr><td>MP-HAZ-2: Use a safety and cleanup materials checklist</td><td>

Follow a checklist for safety and cleanup materials to accompany mixing-loading vehicles during treatment activities, which should include the following:

For Safety: a first-aid kit; a fire extinguisher (516, type A-B-C), and goggles.
For Clean-up: one shovel, large heavy-duty plastic bags, rubber boots, disposable coveralls, water, rubber gloves, a broom and dust pan, liquid detergent, several

</td></tr>
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Requirement	Description
	bags of "kitty litter" or other absorbent materials.
MP-HAZ-3: Implement decontamination	▪ Decontaminate paved surfaces per site specific protocols and Accidental Release Measures on the Material Safety Data Sheet. ▪ Shovel contaminated material into a leak-proof metal drum for final disposal.
MP-HAZ-4: Follow appropriate disposal procedures	▪ Dispose all materials that have been contaminated by spillage or exposed to large volumes of pesticides, including cloth, soil, and wood that cannot be decontaminated, in the same manner as done for excess pesticides. ▪ Store contaminated absorbent material and materials that cannot be decontaminated in a leak-proof container and dispose the container at a Class I landfill.
Mitigation Measures	
Mitigation Measure BIO-CHEM-2: CDFA will obtain technical assistance from USFWS, CDFW and NMFS to identify site-specific buffers and other measures to protect habitats utilized by special-status species	CDFA shall identify any suitable habitat for special-status wildlife species identified as having potential to (1) occur in the region and (2) be affected by the treatment scenario in question. Suitable habitat may consist of aquatic or terrestrial foraging habitat. If such habitat exists, CDFA would prepare treatment plans that will avoid or minimize substantial adverse effects on special-status species and submit them to USFWS, CDFW, and NMFS for review. This may be done on a project-specific basis (for individual applications) or for an entire quarantine area. Treatment plan measures may include modifications in the timing, locations, and/or methods for chemical treatments on a case-by-case basis, including establishment of site-specific buffers. The technical assistance process has been designed so that no "take" authorization will be needed. The treatment plan requirements will be provided to those implementing the treatments. In the case of quarantines, the requirements will be attached to the compliance agreement between CDFA and those individual growers affected by the requirements (e.g., those who may treat in proximity to suitable habitat for special-status species). CDFA shall document the results of the USFWS, CDFW, and NMFS coordination, and shall maintain records of compliance with the measures to protect special-status species.
Mitigation Measure HAZ-GEN-4a: Determine Potential for Hazardous Materials Exposure	Before conducting any activities under the Proposed Program, CDFA staff (or the entity conducting the activity) shall determine whether the potential exists for the activity, based on its characteristics and location, to result in exposure to existing sites of hazardous materials contamination.
Mitigation Measure HAZ-GEN-4b: Conduct a Hazardous Materials	If exposure to hazardous materials contamination is determined to be a possibility, before conducting the activity under the Proposed Program,

Requirement	Description
Records Search before Beginning Proposed Program Activities at a Given Site	CDFA staff (or the entity conducting the activity) shall search the EnviroStor database to identify any area that may be on sites containing known hazardous materials. If hazardous sites are encountered, CDFA shall coordinate with the property owners and/or site managers, and regulatory agencies with jurisdiction over these sites for proper protocols to follow to protect worker health and safety. At a minimum, these protocols shall ensure that workers are not subjected to unacceptable health risk or hazards, as determined by existing regulations and standards that have been developed to protect human health.
Mitigation Measure HAZ-GEN-4c: Stop work and implement hazardous materials investigations/ remediation for contamination health risks	In the event that during the activity, previously unknown hazardous materials not related to the Proposed Program are encountered that may pose a health risk to those implementing Proposed Program activities, all activities will stop and CDFA (or the entity conducting the activity) shall consult the landowner and appropriate agencies to determine the extent of the hazardous material and determine what safety protocols need to be implemented to continue Proposed Program activities. At a minimum, these protocols will ensure that workers are not subjected to unacceptable health risk or hazards, as determined by existing regulations and standards that have been developed to protect human health.
Mitigation Measure HAZ-CHEM-1a: Conduct Public Information Sessions Regarding Pesticide Safety Practices	CDFA shall continue to work with CDPR and CACs to conduct public information sessions in the local communities where Proposed Program chemical management activities are proposed to be conducted. The focus will be on educating residents whose properties are being treated or who live in proximity to areas being treated on MPs for pesticide applications, including an emphasis on notification, signage, re-entry periods, potential adverse health effects, and how to seek proper help if an accident is suspected. As necessary, sessions will be conducted or translated in a language understood by the target audience, such as Spanish.
Mitigation Measure HAZ-CHEM-1b: Conduct Training Sessions and Prepare Educational Materials Regarding Safe Handling and Application of Pesticides	CDFA shall continue training sessions for its staff and contractors regarding safe pesticide handling and application. In addition, for quarantine areas, CDFA shall include materials in its compliance agreements with regulated entities (e.g., growers) with information for pesticide applicators and agricultural workers regarding MPs for pesticide applications, including an emphasis on notification, signage, re-entry periods, potential adverse health effects, and how to seek proper help if an accident is suspected. A regulated entity is defined as someone who has to comply with the quarantine requirements in order to move their products outside of the regulated area. This may include but not be limited to growers, nurseries, and commodity shippers. The compliance agreements will require that regulated entities distribute these materials to applicators and workers. As necessary, all materials will be presented in a language understood by the target audience, such as Spanish.
Mitigation Measure HAZ-CHEM-3:	CDFA shall require Proposed Program staff and contractors to conduct

Requirement	Description
Require Compliance with the Proposed Program's Authorized Chemical Application Scenarios	chemical applications in a manner consistent with the Proposed Program's authorized chemical application scenarios, resulting in acceptable human health risk as described in Chapter 2, Proposed Program Description and the HHRA (Appendix B). Deviations from the authorized chemical application scenarios may be allowed if: (1) An evaluation is conducted pursuant to the CEQA Tiering Strategy (Appendix C), which concludes that the alternative scenario will not exceed the level of concern for any receptor; or (2) A certified industrial hygienist concludes that the alternative scenario will not result in risk exceeding the level of concern for any potential receptor, and the scenario is implemented by a licensed or certified applicator. This conclusion may be based on site-specific factors that minimize potential for exposure, absence of a particular receptor, use of additional or different PPE, or monitoring of the exposure, such as regular blood tests to ensure blood concentrations in the exposed individuals are below the risk threshold. When methyl bromide is used, appropriate air sampling and analysis by a qualified professional will be done for the fumigation worker and fumigation downwind bystander to evaluate the effectiveness of BMPs related to subchronic and chronic exposure. The results of the evaluation or hygienist's conclusions will be documented, along with any monitoring results. CDFA will conduct training for its staff and contractors on these approaches. CDFA also will require adherence to these scenarios by including requirements in contractual agreements, such as compliance agreements (for quarantines), permits (e.g., for movement of certain materials outside quarantine areas), contracts (e.g., with CDFA contractors), or other similar means.
Mitigation Measure NOISE-PHYS-1: Conduct Activities during the Daytime	For activities that exceed the applicable nighttime noise criteria at the nearest sensitive receptor, activity operations will be scheduled to occur during the day (between 6 a.m. and 10 p.m.).
Mitigation Measure WQ-CHEM-2: Track Emerging Water Quality Standards and Implement Additional Mitigation as Appropriate	CDFA will track whether new applicable numerical water quality standards have been adopted. If new numerical thresholds are established, CDFA will evaluate whether the estimated concentrations modeled in the Ecological Risk Assessment exceed the adopted standard. In these cases, Impact WQ-CHEM-4 or WQ-CHEM-5 would apply (including implementation of appropriate MPs as described in those impacts), and Mitigation Measure WQ-CHEM-4 would be implemented related to quarantine activities.
Mitigation Measure WQ-CHEM-5: Require Implementation of Proposed Program MPs as Part of Compliance	For quarantine areas where chemicals may be used that were modeled to exceed standards, or where impaired waterbodies exist which could be affected by Proposed Program chemical use, CDFA shall include a

Requirement	Description
Agreements	requirement in compliance agreements that regulated entities (e.g. growers) are to implement relevant Proposed Program MPs, or shall show proof that participation in the Ag Waivers Program or another program to protect water quality contains measures which are equivalent to or more protective than the Proposed Program MPs.
Mitigation Measure WQ-CUM-1: Identify whether Proposed Program Pesticide Applications May Occur in Proximity to Impaired Waterbodies, and Implement Appropriate MPs	Before conducting a treatment or implementing a quarantine, CDFA shall identify whether a treatment location or quarantine area contains or is in proximity to any waterbodies impaired for relevant pesticides, pesticides in general, or toxicity. For those treatments where impaired waterbodies are present, CDFA shall implement relevant Proposed Program MPs. For quarantines where impaired waterbodies exist, CDFA shall implement Mitigation Measure WQ-CHEM-5.

Attachment 3 – Tiered CEQA Compliance Approaches

Several approaches can be used to achieve CEQA compliance for specific activities when a PEIR has been adopted as the basis for subsequent tiering. This attachment describes the main types of CEQA compliance approaches that may be used in conjunction with implementation of the Proposed Program's PEIR. It also addresses the use of this PEIR by other public agencies and entities pursuant to their own authority.

The Tiering Strategy Guidelines (Section 2) and Checklist (Attachment 1) are intended to assist identification of which of the following compliance approaches is appropriate before implementing specific Proposed Program activities, and to provide documentation of and justification for the selected approach:

- No Additional Compliance Needed
- CEQA Addendum
- Project-Level Tiered Documents:
    - Negative Declaration (ND)
    - Mitigated Negative Declaration (MND)
    - Environmental Impact Report (EIR)
- Program-Level Tiered Documents:
    - ND
    - MND
    - EIR

For each approach, CEQA's public notification and involvement process is identified. Additional public notice or documentation may be required outside of framework of CEQA.

No Additional Compliance Needed

If an activity has been described and evaluated in the PEIR and determined to not have potential for any new or more significant impacts than disclosed in the PEIR, then no additional CEQA compliance steps would be required. Appropriate management practices, mitigation measures, and other compliance steps relevant to the activity identified in the PEIR would need to be implemented. Such measures are to be identified by using the Tiering Strategy Guidelines (Section 2) and Checklist (Attachment 1).

CEQA Addendum

A CEQA Addendum is the appropriate CEQA compliance document when an activity has not been specifically described in the PEIR, but that activity has been determined not to have any new or more significant impacts than disclosed in the PEIR. Examples include:

- An activity that was considered for a particular pest in the PEIR, and subsequently is being considered for use against a different pest, but the activity would be performed in the same manner and its use against the other pest would not result in any impacts beyond those described and evaluated in the PEIR;
- A new biological control agent that has been evaluated and determined to not have the potential for significant impacts under CEQA;
- A new pesticide product or formulation that is substantially similar to a pesticide product(s) considered in the PEIR and would be used in the same ways (further discussion of "substantially similar" is provided in the Tiering Strategy);
- Use of a pesticide application method or scenario not considered in the PEIR, which would result in the same or reduced risk to people or ecological receptors as similar scenarios evaluated in the PEIR;
- Establishment of a new interior quarantine, or a change in a quarantine area, for which the treatment methods would be the same as those for quarantines evaluated in the PEIR.

The CEQA Addendum would describe the activity and how its impacts would be consistent with those evaluated in the PEIR. In evaluating impacts, a checklist tool such as the Tiering Strategy Checklist or the CEQA Guidelines Appendix G checklist may be used. The CEQA Addendum also should identify which management practices, mitigation measures, and other requirements from the PEIR would be relevant to the activity; these would need to be implemented so that no new or more significant impacts would result from implementation of the activity. The CEQA Addendum's conclusions should be supported by substantial evidence, so that the addendum can serve as documentation to validate why no additional CEQA compliance steps are necessary.

A CEQA Addendum does not need to be circulated for public review but should be added to the PEIR Administrative Record. Before authorizing or implementing the activity, CDFA would consider the CEQA Addendum together with the PEIR in determining whether and how to carry out the activity.

Project-Level Tiered Documents

Negative Declaration

An ND is appropriate when an activity may have new environmental impacts, substantially increase the severity of environmental impacts compared to those discussed in the PEIR, or employ new information, but its impacts ultimately would be less than significant. Applicable management practices, mitigation measures, or other compliance steps in the PEIR may be considered in the determination of whether an impact would remain less than significant after their implementation. Examples of activities that may be appropriately documented with an ND include:

- A new or substantially more intense activity that would increase greenhouse gas emissions beyond those considered in the PEIR, but which would remain below the identified significance threshold (e.g., the additional use of equipment which releases greenhouse gases).

- An activity that may affect resources in a way not specifically considered in the PEIR, but the impacts would not be considered significant.
- An activity that may have environmental effects related to resource topics which were dismissed from detailed analysis in PEIR Section 6.0.5, but whose impacts would not be significant.

A tiered ND would describe the activity and its location, evaluate the potential impacts using the CEQA Guidelines Appendix G checklist or additional questions where relevant, considering applicable management practices, PEIR mitigation measures, or other PEIR requirements, and include a finding that the activity would not have a significant impact on the environment. The public review and approval process for the tiered ND would follow that of any ND as described in Sections 15072 through 15075 of the CEQA Guidelines.

Mitigated Negative Declaration

An MND would be used for situations similar to those described for the ND, except that the new or more significant impact(s) would be considered potentially significant but could be mitigated to a less-than-significant level of insignificance, such as the following:

- An activity which could a substantial adverse effect on a special-status species, but for which mitigation that was not considered in the PEIR is proposed to address the impact; or
- Re-evaluation and/or substitution of a mitigation measure from the PEIR, where the new measure may not mitigate to the same level as the original measure, but the impact would still be insignificant following implementation of the new measure.

The contents and process for the tiered MND would be the same as described for an ND; in addition, a mitigation monitoring plan would be required for the new mitigation measures in compliance with CEQA Guidelines Section 15097.

Environmental Impact Report

A tiered, project-level EIR would be used for similar situations as described for a tiered, project-level ND or MND, but for which at least one of the new or more significant impacts would be significant, and no feasible mitigation would be available to reduce the impact(s) to a less-than-significant level. In other words, the tiered EIR would be used when potentially significant and unavoidable impacts could result that were not disclosed in the PEIR, such as the following:

- A pest management activity would have a substantial adverse effect on environmental resources, and no feasible mitigation exists to reduce the impact to a level that is less than significant.
- A pest management activity which would generate a substantially greater impact than was evaluated in the PEIR, and no feasible mitigation exists to reduce the impact to a level that is less than significant.

- Mitigation measures or alternatives are available that are considerably different from those described in the PEIR and would substantially reduce a significant effect on the environment, but CDFA declines to adopt the new measures or alternatives.

The EIR would describe the activity and would analyze new or more significant impacts, including a re-analysis of relevant resource topics discussed in the PEIR. As part of the EIR process, CDFA would need to make a determination of whether the economic, legal, social, technological, or other benefits of the activity would outweigh its significant adverse effect(s).

This option is the most rigorous and time consuming process for CEQA compliance, and would follow the same steps as those conducted for the PEIR (as described in CEQA Guidelines Section 15080 through 15097).

Program-Level Tiered Documents

Program-level tiered CEQA documents would be prepared when a broad range of activities is contemplated for addition to the Proposed Program that potentially could have new or more significant impacts compared to those evaluated in the PEIR. Typically, such activities would not be site-specific. Examples include authorization by CDFA of a comprehensive set of management approaches, for which the specific implementation details (e.g., location) would be determined in the future.

Depending on the nature of the activities, a program-level tiered ND, MND, or EIR would be appropriate. The same considerations, contents, and process described for project-level documents would apply to these program-level tiered documents.

Appendix D

Program Scoping Report

Statewide Plant Pest Prevention and Management Program

Scoping Report

Prepared for:
California Department of Food and Agriculture
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Sacramento, CA 95814

Prepared by:
Horizon Water and Environment
1330 Broadway, Suite 424
Oakland, CA 94612

October 2011

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Horizon WATER and ENVIRONMENT

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Horizon Water and Environment. *Statewide Plant Pest Prevention and Management Program, Scoping Report*. October 2011 (HWE 11.001). Oakland, California.

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Appendices

Acronyms

Cal-IPC	California Invasive Plant Council
CDFA	California Department of Food and Agriculture
CEQA	California Environmental Quality Act
EIR	environmental impact report
LBAM	light brown apple moth
NOA	Notice of Availability
NOP	Notice of Preparation
PEIR	programmatic environmental impact report
Program	Statewide Pest Prevention and Management Program

Chapter 1
INTRODUCTION

Overview

This Scoping Report summarizes the comments and questions raised during the public scoping period for the preparation of a programmatic environmental impact report (PEIR) by the California Department of Food and Agriculture (CDFA) for the Statewide Plant Pest Prevention and Management Program (Program).

Scoping is the process conducted to determine the coverage, focus, and content of the PEIR as prescribed by the California Environmental Quality Act (CEQA). Scoping helps to identify the range of actions, alternatives, environmental effects, and mitigation measures for in-depth analysis in the PEIR. This process also helps to select methods of assessment, and to eliminate from detailed study those issues that are not relevant to the project or required under CEQA. In addition, scoping is an effective way to identify and consolidate the concerns of any interested parties, which may include project proponents and opponents, and interested federal, state, and local agencies, among others.

The scoping period during which interested parties were invited to comment on the environmental issues and concerns regarding the Program began on June 23, 2011 and ended on July 25, 2011. An additional scoping period was conducted in Los Angeles County between August 8, 2011 and September 9, 2011.

This Scoping Report includes:

- a brief description of the Program's purpose and need;
- a summary of the public scoping process;
- a summary of key issues identified during the scoping period; and
- a description of future steps to be taken in the environmental review process.

Purpose of the Program and PEIR

The Program would encompass the range of prevention and management activities, carried out by CDFA against plant pests throughout California. The statewide Program would include of a variety of separate programs, designed for prevention and management of plant pests, and would identify numerous methods (or management approaches) for controlling them. These programs and management approaches would be intended for use in individual projects that could occur throughout California. Plant pests would include arthropods, plant pathogens, noxious weeds, and vertebrates. Pests and diseases of animals would not be included in the Program.

The Program would include plant pest prevention and management activities that could occur throughout California. Because of California's rich and diverse natural and agricultural environment, many plant and animal communities are present, and the potential exists for a variety of pests to occur in numerous areas. Plant pests may be found and prevention and management activities may occur in urban, rural, natural, and agricultural settings. The potential geographic extent of prevention and management activities for any particular plant pest would depend on the existence of suitable climatic and ecological conditions for the pest and its hosts, such as appropriate elevation and temperature. Projects could occur anywhere a particular pest was found, depending on the size and density of the pest population, and on the severity of threat to agriculture, natural lands, and/or urban populations. The specific area and extent of project activities (i.e., use of management approaches) would depend on the type of plant pest prevention and management program and management approaches available for use against the pest in the program.

The PEIR will describe CDFA's prevention and management programs and management approaches that are authorized for use against various plant pests. It will include a discussion of the process to be followed for conducting different types of programs and the process to identify management approaches available for use against a particular pest in a specific program. Furthermore, the PEIR will evaluate the potential environmental impacts of these programs and activities.

The PEIR also will provide a program framework that may be used for subsequent CEQA analysis, including: (1) tiering of project-level CEQA documentation for plant pest prevention and management activities implemented by CDFA and other agencies; and (2) integration of new plant pests and new prevention and management approaches.

Chapter 2
CEQA Scoping Process

The State CEQA Guidelines provide guidance for the scoping process. Scoping has the following general objectives:

1. to identify the concerns of the affected public and agencies;
2. to define the issues and alternatives that will be examined in detail in the environmental impact report (EIR) while simultaneously devoting less attention and time to issues that cause no concern; and
3. to appropriately scale the overall review process by obtaining early feedback on the scope and content of the EIR (environmental studies and evaluations then can be focused on areas and issues of concern).

CDFA is committed to a planning process that includes strong public involvement, is based on sound science, and is open and transparent.

Notice of Preparation

CEQA requires formal public announcement of the intent to prepare an EIR for a proposed project. In compliance with the State CEQA guidelines (14, California Code of Regulations, Section 15082), CDFA issued a Notice of Preparation (NOP) on June 23, 2011. The NOP presented general background information on the Program, the scoping process, the environmental uses to be addressed in the PEIR, and the anticipated uses of the PEIR.

The NOP invited the public to offer comments during the scoping period, which began on June 23, 2011. Initially, the NOP indicated that the close of the comment period would occur on July 19, 2011; however, to provide additional time for the submission of comments, CDFA extended the comment period through July 25, 2011. This extension of the comment period was noted online on the CDFA Web site and appropriately published in the outreach materials.

The comment period was extended in Los Angeles County. Although the extended comment period was intended for county residents possibly affected by the delayed NOP posting, all scoping comments received during this time were considered in this Program Scoping Report, regardless of origin. A copy of the NOP and Los Angeles County extension amendment is provided in Appendix A.

The NOP was mailed to each of the 58 California county clerks as well as various interested agencies and organizations. The NOP mailing list and related Program contact information are included in Appendix B.

Public Outreach

A press release was prepared regarding the scoping meetings and was posted on the CDFA's Web site (http://www.cdfa.ca.gov/go/peir) and in various print media (Appendix C). A list of the e-mail addresses that received the press release also is included in Appendix C. An invitation to participate was sent to various cities and counties via e-mail (Appendix D). A newspaper ad (Appendix E) was prepared and placed in the following publications.

CDFA Statewide Pest Prevention PEIR Newspaper Notices		
Newspaper	**County**	**Date Published**
The Davis Enterprise	Yolo	23 June 2011
The Bakersfield Californian	Kern	24 June 2011
Imperial Valley Press	Imperial	27 June 2011
The Fresno Bee	Fresno	27 June 2011
The Stockton Record	San Joaquin	28 June 2011
San Jose Mercury News	Santa Clara	27 June 2011
Desert Dispatch	San Bernardino	24 June 2011
The San Diego Union Tribune	San Diego	27 June 2011
Ventura County Star Newspaper	Ventura	28 June 2011
The Santa Cruz Sentinel	Santa Cruz	28 June 2011
The Tribune	San Luis Obispo	27 June 2011
Daily Republic	Solano	24 June 2011
The Orange County Register	Orange	27 June 2011
The Californian	Riverside	29 June 2011
North County Times	San Diego	29 June 2011
Orange Coast Daily Pilot	Orange	24 June 2011
The Triplicate	Del Norte	24 June 2011
The Record Searchlight	Shasta	28 June 2011
Ukiah Daily Journal	Mendocino	24 June 2011
Los Angeles Times	Los Angeles	30 June 2011
San Francisco Chronicle	San Francisco	27 June 2011
The Sacramento Bee	Sacramento	24 June 2011
The Chico Enterprise-Record/ The Oroville Mercury-Register	Butte	29 June 2011
The Times-Standard	Humboldt	23 June 2011
The Humboldt Beacon	Humboldt	30 June 2011

Affidavits certifying the publication of the newspaper notices also are included in Appendix E.

Public Meetings

To provide the public and regulatory agencies with an opportunity to ask questions and provide comments on the scope of the PEIR, several public scoping meetings were held during the NOP review period. CDFA conducted scoping meetings at five different locations throughout the state because of the Program's standing as a "project of statewide, regional, or area wide significance." These scoping meetings were held in Chico, Sacramento, Irvine, San Francisco, and Fresno to solicit input from the public and interested public agencies regarding the nature and scope of environmental impacts to be addressed in the draft PEIR. The scoping meeting dates, times, and locations were as follows:

- **Chico, CA:** July 6, 2011, 5:30–7:30 p.m., Chico Municipal Center (421 Main Street, Chico, CA 95928)
- **Sacramento, CA:** July 7, 2011 5:30–7:30 p.m., Department of Health Care Services and Department of Public Health Building (1500 Capitol Avenue, Sacramento CA 95814)
- **Irvine, CA:** July 12, 2011, 5:30–7:30 p.m., Irvine Ranch Water District's Duck Club (3512 Michelson Drive, Irvine, CA 92618)
- **San Francisco, CA:** July 13, 2011, 5:30–7:30 p.m., San Francisco Public Library (100 Larkin Street, San Francisco, CA 94102)
- **Fresno, CA:** July 14, 2011, 5:30–7:30 p.m., University of California, Fresno Business Center
(5245 N. Backer Avenue, Fresno, CA 93740)

The July 7 meeting in Sacramento was simultaneously broadcast live as a "webinar" session via the Internet, for those interested in participating remotely. Webinar participants were able to view the meeting in real time and provide comments electronically on the scope of the PEIR.

Meeting Format

All meetings used the same format, and interested parties were invited to attend one or all meetings.

Reception

The public was welcomed to the meetings by CDFA staff at each location. At the greeting table, guests were asked to sign in and were given a brief description of the available handouts and process for public comment. The handouts included copies of the NOP (Appendix A), a Program Information sheet, a Program Frequently Asked Questions sheet, a Speaker Card, and a Comment Form (all included in Appendix F). Except for the Speaker Card and Comment Form, these items also were available as downloads on the CDFA PEIR Web site.

Several meeting posters (Appendix G) also were prepared for public viewing before and after each meeting. These posters were created to direct the public to the meeting site as well as to provide general orientation on the CEQA process and Program considerations.

Meeting

Each meeting began at approximately 5:30 p.m., with a presentation given by Horizon Water and Environment (Horizon) staff, the consulting firm leading the preparation of the PEIR (Appendix H). Michael Stevenson of Horizon provided a brief overview of the Program and the CEQA process. Ryan Jolley of Horizon then provided additional details, relating to the objectives and range of activities to be included in the Program. A public comment session followed, during which time CDFA staff received public comments about the Program. In addition to oral comments, CDFA also accepted written comments during the meetings. Those attendees who provided comments during the scoping meetings were as follows:

Chico, CA

Al Beck
Louie Mendoza
Richard Price
Mary Pfeiffer
Jim Donnelly

Sacramento, CA

Mike Boitano
Nan Wishner
Ed Lavio
Lynn Elliot Harding
Frank Zalom
David Brown

Irvine, CA

A.G. Kawamura
John Kabashima

San Francisco, CA

Doug Johnson
Veronica Raymond

Fresno, CA

Bob Blakely
James McFarlane
Brian Domingoes
Ted Batkin
Marcy Martin
Carol Hafner

Near the conclusion of each meeting, CDFA staff reminded the attendees that written comments would be accepted anytime during the scoping period, which concluded on July 25, 2011.

Participating Staff

The following CDFA representatives and supporting consultants participated in one or more of the scoping meetings:

Department of Food and Agriculture

Dr. Robert Leavitt
Michele Dias
Laura Petro
David Pegos
Austin Webster
Steve Lyle

Horizon Water and Environment, LLC

Michael Stevenson
Ryan Jolley
Sandy Devoto
Josh Pollak

Meeting Attendance

At each meeting, attendees were asked but were not required to sign in and provide contact information. Seven people signed the attendance sheet at the Chico meeting; 20 people signed at the Sacramento meeting, with 6 additional individuals participating via the webinar; 2 people signed at the Irvine meeting; 7 people signed at the San Francisco meeting; and 12 people signed at the Fresno meeting (one of whom was a Program staff member). Copies of the attendance sheets are provided in Appendix I.

Chapter 3
SUMMARY OF COMMENTS RECEIVED

Introduction

All written and oral comments received in response to the NOP will be considered during preparation of the draft PEIR. Oral comments received during the scoping meetings were noted and summarized during each meeting. Speaker cards and notes, along with comments submitted during the meetings, are included in Appendix I. In addition to these meetings, 100 written comments were received via U.S. Mail, e-mail, and fax during the scoping period (Appendix J). The majority of the comments that were received supported development of the Program.

Review of Scoping Comments Received

To ensure that a neutral and transparent analysis is used to review and categorize all public comments received, this scoping report includes copies of the original documents submitted (see Appendix I and J). The issues presented below are not intended to replicate the comments received verbatim, but rather to provide a synopsis of the comments received and capture the general views and opinions of the commenters.

While analyzing all of the comments, several major themes emerged. The following pages summarize the comments received and report them categorically under these themes (the key issue headings that are introduced in **bold text** below). Each key issue is discussed in more detail in the following sections of this report.

- **General Issues** in the Program and PEIR
- **Integrated Pest Management** use in the Program and related considerations in the PEIR
- **Pesticide/Herbicide Use** in the Program and related considerations in the PEIR
- **Pest Prevention and Management** activities (besides those previously identified for integrated pest management and pesticide/herbicide use above) in the Program and related considerations in the PEIR.
- **Air Quality and Global Climate Change** evaluation in the PEIR
- **Agricultural Resources** evaluation in the PEIR
- **Biological Resources** evaluation in the PEIR
- **Human Health Risk** evaluation in the PEIR
- **Water Quality** evaluation in the PEIR
- **Transportation** evaluation in the PEIR

- **Alternatives** for consideration in the PEIR
- **Program Objectives/Goals** for inclusion in the PEIR
- **The CEQA Process** for the PEIR (neither in support or opposition)
- Comments specifically related to the **Notice of Preparation**

Comments which were not relevant to the CEQA process are described under **Issues Outside of the Scope of the PEIR**, including comments that offer **Support for the PEIR CEQA Process**, and those comments opposed to the Program and/or the PEIR, **Opposition to the PEIR CEQA Process**. Lastly, **Others** includes comments that do not fit under the other headings.

The following briefly summarizes the major perspectives from the review of all the comments:

- The vast majority of agricultural commissioners and members of the agricultural community support the program.
- Of the other commenters, the majority either wanted to see specific issues or activities addressed in the Program and/or PEIR or had concerns about the Program and/or PEIR.
- The most common concerns related to pest prevention and management approaches in the Program, especially pesticide/herbicide use. Specifically, some commenters wanted certain approaches considered or left out of the Program, and other commenters wanted certain aspects of pesticide/herbicide use evaluated in the PEIR.
- Additional common concerns regarded the programmatic approach, public involvement, impacts to human health and biological resources, and general comments on the PEIR.

Key Issues Relevant to the Environmental Review

The following comments were received on key issues relevant to the Program and preparation of the draft PEIR.

General Issues

- The noxious weed list should include invasive plant species listed by the California Invasive Plant Council (Cal-IPC) Inventory.
- Cumulative impacts from repeated exposure and to exposure to more than one substance should be considered.
- Pest groups should differentiate agricultural pests from wildlands pests.
- The public notification process and timeline to be implemented should be specified before any activities (especially spraying).

- Specific details should be included on the process of adding or removing a pest program or control techniques.
- Provisions to mandate usage of emerging techniques should be included if they are scientifically proven to be more effective and less toxic.
- The role of local governments in administering the program should be defined.
- Impacts on local urban communities from pesticides and planting restrictions should be included.
- A clear definition of the word "pest" should be provided.
- A discussion should be included regarding whether the light brown apple moth (LBAM) program is or is not included.
- How the PEIR would evaluate short and long-term impacts of individual pests should be considered because sometimes nature corrects invasive problems by itself and human interference hinders the process.
- The PEIR should have a "medical" section.
- Program effects on timber harvest plans in California should be considered.
- The fact that arundo is important for the banks and streams in Chico (for bank stabilization) should be included, although other areas may want to eradicate it.
- The effects of construction equipment and gravel piles used for construction to transfer invasive species should be considered.
- Although mitigation would be included in the Program, concern exists that it may not carried out or adequately monitored (i.e., during construction), and this should be addressed.
- County programs should be included in the Program.
- Protocols and procedures should be established for immediate pest program health incident reporting, including training for first responders, MDs, vets, and the public as to where to report.
- The discussion of environmental issues should include impacts on farmers, particularly the cost of control as related to increased use of pesticides required to comply with quarantines.
- "Community resources" should be added to the list of environmental areas/objectives that the Program is trying to protect.
- How invasive species destroy life systems should be described, and the fact that CDFA has a nexus (responsibility) for protecting these life systems.
- The future economic and environmental costs of not acting quickly to control pests that are not conventional (i.e., Eucalyptus pests) should be considered because the damage they generate may cause more harm later on, when trees die (e.g., fire, fallen trees, death of heritage trees), creating further need for spraying or other control methods and perhaps resulting in larger environmental impacts.
- An analysis of invasive plants that are not listed as noxious should be considered.

- The Program should be revisited regularly, updated with new information, and be kept current.
- How the Program would deal with green waste management and what would happen with exports should be addressed.
- The effects of invasive pests on wild lands, natural ecosystems, industrial and urban forests, as well as agricultural lands should be considered.
- A discussion about damaging pests that are native to other areas of the United States, but not to California, should be included.
- The PEIR should comply with the CEQA requirement to describe the existing environment, although it may be difficult for this single PEIR document to describe the thousands of microclimates, landscapes, and communities in California.

Integrated Pest Management

- The integrated pest management approach should be treated carefully and should be clearly defined.
- The PEIR should be explicitly structured around integrated pest management strategies (defined by the University of California Integrated Pest Management approach) and should state that all management decisions are based on them.
- The PEIR should recognize the University of California Davis definition of Integrated Pest Management: *A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, and adoption of alternate cultural practices such as modification of irrigation or pruning to make the habitat less conducive to pest development. Pesticides are used only when careful monitoring indicates they are needed according to pre-established guidelines, treatment thresholds, or to prevent pests from significantly interfering with the purposes for which plants are being grown.*
- The Program should include existing integrated pest management strategies and programs that have been proven or are fully developed, such as sterile insect technique, mating disruption, biological control agents, and biological pesticides.
- The PEIR should recognize that invasive and noxious plants threaten natural habitats and agricultural areas in California and need to be controlled using an integrated pest management approach.
- The PEIR should explain how pest population thresholds are used in the integrated pest management approach.

Pesticide/Herbicide Use

- The analysis of any given chemical product should include inert ingredients, such as surfactants, propellants, and attractants.

- The PEIR should state that pesticide use should be avoided, if possible, and the decision of whether or not to use chemicals in a specific invasive species management project should be based on an evaluation of both chemical and alternative treatments.
- The PEIR discussion regarding noxious weed control management should consider the California Native Plant Society's Herbicide Policy (adopted in 2008), including the following:
  - The decision to use herbicides in a specific weed management project is site-specific.
  - Herbicide treatment should have clear and achievable objectives, preferably including a gradual reduction or phase-out of the need for continued intervention.
  - Herbicide application personnel should be able to distinguish between the target weeds and native plants, particularly any native plants of concern, and should avoid herbicide drift.
  - Adverse impacts from herbicide use to natural resources, such as pollinators, wildlife, and water; and to people, their property, and cultural resources should be avoided or mitigated.
  - Public notification and posting of herbicide application sites should be required on public lands, and on private lands where the public may be affected, such as near public roads.
- The PEIR should analyze the direct, indirect, acute, ongoing, fatal and sublethal, and cumulative and synergistic impacts that pesticides have on species and habitats.
- The PEIR should include an analysis of pesticide drift and runoff.
- The PEIR should analyze pesticides that act as endocrine disruptors.
- The PEIR should state that spraying should not be applied near sensitive receptors (e.g., schools, hospitals).
- The PEIR should analyze the extent of pesticide contamination in California's air, waterways, and species impacted by pesticide contamination. To fully understand the impacts that the Program would have on species and habitat, the PEIR should provide a complete picture of current pesticide contamination throughout California. The PEIR should assess concentrations by daily and seasonal monitoring to reflect seasonal and climatic variations. The PEIR also should show test results for all pesticides currently and historically used in California and their degradation products so that CDFA has an accurate picture of how long pesticides endure in the environment.
- The PEIR should include mitigation measures to improve public outreach and notify the surrounding community of pesticide risks and what the community can do to help prevent the spread of plant pests.
- The PEIR should adequately measure and analyze pesticide degradation products.

- The PEIR should include mitigation measures to create incentives for farmers who voluntarily restrict pesticide application to levels below limitations already imposed by CDFA.
- The PEIR should include mitigation measures to limit the amount or frequency of pesticide use, only allowing pesticide application in ideal weather conditions to minimize the potential for spray drift and pesticide runoff.
- The PEIR should consider that evaluations of safe levels of exposure to toxic substances cannot wholly rely on the average responses found in the general population, but they must account for those found to be at greater risk, including children, pregnant women, the elderly, and those with compromised immune systems. Practices such as refraining from pesticide application at schools, hospitals, and playgrounds should be used whenever possible to avoid impacting those at special risk.
- The PEIR should include mitigation measures to incorporate pesticide contamination monitoring requirements for every CDFA-approved pest management approach that involves pesticide application. The monitoring requirements should include tracking results in a uniform database. Furthermore, the mitigation measures should require that samples should be collected before and after pesticide application from the surrounding atmosphere, soil, groundwater, nearby water bodies, and samples should be collected throughout the day and at various points throughout the seasons so that seasonal patterns and weather conditions do not distort monitoring results.
- The PEIR should reflect that for chemical measures, it is not sufficient to assume lack of impact simply because no studies exist (and this applies to both active and inert ingredients).
- The PEIR should address the possibility of environmental impacts from “inert” chemicals present in product formulas, and should cover chemical combinations where data is sparse or non-existent and name-brand products.
- The PEIR should address environmental impacts of non-disclosed chemicals present in product formulas or mixtures.
- The PEIR should include the contribution of medical experts in toxicology regarding chemical assessments and potential impacts.
- The PEIR should use research from people who are not connected with chemical manufacturers, allowing them to submit their own facts and data associated with health risks of chemicals.
- If the PEIR uses only a manufacturer’s data, it should reflect the bias that may be associated with that type of information.
- The PEIR should consider the economic impacts of health care, illnesses, and lost productivity related to pesticide use.
- The PEIR should reflect that the application of pesticides would go against the stated goal of providing a “safe food supply.”

- The Program should suggest establishing a medical review board to check into pesticide ingredients and usage risks.
- An organically approved pesticide should always be included as one of the management choices.
- The PEIR should discuss the concern regarding continued use of pesticides because they do not completely break down during the composting process and are returned back into the organic agriculture setting (e.g., bifenthrin, clopyralid, aminopyralid).
- The PEIR should identify chemical compounds and concentrations likely to be used, and contrast these on a scale identifying toxic exposure thresholds.
- Label restrictions may preclude repeated use of certain chemicals, and thus the importance of identifying various formulas and encouraging registration of such materials should be included, to avoid prohibition of use or decreases in Program effectiveness because of future pest resistance.
- Public testimony should be required at the time when the use of a particular pesticide agent is proposed for application, to guarantee appropriate consideration of toxicity.
- Aerial spraying should be systematically regarded as a method of last resort because it is inherently likely to affect non-target areas and non-target species and to have unintended impacts on human beings. Aerial spraying should never be employed in populated areas except in those rare circumstances when no reasonable alternative exists. In addition, all reasonable precautions should be taken to control the effects of such spraying on non-target organisms, human health, and the environment, and the least poisonous and least environmental-damaging chemical and means of application should be used.
- The most recent research on the impacts of pesticides on public health and the environment should be considered, such as University of California San Francisco's Program on Reproductive Health and the Environment.
- Avoidance of Persistent Organic Pollutants should be a priority. Any evaluation of this category of chemicals should include a review of the science leading to the Stockholm Convention banning their use, and the current or residual effects of these substances should be included in the review of synergistic long-term impacts.
- Pesticides should be a tool considered for controlling both invasive plants and insects.

Pest Prevention and Management

- The PEIR should clearly define and consider the scientific bases for CDFA's management assumptions, such as the assumption that non-native plant pests can be completely eradicated.
- The PEIR should clearly define and consider a rigorous evaluation of the effectiveness of current practices in terms of actual control or eradication of pests as well as impacts on the growers whose products and livelihoods pest management programs are intended to protect.

- The PEIR should clearly define and consider the criteria (if any) that CDFA uses to determine if non-native plant pests are a serious environmental risk and should be eradicated.
- A detailed analysis of prevention methods would be a valuable addition to the PEIR.
- For genuine prevention, strategies to keep pests from entering the state should be included.
- The PEIR should analyze CDFA's current "quarantine, eradication, and control" approach to managing non-native species, and whether other alternatives exist to this approach that would reduce and/or eliminate potential effects on the environment and public health.
- The use of border stations to implement and coordinate Program actions (interception and exclusion) should be included.
- Mitigation measures should be included to stop import of fruits and vegetables, to prevent invasive species from entering California.
- Detection and prevention methods that are identified in the Program should be proven effective.
- Early detection and prevention should be mentioned as a key step to reducing the need for pesticide applications (and other management actions) that would otherwise be needed once a species is established.
- A hierarchy of choices for pest management should be included (preventative/exclusionary first and cultural/biological next).
- A mention should be made that sterile insects also can pose risks to health and the environment.
- Composting green materials from quarantine zones should be considered as a mitigation measure to suppress the spread of pests.
- Once unknown species are positively identified, details for a flexible response should be incorporated so that the most targeted and effective control methods would be used for eradication. The PEIR should not limit itself to possibly "weak" programmatic control measures if "stronger," more effective methods may exist to control a particular species.
- The fact that pests do not spread rapidly and eradication seldom works should be noted and reviewed, because the LBAM proved to be a false threat.
- The Program should incorporate compost use to foster healthy soils and reduce the need for pesticides.
- Many counties have ongoing programs and experts who should be consulted/involved in the Program.
- The Program should modernize/enhance processes and tracking for recognition and identification of pests.
- The Program should establish an independent review board for any new pest of concern.

- Using and utilizing twenty-first century tools for prevention and detection should be continued, further researched and embraced–although a clear pathway to use stronger, proven tools should exist when necessary in dealing with difficult and problematic pests. The PEIR should include a robust toolbox of resources to employ to handle pest control processes so that the best method could be applied to get the job done.
- Emphasis should be placed on the use of a robust toolbox, to ensure that a variety of means (i.e., multiple approaches) would be available to control pests. The PEIR discussion should recognize the potential for resistance and incorporate the possibility for a family of chemicals to address an issue (if only one chemical was covered by the Program, then it may preclude the use of others that may be more effective).
- Rapid response should minimize effects and negative consequences of invading pests.
- The Program should emphasize early arrival detection and action, to prevent pests such as Africanized honeybees.
- The PEIR should include a noxious and invasive weeds program (including a license to use pesticides).

Air Quality and Global Climate Change

- The PEIR should consider addressing climate (change) impacts from the use of solvents, pesticides, and other chemical formulas.
- The air quality standards for particulate emissions from transportation and other activities should be applied for inert particulate matter in pesticides.
- The PEIR should clearly define and consider the impact of global warming on the movement of and rate of arrival and spread of pests in California, and the implications for the impacts and effectiveness of CDFA's existing/proposed programs as well as alternatives to the Program.

Agricultural Resources

- The discussion should include protection of organic farmers from drift and other methods that are not organic.
- The PEIR should include the economic hardship caused by quarantine zones, for those nurseries within such zones.
- The Program should consider the economic vitality of the food system by protecting jobs and the environment.

Biological Resources

- Very close scrutiny of natural areas in close proximity to agricultural areas should guide the PEIR.
- The PEIR should disclose impacts to non-target insects, such as native moths and pollinators.
- The PEIR should disclose impacts to vegetation and wildlife, especially threatened or endangered species.
- The PEIR should discuss ecological variation, such as control methods that differ in both efficacy and consequences, depending on location. Specifically, a detailed list of ecological categories should be created, and control choices should be systematically evaluated, relative to each category throughout the PEIR.
- The PEIR should discuss each pest and individual control method, and the discussion of each delivery system should detail possible effects on non-target organisms.
- The PEIR should identify the potential for elimination of invasive species to lead to broader negative environmental consequences that are not benign, and it should include compensatory mitigation.
- The PEIR should analyze contamination levels throughout California's waterways and determine the risks posed to aquatic species.
- The PEIR should develop a general procedure for identifying special-status species and mitigating any deleterious consequences, presenting a detailed discussion. However, because these impacts ordinarily would be highly site-specific, it may not be possible for the PEIR to cover them all.
- The PEIR should provide a significant benefit by delineating protocols that permit effective control methods to be implemented without violating the special character of designated wilderness areas (including federal wilderness areas).
- The PEIR should make a comprehensive evaluation of aquatic invasive species control methods to facilitate effective management.
- The PEIR should discuss the routine evaluation of each treatment method in relation to the riparian environment (i.e., an analysis that includes the method of application as well as the chemical treatment itself).
- The PEIR should analyze the numerous pesticides that one commenter claims have been identified as toxic to species located within California and listed under the federal and/or California Endangered Species Acts.
- The Program should adopt pest management approaches that limit or eliminate pesticide application and associated harms to listed species and their habitats.
- The PEIR should provide mitigation measures to prohibit pesticide application in habitats that are designated as critical habitats or candidate habitats under the federal and/or California Endangered Species Acts (i.e., non-designated habitats that are occupied by federally or state-listed species or sensitive species, sensitive

habitats, and riparian areas). The PEIR should prohibit pesticide application within the vicinity of sensitive receptors (i.e., no application around childcare facilities, eldercare facilities, and hospitals). The PEIR should establish buffer zones where no pesticides are to be sprayed within a certain distance of riparian areas (including subterranean water bodies), critical, candidate and sensitive habitats, and habitats occupied by state or federally listed species.

- The PEIR should document all of the specific effects to any flora and fauna that would be impacted by hormone-influencing products.
- The PEIR should state the proposed acceptable level of mortality for non-target species.
- The PEIR should discuss management activities for plant species listed on the Cal-IPC Inventory and Cal-IPC Watch List.
- The PEIR should describe the benefits of non-native species.
- It appears that the PEIR will assume that all non-native species are equally considered unwelcome; it should provide scientific reasoning for this.
- The PEIR should describe how herbicide use would impact native vegetation.
- The PEIR should indicate that CDFA has not yet obtained clearance to begin spraying from the U.S. Fish and Wildlife Service, related to the impact of spraying on endangered species. The PEIR should mention that APHIS has designated CDFA to find out if endangered species would be affected.

Human Health Risk

- Potential effects to farm workers should be very closely scrutinized in the PEIR.
- The PEIR should disclose impacts to human health, especially on vulnerable populations such as children, the elderly, and agricultural workers.
- The PEIR should include mitigation measures to establish and regularly review safety regulations and monitoring requirements that would limit the amount of exposure of farm workers to pesticides.
- Threshold for potential health impacts should be set to “completely avoid” or “not have” health impacts (not minimize effects).
- For any findings of a significant and unavoidable heath impact, a statement of overriding considerations should not be adopted. Public health considerations should be placed above all else.
- The PEIR should consider addressing the effects of chemicals on people with various health conditions (e.g., pregnancies, cancer, MS, kidney damage, shingles, hyperactivity, insomnia, chemical allergy, thyroid deficiency, deficiencies of p45 and p50, etc.).
- The PEIR should discuss how the Program would protect individuals with documented health sensitivities or disabilities associated with pesticides. Mitigation

measures should provide relocation and compensation for property, if pesticides are used on their residences.

- The Program should describe the specific plans for achieving its human health program objective, and not just state that it is a goal.

Water Quality

- The PEIR should disclose impacts to water quality (including an assessment of the potential for drift and runoff).
- Impacts to water quality from pesticide applications should include: (1) direct discharge (spray drift); (2) indirect discharge (pesticide discharge with stormwater runoff; (3) discharge of pesticide contaminated plant debris); and (3) an eco-toxicity analysis (toxicity to aquatic life due to pesticide discharge).

Transportation

- The PEIR should consider ways to manage the potential of freight movement and uncovered loads that contribute to the spread of invasive species (e.g., hay transport along highways).
- The PEIR should address how prevention and maintenance management approaches would change or be incorporated into existing practices associated with construction/maintenance of public transportation facilities.
- The PEIR should mention that encroachment permits would be required for work or traffic control within state-controlled right-of-ways.
- The PEIR should consider costs and safety hazards associated with using personnel to manually apply/conduct eradication in areas exposed to traffic.

Alternatives

- The PEIR should include a transformational program alternative, using the policy framework that is to be prepared by University of California, Davis professors as part of a February 2012 retreat. Topics for this alternative would include a dichotomous residency policy, genetic observatories, control tools (e.g., endosymbotic bacteria), arrival time of invasive pests, invasion lags, “sleeper” pests, and growers and trade.
- The PEIR should be structured so that it considers impacts of Program management activities and alternatives together, rather than addressing each potential management approach as an individual program alternative.
- The PEIR should consider an alternative based on true integrated pest management – one in which chemical control would be an absolute last resort. This alternative should consider using the least toxic chemicals and achieving pest management through various preventative practices, including establishment of thresholds for

pests and monitoring. If intervention is needed, primary reliance on the manual and cultural approaches that organic and sustainable growers use should be used.

- The PEIR should consider an alternative that would offer innovative methods to meet national and international trade requirements, other than chemical treatments, wide-area quarantines, and required treatment of growing areas. This alternative should explore diplomatic and other means for resolving concerns that establishment of non-native pest species in California could harm trade relationships with other states or countries, including removing or changing species' domestic legal classifications and establishing alternative forms of phytosanitary and grower-purchaser agreements that do not rely on chemical treatments on farms, in communities and in other non-agricultural areas.
- The PEIR should consider an alternative, or alternatives, that would include(s) mitigation measures to protect: 1) sensitive human populations, such as children, agricultural workers, and the elderly; 2) sensitive ecosystems and wildlife, including threatened and endangered species and aquatic habitats; 3) monitoring for impacts of program activities; and 4) independent scientific review of the risks posed by non-native pest species, and the health impacts of pesticides proposed for use in the Program.
- The PEIR should implement an alternative that would prohibit the use of all pesticides. Pesticide-free management approaches include programs or strategies that would interfere with pest breeding, locating plants in areas that are pest-free, utilizing crop rotation techniques, engaging natural predators, or luring pests away from plants.
- The PEIR should implement an alternative that would prohibit the use of the most toxic pesticides, including endocrine disruptors.
- The alternatives should include a completely different approach that would not include toxic chemicals or large-scale quarantines.
- The PEIR should include an alternative to expand the search for less toxic, effective pest management techniques by analyzing existing programs and techniques in use outside the jurisdiction of CDFA. The alternative should consider other states, other countries, and the invasives vision process in development at the University of California, Davis.
- The PEIR should consider approaches or alternatives other than application of pesticides to manage pests (less harmful to the environment). Public safety should come first.

Program Objectives/Goals

- The primary goal of the PEIR should be finding alternative ways to manage pests, to avoid adversely affecting human and environmental health through pest management.
- The PEIR should adopt the Statement of Principles developed by the California Invasive Species Advisory Committee as guiding principles, as follows:

  - committing to manage invasive species in ways that advance environmental stewardship, economic development, and social equity, while ensuring human health;
  - building on successful existing programs in California and making new efforts to increase effectiveness in addressing invasive species, including effective coordination among public agencies and members of the public; and
  - keeping criteria for decision making clear and consistent, allowing such decision making to be based on a thorough assessment of the risks posed by target species and management approaches.

- CDFA should focus the PEIR on broad Program objectives.

The CEQA Process

- CDFA should clearly inform the public about the full scope and extent of pest prevention and management activities that are to be assessed in the PEIR. Specifically, CDFA should clearly inform the public as to whether the document would serve as a program- or project-level EIR.
- CDFA should convene a series of stakeholder meetings, in addition to those already held, during the development of the draft PEIR, to solicit stakeholder input on how to integrate new tools and practices into the Program.
- During the PEIR process, CDFA should spell out the criteria used for each stage of environmental review, and document the way these criteria have been addressed.
- Future revisions would be required for pest control mechanisms that have not been developed yet, and for possible negative consequences of existing substances and techniques that may be revealed by future scientific investigation. The PEIR should detail the methodology and schedule for future revisions, re-evaluation, and updates.
- The methodology for future revisions should include creation of an independent advisory committee that would monitor existing practices and provide recommendations to CDFA about methods that were effective and less-dependent on chemical pesticides and herbicides. The methodology also should describe how CDFA would respond to recommendations of the independent advisory committee.
- If no further CEQA analyses would be completed for future projects, the PEIR should inform the public of this fact and explain how specific activities would be implemented. For example, CDFA should explain how the public would be informed of future proposed actions that were already "covered" by the PEIR, and how and when their involvement and input would be welcomed.
- The public should be informed of the extent that the PEIR would limit or eliminate public participation in site-specific activities, or the public's ability to challenge any such projects in court.
- If further (site-specific) CEQA analyses would not occur, the PEIR should comprehensively analyze all of the environmental and public health impacts of the

Department's pest prevention and management activities, including all direct, indirect, and cumulative impacts, as well as alternatives that may reduce those impacts, at the site-specific level. This would not replace EIRs for individual pest prevention programs.

- Stakeholders and critics should be involved in developing the PEIR.
- The Program should identify and describe other state agencies to be involved in the plant pest prevention and management process (such as the California Department of Public Health).
- CDFA should continue developing the PEIR but also should commit to releasing subsequent tiered EIRs, based on individual geographic regions, habitat types, species, pesticides, management approaches, or management programs. The PEIR should explicitly indicate what actions would trigger a subsequent EIR.

Notice of Preparation

- The PEIR should explain what is meant by "new or more significant impact."
- The PEIR should explain what is meant by "emergency" and what process would be used to determine that something was an emergency.
- The PEIR should clearly define and consider CDFA's practice of declaring emergencies for pest eradication projects instead of following CEQA's procedures for preparing EIRs before taking action.
- The PEIR should clearly define and consider an analysis of how the PEIR would change the declaration of emergencies and/or address infestations that, by definition, were unexpected.
- The NOP section on Pest Detection and Response lacks specificity yet appears to be the basis of the Program; this should be clarified.
- For Rapid Response/Eradication, how would it be determined that the most effective approaches were being used?
- A discussion should be included as to how widely containment has been used as a response previously, relative to eradication. Whether a mechanism exists for eradication to become containment should be addressed.
- A provision should be included for public comment in the process of prescribing the use of pest management approaches.
- The PEIR should state how and by what standards the thresholds of significance were determined.

Issues Outside of the Scope of the PEIR

The following comments were determined to be outside of the scope of environmental review. These comments either were not related to the scope or content of the PEIR, or were related to issues that are outside the scope of CEQA, or CDFA's authority and jurisdiction.

Support for the PEIR CEQA Process

- The PEIR and other measures to enhance the capacity of CDFA and its partners to deal with these pests would be supported.
- The PEIR process would provide an open decision-making process when invasive species were discovered (including continued public participation).
- The PEIR would save time and management steps.
- The statewide approach would help implement timely actions and effective programs in compliance with CEQA.
- Having the PEIR would allow control of invasive species when public opinion may otherwise question or disagree.
- The PEIR would help assure the public that methods being used to control species were chosen based on science and would be the best methods to use for control.
- The PEIR would be more effective and transparent than the existing plant pest prevention and maintenance process.
- CDFA should prepare a PEIR that evaluates CDFA's existing approach to pest management.

Opposition to the PEIR CEQA Process

- CDFA's ability to predict or analyze all of the on-the-ground environmental impacts in the PEIR would be highly unlikely.
- The idea of a PEIR that analyzes statewide impacts should be abandoned. Smaller-scoped EIRs should be created, based on individual geographic regions, habitat types, species, pesticides, management approaches, or management programs.
- The LBAM EIR, currently being challenged for attempting to evaluate impacts of a statewide program without any specific assessment of unique conditions at the locations where treatments may be used, utilizes the same strategy as proposed for the PEIR.
- The approach of developing a PEIR would thwart the basic principles of CEQA. Specifically, a PEIR would not include meaningful public input or adequate information for decision makers to evaluate environmental impacts.
- A Program with unspecified timing and location of effects would violate CEQA requirements for disclosure and inadequately assess potential impacts.
- A programmatic approach would not allow public participation when treatments actually occurred (i.e., a particular community may be sensitive to specific actions, which would only be known when the action was scheduled to occur; however, by then it would be too late to voice concerns).

- The Program approach would deny the right to public participation and information; it would institutionalize actions that could be problematic in the future, or misguided.
- Plant pest prevention and management should continue to be done at the local level so that local residents could participate in activities.
- The Program would be quickly outdated by future issues and technologies, and would impede the use of more effective tools down the road.
- The PEIR would be a waste of taxpayer money, undertaking a new and even broader proposal than that of the LBAM program.

Others

- The Program should include livestock disease (e.g., blue tongue, West Nile, rift valley fever, stomatitis virus) and related prevention.
- The PEIR should clearly define and consider the costs associated with CDFA's eradication and control programs, both to the state and to growers.
- CDFA is not a trustworthy agency and does not have the public interest at heart. Policies such as these would harm public safety and likely would be a result of partnerships with the wealthy and large Ag agencies.
- The Secretary of Agriculture's resume, including background qualifications, should be viewable.
- Whether CDFA would plan to set up an "oversight" group for pest detection and management (similar to the group for Asian citrus psyllid for California Citrus) should be known. If so, it would be important to know how such a group would effectively communicate with the public regarding pest infestation threats. Consider volunteer groups with similar interests should be used to help.
- Concern should be addressed about whether a monetary interest associated with using a particular pesticide would influence the incorporation of certain products into the Program.
- A list of errors made by CDFA in preparing the LBAM program should be included in the PEIR, including: (1) misrepresenting LBAM as emergency; (2) reporting agricultural damage when no damage occurred in California; (3) spraying a pheromone substance without reporting to residents that the product used was a category 3 toxin; (4) not conducting an inhalation test for danger before spraying pesticide, leading to the conclusion to not conduct a test based on incorrect assumptions of particle sizes; and (5) not responding to the over 600 reports of illness that occurred immediately after spraying.
- To reduce invasive pests, growers should instead try to plant crops suited to their climate and season.
- Declaring an emergency is a trick used by CDFA to obtain federal money, and the public should be assured that this would not happen for this Program.

- The PEIR should address whether the employees hired for the LBAM program are still working for CDFA and what funds are used to pay their salaries.
- The PEIR should address how potential defunding of weed management areas could impact noxious weed suppression/eradication efforts (possibly leading to greater fire incidents).
- Pest prevention and management programs should be funded both at the state and county levels, to maintain integrity of the system because of funding shortages.
- CDFA should have had meeting in Santa Cruz because of the LBAM incident.
- CDFA should realize that at both the national and state levels, a challenge of budget cuts would affect all programs to control invasive species.
- CDFA should encourage all stakeholders (i.e., public, state, and private) to become more educated about the threat of invasive species. Everyone should find new ways to fund an infrastructure to protect the resources of the state, if traditional means are not available.
- Chipped green material applied on agricultural land because of the closure of Puente Hills Landfill in Los Angeles County could contribute to the spread of imported pests if not handled properly.

Chapter 4
NEXT STEPS

Development of the Draft PEIR

Comments that relate to the scope and content of the CEQA analysis will be used to inform the analysis contained in the draft PEIR. Specifically, comments related to program alternatives, program coordination, and environmental considerations will be considered in preparation of the draft PEIR.

List of Topics to be Addressed in the PEIR

A detailed evaluation of potential environmental impacts will be provided in the draft PEIR for a variety of resource topics. A brief description of these resource topics and identification of key issues is provided next, based on preliminary evaluation and the scoping comments received. This is *not* intended to be a comprehensive list of all issues that will be evaluated in the draft PEIR, but this list provides an overview of some of the key issues that are planned to be discussed.

Agricultural Economics

Economic effects are not considered environmental impacts under CEQA, unless they have relevance to a physical impact. Therefore, the draft PEIR will identify whether economic effects of the Program could result in any physical impacts on the environment, for use in the discussion of resources topics required to be addressed under CEQA.

Agricultural and Forestry Resources

The draft PEIR will evaluate the potential for the Program to result in conversion of agricultural land (including forest land) to non-agricultural uses.

Air Quality

The draft PEIR will evaluate the potential emissions of criteria air pollutants and toxic air contaminants, and any related conflicts with applicable air quality plans, violations of air quality standards, cumulative emission of criteria air pollutants, exposure of sensitive receptors to substantial pollutant concentrations, and creation of objectivities odors.

Biological Resources

Key issues to be evaluated in the draft PEIR will include:

- effects of pesticide use on non-target biological organisms, including special-status species;
- effects of biological control agents on non-target biological organisms, including special-status species;
- effects on riparian habitat or other sensitive natural communities and federally protected wetlands;
- potential habitat fragmentation from host plant removal; and
- potential conflicts with habitat conservation plans or other plans.

Cultural Resources

The draft PEIR will evaluate the potential for the Program to result in disturbance to known or previously unidentified cultural resources.

Global Climate Change

The draft PEIR will evaluate the Program's potential to generate greenhouse gas emissions and/or conflict with plans to reduce greenhouse gas emissions.

Hazards and Hazardous Materials

Key issues to be evaluated in the draft PEIR will focus on the effects of pesticide use to human health, as well as potential for spills/accidental release of hazardous substances. The analysis would provide particular focus on sensitive populations (e.g., schools).

Noise

The draft PEIR will evaluate the potential for noise generation from equipment used for management approaches. This will include an assessment of the potential for exceedances of noise standards and temporary or permanent increases in ambient noise levels.

Water Quality and Hydrology

The draft PEIR will consider the potential for water quality degradation from pesticide use or other management approaches.

List of Topics to be Dismissed from Detailed Analysis in the Draft PEIR

Upon review of the nature and scope of the Program and the scoping comments received, little or no potential for significant impacts exist for several CEQA checklist resource topics; these topics are planned to be eliminated from detailed analysis in the draft PEIR. A brief description of these resource topics and considerations for their dismissal from further analysis in the draft PEIR is presented next; a similar description will be included in the draft PEIR.

Aesthetics

This topic will be dismissed from detailed analysis for several reasons, including the fact that alterations to aesthetics would be minor and only would occur temporarily, and that the Program would not involve new sources of light or glare.

Geology and Seismicity

The Program is not anticipated to expose individuals to increased geological or seismic hazards.

Land use and Planning

Pest prevention and management activities would not supersede regulations, policies, or requirements of other agencies besides CDFA, or authorize otherwise prohibited activities. Potential conflicts with habitat conservation plans will be discussed in the biological resources section.

Mineral Resources

Program activities would have no potential to affect mineral resources.

Population and Housing

The Program is not anticipated to result in growth, or displace persons or housing.

Public Services

The increase in demand for public services under the Program would be minimal.

Recreation

In general, the Program would not affect recreation. Restrictions in access to recreational areas would occur temporarily, if at all.

Traffic and Transportation

Vehicle use under the Program would be widespread and not concentrated at any one location.

Utilities and Service Systems

In general, the Program would not make substantial demands on utilities or service systems. Landfill disposal of host plants would be required in some instances, but at any location only a very small portion of landfill capacity would be required. The Program would not affect other utility services (e.g., wastewater production, water supply).

Ongoing Outreach

Comments received during the scoping period will help identify concerned parties and key stakeholders for ongoing outreach and coordination. Outreach will occur through Web page Program updates and mailings. Additional interested parties who want to receive mailings of Program updates or have questions are encouraged to send an e-mail to the following address: PEIR.info@cdfa.ca.gov.

Questions can also be mailed directly to CDFA's Project Manager, Michele Dias, at the following address:

Michele Dias, General Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Program Web Site Updates

The Program PEIR Web site (http://www.cdfa.ca.gov/go/peir/) will be available to the public throughout the CEQA process. The Web site will be updated for the public to review as additional information becomes available about the Program or the CEQA process. This will include notice regarding circulation of the draft PEIR and notification of the public comment period for the draft PEIR.

Technical Advisory Committee

CDFA plans to convene a technical advisory committee of individuals with expertise on the topics of pest management and related environmental effects. This committee is expected to help provide review and input on various aspects of the environmental analysis. The exact structure and process for the committee is still in development; CDFA plans to further define the role and approach for the committee and solicit applications for participation in the coming months.

Other Opportunities for Public Involvement

The public will have the opportunity to submit comments during the public review period for the draft PEIR. This comment period will begin with circulation of the draft PEIR. CDFA will announce the availability of the draft PEIR and comment period by issuing a public Notice of Availability (NOA) to the State Clearinghouse, the 58 California county clerks, and other interested individuals and agencies (via standard mail and e-mail). CDFA will also post the NOA on the Program PEIR Web site and issue newspaper announcements as appropriate. The draft PEIR will be made available for download in electronic version on the Web site, and to the extent feasible, as a hard copy upon written request to CDFA. Interested individuals, agencies and organizations will be able to submit comments throughout the comment period, either online at the Program PEIR Web site or by mailing comments to CDFA, as directed in the public notice.

During the public review period CDFA also will conduct public meetings throughout California at accessible locations. The public meetings are anticipated to include a brief presentation regarding the content of the draft PEIR, the range of impacts analyzed, and the process being undertaken to produce the final PEIR. Comments from the public will be accepted at these meetings, orally or in a written format.

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Appendix A
NOTICE OF PREPARATION

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Notice of Preparation

To: Responsible, Federal and Trustee Agencies

(Agency)

(Address)

From: California Department of Food and Agriculture

1220 N Street, Suite 400

Sacramento, CA 95814

Subject: **Notice of Preparation of a Draft Environmental Impact Report**

The California Department of Food and Agriculture (CDFA) is the lead agency and is preparing a program environmental impact report (EIR) for the project identified below. CDFA would like input from your agency and interested members of the public regarding the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the program EIR prepared by CDFA when considering any permit or other approval related to the proposed project.

The project description, location, and potential environmental effects are contained in the attached materials. A copy of the initial study ☐ ***is*** ☒ ***is not*** attached.

Because of the time limits mandated by state law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Michele Dias at the address above. Please include your name or the name of a contact person in your agency.

Project Title: Statewide Plant Pest Prevention and Management Program

Project Applicant, if any: n/a

Date: June 23, 2011

Signature: michele dias

Title: Acting Chief Counsel

Email: PEIR.info@cdfa.ca.gov

Reference: Cal. Code Regs., tit. 14, (CEQA Guidelines) Sections 15082, subd. (a), 15103, 15375.

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NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

1. Introduction

The California Department of Food and Agriculture (CDFA) is currently developing a program Environmental Impact Report (EIR) for the proposed Statewide Plant Pest Prevention and Management Program (Statewide Program), described below. The overall goal of the Statewide Program is to evaluate the range of plant pest prevention and management activities currently implemented by CDFA and its partners throughout California and those that are likely to occur in the reasonably foreseeable future.

The Program EIR will be prepared by CDFA in accordance with the provisions of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. CDFA will be the lead agency pursuant to CEQA and will consider comments from responsible and trustee agencies, property owners, and interested persons and parties regarding the scope and content of the environmental information to be included in the EIR.

2. Project Area

The Statewide Program includes plant pest prevention and management activities that could occur throughout California (see Figure 1). Due to California's rich and diverse natural and agricultural environment, many plant and animal communities are present, and the potential exists for a variety of pests to occur in a variety of areas. Plant pests may be found and prevention activities may occur in urban, rural, natural, and agricultural settings. The potential geographic extent of prevention and management activities for any particular plant pest depends on the existence of suitable climatic and ecological conditions for the pest and its hosts, such as appropriate elevation and temperature. Projects occur where the pests are found. The specific area and extent of use for management tactics depend on the size and density of the pest population, and the severity of threat to agriculture, natural lands, and/or urban populations, among a variety of other factors. For each pest group discussed in the EIR, the program area will be further defined.

3. Project Description

Program Purpose

The Statewide Plant Pest Prevention and Management Program (Statewide Program) encompasses the range of pest prevention activities carried out against plant pests by CDFA throughout California. The Statewide Program consists of a variety of programs designed for prevention and management of plant pests, and identifies numerous methods for controlling them. These programs and management tactics are intended for use in individual projects that could occur throughout California. Plant pests include arthropods, plant pathogens, noxious weeds, and vertebrates. Animal pests and diseases are not included in the Statewide Program.

The Statewide Program EIR will describe CDFA's various prevention and management programs and the management tactics authorized for use against a variety of plant pests. The EIR will also evaluate the environmental impacts of these programs and activities. The EIR will provide a program framework that can be used for subsequent CEQA analysis, including tiering of project-level CEQA documentation for (1) plant pest prevention and management activities implemented by CDFA and other agencies; and (2) integration of new prevention and management tactics and new plant pests. To facilitate future use of the program EIR, pest prevention and management information will be organized into pest groups. This information will be designed to capture how and where a project can be implemented for similar types of pests, and the range of management tactics that can be used against particular pests.

Program Objectives

The Statewide Program has been designed to achieve the following objectives:

- Minimize the impacts of invasive plant pests to the state of California's various resources, including agricultural, biological, and water resources, by preventing the establishment of introduced invasive species;
- Minimize the impacts of management tactics to human health and the state of California's various resources, including agricultural, biological, and water resources;
- Promote the production of a safe, secure food supply;
- Support CDFA's goal of providing rapid response by developing a statewide plant pest prevention and management program to streamline project-level implementation activities and to integrate new pests as they are detected and new pest management tactics as they are developed;
- Develop a program that is broad enough to apply to a wide range of methods of management and pests groups in California;
- Be consistent with existing CDFA permits, protocols, and policies, including CDFA's State Water Resources Control Board (State Water Board) NPDES Permit; and
- Develop a checklist evaluation tool that (1) can be used by CDFA and other agencies to evaluate environmental impacts of specific projects and new pests or management tactics; and (2) can be understood and reviewed by the public.

Discretionary Actions

CDFA is mandated to prevent the introduction and spread of injurious insect or animal pest, plant diseases, and noxious weeds in California (California Food and Agriculture Code

[CFAC] Section 403). To meet this requirement, CDFA conducts a variety of activities. Collectively, these activities make up the Statewide Program. Many of these activities have been previously addressed by CEQA documents. This CEQA document is not intended to supplant prior CEQA efforts. Instead, it addresses the following discretionary actions:

- Authorization of existing CDFA pest prevention and management programs, to the extent that (and focusing on) changes in program characteristics, regulatory requirements, or physical conditions could potentially result in new or more significant impacts (compared to those disclosed in prior CEQA documents);
- Adoption of a project-level checklist for evaluation of potential impacts related to implementation of specific pest prevention and management activities;
- A methodology for evaluation of the environmental impacts related to new pests, pest management tactics, and pest prevention and management programs; and
- Promulgation of regulations related to the above actions.

Existing CDFA plant pest prevention and management programs and activities without the potential for new or more significant impacts than those previously disclosed in prior CEQA documents are not considered discretionary actions in the program EIR.

To the extent that the impacts of the activities described above are addressed in this program EIR, no additional CEQA compliance would be necessary. Note that CDFA conducts public outreach for all of its pest management activities, regardless of whether CEQA compliance is required. In providing CEQA coverage for the range of discretionary actions in the Statewide Program, the program EIR supports the CDFA's goal of rapid response by providing a framework for tiered CEQA analysis. When additional impacts that have not been disclosed in this program EIR could result from future activities, a tiered CEQA document could be prepared including public participation for the tiered document. Plant pest prevention and management activities requiring CEQA analysis that may be covered by the Statewide Program include:

- Implementation of individual projects;
- Authorization of newly developed management tactics or alteration of existing management tactics; and
- Program activities for specific pest species or newly detected types of pests.

It should be noted that this EIR is not intended to address emergency projects. An "emergency" is defined as a "sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services" (Public Resources Code Section 21060.3). When CDFA determines that a newly identified pest population requires an emergency response, CDFA authorizes an emergency project. In accordance with the State CEQA Guidelines Section 15269, emergency projects authorized by CDFA are exempt from CEQA. However, use of the program EIR likely would decrease the time required for future CEQA evaluation and related implementation of pest control activities. Therefore, this program EIR likely would reduce the future need for CDFA to declare an emergency project in order to quickly respond to new pest infestations.

Statewide Program Components

The Statewide Program consists of three primary components: pest detection and response, pest prevention and management branches which implement and develop programs, and pest prevention and management projects carried out under these programs. Each of these components has a fundamental role in how CDFA conducts plant pest prevention and management activities.

Pest Detection and Response

In conducting pest detection and response, the Statewide Program is based on the principles of early detection and rapid response or containment, and use of the Integrated Pest Management (IPM) approach:

1. Early Detection: Early detection occurs through a collaborative effort between the U.S. Department of Agriculture (USDA), CDFA, county agricultural commissioners, and a large group of detection partners outside of these agencies, including private citizens. Detection of an invasive pest indicates the possible presence of an infestation. Once a detection occurs, a delimitation survey is conducted to determine whether an infestation exists and, if present, its boundaries.

2. Rapid Response/Eradication: When a new plant pest is discovered, or a previously discovered plant pest is identified in a new area, rapid response is essential to prevent the establishment of a pest. The goal of rapid response is to eradicate the pest, or rather prevent the establishment of a reproducing population. This occurs by reducing the replacement rate in the population to zero. CDFA, county agricultural commissioners, and others implement rapid response/eradication projects utilizing CDFA's guidance for different groups of pests and specific species of pests. Because most pests spread rapidly, the opportunity for rapid response typically has a brief window. As a result, the rapid response/eradication goal is most often feasible only for small, new infestations of plant pests.

3. Containment. Containment is pursued if rapid response/eradication is determined not to be feasible. Containment allows for the establishment of a reproducing population, but with the goal of maintaining the pest population density at a target density defined for the population. Similar to rapid response/eradication projects, containment projects are carried out utilizing CDFA's guidance for different groups of pests and specific species of pests by CDFA, county agricultural commissioners, and others.

4. Use of Integrated Pest Management Approach. CDFA incorporates several aspects of the IPM approach in developing programs and projects for plant pest prevention and management. CDFA's Use of IMP is implemented using a four-tiered approach, as follows:
    - Pest Identification
    - Pest Population Threshold
    - Selection of Management Tactics

- Monitoring

Pest Prevention and Management Branches

CDFA maintains multiple pest prevention and management branches under the Statewide Program. The scope of CDFA's pest prevention and management branches varies greatly; however, their general role is developing and implementing programs to facilitate prevention and management of specific types of pests; implementing projects; educating the public; developing and implementing management tactics; and carrying out other related duties. Pest prevention and management programs are developed and implemented by the Plant Health and Pest Prevention Services Division of CDFA. Within this division, programs are administered by four separate branches: Plant Pest Diagnostics, Pest Detection/Emergency Projects, Integrated Pest Control, and Pest Exclusions.

Pest Prevention and Management Projects

A pest prevention project can generally be described as the implementation of a management tactic, or set of management tactics, against a pest. Management tactics are continuously being developed by CDFA and other agencies and organizations. Three general types of pest prevention projects may be implemented, including:

- Eradication Projects
- Containment Projects
- Quarantines

Description of Management Tactics

A management tactic reduces the density of a pest population by affecting an aspect of the life system (or the target) of the pest population. Several types of methods can be used to control pests, including the following:

- **Cultural**. Cultural management tactics include any technique that indirectly alters environmental or other factors related to the survival of a pest population in a manner that reduces the size of the population.
- **Physical**. Physical management tactics include the use of human or mechanical means to remove or control a pest or host, or the use of physical barriers to isolate a pest or host.
- **Biological**. Biological management tactics involve the use of biological organisms to reduce the number or density of pests in a pest population.
- **Chemical**. Chemical management tactics use pesticides to kill a pest or host directly, or pheromones to alter the behavior of the pest resulting in density reduction; chemical controls often include the use of baits, traps, lures, and attractants.
- **Regulatory**. Regulatory management tactics restrict or limit human activities in order to restrict the artificial movement of a pest or host (e.g., quarantine activities);

restrictions typically prevent an activity from occurring or limit how the activity occurs.

The EIR will identify the types of management tactics used, or recommended for use, by CDFA, as well as a general discussion of the use of the each management tactic and CDFA's process for developing certain types of management tactics.

Pest Groups and Authorized CDFA Pest Prevention and Management Programs

CDFA conducts and oversees control programs for several classifications of pests. Within each of these control programs, pests are grouped based on similar aspects of biology and control. For each pest group, the EIR will provide information on the potential geographic distribution of the pest and CDFA's guidance on conducting pest prevention and management activities, including detection and project implementation, potential targets for management tactics, and use of authorized management tactics against the pest. Pest groups included in the following control programs will be discussed in detail in the EIR:

- **Invasive Arthropod Control Programs**, including for fruit flies, moths, beetles, and plant diseases – vector control;
- **Noxious Weed Control Program**, including for terrestrial weeds, hydrilla and other aquatic weeds;
- **Vertebrate Pest Control Program**; and
- **Quarantine Programs**, including for fruit flies, moths, plant diseases- vector control, noxious weeds, and plant diseases/pathogens, among others.

4. CEQA Process

Notice of Preparation

This Notice of Preparation (NOP) presents general information on the Statewide Program, the scoping and larger CEQA process, and the environmental issues to be addressed in the EIR. CDFA has prepared this NOP pursuant to CEQA Guidelines section 15082.

Scoping Meetings

In order for the public and agencies to have an opportunity to ask questions and submit comments on the scope of the EIR, several public scoping meetings will be held during the NOP review period. Because the Statewide Program is a "project of statewide, regional, or areawide significance," the scoping meetings will be conducted in five different locations throughout the State. The scoping meetings will be held to solicit input from the public and interested public agencies regarding the nature and scope of environmental impacts to be addressed in the draft EIR.

All five meetings will use the same format and interested parties may attend one or all meetings. A brief presentation will be made in order to provide an overview of the Statewide Program and the CEQA process. Afterwards, CDFA staff will accept public comments on the Statewide Program. Oral comments will be noted and considered at the meetings, and written comments will be accepted both during the meetings as well as anytime during the 30-day scoping period. Comment forms will be available at the scoping meetings for those who wish to submit written comments during or at the meeting.

The dates, times, and exact locations of the public scoping meetings are scheduled for:

- July 6th 2011, 5:30 – 7:30 PM
  Chico Municipal Center
  421 Main Street
  Chico, CA 95928
- July 7th 2011, 5:30 – 7:30 PM
  Department of Health Care Services and Department of Public Health Building
  1500 Capitol Avenue
  Sacramento, CA 95814
- July 12th 2011, 5:30 – 7:30 PM
  Irvine Ranch Water District's Duck Club
  3512 Michelson Drive
  Irvine, CA 92618
- July 13th 2011, 5:30 – 7:30 PM
  San Francisco Public Library
  100 Larkin Street
  San Francisco, CA 94102
- July 14th 2011, 5:30 – 7:30 PM
  UC Fresno Business Center
  5245 N. Backer Ave
  Fresno, CA 93740

In addition, the July 7th meeting in Sacramento will be broadcast live as a 'webinar' session through the internet for those interested in participating remotely. Webinar participants will be able to view the meeting in real time and provide comments on the scope of the EIR. To participate via the webinar session, please sign up at:

https://www2.gotomeeting.com/register/926803362

This scoping meeting information will also be published in local newspapers and the CDFA's Statewide Program website (http://www.cdfa.ca.gov/go/peir).

Draft EIR

The primary purpose of the EIR is to analyze and disclose the direct and reasonably foreseeable indirect environmental impacts that may occur as a result of the Statewide Program. The draft EIR, as informed by public and agency input through the scoping period, will analyze and disclose the potentially significant environmental impacts associated with the Program and, where any such impacts are significant, potentially feasible mitigation measures and alternatives that substantially lessen or avoid such effects will be identified and discussed.

Below is a preliminary list of potential environmental issues to be addressed in detail in the EIR. The analysis in the draft EIR ultimately will determine whether these impacts could reasonably occur, whether such direct or reasonably foreseeable indirect impacts are significant based on the identified threshold of significance, and whether such impacts can be avoided or substantially lessened by potentially feasible mitigation measures and alternatives.

- Aesthetics
- Agricultural Resources
- Air quality
- Biological Resources
- Climate Change
- Cultural Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services and Utilities
- Recreation
- Transportation and Traffic
- Cumulative Impacts
- Irreversible Impacts

As part of the environmental analysis, CDFA will be preparing comprehensive human health and ecological risk assessment, to evaluate the in more detail the potential risks associated with the use of various compounds under the Program.

Public Review of the Draft EIR

Once the draft EIR is completed, it will undergo public review for a minimum of 45 days. CDFA is also planning to hold several public meeting. The meetings will begin with a brief overview of the analysis and conclusions set forth in the draft EIR. This introductory presentation will then be followed by the opportunity for interested members of the public to provide oral comments to CDFA regarding the Statewide Program under CEQA. The date, time, and exact location of the public meetings will be published in local newspapers prior to the event.

Final EIR

Written and oral comments received in response to the draft EIR will be addressed in a Response to Comments document which; together with the draft EIR will constitute the final EIR. The Final EIR, in turn, will inform the CDFA's exercise of discretion as a lead agency under CEQA in deciding whether or how to approve the Statewide Program.

5. Submittal of Scoping Comments

This NOP is being circulated to local, state, and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Program at this stage in the process. In addition, CDFA has created a website where individuals can access Statewide Program documents and keep informed of the overall progress and upcoming scheduled events. Interested persons are encouraged to visit the Statewide Program website (http://www.cdfa.ca.gov/go/peir). Written comments concerning the scope and content of this EIR are welcome.

Due to the time limits mandated by State law for public review of an NOP, your response to and input regarding the scope of the EIR should be sent at the earliest possible date, but ***not later than*** Monday July 25, 2011 md ~~Tuesday July 19th, 2011.~~ Please include a name, address, and telephone number of a contact person for all future correspondence related to the Statewide Program. Send your comments to:

California Department of Food and Agriculture
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

Or email:
PEIR.info@cdfa.ca.gov

PUBLICATION DATE: June 23, 2011

Signature: Michele Dias

Michele Dias, *Project Manager*

Attachments:
1- Program Area Map

Horizon
WATER and ENVIRONMENT

Figure 1
Program Area

Appendix B
NOTICE OF PREPARATION MAILING LIST

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County Clerk Mailing List

Alameda County Clerk-Recorder's Office
1106 Madison Street, First Floor
Oakland, CA 94607

Alpine County Clerk's office
99 Water Street
Markleeville, CA 96120

Recorder-Clerk
810 Court Street
Jackson, CA 95642

Butte County Recorder
25 County Center Drive
Oroville, CA 95965

Calaveras County Clerks Office
891 Mountain Ranch Road
San Andreas, CA 95249

Colusa County Recorder
546 Jay Street, Suite 200
Colusa, CA 95932

Contra Costa County Recorder
555 Escobar St.
Martinez, CA 94553

Recorder's office
981 H Street, Suite 160
Cresent City, CA 95531

El Dorado County Recorder
360 Fair Lane
Placerville, CA 95667

Fresno County Clerk
2221 Kern Street
Fresno, CA 93721

Glenn County
526 W. Sycamore Street
Willows, CA 95988

Humboldt County Recorder
825 5th Street Fifth Floor
Eureka, CA 95501

Imperial County Recorder
P. O. Box 1560
El Centro, CA 92243

Inyo County Clerk Recorder
P.O. Box F
Independence, CA 93526

Kern County Clerk
1115 Truxtun Ave.
Bakersfield, CA 93301

Kings County Clerk
1400 West Lacey Blvd.
Hanford, CA 93230

Lake County Recorder
255 North Forbes
Lakeport, CA 95453

County Clerk-Recorder
220 South Lassen St Suite 5
Susanville, CA 96130

Registrar-Recorder/County Clerk
12400 IMPERIAL HIGHWAY
Norwalk, CA 90650

Madera County Clerk
200 West 4th Street
Madera, CA 93637

Marin County Clerk
Rm 247, Hall of Justice
3501 Civic Center Dr
San Rafael, CA 94903

Mariposa County Clerk
4982 10th Street
Mariposa, CA 95338

Mendocino County Assessor-County Clerk-Recorder
501 Low Gap Rd., Room 1020
Ukiah, CA 95482

Merced County Recorder
2222 M Street, Room 14
Merced, CA 95340

Modoc Recorder's Office
204 South Court St.
Alturas, CA 96101

Mono County Clerk
Annex I, 74 School St.
(Library Building, First Floor)
Bridgeport, CA 93517

Monterey County
168 West Alisal Street, 1st Floor
Salinas, CA 93901

Napa County Clerk
900 Coombs St # 116
Napa, CA 94559

Nevada County Clerk
950 Maidu Ave
Nevada, CA 95959

Orange Clerk-Recorder Office
12 Civic Center Plaza, Rooms 101 and 106
Santa Ana, CA 92701

County Clerk Mailing List

Placer County Clerk
2954 Richardson Drive
Auburn, CA 95603

Plumas County Clerk-Recorder
520 Main Street, Room 102
Quincy, CA 95971

Riverside County Clerk
County Administrative Center 4080
Lemon St, 1st Floor
Riverside, CA 92502

Sacramento County Clerk/Recorder
600 8th Street
Sacramento, CA 95814

San Benito County Clerk
440 5th St., Room 206, County Courthouse
Hollister, CA 95023

San Bernardino County Clerk
222 West Hospitality Lane
San Bernardino, CA 92415

San Diego County Clerk
1600 Pacific Hwy # 260
San Diego, CA 92101

San Francisco County Clerk
City Hall, Room 168
San Francisco, CA 94102

San Joaquin Recorder County Clerk
44 North San Joaquin Street, suite 260,
second floor
Stockton, Ca 95202

SLO Clerk-Recorder
1055 Monterey St., Ste. D-120
San Luis Obispo, CA 93408

San Mateo County Clerk
555 County Center,
First Floor
Redwood City, CA 94063

Santa Barbara County Clerk-Recorder
1100 Anacapa St.,
Santa Barbara, CA 93102

Santa Clara County Clerk-Recorder
70 West Hedding, East Wing, First Floor
San Jose, CA 95110

Santa Cruz County Recorder
701 Ocean Street, Rm 210
Santa Cruz, CA 95060

Shasta County Recorder
1643 Market Street
Redding, CA 96099

Sierra County Recorder
P.O. Drawer D, 100 Courthouse Square,
Suite 11
Downieville, CA 95936

Siskiyou County Clerk
510 North Main St.
Yreka, CA 96097

Solano County Clerk of the Board
675 Texas Street, Suite 6500
Fairfield, CA 94533

Sonoma County Clerk
2300 County Center Drive, Suite B177
Santa Rosa, CA 95403

Stanislaus County Clerk-Recorder
1021 I Street, Suite 101
Modesto, CA 95354

Board Clerk's Office
433 2nd Street
Yuba City, CA 95991

Tehama County Recorder
633 Washington Street, Room 11
Red Bluff, CA 96080

Trinity County Recorder
101 Court Street
Weaverville, CA 96093

Tulare County Recorder
County Civic Center, 221 South Mooney
Boulevard
Visalia, CA 93291

Tuolumne County Clerk
2 South Green Street, 2nd Floor
Sonora, CA 95370

Ventura County Recorder Officer
800 S. Victoria Ave.
Ventura, CA 93009

Yolo County Clerk
625 Court Street, Room B01, Woodland,
CA 95695

Yuba County Clerk Recorder
915 8th St., Suite 107
Marysville, CA 95901

Cities and Counties Notified by CDFA	
Counties	**Sent On**
Alameda	6/30/2011
Contra Costa	7/21/2011
Fresno	7/21/2011
Kern	7/21/2011
LA County	7/21/2011
Marin	6/30/2011
Monterey	6/30/2011
Orange	7/21/2011
Riverside	7/21/2011
San Bernardino	7/21/2011
San Diego	7/21/2011
San Francisco	6/30/2011
San Joaquin	7/21/2011
San Mateo	7/21/2011
Santa Cruz	6/30/2011
Sonoma	7/21/2011
Stanislaus	7/21/2011
Ventura	7/21/2011
Cities	
Alameda	6/30/2011
Albany	6/30/2011
Anaheim	7/22/2011
Bakersfield	7/21/2011
Belvedere	6/30/2011
Berkeley	6/30/2011
Capitola	6/30/2011
Carmel-By-The--Sea	6/30/2011
Chula Vista	7/21/2011
Concord	7/21/2011
Corona	7/21/2011
Corte Madera	6/30/2011
Del Ray Oaks	6/30/2011
Dublin	6/30/2011
Elk Grove	7/21/2011
Emeryville	6/30/2011
Fairfax	6/30/2011
Fontana	7/21/2011
Fremont	6/30/2011
Fremont	7/21/2011
Fresno	7/22/2011
Fullerton	7/21/2011
Garden Grove	7/21/2011
Glendale	7/21/2011
Gonzales	6/30/2011
Greenfield	6/30/2011

Hayward	6/30/2011
Hayward	7/21/2011
Huntington Beach	7/21/2011
Irvine	7/21/2011
King City	6/30/2011
Lancaster	7/21/2011
Larkspur	6/30/2011
Livermore	6/30/2011
Long Beach	7/21/2011
Los Angeles	7/21/2011
Marina	6/30/2011
Mill Valley	6/30/2011
Modesto	7/21/2011
Monterey	6/30/2011
Moreno Valley	7/21/2011
Newark	6/30/2011
Novato	6/30/2011
Oakland	6/30/2011
Oakland	7/21/2011
Oceanside	7/21/2011
Ontario	7/22/2011
Orange	7/21/2011
Oxnard	7/21/2011
Pacific Grove	6/30/2011
Palmdale	7/21/2011
Pasadena	7/21/2011
Piedmont	6/30/2011
Rancho Cucamonga	7/21/2011
Riverside	7/21/2011
Roseville	7/21/2011
Ross	6/30/2011
Sacramento	7/21/2011
Salinas	6/30/2011
Salinas	7/21/2011
San Angelo	6/30/2011
San Diego	7/21/2011
San Francisco	6/30/2011
San Francisco	7/21/2011
San Jose	7/21/2011
San Leandro	6/30/2011
San Rafael	6/30/2011
Sand City	6/30/2011
Santa Ana	7/21/2011
Santa Clara	7/21/2011
Santa Clarita	7/21/2011
Santa Cruz	6/30/2011
Santa Rosa	7/21/2011
Scotts Valley	6/30/2011

Seaside	6/30/2011
Simi Valley	7/21/2011
Soledad	6/30/2011
Stockton	7/22/2011
Sunnyvale	7/21/2011
Thousand Oaks	7/21/2011
Tiburon	6/30/2011
Torrance	7/21/2011
Vallejo	7/21/2011
Victorville	7/21/2011
Visalia	7/21/2011
Watsonville	6/30/2011

CALIFORNIA DEPARTMENT of FOOD and AGRICULTURE
PLANT PEST PREVENTION and MANAGEMENT PROGRAM – EIR
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<u>Office of Environmental Health Hazard Assessment</u>

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<u>Office of Environmental Justice, Tribal & Border Affairs</u>

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<u>Office of Toxic Substance Control</u>

Not interested, per Sandy

<u>Air Resources Board</u>

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University of California

Dan Dooley [suggested by Secretary Ross]
Sr Vice President for External Relations

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Berkeley	N/A	510-981-6950	510-981-6960	attorney@cityofberkeley.info
Dublin	John Pattillo, City Mgr.	925-833-6650	925-833-6651	city.manager@dublin.ca.gov
Emeryville	Michael G. Biddle	510-596-4370	510-596-3724	City_Attorney@ci.emeryville.ca.us
Fremont	N/A	510-284-4030	510-284-4031	cityattorneysoffice@fremont.gov
Hayward	Michael Lawson	510-583-4455	510-583-3660	Michael.Lawson@hayward-ca.gov
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Watsonville	Alan J. Smith	831-768-3030	N/A	Cityattorney@ci.watsonville.ca.us

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City/County Of				

MARIN CO.	CITY ATTORNEY NAME	PHONE	FAX	E-MAIL
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Corte Madera	Jeffrey A. Walter	415-927-5050	415-927-5087	administration@cio.corte-madera.ca.us
Fairfax	Judy Anderson (clerk)	415-458-2343	415-453-1618	janderson@townoffairfax.org
Larkspur	Mr. Sky Woodruff	415-927-5110	415-927-5022	lk_admin@larkspurcityhall.org
Mill Valley	James McCann, City Mgr.	415-388-4033		citymanager@cityofmillvalley.org
Novato	Jeffrey A. Walter	415-899-8900	415-899-8213	City@novato.org
Ross	Gary Broad, Town Mgr.	415-453-1453	415-453-1950	E-mail linked to website for Town Mgr: http://www.townofross.org/pages/contact/email_broad.html
San Anselmo	Rob Epstein	415-435-3838	415-544-3060	repstein@cityofbelvedere.org
San Rafael	Rob Epstein	415-435-3838	415-544-3060	repstein@cityofbelvedere.org
Tiburon	Rob Epstein	415-435-3838	415-544-3060	repstein@cityofbelvedere.org

Appendix C
PRESS RELEASE

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News Release

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Media Contacts:
Steve Lyle, CDFA Public Affairs, (916) 654-0462, slyle@cdfa.ca.gov

NOTICE OF PREPARATION ANNOUNCED, SCOPING SESSIONS SCHEDULED FOR CDFA STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM EIR

cdfa
Release #11-031
Print This Release

Focus to include principles of integrated pest management

SACRAMENTO, June 23, 2011 – The California Department of Food and Agriculture, in accordance with CEQA guidelines, is announcing a Notice of Preparation (NOP) for the Statewide Plant Prevention and Management Program Environmental Impact Report (EIR).

The EIR is a crucial step as CDFA carries out its responsibility to protect the state's food supply and natural resources, upon which Californians and many throughout the nation and world depend. Responding to invasive species such as plant pests and diseases is one of the primary ways that CDFA helps farmers and ranchers maintain a constant, dependable and safe supply of food.

The EIR document will provide an opportunity to analyze the frontline defense of the nation's food system through the principles of integrated pest management, using the latest science and technology. The final product will include a process to evaluate and include new developments and potential environmental impacts while providing for public participation throughout the pest management process.

CDFA is announcing public meetings to receive agency and public comments on the scope and content of the EIR. The schedule of scoping meetings is as follows:

CHICO
July 6th, 2011
5:30-7:30 PM
Chico Municipal Center
421 Main St
Chico, CA 95928

SACRAMENTO
July 7th, 2011
5:30-7:30 PM
Department of Health Care Services and
Department of Public Health building
1500 Capitol Ave
Sacramento, CA 95814

Note – A webinar is available for this meeting – to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

ORANGE COUNTY
July 12th, 2011
5:30-7:30 PM
Irvine Ranch Water District's Duck Club
3512 Michelson Drive
Irvine, CA 92618

SAN FRANCISCO
July 13th, 2011
5:30-7:30 PM
San Francisco Public Library
100 Larkin St.
San Francisco, CA 94102

FRESNO
July 14th, 2011
5:30-7:30 PM
UC Fresno Business Center
5245 N. Backer Ave
Fresno, CA 93740

To review the NOP, to make written comments, or to receive more information about the EIR process, please visit: www.cdfa.ca.gov/go/peir.

-30-

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cdfa protects

Follow CDFA News on Twitter and Facebook

California Department of Food and Agriculture Office of Public Affairs
1220 N St., Ste. 214, Sacramento, CA 95814
916-654-0462, www.cdfa.ca.gov

The Press Release was sent to the following email addresses:

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acooper@sfchronicle.com
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ag06@co.merced.ca.us
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agc037@agdept.com
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bbedwell@cgtfl.com
bbrookhart@kcwa.com
bbryan@calpeach.com
bcn@pacbell.net
bdavis@bwdlawgroup.com
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rick.lefeuvre@ocpw.ocgov.com
rishi.avila@sdcounty.ca.gov
rkaldor@dairyinstitute.org
rkelley@foodtrack.net
rlilley@co.slo.ca.us
rmatsufuji@yahoo.com
rmiller@cfbf.com
rmiller@thereporter.com
rob_hof@businessweek.com
robert.digitale@pressdemocrat.com
robert81@gmail.com
roberta.rampton@thomsonreuters.com
robin.rosetta@oregonstate.edu
ron.calderon@sen.ca.gov
ron@agcom.co.san-benito.ca.us
Rose.Aguayo@usda.gov
rosemary@nmaonline.org
rosenheim@kpix.cbs.com
roy.avila@kicu.com
rprice@buttecounty.net
rprice@buttecounty.net
RRAERoth@roadrunner.com
rreporter@ph.lacounty.gov
rrolan@madera-county.com
rsterling@marinij.com
rsterling@marinij.com
rtb@jps.net
rtb@jps.net
ruanndm@aol.com
rvanklaveren@sbcglobal.net
s.horsfall@comcast.net
sacfarmbur@msn.com
sacramento@bizjournals.com
sadler@cfbf.com
sandiego@ap.org
sandra1325@comcast.net
sandre@cmab.net
sanfrancisco@ap.org
sanfrancisco@ap.org
sarahkay01@hotmail.com
sbcfb@garlic.com
sbfarmbureau@msn.com
sbien@tribune.com
sbohan@bayareanewsgroup.com
sbowden@co.sutter.ca.us
SBR_MiniRex@yahoo.com
scarlsen@co.marin.ca.us
scotts@maderafair.com
scox@cityofnapa.org
sdarner@ci.laguna-niguel.ca.us
sdinardi@jps.net
sdwyer@kqed.org
senator.alquist@sen.ca.gov
senator.dutton@sen.ca.gov
senator.hollingsworth@sen.ca.gov
senator.kehoe@sen.ca.gov
senator.lowenthal@sen.ca.gov
senator.runner@sen.ca.gov
senator.scott@sen.ca.gov
senator.simitian@sen.ca.gov
sentinel@napanet.net
sentinel@napanet.net
SentinelWeekly@aol.com
serenitycathospital@gmail.com
sf.nancy@mail.house.gov
sfinz@sfchronicle.com
sggarcia@cdfa.ca.gov
sgordonwindsor@earthlink.net
shadownews_sfo@shadowtraffic.com
sharlene@cawg.org
sharon.macklin@sen.ca.gov
sharon.macklin@sen.ca.gov
shastaag@pacbell.net
shastaag@pacbell.net
shudson@sjgov.org
sierrabountysara@yahoo.com
simone.hardy@sdcounty.ca.gov
skahl@co.fresno.ca.us
skhokha@kqed.org
skulieke@rcrcnet.org
skyjung@qnet.com
slivings@arb.ca.gov
smateoag@co.sanmateo.ca.us
smcfbhmb@aol.com
smm@corkyspest.com
smtcirculations@pulitzer.net
sonomaag@cdfa.ca.gov
spai2@iinet.com
spinola@deltacollege.edu
sports@knbr.com
sroneto@ucdavis.edu
ssingh28@bloomberg.net
ssneddon@ci.calistoga.ca.us
sstafford@turlockjournal.com
stanleythsiao@gmail.com
stephanie.adrouny@abc.com
stephenbirdsall@co.imperial.ca.us
stevenh@co.lake.ca.us
sthomas@univision.net
strain.daniel@gmail.com
sue@progressiveproduce.com
susan.davis@mail.house.gov
susan.switzer@silliker.com
sutterag@co.sutter.ca.us
sutterag@co.sutter.ca.us
sweaver@sacfair.com
sweisenberger@avhsd.org
Sylvia.Thompson@GOV.CA.GOV
tanya.m.beaucaire@aphis.usda.gov
tanya@ecivis.com
taverdin@ap.org
tbell@wittassociates.com
tcf@snowcrest.net
tcho@alliedsales.com
tcone@ap.org
ted@citrusresearch.org
ted@citrusresearch.org
tehight@landolakes.com
Tim.Elliott@Wal-Mart.Com
tim.niswander@co.kings.ca.us
timrandre@hotmail.com
tjohnson@calrice.org
tkeith@kqed.org
tlundeen@feedstuffs.com
todd.miyazawa@nbc.com
tom.mcclintock@sen.ca.gov
tom@tomsullivan.com
tom@tomsullivan.com
tomfreeman@rivcoeda.org
tony.bonilla@ktvu.com
tony.perry@latimes.com
trehuba@pcmcus.com
TSampson@dailyrepublic.net
ttesconi@sonomacountyfarmbureau.com
Tularenews@visaliatimesdelta.com
tuolumag@cdfa.ca.gov
TV@KQED.ORG
Tyree.Dillingham@GOV.CA.GOV
tyree.dillingham@gov.ca.gov
udj@pacific.net
utuweb@aol.com
v_arellano@hotmail.com
vanessa.smith@fleishman.com
vernon.crowder@rabobank.com
vet2b2006@yahoo.com
vfederighi@cdpr.ca.gov
vguis@ag.cccounty.us
vguise@ag.co.contra-costa.ca.us
vhelmar@co.tuolumne.ca.us
viewer@krcb.org
viewercomments@kmph.com
viewercomments@kmph.com
vivian@midstatefair.com
vlboyd@att.net
voice@cctimes.com
vtletters@cctimes.com
vvnews@link.freedom.com
webmaster@kuzz.com
webmaster@theunion.com
webmaster@tustinca.org
websterj@aol.com
weihang_que@cpwc.com
weihang_que@cpwc.com
wes@wessander.com
westmherald@aol.com

weysos@gmail.com
wfweber@wga.com
william.thomas@bbklaw.com
wjthomas01@aol.com
wmbcwc@walnuts.org
wpearl@mindspring.com
wshaw@infinitysac.com
ww116@hotmail.com
xhas@telemundo33.com
ximena.prelo@aphis.usda.gov
ximena.prelo@aphis.usda.gov
ximena.prelo@aphis.usda.gov
yoloag@cdfa.ca.gov
yubaag@cdfa.ca.gov
yubaag@cdfa.ca.gov
yubasue@yubanet.com
yvette@santacruzcountyfair.com
zbenedict@avocado.org
zengyh@yahoo.com

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Appendix D
INVITATION TO PARTICIPATE

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APPENDIX D - INVITATION TO PARTICIPATE

The following email language was sent to various counties and cities as an invitation to participate in the CEQA process for the Statewide Plant Pest Prevention and Management Program:

Dear Mayor and City Council Members,

Dear Chairperson and Supervisors,

The California Department of Food and Agriculture is in the early stages of preparing a Statewide Plant Pest Prevention and Management Program Environmental Impact Report, as required under CEQA.

On June 23, we issued our Notice of Preparation (NOP), the first stage in a two-and-a-half year public process that will provide transparency about department programs and decision-making utilizing the principles of integrated pest management. It is important to note that the NOP is not a permit to do anything. Rather, it is the first step in a thorough environmental analysis of CDFA's pest management programs conducted with input from the public and other stakeholders. .

We hope you will participate in the process. To sign up for our listserv and receive all information, please go to http://www.cdfa.ca.gov/listserv/ . Scoping sessions for the EIR are scheduled to begin July 6. Comments are due to CDFA on or before Monday, July 25, 2011. We ask that you please review the attached materials and we hope to have you join us in the process to develop the EIR over the next two-and-a-half years.

Best Regards,

Dr. Robert Leavitt

Director Plant Health and Pest Prevention Services

California Department of Food and Agriculture

In addition, the email included the following attachments:

- Press Release (*refer to Appendix C*)
- Frequently Asked Questions (*refer to Appendix F*)
- NOP (*refer to Appendix A*)

Cities and Counties Which Received an Invitation to Participate by CDFA

Counties	Sent On
Alameda	6/30/2011
Contra Costa	7/21/2011
Fresno	7/21/2011
Kern	7/21/2011
LA County	7/21/2011
Marin	6/30/2011
Monterey	6/30/2011
Orange	7/21/2011
Riverside	7/21/2011
San Bernardino	7/21/2011
San Diego	7/21/2011
San Francisco	6/30/2011
San Joaquin	7/21/2011
San Mateo	7/21/2011
Santa Cruz	6/30/2011
Sonoma	7/21/2011
Stanislaus	7/21/2011
Ventura	7/21/2011
Cities	
Alameda	6/30/2011
Albany	6/30/2011
Anaheim	7/22/2011
Bakersfield	7/21/2011
Belvedere	6/30/2011
Berkeley	6/30/2011
Capitola	6/30/2011
Carmel-By-The--Sea	6/30/2011
Chula Vista	7/21/2011
Concord	7/21/2011
Corona	7/21/2011
Corte Madera	6/30/2011
Del Ray Oaks	6/30/2011
Dublin	6/30/2011
Elk Grove	7/21/2011
Emeryville	6/30/2011
Fairfax	6/30/2011
Fontana	7/21/2011
Fremont	6/30/2011
Fremont	7/21/2011
Fresno	7/22/2011
Fullerton	7/21/2011
Garden Grove	7/21/2011
Glendale	7/21/2011

Gonzales	6/30/2011
Greenfield	6/30/2011
Hayward	6/30/2011
Hayward	7/21/2011
Huntington Beach	7/21/2011
Irvine	7/21/2011
King City	6/30/2011
Lancaster	7/21/2011
Larkspur	6/30/2011
Livermore	6/30/2011
Long Beach	7/21/2011
Los Angeles	7/21/2011
Marina	6/30/2011
Mill Valley	6/30/2011
Modesto	7/21/2011
Monterey	6/30/2011
Moreno Valley	7/21/2011
Newark	6/30/2011
Novato	6/30/2011
Oakland	6/30/2011
Oakland	7/21/2011
Oceanside	7/21/2011
Ontario	7/22/2011
Orange	7/21/2011
Oxnard	7/21/2011
Pacific Grove	6/30/2011
Palmdale	7/21/2011
Pasadena	7/21/2011
Piedmont	6/30/2011
Rancho Cucamonga	7/21/2011
Riverside	7/21/2011
Roseville	7/21/2011
Ross	6/30/2011
Sacramento	7/21/2011
Salinas	6/30/2011
Salinas	7/21/2011
San Angelo	6/30/2011
San Diego	7/21/2011
San Francisco	6/30/2011
San Francisco	7/21/2011
San Jose	7/21/2011
San Leandro	6/30/2011
San Rafael	6/30/2011
Sand City	6/30/2011
Santa Ana	7/21/2011
Santa Clara	7/21/2011
Santa Clarita	7/21/2011
Santa Cruz	6/30/2011

Santa Rosa	7/21/2011
Scotts Valley	6/30/2011
Seaside	6/30/2011
Simi Valley	7/21/2011
Soledad	6/30/2011
Stockton	7/22/2011
Sunnyvale	7/21/2011
Thousand Oaks	7/21/2011
Tiburon	6/30/2011
Torrance	7/21/2011
Vallejo	7/21/2011
Victorville	7/21/2011
Visalia	7/21/2011
Watsonville	6/30/2011

Appendix E
SCOPING MEETING NEWSPAPER AD

NEWSPAPER NOTICE- SUBMITTED COPY

Join us for a public information and scoping meeting

on the

Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

There will be five meetings, as follows:

Wednesday July 6th ❖ 5:30 p.m.

Chico Municipal Center
421 Main Street
Chico, CA 95928

Thursday July 7th ❖ 5:30 p.m.

Sacramento Department of Health Care Services and Department of Public Health Building
1500 Capitol Avenue
Sacramento, CA 95814

Tuesday July 12th ❖ 5:30 p.m.

Irvine Ranch Water District's Duck Club
3512 Michelson Drive
Irvine, CA 92618

Wednesday July 13th ❖ 5:30 p.m.

San Francisco Public Library
100 Larkin Street
San Francisco, CA 94102

Thursday July 14th ❖ 5:30 p.m.

UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/phpps/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

(2015.5 C.C.P.)

Filing Stamp

STATE OF CALIFORNIA
County of Yolo

I am a citizen of the United States and a resident of the county aforesaid. I am over the age of eighteen years and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of

THE DAVIS ENTERPRISE
315 G STREET

printed and published Sunday through Friday in the city of Davis, county of Yolo, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Yolo, State of California, under the date of July 14, 1952, Case Number 12680. That the notice, of which the annexed is a printed copy (set in type not smaller than non-pareil), has been issue of said newspaper and not in any supplement thereof on the following dates to-wit:

June 23
All in the year(s) 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Davis, California,
This 23rd day of June. 2011

Whitney Forrester
Legal Advertising Clerk

Proof of Publication
204122
Public Scoping

Public Notices | Public Notices

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Sacramento, CA 95814
Webinar available- to participate by webinar please signup at: https://www2.gotomeeting.com/register/926803362

Tuesday July 12th, 5:30 p.m.
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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-

PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
P. O. BOX 440
BAKERSFIELD, CA 93302

California Department of Food and Agriculture
1220 N Street, Room 221
SACRAMENTO, CA 95814

--

Ad Number:	12418047	**PO #:**	
Edition:	TBC	**Run Times**	1
Class Code	Legal Notices		
Start Date	6/24/2011	**Stop Date**	6/24/2011
Billing Lines	94	**Inches**	565.22
Total Cost	$ 287.87	**Account**	27909495
Billing Address	California Department of Food and Agri 1220 N Street, Room 221 SACRAMENTO,CA 95814		

STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 6/24/11

ALL IN YEAR 2011

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Terri Brice

DATED AT BAKERSFIELD CALIFORNIA

6/24/11

Solicitor I.D.: 0

First Text
PUBLIC NOTICEJoin us for

Ad Number 12418047

PUBLIC NOTICE

Join us for a public information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website:
http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

AFFIDAVIT OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Imperial

I am a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk* of the printer of the

IMPERIAL VALLEY PRESS

a newspaper of general circulation, printed and published daily in the City of El Centro, County of Imperial and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Imperial, State of California, under the date of October 9, 1951, Case Number 26775; that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

June 26

all in the year 2011.

I certify (or declare) under penalty of perjury that the foregoing is true and correct

SIGNATURE

* Printer, Foreman of the Printer, or Principal Clerk of the Printer

6-27-11

This space is for the County Clerk's Filing Stamp:

Proof of Publication of:

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

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5245 N. Backer Avenue
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Jn26

CALIFORNIA DEPT. OF FOOD &

AGRICULTURE

1220 "N" ST., STE 221

SACRAMENTO , CA 95814

PROOF OF PUBLICATION

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE

#49059

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on the
Statewide Plant Pest Prevention and Management Program

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(PUB: June 27, 2011)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

06-27-2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated JUNE 27,2011

FPROOFAD

THE RECORD
PROOF OF PUBLICATION
STATE OF CALIFORNIA
COUNTY OF SAN JOAQUIN

THE UNDERSIGNED SAYS:

I am a citizen of the United States and a resident of San Joaquin County; I am over the age of 18 years and not a part to or interested in the above-entitled matter. I am the principal clerk of the printer of THE RECORD, a newspaper of general publication, printed and published daily in the City of Stockton, County of San Joaquin by the Superior Court of the County of San Joaquin, State of California, under the date of February 26, 1952, File No. 52857, San Joaquin County Records; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published each regular and entire issue of said newspaper and not in any supplement thereof on the following dates,
To wit, June 28 2011

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 28, 2011 In Stockton California

Carlette Schnell
Carlette Schnell,
The Record

0000874423

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on the
Statewide Plant Pest Prevention and Management Program

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#874423 6/28/2011

San Jose Mercury News

750 RIDDER PARK DRIVE
SAN JOSE, CALIFORNIA 95190
408-920-5332

Legal No. **0004054904**

PROOF OF PUBLICATION

IN THE
CITY OF SAN JOSE
STATE OF CALIFORNIA
COUNTY OF SANTA CLARA

Plant Health and Pest Prevention Service
1220 N Street Rm 221
Sacramento CA 95814

FILE NO. A.Espinoza

In the matter of

The San Jose Mercury News

The undersigned, being first duly sworn, deposes and says: That at all times hereinafter mentioned affiant was and still is a citizen of the United States, over the age of eighteen years, and not a party to or interested in the above entitled proceedings; and was at and during all said times and still is the principal clerk of the printer and publisher of the San Jose Mercury News, a newspaper of general circulation printed and published daily in the city of San Jose in said County of Santa Clara, State of California as determined by the court's decree dated June 27, 1952, case numbers 84096 and 84097, and that said San Jose Mercury News is and was at all times herein mentioned a newspaper of general circulation as that term is defined by Sections 6000 and following, of the Government Code of the State of California and, as provided by said sections, is published for the dissemination of local or telegraphic news and intelligence of a general character, having a bona fide subscription list of paying subscribers, and is not devoted to the interests or published for the entertainment or instruction of a particular class, professional, trade, calling, race or denomination, or for the entertainment and instruction of any number of such classes, professionals, trades, callings, races or denominations; that at all times said newspaper has been established, printed and published in the said city of San Jose in said County and State at regular intervals for more than one year preceding the first publication of the notice herein mentioned. Said decree has not been revoked, vacated or set aside.

I declare that the notice, of which the annexed is a true printed copy, has been published in each regular or entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

6/27/2011

Dated at San Jose, California
06/27/11

I declare under penalty of perjury that the foregoing is true and correct.

Signed [signature]

Principal clerk of the printer and publisher of the San Jose Mercury News.

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

There will be five meetings, as follows:

Wednesday July 6th
*** 5:30 p.m.**

Chico Municipal Center
421 Main Street
Chico, CA 95928

Thursday July 7th
*** 5:30 p.m.**

Department of Health Care Services and Department of Public Health Building
1500 Capitol Avenue
Sacramento, CA 95814
Webinar available - to participate via the webinar, please sign up at:
https://www2.gotomeeting.com/register/926803362

Tuesday July 12th
*** 5:30 p.m.**

Irvine Ranch Water District's Duck Club
3512 Michelson Drive
Irvine, CA 92618

Wednesday July 13th
*** 5:30 p.m.**

San Francisco Public Library
100 Larkin Street
San Francisco, CA 94102

Thursday July 14th
*** 5:30 p.m.**

UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website:
http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

SJMN#4054904
June 27, 2011

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA,
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the publisher of the DESERT DISPATCH, a newspaper of general circulation, published in the City of Barstow, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under the date of February 27, 1996, Case Number BVC 02359, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

June 24

All in the year 2011.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated this: 24th **day of** June, **20**11.

Signature

Leslie Jacobs

This space is the County Clerk's Filing Stamp

Proof of Publication of

JOIN US FOR A PUBLIC INFORMATION AND SCOPING MEETING ON THE STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Website:
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Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

Published in the Desert Dispatch June 24, 2011 (F-151)

The San Diego
Union-Tribune. SIGN ON SAN DIEGO enlace. Classifieds

P.O. Box 120191, San Diego, CA 92112-0191

AFFIDAVIT OF PUBLICATION

CA DEPT. OF FOOD & AGRICULTURE
PLANT HEALTH & PEST PREVENTION SERVICES
1220 N ST, STE 221
ATTN: AUSTIN J. WEBSTER
SACRAMENTO, CA 95814

STATE OF CALIFORNIA} ss.
County of San Diego}

The Undersigned, declares under penalty of perjury under the laws of the State of California: That she is a resident of the County of San Diego. That she is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and that she is not a party to, nor interested in the above entitled matter; that she is Chief Clerk for the publisher of

The San Diego Union-Tribune

a newspaper of general circulation , printed and published daily in the City of San Diego, County of San Diego, and which newspaper is published for the dissemination of local news and intelligence of a general character, and which newspaper at all the times herein mentioned had and still has a bona fide subscription list of paying subscribers, and which newspaper has been established, printed and published at regular intervals in the said City of San Diego, County of San Diego, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race, or denomination, or any number of same; that the notice of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

Jun 24, 2011

Chief Clerk for the Publisher

6-27-2011
Date

Affidavit of Publication of

Legal Advertisement
Ad # 0010526102
ORDERED BY: AUSTIN WEBSTER

PUBLIC NOTICE

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Sacramento, CA 95814
Webinar available -- to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

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UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

Certificate of Publication

Ad #280436

In Matter of Publication of:

Public Notice

State of California)
))§
County of Ventura)

I, **Maria Rodriguez**, hereby certify that the **Ventura County Star Newspaper** has been adjudged a newspaper of general circulation by the Superior Court of California, County of Ventura within the provisions of the Government Code of the State of California, printed in the City of Camarillo, for the County of Ventura, State of California; that I am a clerk of the printer of said paper; that the annexed clipping is a true printed copy and publishing in said newspaper on the following dates to wit:

June 28, 2011

I, Maria Rodriguez certify under penalty of perjury, that the foregoing is true and correct.

Dated this June 28, 2011, in Camarillo, California, County of Ventura.

Maria Rodriguez
(Signature)

Join us for a public information and scoping meeting on the

Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Sacramento, CA 95814
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Irvine Ranch Water District's Duck Club
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100 Larkin Street
San Francisco, CA 94102

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Thursday July 14th " 5:30 p.m.

UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.
Publish: June 28, 2011 Ad No.280436

SPACE FOR COURT CLERK'S FILING STAMP

Proof of Publication

(2015.5 C.C.P.)

STATE OF CALIFORNIA]
SS
COUNTY OF SANTA CRUZ]

Public Notice

I, THE UNDERSIGNED, DECLARE:

That I am over the age of eighteen and not interested in the herein-referenced matter; that I am now, and at all times embraced in the publication herein mentioned was, a principal employee of the printer of the Santa Cruz Sentinel, a daily newspaper printed, published and circulated in the said county and adjudged a, newspaper of general circulation by the Superior Court of California in and for the County of Santa Cruz, under Proceeding No. 25794; that the advertisement (of which the annexed is a true printed copy) was published in the above-named newspaper on the following dates, to wit: **June 28, 2011**

I DECLARE under penalty of perjury that, the foregoing is true and correct to the best of my knowledge.

This **28th day** of **June, 2011**, at Santa Cruz, California.

Jackie White

JACKIE WHITE

Join us for a public information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

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Chico, CA 95928

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1500 Capitol Avenue
Sacramento, CA 95814
Webinar available - to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

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Thursday July 14th @ 5:30 p.m.

UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.
6/28 4058954

THE TRIBUNE
Newspaper of the Central Coast

3825 South Higuera • Post Office Box 112 • San Luis Obispo, California 93406-0112 • (805) 781-7800

In The Superior Court of The State of California
In and for the County of San Luis Obispo
AFFIDAVIT OF PUBLICATION

AD #6947353
PLANT HEALTH & PEST
PREVENTION SERVICES

STATE OF CALIFORNIA

ss.

County of San Luis Obispo

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen and not interested in the above entitled matter; I am now, and at all times embraced in the publication herein mentioned was, the principal clerk of the printers and publishers of THE TRIBUNE, a newspaper of general Circulation, printed and published daily at the City of San Luis Obispo in the above named county and state; that notice at which the annexed clippings is a true copy, was published in the above-named newspaper and not in any supplement thereof – on the following dates to wit; JUNE 27, 2011 that said newspaper was duly and regularly ascertained and established a newspaper of general circulation by Decree entered in the Superior Court of San Luis Obispo County, State of California, on June 9, 1952, Case #19139 under the Government Code of the State of California.

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Jane E. Durand

(Signature of Principal Clerk)
DATED: JUNE 27, 2011
AD COST: $208.00

Join us for a public information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

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June 27, 2011

6947353

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Solano

I am a citizen of the United States and a resident of Solano County. I am over the age of eighteen years and not a party to, or interested in, this Legal or Public Notice matter. I am the principal Legal Advertising Clerk for the

DAILY REPUBLIC
1250 Texas Street
P.O. Box 47
Fairfield, CA 94533

a newspaper of general circulation printed and published mornings, daily and Sunday, in the City of Fairfield, County of Solano, which has been adjudged a newspaper of general circulation by the Superior Court of the County of Solano, State of California, Case Number 25875, on June 30, 1952.

I certify under penalty of perjury that the attached Legal or Public Notice has been published in each regular and entire issue of the Daily Republic, and not in any supplement, on the following date(s):

June 24

in the year: 2011

By: Annette Parker

Annette Parker, Legal Advertising Clerk

Date: 6-28-11

This Space For Filing Stamp

Join us for a public information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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421 Main Street
Chico, CA 95928

Thursday July 7th • 5:30 p.m.

Department of Health Care Services and
Department of Public Health Building
1500 Capitol Avenue
Sacramento, CA 95814
Webinar available – to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

DR#26539375
Published: June 24, 2011

.AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 1/18/52, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

June 27, 2011

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: June 27, 2011

Julie Mammel

Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-7000 ext. 2209

PROOF OF PUBLICATION

Proof of Publication of

Join us for a public
Information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

Publish: Orange County Register June 27, 2011 R-1075

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Riverside

I am a citizen of the United States and a resident of the County aforesaid. I am over the age of eighteen years, and not a party to, or interested in the above entitled matter. I am an authorized representative of

THE CALIFORNIAN

An Edition of the North County Times

a newspaper of general circulation, published DAILY in the City of Temecula, California, 92590, County of Riverside, Three Lake Judicial District, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under the date of February 26, 1991, Case Number 209105; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof, on the following dates, to wit:

June 29 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at TEMECULA, CALIFORNIA, this

29th day of June, 2011

Tammi E. Swenson

Signature

Tammi E. Swenson
Legal Advertising Representative

Title

PUBLIC INFORMATION & SCOPING MEETING
California Department of Food & Agriculture

Join us for a public information and scoping meeting on the **Statewide Plant Pest Prevention and Management Program**

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Sacramento, CA 95814

Webinar available - to participate via the webinar, please sign up at:

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UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir
Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at, 916-654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.
nct 2294149 • 06/29/2011

This space is for the County Clerk's Filing Stamp

PROOF OF PUBLICATION
(2010 & 2011 C.C.P.)

STATE OF CALIFORNIA
County of San Diego

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of eighteen years and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of

North County Times

Formerly known as the Blade-Citizen and The Times-Advocate and which newspapers have been adjudicated newspapers of general circulation by the Superior Court of the County of San Diego, State of California, for the City of Oceanside and the City of Escondido, Court Decree number 171349, for the County of San Diego, that the notice of which the annexed is a printed copy (set in type not smaller than nonpariel), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

June 29th 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at **Escondido,** California

On this 29th, day of June, 2011

Jane Allshouse
NORTH COUNTY TIMES
Legal Advertising

Proof of Publication of

Join us for a public information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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nct 2294149 • 06/29/2011

PROOF OF PUBLICATION

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the action for which the attached notice was published. I am a principal clerk of the "Orange Coast DAILY PILOT", which was adjudged a newspaper of general circulation for the City of Costa Mesa, County of Orange, and State of California. Attached to this Affidavit is a true and complete copy that was printed and published on the following date(s):

June 24, 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Executed on June 28, 2011
at Costa Mesa, California

Candace Gann
Signature

Join us for a public
information and scoping meeting
on the
Statewide Plant Pest Prevention
and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.
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100 Larkin Street
San Francisco, CA 94102

Thursday July 14th @ 5:30 p.m.
UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.
Published Daily Pilot June 24, 2011

Affidavit of Publication

STATE OF CALIFORNIA, COUNTY OF DEL NORTE

I, **Debra Brown**, a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above-entitled matter. I am the principal clerk of the printer of

The Triplicate

a daily newspaper of general circulation, printed and published in the City of Crescent City, County of Del Norte, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Del Norte, State of California, under the date of March 21, 1952, case number 7594; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published and not in any supplement thereof on the following dates, to-wit:

Acct Name: CA DEPT. OF FOOD & AGRICULTURE
Legal Description: Join us for a public
information and scoping meeting
on the
Statewide Plant Pest Prevention and

06/24/2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Crescent City, California, this 24 day of June, 2011. Debra Brown
Signature

Join us for a public
information and scoping meeting
on the
Statewide Plant Pest Prevention and
Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

There will be five meetings, as follows:

Wednesday July 6th " 5:30 p.m.

Chico Municipal Center
421 Main Street
Chico, CA 95928

Thursday July 7th " 5:30 p.m.

Department of Health Care Services and
Department of Public Health Building
1500 Capitol Avenue
Sacramento, CA 95814
Webinar available - to participate via the webinar, please sign up at:
https://www2.gotomeeting.com/register/926803362

Tuesday July 12th " 5:30 p.m.

Irvine Ranch Water District's Duck Club
3512 Michelson Drive
Irvine, CA 92618

Wednesday July 13th " 5:30 p.m.

San Francisco Public Library
100 Larkin Street
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5245 N. Backer Avenue
Fresno, CA 93740

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Publish: June 24, 2011

AFFIDAVIT OF PUBLICATION

Filed ______________________

By ______________________

From the Office of

Attorney for ______________________

In the Superior Court of the State of California
in and for the County of Shasta

CERTIFICATE OF PUBLICATION
RECORD SEARCHLIGHT

DEPT OF FOOD & AGRICULTURE
1220 NORTH ST RM A130
SACRAMENTO CA 95814

REFERENCE: 00611569 AUSTIN WEBST
6744574 JOIN US FOR A PUBLIC

State of California
County of Shasta

I hereby certify that the Record Searchlight is a newspaper of general circulation within the provisions of the Government Code of the State of California, printed and published in the City of Redding, County of Shasta, State of California; that I am the principal clerk of the printer of said newspaper; that the notice of which the annexed clipping is a true printed copy was published in said newspaper on the following dates, to wit;

PUBLISHED ON: 06/28

Join us for a public
Information and scoping meeting
on the
Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

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June 28, 2011 6744574

FILED ON: 06/28/11

I certify under penalty of perjury that the foregoing is true and correct, at Redding, California on the above date.

B. Castro

RECORD SEARCHLIGHT
1101 Twin View Blvd, Redding, CA 96003

Ukiah Daily Journal
590 S. School St
PO Box 749
Ukiah, California 95482
(707) 468-3500
udjlegals@pacific.net

Plant Health and Pest Prevention Service
1220 N Street Rm 221
Sacramento CA 95814

PROOF OF PUBLICATION (2015.5 C.C.P.)

STATE OF CALIFORNIA COUNTY OF MENDOCINO

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Ukiah Daily Journal, a newspaper of general circulation, printed and published daily in the City of Ukiah, County of Mendocino and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Mendocino, State of California, under the date of September 22, 1952, Case Number 9267; that the notice, of which the annexed is a printed copy (set in type not smaller than non-pareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

6/24/2011

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Ukiah, California,
June 24th, 2011

Signature

MOLLY MORANDI, LEGAL CLERK

Legal No. **0004054854**

494-11

6-24/11

Join us for a public information and scoping meeting
on the
STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Chico, CA 95928

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Department of Health Care Services and
Department of Public Health Building
1500 Capitol Avenue
Sacramento, CA 95814
Webinar available - to participate via the webinar, please sign up at:
https://www2.gotomeeting.com/register/926803362

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5245 N. Backer Avenue
Fresno, CA 93740

Website:
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Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon re-

I quest.

RECORDING/FILING REQUESTED BY AND MAIL TO:
California Dept of Food & Agriculture
Plant Health & Prest Prevention Svcs
1220 N Street
Sacramento, CA 95814

PROOF OF PUBLICATION
(California Code of Civil Procedure 2010, 2015.5)

STATE OF CALIFORNIA
County of Los Angeles

I am a citizen of the United States and a resident of the aforesaid County. I am over the age of eighteen years (18) years, and not a party to or interested in the above-entitled matter. I am the Principal Clerk of the printer of the **LOS ANGELES TIMES,** a newspaper of general circulation, printed and published DAILY in the City of Los Angeles, County of Los Angeles and which newspaper was adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of April 28, 1952, Case Number 598599. The notice, a true and correct copy of which is annexed, has been published in each regular and entire issue of said newspaper on the following dates, to wit:

THURSDAY; JUNE 30, 2011

I certify (or declare) under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated at Los Angeles, California,

This 30th day of JUNE 2011

Signature

Angelina de Cordova

Join us for a public information and scoping meeting

on the

Statewide Plant Pest Prevention and Management Program

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5245 N. Backer Avenue
Fresno, CA 93740

Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

DECLARATION OF PUBLICATION OF
SAN FRANCISCO CHRONICLE

Lori Gomez

Declares that:
The annexed advertisement has been regularly published In the

SAN FRANCISCO CHRONICLE

Which is an was at all times herein mentioned established as newspaper of general circulation in the City and County of San Francisco, State of California, as the term is defined by Section 6000 of the Government Code

SAN FRANCISCO CHRONICLE

(Name of Newspaper)

901 Mission Street

San Francisco, CA 94103

From 6/27/11

To 6/27/11

Namely on 6/27/11

(Dates of Publication)

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 6/29/11

At San Francisco, California

PUBLIC NOTICES

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

On June 23rd 2011, the California Department of Food and Agriculture (CDFA) filed a Notice of Preparation of a program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program. The purpose of these scoping meetings is to solicit input on the range of actions, alternatives, significant environmental effects and mitigations to be discussed in the draft EIR.

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Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

The Sacramento Bee

P.O. Box 15779 • 2100 Q Street • Sacramento, CA 95852

CA DEPT OF FOOD & AG
1220 N STREET #315
SACRAMENTO, CA 95814

DECLARATION OF PUBLICATION
(C.C.P. 2015.5)

COUNTY OF SACRAMENTO
STATE OF CALIFORNIA

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interest ed in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

June 24, 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on **June 24, 2011.**

(Signature)

NO 511 PUBLIC NOTICE

Join us for a public information and scoping meeting on the

Statewide Plant Pest Prevention and Management Program

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Thursday July 7th * 5:30 p.m.

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Sacramento, CA 95814
Webinar available - to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

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UC Fresno Business Center
5245 N. Backer Avenue
Fresno, CA 93740

Website:
http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.

Chico Enterprise-Record

400 E. Park Ave.
Chico, Ca 95928
530-896-7702
erlegal@chicoer.com

CALIFORNIA DEPT OF FOOD
1220 N Street Room 315
Sacramento CA 95814

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA, IN AND FOR THE COUNTY OF BUTTE

In The Matter Of
SCOPING MEETING.

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA }
COUNTY OF BUTTE } **SS.**

The undersigned resident of the county of Butte, State of California, says:

That I am, and at all times herein mentioned was a citizen of the United States and not a party to nor interested in the above entitled matter; that I am the principal clerk of the printer and publisher of

The Chico Enterprise-Record
The Oroville Mercury-Register

That said newspaper is one of general circulation as defined by Section 6000 Government Code of the State of California, Case No. 26796 by the Superior Court of the State of California, in and for the County of Butte; that said newspaper at all times herein mentioned was printed and published daily in the City of Chico and County of Butte; that the notice of which the annexed is a true printed copy, was published in said newspaper on the following days:

6/29/2011

Dated July 01, 2011
at Chico, California

Donna Tyrrell

(Signature)

Legal No. **0004062746**

Join us for a public information and scoping meeting on the Statewide Plant Pest Prevention and Management Program

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Publish: 6/29/11

The Times-Standard

PO Box 3580
Eureka, CA 95502
707-441-0571
legals@times-standard.com

Cali Dept of Food & Ag
1220 N St., Suite 221,ATTN: David Pegos
Sacramento CA 95814

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Humboldt

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-mentioned matter. I am the principal clerk of the printer of THE TIMES-STANDARD, a newspaper of general circulation, printed and published daily in the City of Eureka, County of Humboldt, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Humboldt, State of California, under the date of June 15, 1967, Consolidated Case Numbers 27009 and 27010; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit,

6/23/2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Eureka, California,
This 11th day of July, 2011

Signature

Thelma McFarland

This space is for the County Clerk's Filing Stamp

Legal No. 0004053619

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Website: http://www.cdfa.ca.gov/go/peir

Will you need an accommodation in order to attend and/or participate egal No. 0004053619

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and/or participate in this event? If so, please contact CDFA at (916) 654-0317. Auxiliary aides and services are available to individuals with disabilities upon request.
6/23

The Humboldt Beacon

PO Box 3580
Eureka, CA 95502
707-441-0571
legals@times-standard.com

Cali Dept of Food & Ag
1220 N St., Suite 221,ATTN: David Pegos
Sacramento CA 95814

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Humboldt

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-mentioned matter. I am the principal clerk of the printer and publisher of The Humboldt Beacon, a newspaper of general circulation, printed and published weekly in the City of Fortuna, County of Humboldt, and which newspaper has been adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of Humboldt, State of California, under the date of July 11, 1952, Case Number 27011. That the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit,

06/30/2011

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Fortuna, California,
July 11th, 2011

Signature

Thelma McFarland

This space is for the County Clerk's Filing Stamp

Legal No. 0004053619

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6/23

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Appendix F
SCOPING MEETING MATERIALS

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Statewide Plant Pest Prevention and Management Program
Environmental Impact Report

The California Department of Food and Agriculture is in the internal development stages of an Environmental Impact Report (EIR) for a Statewide Plant Pest Prevention and Management Program. The key objective of this project is to create a vehicle which provides a time-sensitive and efficient framework for evaluating potential environmental impacts of the various plant pest prevention and management programs implemented by CDFA and its partners.

Goals of the Program EIR

- Facilitate rapid and effective prevention and management of pest infestations statewide
- Provide CEQA compliance for all CDFA pest prevention programs
- Allow for flexibility during project-specific implementation
- Quickly integrate new pest programs and management approaches
- Allow utilization by state and local partners for their own pest management activities
- Complies with AB 2763 (Laird) Ch. 573, Stats. 2008

Project Description and Current Status

The Program EIR will focus on management approaches rather than individual pests, analyzing each for their advantages and disadvantages, including alternatives that may result in fewer impacts and necessary mitigation measures.

- Management approaches include: cultural, physical, biological, chemical and regulatory.
- Ensure public safety in all manners of pest treatment
- Comprehensive human health and ecological risk assessment which includes the full range of receptors, including pesticide applicators, agricultural workers, and individuals in non-agricultural areas
- Expand public participation with additional environmental analysis occurring when necessitated by site-specific factors
- Public outreach process has already begun with the development of a website, a phone line, and an email subscription option available at www.cdfa.ca.gov/go/peir under the heading "Program EIR Updates."
- Consultation process has begun with sister agencies
- Fiscal savings through process improvement

Environmental Consultant

CDFA has contracted with Horizon Water and Environment, LLC (Horizon) to lead the project. The Horizon team was specifically assembled to meet the technical, legal, and logistical challenges of the CDFA's Statewide Plant Pest Prevention and Management Program.

The final draft of the Program EIR is expected in December 2012.

< Timeline

CDFA's Program EIR

AB 2763 (Laird) Chapter 573, Statues of 2008

Assembly Bill 2763 requires the California Department of Food and Agriculture (CDFA) to develop a list of invasive pests and diseases likely to enter the state for which eradication, control, or management action might be appropriate. This bill also requires the CDFA, based on available funding, to develop and maintain a written plan on the most appropriate options for detection, exclusion, eradication, control, or management of high-priority invasive pests.

Actions to date:

February 2009

- **CDFA Establishes the Invasive Species Council of California (ISCC)**

April 2009

- **The California Invasive Species Advisory Committee (CISAC) is appointed** to advise the Council and make recommendations.
- **CISAC develops a list of invasive species** that are threat to state. It can be accessed by clicking on the "living list" link on the CISAC webpage at www.iscc.ca.gov/cisac.
    - CISAC has developed a draft strategic framework for invasive species exclusion, detection, eradication and management.

January 2011

- **CDFA begins the process to develop a comprehensive Environmental Impact Report for it Pest Prevention Program** (Program EIR) to fully comply with the Laird Bill and the California Environmental Quality Act. The Program EIR will analyze environmental impacts and necessary mitigation measures for the prevention and management of invasive plant pests statewide, allow for rapid response to new invasive plant pest detections, and easily amended when new plant pests are detected and new treatment methods become available.

March 2011

- **CDFA begins the public outreach process** for its Statewide Plant Pest Prevention and Management Program EIR. The web page is www.cdfa.ca.gov/go/peir

June 2011

- **Notice of Preparation issued.** Brief notice sent by lead agency (CDFA) to notify state, federal, and local agencies and interested parties of the Statewide Program, and to invite comments on the environmental issues to be addressed in the Program EIR and participation in the larger CEQA process.

Future Actions:

July 2011

- **Scoping meetings:**

CHICO	**SACRAMENTO***	**ORANGE COUNTY**	**SAN FRANCISCO**	**FRESNO**
July 6th, 2011	July 7th, 2011	July 12th, 2011	July 13th, 2011	July 14th, 2011
5:30-7:30 PM	5:30-7:30 PM	5:30-7:30 PM	5:30-7:30 PM	5:30-7:30 PM
Chico Municipal Center	*Dept. of Health Care Services and Dept. of Public Health building*	*Irvine Ranch Water District's Duck Club*	*S.F. Public Library*	*UC Fresno Business Center*
421 Main St	1500 Capitol Ave.	3512 Michelson Dr.	100 Larkin St.	5245 N. Backer Ave.
Chico, CA 95928	Sacramento, CA 95814	Irvine, CA 92618	San Francisco, CA 94102	Fresno, CA 93740

*Note – A webinar is available for the Sacramento meeting – to participate via the webinar, please sign up at: https://www2.gotomeeting.com/register/926803362

March 2012

- **Release of public review draft Program EIR.**

May 2012

- **Public hearings —** 5 across the state.

February 2013

- **PEIR certification and approval.**

CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR)

FREQUENTLY ASKED QUESTIONS

Q – Why is the EIR being prepared?

A – Insect pests and plant diseases are a constant threat to the nation's food supply and natural resources. One of CDFA's primary missions is to prevent these invasive species, such as fruit flies, the European grapevine moth, Sudden Oak Death, and the Asian citrus psyllid and the disease it carries, huanglongbing. The EIR will provide environmental review and analysis of CDFA's various pest prevention and management activities statewide. It would apply to future detections and activities that fall within the scope of the EIR.

Q – A Notice of Preparation (NOP) for the EIR has been issued. What does this mean?

A – The NOP is a document stating that an EIR will be prepared for a particular project. It is the first step in the EIR process. The NOP provides other state agencies that have jurisdiction in the process, called "responsible agencies," with sufficient information describing the project and the potential environmental effects. Within 30 days after receiving the NOP each responsible agency must provide the lead agency (CDFA) with specific detail about the scope and content of the environmental information related to the responsible agency's area of statutory responsibility. This information must be included in the draft EIR.

Q – What issue challenging California is resulting in this EIR?

A – If pest and plant disease threats cannot be prevented, CDFA works to control and remove them by using principles of integrated pest management, which are defined as managing pests by combining biological approaches and other tools in a way that minimizes economic, health, and environmental risks. Pest management programs are highly complex partnerships involving the USDA, county agricultural commissioners, the agriculture industry, and homeowners when infestations occur in urban areas

Q – What if a pest is detected or a treatment method emerges that is not addressed in the EIR?

A – When necessary, the EIR can be relied upon as the foundation for additional environmental review and be easily amended, including additional comment, when new treatment approaches become available, or current ones become obsolete.

Q – How will sufficient public process be assured, both with the EIR and when the time comes to introduce a new project?

A – There is extensive public participation built into the EIR process and department pest management programs. CDFA intends to exceed requirements for public scoping meetings and public hearings, and will assemble a Technical Advisory Committee to provide feedback to the department. A separate group will be convened to provide peer review of the technical and scientific data relied upon by CDFA in developing alternatives, response measures and risk assessment. The findings of both groups will be made public. Also, there will be additional opportunities for public input and local community engagement once a management approach is selected. People wishing to participate in the process may learn more by visiting www.cdfa.ca.gov/go/peir.

Q – Why does CDFA wish to complete a single EIR with a broad application instead of separate EIRs for each new detection?

A – This approach provides for efficiency and a comprehensive view of an agency's proposed project. In this instance, because invasive pests affect the entire state, CDFA believes it is in the public's interest to get a big picture view of pest management. The department's foremost goal is to ensure public safety in all manners of pest management, but also to:

- Educate about the principles of integrated pest management utilized in programs.
- Provide for the security of California's food supply, which is relied upon across the country and throughout the world.
- Protect the state's natural resources invasive pests.
- Enable CDFA to meet its statutory mandates rapidly.
- Expand public participation in the process.

Q – How long will the EIR take to prepare?

A – Completion is projected in 2013.

CDFA Statewide Program Scoping
Speaker Card

Name: **Date:**

Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: **Date:**

Comment(s):

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CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE: STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

Draft EIR- CEQA Scoping Comment Form

Name:
Group/Organization (optional):
Mailing Address:
Telephone No. (optional):
Email (optional):

Comments/Issues:

Please use additional sheets if necessary.

SUBMIT WRITTEN COMMENTS (POSTMARKED BY JULY 25TH, 2011) TO:

MAIL: California Department of Food and Agriculture
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

EMAIL: PEIR.info@cdfa.ca.gov

Questions? Please email us or visit our website: www.cdfa.ca.gov/go/peir

Place

Stamp

Here

California Department of Food and Agriculture

Attn: Michele Dias, Acting Chief Counsel

Statewide Program Comments

1220 N Street, Suite 400

Sacramento, CA 95814

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Tape Here-

Do not staple

Appendix G
SCOPING MEETING POSTERS

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CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

WELCOME TO

THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

EIR SCOPING MEETING

SIGN-IN/ORIENTATION

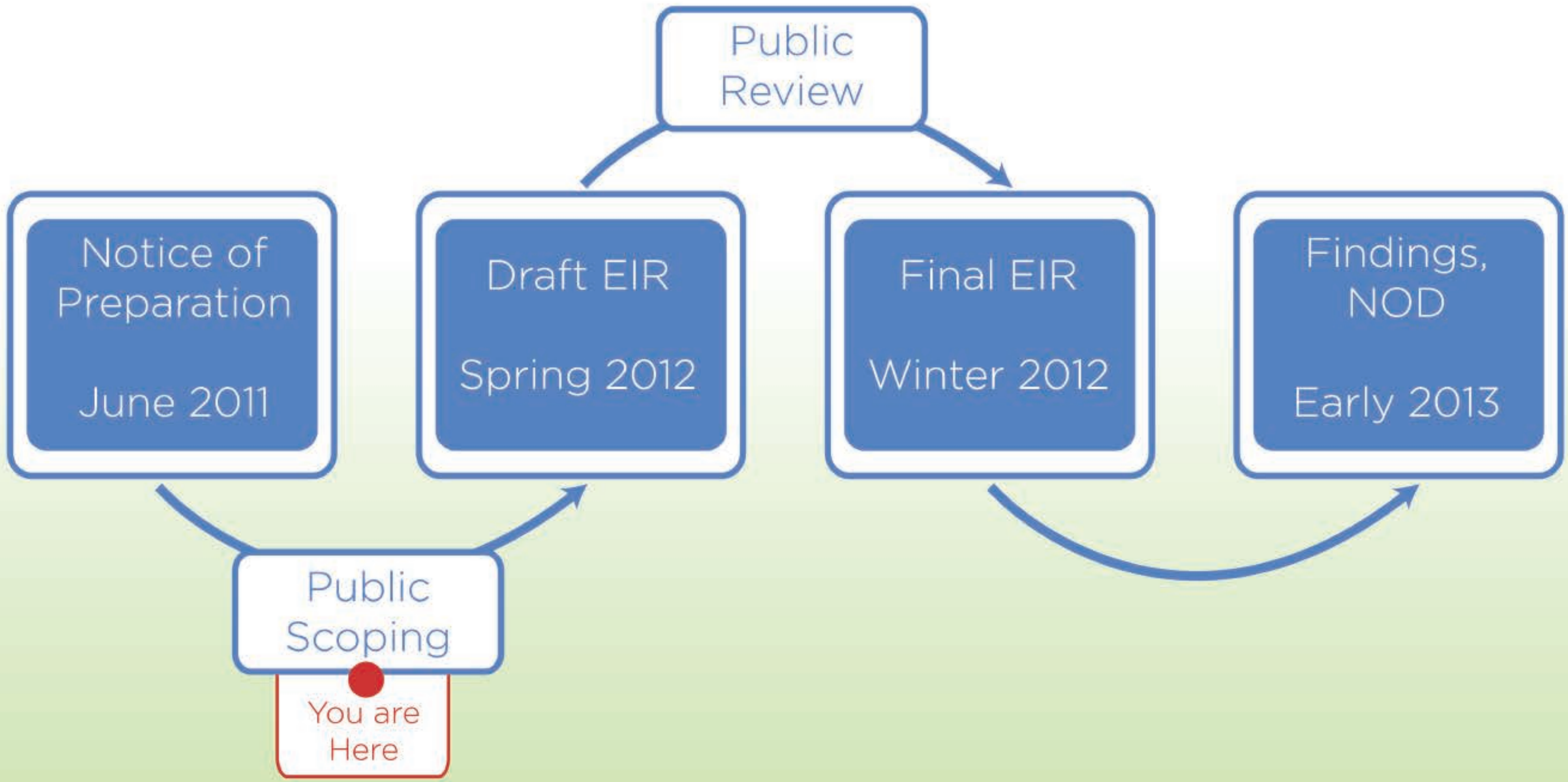
- ALL GUESTS SIGN IN HERE
- INFORMATION, HANDOUTS, AND COMMENT CARDS FOR TONIGHT’S MEETING

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

ENVIRONMENTAL RESOURCE TOPICS

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Climate Change
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Population and Housing

cdfa
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE



EIR PROCESS AND TIMELINE

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM EIR COMMENTS

Please provide us with your input regarding the Draft EIR on the comment cards provided.

You can also take a comment card and mail it prior to the close of the comment period (July 25, 2011) to:

California Department of Food and Agriculture
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

Or Email: PEIR.info@cdfa.ca.gov

THANK YOU

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Appendix H
SCOPING MEETING PRESENTATION

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Statewide Plant Pest Prevention and Management Program
Environmental Impact Report

Public Scoping Meeting
California Department of Food and Agriculture

Horizon WATER and ENVIRONMENT

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Scoping Meeting Agenda

- Overview of California Environmental Quality Act (CEQA)
- Purpose of Scoping
- Overview of the CDFA Statewide Plant Pest Prevention and Management Program
- How to Submit Comments
- Process for Providing Comments Tonight
- Receipt of Public Comments

CEQA Overview
and
Purpose of Scoping

Horizon
WATER and ENVIRONMENT

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CEQA Overview

Purpose and Requirements

- Environmental review and disclosure for discretionary actions conducted by public agencies
- Discretionary action = a decision made using judgment
- Evaluation of potential environmental impacts
- Identification of mitigation measures and alternatives to reduce or avoid impacts
- Notification and informational tool for agencies and the public

CEQA Overview

Program EIR (PEIR)

- A PEIR is used to evaluate a series of connected actions which can be characterized as one large project.
- Also appropriate for analyzing individual activities carried out under the same or related statutory or regulatory authority, and which generally have similar potential environmental effects.
- Considers the program as specifically and comprehensively as possible, while acknowledging that some details may not be available at this scale of analysis.
- Serves as a "first-tier" environmental document.

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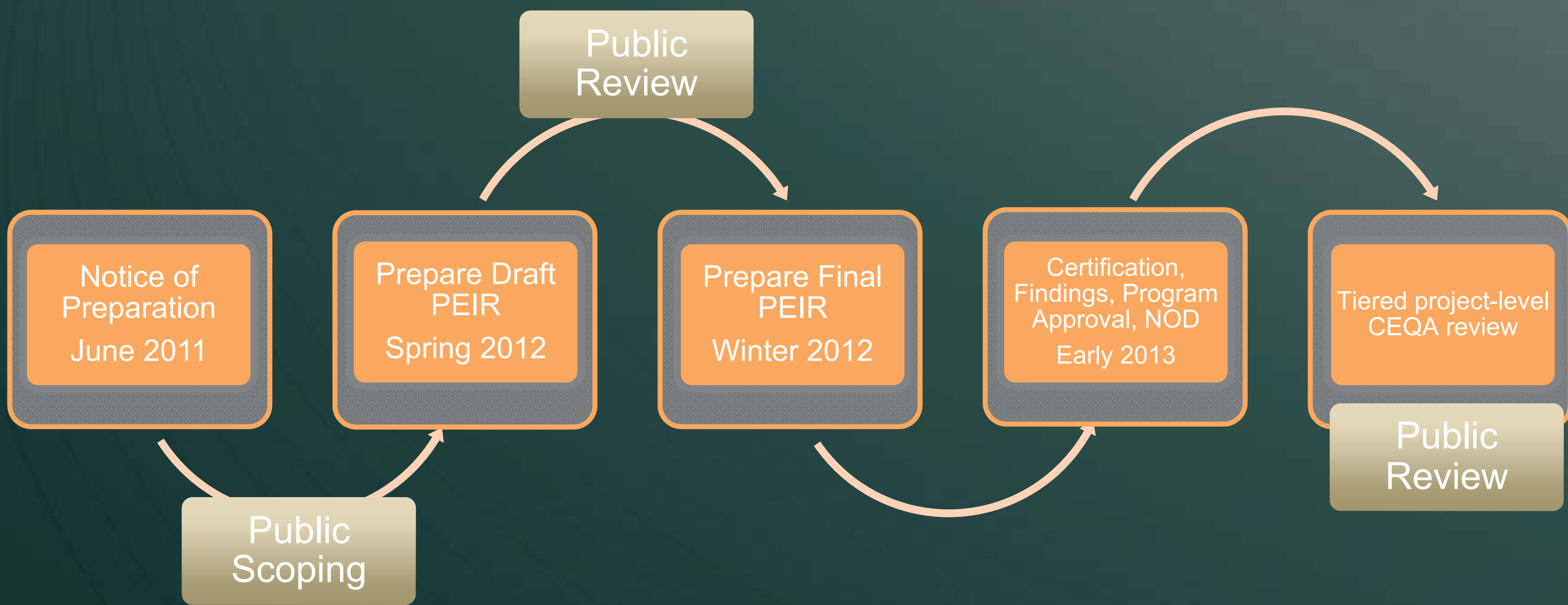
CEQA Overview

Environmental Impact Report (EIR) Process



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CEQA Overview

Tiering Process

- When a specific activity under the Program is ready for implementation, it is evaluated in the context of the PEIR to determine whether there are potential impacts which were not fully disclosed in the PEIR.

- If so, then a tiered CEQA document must be prepared. The tiered document will have a more limited scope – it focuses on the details of the specific activity, the impacts that were not fully disclosed in the PEIR, and any related mitigation measures or alternatives.

- Tiered environmental documents are subject to a public review process as mandated by CEQA.

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Purpose of Scoping

Provide the public and agencies an opportunity to offer input into the scope and content of the PEIR, including:

- Information useful to the analysis
- Potential environmental issues
- Scope and range of alternatives
- Potential mitigation measures

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Overview of the Statewide Plant Pest Prevention and Management Program (Statewide Program)

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Statewide Program Overview

Scope of this PEIR

- Evaluate the range of activities carried out by CDFA against invasive plant pests throughout California

- Plant pest include arthropods, plant pathogens, noxious weeds and vertebrate plant pests

- Activities evaluated in the PEIR included:
  - Pest detection and response, including CDFA's use of the integrated pest management approach
  - Pest prevention and management programs, including specific pest groups
  - Authorized management approaches

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Statewide Program Overview

Program Objectives

- Minimize the impacts of invasive plant pests to California's agricultural and environmental resources
- Promote the production of a safe, secure food supply
- Minimize the impacts of management approaches to human health and California's resources
- Support CDFA's goal of providing rapid response
- Develop a program that is broad enough to apply to a wide range of methods of management and pest groups in California

(Continued on next slide)

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Statewide Program Overview

Program Objectives

- Be consistent with existing CDFA permits, protocols, and policies, such as CDFA's State Water Board NPDES Permit and federal Endangered Species Act, among others

- Develop a checklist evaluation tool that:
  (1) Can be used by CDFA, other agencies and stakeholders to evaluate environmental impacts of specific projects and new pests or management approaches; and
  (2) Can be understood and reviewed by the public

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Statewide Program Overview

Discretionary Actions

The discretionary actions contemplated by CDFA for the Statewide Program include:

- Existing CDFA pest prevention and management programs, where needed
- Adoption of project-level checklist for evaluation of potential impacts related to implementation of specific pest prevention and management activities, as well as evaluation of the environmental impacts related to new pests, pest management approaches, and pest prevention and management programs

- The PEIR does not evaluate emergency projects implemented by CDFA

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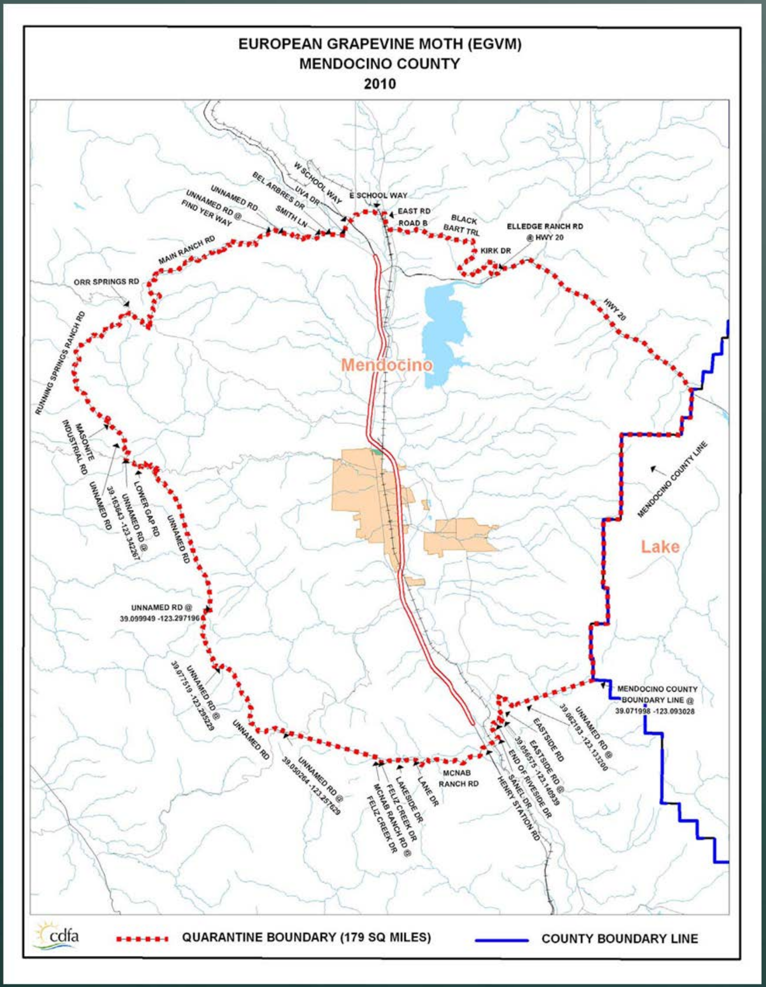
Statewide Program Overview

Pest Detection and Response



- Early Detection
- Rapid Response/Eradication
- Containment
- Exclusion
  - Quarantines
  - Inspections
- Project Implementation
  - CDFA
  - County agricultural commissioners
  - Other agencies
  - Private land owners, growers, etc.

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Statewide Program Overview

Use of Integrated Pest Management Approach

1. Pest Identification
   - Existence and probability of a pest spreading in California
   - Environmental and economic implications of spread

2. Pest Population Threshold
   - A threshold is identified which guides the decision to undertake a project

3. Selection of Management Approaches
   - Human risk (highest priority)
   - Environmental damage
   - Efficacy
   - Available resources

4. Monitoring

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Statewide Program Overview:

Pest Prevention and Management Programs

- Implemented and developed by CDFA's Plant Health and Pest Prevention Division

- Types
  - Public education
  - Plant pest identification and diagnostics
  - Pest detection
  - Weed management areas

(Continued on Next Slide)

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Statewide Program Overview

Pest Prevention and Management Programs

- Development of management approaches
- Biological control program
- Implementation of federal regulations
- Permits and regulations program
- Environmental monitoring programs
- Guidance for response to specific pests (detection and use of management approaches)

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Statewide Program Overview

Types of Management Approaches

- Cultural
- Physical
- Biological
- Chemical
- Regulatory

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CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Statewide Program Overview

Pest Groups with Existing CDFA Pest Prevention and Management Programs

- Eradication and Containment Programs
  - ➢ Invasive Arthropods Program
  - ➢ Noxious Weeds Program
  - ➢ Vertebrate Plant Pest Program

- Exclusion Programs
  - ➢ Interior Exclusion Program
  - ➢ Exterior Exclusion Program

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How to Comment

- Oral comments at scoping meeting tonight, or
- Written comments due no later than Tuesday, July 25th

  Mail or email comments to:
  Michele Dias
  California Department of Food and Agriculture
  1220 N Street, Suite 400
  Sacramento, CA 95814
  Email: PEIR.info@cdfa.ca.gov

  Include contact information (name, address, email and phone number) for future correspondence related to the PEIR

- All comments will be included in a Scoping Report prepared after the close of the scoping period, that will be available online: http://www.cdfa.ca.gov/go/peir

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Process for Providing Oral Comments Tonight

- All people wishing to speak must fill out a speaker card.
- Each speaker will be allowed 3 minutes. If there are a relatively small number of speakers, this period may be extended.
- We will call each speaker individually, as well as notify those who are next in line.
- Respect the right of everyone to speak; please do not interrupt speakers.

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Receipt of Public Comments

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Appendix I
SCOPING MEETING ATTENDEES AND COMMENTS RECEIVED AT SCOPING MEETING

Sign-In Sheets

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CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 6, 2011 – Chico, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Louie Mendoza	3970 Ord Ferry Rd Chico CA 95928	loumagmen@sbcglobal.net		
Jim Donnelly	1250 W Sycamore Ave	jdonnelly@countyofglenn.net	Glenn Co Ag	530 934 6501
Heather Hacking	~~400 E. Park Ave~~ P.O. Box 9 Chico 27	hhacking@chicoer.com	Chico ER	

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 6, 2011 – Chico, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Albert Beck	14691 Humboldt Rd #100 Chico	ecoplane jps.net	Eco. Analysts	(530) 342-5991 #201
Richard Price	316 Nelson Ave Oroville, CA	rprice@buttecounty.net	Butte Co Dept of Agric	530-343-9552
Kelly King	1001 Ridgebrook Way Chico CA 95928	Kelly.King@sen.ca.gov	~~[illegible]~~ Senator LaMalfa	
Mary Pfeiffer	3179 Bechelli #210 Rds	mpfeiffer@co.shasta.ca.us	Shasta Ag	224.4949

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 7, 2011 – Sacramento, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Margareta Lelea	1919 Calaveras Ave DAVIS, CA 95616	malelea@ucdavis.edu	UCD	
Austin Webster	1415 Michigan Ave Stockton, CA 95204	awebster@cdfa.ca.gov	CDFA	
ED LAIVO	9885 Alcosta Blvd San Ramon CA	EDOIDEDILMOUNTAINNURSERY.COM		
Neil Edgar	1822 21st St SAC 95811	neil@edgarinc.org		
Tom Kelly	1809 San Ramon Ave. Berkeley, CA 94707	jandtkelly@igc.org	Cal-Envirnm. Health Initiative	
Nan Wishner	5926 Masterson Rd Gazelle CA 96034	nan@cal-ehi.org	"	
Jim Grieshop		jgrieshop@ucdavis.edu	UCD	
Janet Gerland	16950 E Liberty Rd Clements CA 95227	janet@Devilmountgrowers.com		

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 7, 2011 – Sacramento, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Thomas Martin			Governor's Office	
Jennifer Sedell	3133 Rellis Dr Davis, CA 95618	jksedell@ucdavis.edu	UC Davis	
Victoria Hornbaker	1220 N St Sac 95814	vhornbaker@cdfa.ca.gov	CDFA	
Dave Kim			DPR	
Lynn Elliott Harding	556 Aileen St Oakland CA 94609	elliottharding@gmail.com	CEHI	

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 7, 2011 – Sacramento, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Mike Boitano	12200B Airport Rd Jackson CA 95642	mboitano@amadorgov.org	Amador County	209-223-6481
Matt Cotton	19375 Lake City Road Nevada City, CA 95559	matt@mattcotton.com	IWMC	530-265-4560
Tom Smith		tom.smith@fire.ca.gov	CalFire	916-599-6886
Frank Zalom	UC Davis Dept. of Entomology	fgzalom@ucdavis.edu	UC Davis	530-752-3687
Alexandra Espinoza	1220 N Street Rm 221 Sac, CA	aespinoza@cdfa.ca.gov	CDFA	916-654-0317
David Brown	8631 Bond Rd Elk Grove Ca 95624			
Pablo Garza	555 Capitol Mall, #1290 Sacramento, CA 95814	pgarza@tnc.org	The Nature Conservancy	916-596-6674

CDFA's Statewide Program
EIR Scoping Meeting Sign In Sheet
July 12, 2011 – Irvine, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
A.G. KAWAMURA	11405 JEFFREY ROAD	ag.kawamura@ocproduce.com	ORANGE COUNTY PRODUCE, LLC	949-451-0880
John Kabashima	1045 Arlington Dr.	JNKABASHIMA@UCDAVIS.EDU	UCCE	714-708-16[illegible]

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 13, 2011 – San Francisco, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Veronica Raymond	5339 Santa Anita Ave Temple City, Cal. 91780	vfraymond@gmail.com	Action Now	
ROBERT ROACH	1428 ABBOTT ST SALINAS CA 93901	ROACHB@CO.MONTEREY.CA.US	AG COMM	
Doug Johnson	Cal-IPC, 1442-A Walnut St, #462, Berkeley CA 94709	dwjohnson@cal-ipc.org	Cal-IPC	510/843-3902
Nolan Isozaki	21 Pisa Court SSF CA94080	nolanisozaki@yahoo.com	FIONA MA	
Marcie Berman	1127 11th Street Ste 501 Sacramento CA 95814	berman@bglaw.org	ILWU Teamsters	
Miguel A Monroy	1390 Market St San Francisco	miguel.monroy@sfdph.org	S.F. Ag Comm	415-252-3939
Lindsey Curley	1319 Duke Drive Davis, CA	lccurley@ucdavis.edu		

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 14, 2011 – Fresno, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Bob Blakely	559-592-3790 ~~512~~ 512 N. Kaweah Exeter CA 93221	bob@cacitrusmutual.com	CA Citrus Mutual	
James McFarlane	PO Box 1079 Clovis CA 93613	James@mcfarlanefarms.com	Grower	
Jim Simonian	Box	Simonian ~~Pkg Co~~ Fruit Co	Packer	834-5921
MARCY MARTIN		mmartin@cgtfl.com	CGTFL	(949) 226-6330
David Pegos	1220 N St Sac, CA	dpegos@cdfa.ca.gov	CDFA	916-708-3031
CAROL HAFNER	1730 S MAPLE AV FRESNO CA 93702	chafner@co.fresno.ca.us	FCDA	559 600-7510
TED BATKIN	11845 Ave 274 VISALIA, CA 93277	ted@citrusresearch.org ~~ted~~	Citrus Research Board	559-738-0246
GEORGE NIKOLICH	1467 E Dinuba Ave Reedley CA 93654	nikolich@gerawan.com	GERAWAN FARMING	
Melissa Poole	33141 E Lerdo Hwy Bakersfield, CA 93308	melissap@paramountfarming.com	Paramount Farming	6613994456
Brian Domingos	1274 W. Hedges FRESNO 93728	Brian@fcfb.org	Fresno Co Farm Bureau	237-0263

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 14, 2011 – Fresno, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
James McFarlane	P.O. Box 1079, Clovis 93613	james@mcfarlanefarms.com	Calif Citrus Mutual	

CDFA's Statewide Program

EIR Scoping Meeting Sign In Sheet

July 14, 2011 – Fresno, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
Judy Stewart-Leslie	729 Davis Ave Exeter, CA	jsleslie@msn.com	Cons. Table Grape Pest Control District	

Webinar Attendance

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Attendee Report

GoToWebinar

Generated
Jul 25, 2011 03:35 PM PDT

General Information

Webinar Name
CDFA Statewide Plan Pest Prevention and

Webinar ID
926803362

Actual Start Date/Time
Jul 07, 2011 05:03 PM PDT

Actual Duration (minutes)
85

Clicked Registration Link
48

Opened Invitation
14

Total Attended
6

Session Details

Lugo,Matt	mlugo@cdfa.ca.gov
Attended	Yes
Registration Date	Jul 07, 2011 05:57 PM PDT
Address	1220 N Street
City	Sacramento
State	CA
Organization	CDFA
Unsubscribed	No
Zip Code	95814
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:58 PM PDT	Jul 07, 2011 06:19 PM PDT	21.03

Interest Rating

Attendee's In-Session Level of Interest: 65

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Paswater,Pat	pat.paswater@calrecycle.ca.gov
Attended	Yes
Registration Date	Jun 24, 2011 10:43 AM PDT
Address	1001 I Street
City	Sacramento
State	CA
Organization	CalRecycle
Unsubscribed	No
Zip Code	95814
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:46 PM PDT	Jul 07, 2011 06:28 PM PDT	42.6

Interest Rating

Attendee's In-Session Level of Interest: 46

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Murphy,Deborra	dmurphy@cdfa.ca.gov
Attended Yes	
Registration Date	Jul 07, 2011 05:22 PM PDT
Address	1220 N Street Room 221
City	Sacramento
State	CA
Organization	CDFA
Unsubscribed	No
Zip Code	95814
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:23 PM PDT	Jul 07, 2011 06:28 PM PDT	65.02

Interest Rating

Attendee's In-Session Level of Interest: 51

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Shoemaker,Charlotte	charshoes@aol.com
Attended Yes	
Registration Date	Jul 06, 2011 01:36 PM PDT
Address	1618 Parker St
City	Berkeley
State	CA
Organization	
Unsubscribed	No
Zip Code	94703
Industry	Other

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:35 PM PDT	Jul 07, 2011 05:38 PM PDT	2.97

Interest Rating

Attendee's In-Session Level of Interest: 70

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Bray,Dennis	dennis.bray@acgov.org

Attended Yes

Registration Date	Jun 28, 2011 09:26 AM PDT
Address	
City	
State	
Organization	Alameda Co Ag Commissioner
Unsubscribed	No
Zip Code	
Industry	

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:28 PM PDT	Jul 07, 2011 06:28 PM PDT	60.2

Interest Rating

Attendee's In-Session Level of Interest: 49

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Leondis,Lisa	lisa.leondis@sdcounty.ca.gov

Attended Yes

Registration Date	Jul 06, 2011 04:17 PM PDT
Address	
City	San Diego
State	CA
Organization	San Diego County Ag Dept.
Unsubscribed	No
Zip Code	92123
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)
Jul 07, 2011 05:29 PM PDT	Jul 07, 2011 05:44 PM PDT	15.32

Interest Rating

Attendee's In-Session Level of Interest: 48

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Zabel,Leah	lzabel@bwdlawgroup.com
Attended No	
Registration Date	Jun 23, 2011 12:25 PM PDT
Address	1990 3rd Street, Suite 400
City	Sacramento
State	CA
Organization	The Brenda Davis Law Group
Unsubscribed	No
Zip Code	95811
Industry	Legal

In Session

Join Time	Leave Time	In Session Duration (minutes)

Interest Rating

Attendee's In-Session Level of Interest:

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Bauer,Lauren	lbauer@kcwa.com
Attended No	
Registration Date	Jun 24, 2011 04:33 PM PDT
Address	P.O. Box 58
City	Bakersfield
State	CA
Organization	Kern County Water Agency
Unsubscribed	No
Zip Code	93302
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)

Interest Rating

Attendee's In-Session Level of Interest:

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Northup,James	jimnorthup@prodigy.net
Attended No	
Registration Date	Jul 06, 2011 12:14 PM PDT
Address	1204 Snyder Dr
City	Davis
State	CA
Organization	Stop the Spray East Bay
Unsubscribed	No
Zip Code	95616
Industry	High Tech - Other

In Session

Join Time	Leave Time	In Session Duration (minutes)

Interest Rating

Attendee's In-Session Level of Interest:

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Eaton,Ronnie	eatonohana@mindspring.com
Attended No	
Registration Date	Jun 24, 2011 12:49 PM PDT
Address	224 W. Winton Ave, Rm 184
City	Hayward
State	CA
Organization	Alameda County Department of Agricultre
Unsubscribed	No
Zip Code	94544
Industry	Government - State & Local

In Session

Join Time	Leave Time	In Session Duration (minutes)

Interest Rating

Attendee's In-Session Level of Interest:

Registration Q & A

Questions Asked by Attendee

Poll Questions

Post Session Survey Questions

Speaker Cards

CDFA Statewide Program Scoping
Speaker Card

Name: Al Beck
Date: 6 July 2011
Comment(s):

? Program for Arundo on Creek banks

CDFA Statewide Program Scoping
Speaker Card

Name: Louie Mendoza
Date: 7/7/2011
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Mary Pfeiffer
Date: 7/6/11
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Richard Price
Date: 7/6/11
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Frank Zalom
Date: 7/7/2011

Comment(s):

1) The EIR is for a proposed Statewide Pest Prevention & Mgmt Program; will there be an opportunity for public discussion of the Program itself. There may not be a need for a programmatic EIR - lacks specificity.

2) IPM is pest/site specific. Is it possible for an overarching EIR to address even a majority of invasive pest issues?

3) Threshold for significance - how is this determined?

4) Emergency - what process is used to determine an 'emergency'? Declaration of an emergency could circumvent the CEQA/EIR process

5) Consider re-evaluation of emergency or other actions as information about pest status becomes better understood

6) List of environmental issues - consider impacts on farmers; cost of control; increased use of pesticides required to comply with quarantines.

7) Technical Advisory Committee used for evaluating pest response; consider a public advisory committee to consider impacts of the proposed response.

CDFA Statewide Program Scoping
Speaker Card

Name: David Brown
Date:

Comment(s):

Is there any interest in including pests for livestock as a part of this programatic EIR? If not, why not

CDFA Statewide Program Scoping
Speaker Card

Name: Nan Wishner
Date: 7/7/11
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Lynn Elliott-Harding
Date: 7-7-11
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Mike Boitano **Date:** 7-7-11

Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: Doug Johnson **Date:** 7-13-11

Comment(s):

1. Stress "exterior exclusion"

2. Evaluate impacts of all mgmt approachs

3. Revisit EIR regularly

4. Lean toward additional local public input for each future mgmt project.

5. Consider how to cover mgmt of invasive plants not listed as noxious

CDFA Statewide Program Scoping
Speaker Card

Name: 1 | Date:

Comment(s): Bob Blakely

CDFA Statewide Program Scoping
Speaker Card

Name: 2 | Date:

Comment(s): James McFarlane

CDFA Statewide Program Scoping
Speaker Card

Name: BRIAN DOMINGOS **Date:** 7-14-2011
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: TED BATKIN **Date:** 7/14/11
Comment(s):

CDFA Statewide Program Scoping
Speaker Card

Name: MARCY MARTIN **Date:** 7/14/2011
Comment(s): CA. GRAPE & TREE FRUIT LEAGUE

CDFA Statewide Program Scoping
Speaker Card

Name: CAROL HAFNER **Date:** 7/14/11
Comment(s):

Export treatments / pre & post harvest
Green Waste mgmt tools (solarization / burial onsite)

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Comments Submitted at Meetings

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July 7, 2011

To: Cliff Rechtschaffen
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

From: Michael Boitano
Amador County Agricultural Commissioner
12200-B Airport Road
Jackson Ca 95642

Ref: Notice of Preparation for the Statewide Plant Pest Prevention and Management Program Environmental Impact Report.

Dear Sir:

My name is Mike Boitano. I am the Agricultural Commissioner in Amador County. I stand before you today in support of the Environmental Impact Report that CDFA is now in the process of completing.

I'm also here to encourage CDFA to include terrestrial noxious and invasive weeds in the EIR. Due to budget cutbacks, CDFA has done away with all infrastructures that dealt with weeds. Weed management areas and local county weed programs will now be left without a secure funding source or expertise. Weed management groups are not a new concept but have proven themselves as one that has truly been a tremendous success. The concept of bringing many people with many different backgrounds to the table to deal with noxious or invasive weeds has proven to work. It is the hope of many that CDFA will be able to reconstruct some sort of weed program in the future.

There are counties within the state that have had long-standing weed programs. Amador County has had a continuous weed program for the last 80+ years. It is vital that those counties that can and are willing to continue with these local weed programs must be allowed to do so. We need your help; the document you are about to prepare and get certified needs to include those local noxious and invasive weed programs.

The use of chemicals to control invasive and noxious plants and insects is not a new concept. California has the most stringent laws pertaining to the use of pesticides in the world. While we all strive to lessen the impacts of pesticides on the environment, we find that pesticides used to control these invasive are an integral part of the Integrated Pest Management program. County and weed management areas all use the integrated pest management approach to control invasive plants and insects.

Noxious and invasive weeds are a constant threat to the environment of California. In the heavily farmed areas of the state we do not see the rise or the size of infestations that we can find in nonproduction areas. How many of us have walked down along a river or creek or around a lake and had to change our path because of yellow starthistle? How many areas do we have in the state that has been taken over by noxious weeds that are crowding out natural vegetation? What is the fire danger created by large noxious weeds? I can show you what happens when you allow a stand of Salt Cedar to get established along a creek. (These plants can use up to 300 gallons of water a day). Pesticides are a needed tool in the control of both invasive plants and insects. Please allow us to use these tools.

I would like to leave you with a poem that was written by Patrick J. Griffin, Siskiyou County Agricultural Commissioner. I think it sums up what we are all feeling.

The Silent Invasion

They come by day, they come by night

Taking our land without a fight

They come from near, they come from far

They stick to your shoes and ride on your car

They fight with persistence and show no fear

Claiming millions of acres in just one year

They have no natural enemies in this new land

It's an easy battle and victory is at hand

In conclusion, I would like to state that we in the agricultural departments throughout the state have always considered weeds a major problem. We have worked on them through the good and the bad times. We are now asking that you remember the **outstanding** work that has been done both by the counties and the weed management's groups and give us the tools we need to continue this fight.

I would like to restate that I am very supportive of this effort and will make myself available if you have any questions. My email address is mboitano@amadorgov.org and my phone number is 209-223-6481.

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California Citrus Mutual

CALIFORNIA CITRUS MUTUAL COMMENTS
DRAFT EIR REPORT FOR THE
STATEWIDE PLANT PEST PREVENTION AND MGT PROGRAM

California Citrus Mutual is a statewide citrus producers' trade association with a voluntary membership exceeding 2000 growers. The industry as a whole produces several varieties of citrus throughout the state the combined total of which is estimated to be $1.8 billion. The industry also employs in excess of 12,000 people

According to an Arizona State economic impact analysis the industry also accounts for another $1.2 billion in economic activity with some 10,000 individuals benefitting from this activity. A misstep on any activity within this program would definitely adversely affect these numbers significantly.

As an entity that represents specialty crop producers and a highly perishable commodity which is susceptible to a variety of invasive pests and diseases Citrus Mutual has partnered with state, federal and urban representatives to achieve objectives to prevent the introduction of pests and as necessary the eradication and/or suppression of those pests.

We believe the objectives outlined more than adequately describe a statewide program. We strongly support the statements speaking to minimize impacts in a variety of areas. We don't believe these statements are incompatible with the objective of promoting the production of a safe and secure food supply.

Nor do we believe they are in conflict with the goal of a rapid response to the detriment of society and the environment.. Some are contending that this effort undercuts a stated goal of protection our state's environment and the inhabitants within the state. This process was developed via legislation authored by Assemblyman John Laird, AB 2763 signed into law in 2008. For others to contend this process is now undercutting their ability to articulate concerns is blatantly wrong and counter to their agreement during legislative deliberations.

Today California is being inundated by invasive pests or diseases. According to the University of California every 60 days California gains a new and potentially damaging invasive species. Weeds alone create a $82 million loss while other pests damage our environment, both urban and rural to the tune of $3 billion per annum in their estimation.

In fact a rapid response insures that minimal impacts occur in/on the people of California and the environment. CDFA's stated objective of utilizing a wide range of

512 North Kaweah Avenue • Exeter, CA 93221 • 559-592-3790 • FAX 559-592-3798 • www.cacitrusmutual.com

methods speaks to the Department's ability to adapt as necessary in a variety of forms. New science can offer new solutions. Different levels of infestation can create different responses. The type of infestation offers solution choices as well. All this clearly indicates the Department's sensitivity to achieving the stated goal without creating unwanted or unintended consequences.

CDFA clearly points out why pest detection and response is the cornerstone of any statewide program. An adequate system of detection devices seemingly creates more finds. However if found soon enough more does not mean a high number of individual pests. More finds creates the opportunity to find pests in isolated numbers and respond in a much less intrusive manner. If we had a program that was better at exclusion and/or early warning we wouldn't be fighting the arrival of a killer bull frog adversely effecting native populations of frog and fish for example.

We wouldn't have an invasive ant or Formosan termite killing ornamental trees. Africanized honey bees, red imported fire ant would not be two urban pests requiring attention. Beetles would not be killing our eucalyptus, oak and pine trees along the coast, on our golf courses or at our homes.

During the first week of July Time Magazine ran an article about the "Pest Eating Its Away Across America." The Ash-borer is coming and its hungry! Chicago reports 93,000 trees lost. Fort Wayne, Indiana reports another 2000 dead ash trees with 1200 scheduled for removal.

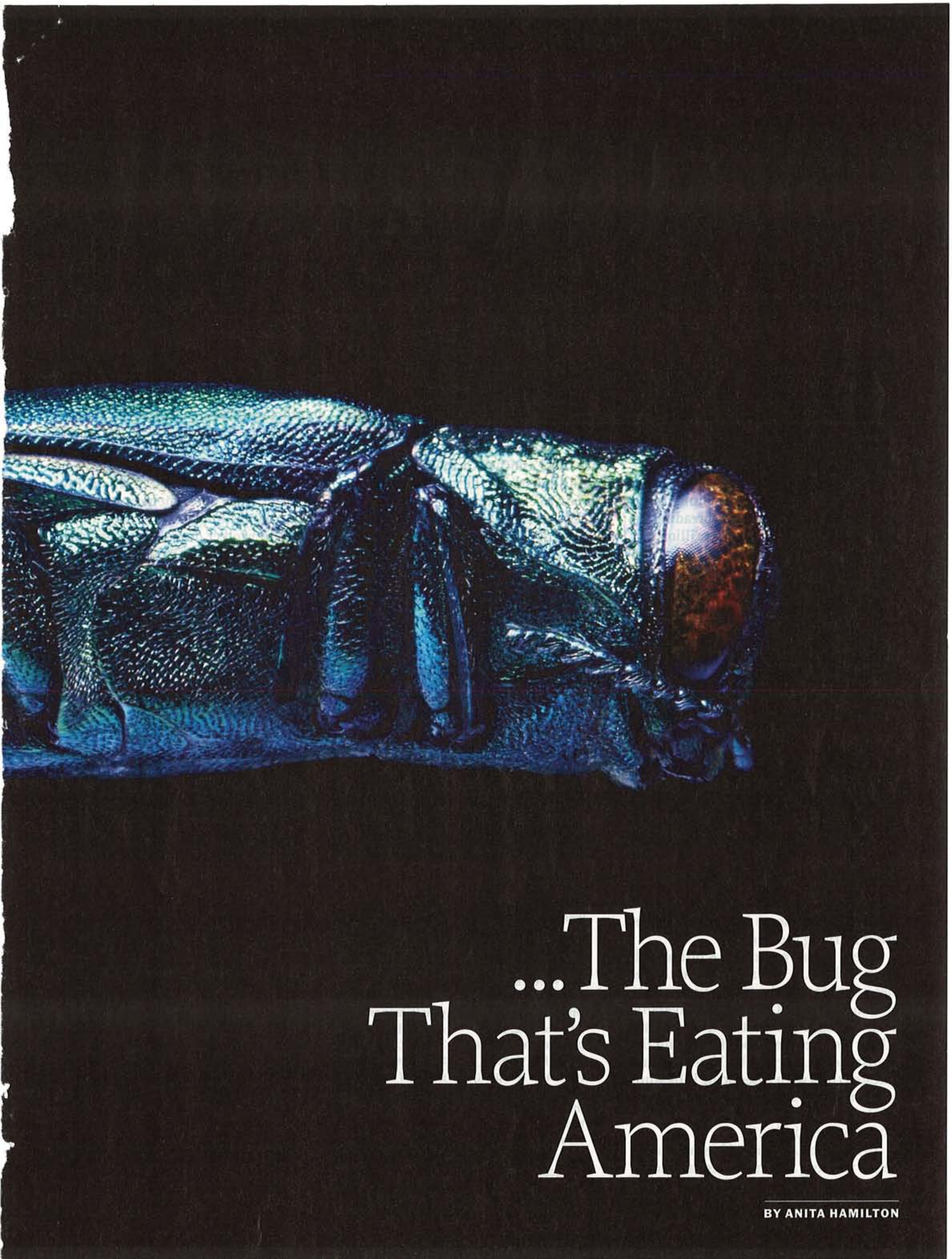
This proposal provides a pathway that designates what CDFA must do to protect against future threats if introduced. This proposal provides the general public the thought process for making a determination on how best to protect our environment from invasive pest or disease.

The Department acknowledges that this early warning system can be intrusive on commercial, homeowner, rural and urban settings. But it rightfully points out that this type of system reduces the need of a broad or widespread treatment program. It rightfully points out that a few pests are far easier to eradicate than waiting for a massive invasion to occur. And the Department correctly acknowledges that this situation can occur in a multitude of environments within commercial and private settings.

The management tactics described is a direct result of the early warning system. The lack of same requires the use of more intrusive tools more often. An early detection reduces a program's scope, reduces costs and burdens and is less controversial. Citrus Mutual members have been subject to this combination of tactics. Citrus Mutual has participated in dialogue to help develop the best tactic for the situation. Citrus Mutual has witnessed the Department relying upon experts within the University system, around the country and around the world before a tactical decision is made or implemented.

We're also cognizant of the Department's desire to communicate. Commercial agriculture has a stake in detection, treatment, eradication or suppression programs. Homeowners in rural and urban settings can also be victims thus the seriousness of the situation for these stakeholders is not ignored. Our forests, parks and other picturesque settings are of equal importance as are recreational areas. The Department, historically, has made communications an important component of these programs. In fact Citrus Mutual believes communications are as important as the actual application of a treatment tactic.

There are multiple stakeholders interested in these efforts and we believe the Department has recognized the individuals and potential concerns within this document. We support this effort, its contents and urge its adoption.



...The Bug That's Eating America

BY ANITA HAMILTON

TO WALK DOWN A STREET IN Midland, Mich., this summer is to witness a scene of mass carnage: row upon row of tree stumps with just a scattering of sawdust around them. This trail of destruction is the work not of tornadoes or of man but of a voracious beetle known as the emerald ash borer, first found in the U.S. in Detroit in 2002. The spreading infestation has killed some 60 million ash trees in 15 states stretching east to New York and south to Tennessee, and by the end of this year the death toll will likely surpass that of Dutch elm disease. "It is now the most destructive forest insect ever to invade North America," says Deb McCullough, an entomologist at Michigan State University. "We literally cannot keep up with it."

The iridescent bug is a recent arrival. Native to China, it probably migrated to the U.S. burrowed inside wooden shipping pallets. It has few predators in North America, which is one reason the speed of the outbreak is unprecedented. And most of its damage is done unseen. Mature beetles bore through the outer bark and into the phloem—the vascular tissue that carries sugars from the leaves to the rest of the tree—and lay eggs there in May and June. When the eggs hatch, the larvae feed on the nutrients in the phloem, in effect starving the tree.

There are an estimated 8 billion ash trees in the U.S., and none of the 16 species is resistant to the pest, says researcher Dan Herms of Ohio State University. That includes the northern white ash, which provides the wood of choice for the Louisville Slugger baseball bat. Treating infested trees with insecticide kills adult ash borers but not always the larvae, so while it can slow down an infestation, it can't stop it entirely.

In the 1960s, American cities and towns began planting ash trees, long favored for their stately silhouette and abundant foliage, to replace trees killed off by the Dutch elm scourge. But this approach, known as monoculture—in which block after block is lined with the same kind of tree—has made those areas especially vulnerable to the ash borer. The city of Fort Wayne, Ind., has already cut down 2,000 ash trees to stop the insect's spread and will likely have to remove an additional 1,200. Chicago can expect most of its 93,000 ash trees to be affected and is projected to spend as much as $46 million by 2020 to defend its foliage. All told, U.S. cities will spend more than $10 billion over the next decade to treat or remove infested trees, according to a recent study in *Ecological Economics.*

Other efforts to thwart the borers are also under way. Quarantines on transporting firewood that might be incubating the winged invaders are widely in place. And another Chinese immigrant is being enlisted in the war on *Agrilus planipennis.* In eight states this summer, the U.S. Department of Agriculture (USDA) is releasing more than 150,000 stingless wasps, sworn enemy of the ash borer, imported from the same forests in China where the borer occurs naturally and bred in a Michigan laboratory. "These things are like little hunter-seekers. Their whole mission is to go and find the emerald ash borer," says USDA scientist Jon Lelito. The wasps, which look like tiny flying ants, lay their eggs on the larvae or the eggs of the ash borer. When the wasp eggs hatch, the wasps feed on the ash borers.

If that solution sounds ominous—past efforts to deploy nonnative predators against pests have spiraled out of control—Lelito says the USDA's environmental-impact study predicts that as ash-borer populations decline, so will the number of wasps, until the two populations reach an equilibrium. "That's the advantage of biocontrol" over harsh pesticides, Lelito says. "There's nothing that lingers in the environment."

In the meantime, arborists are redesigning their treescapes. In Milwaukee, each block will have up to four different tree types, including lindens, oaks, maples and hackberries. "We're trying to protect ourselves so we won't have entire blocks with no trees," says the city's forestry-services manager, David Sivyer. For cities across the Midwest, that barren landscape is already a reality. ■

Species Invaders. Alas, these immigrants have made themselves right at home

NUTRIA

These giant rats, weighing up to 20 lb. (9 kg), arrived from South America in the early 1900s and were initially farmed for their fur. Once they relocated into the wild, their population exploded in the Maryland wetlands. Not picky about their diet, they can chew through tree trunks, wooden frames of houses and even the occasional tire when they are hungry.

FERAL SWINE

The offspring of European imports that escaped and bred in the wild number in the millions and cause an estimated $8 million per year in property damage. Weighing over 300 lb. (136 kg), they have a better sense of smell and are faster than domesticated pigs. The largest population is in Texas, but these heavyweights have been found everywhere from California to Maine.

ASIAN CARP

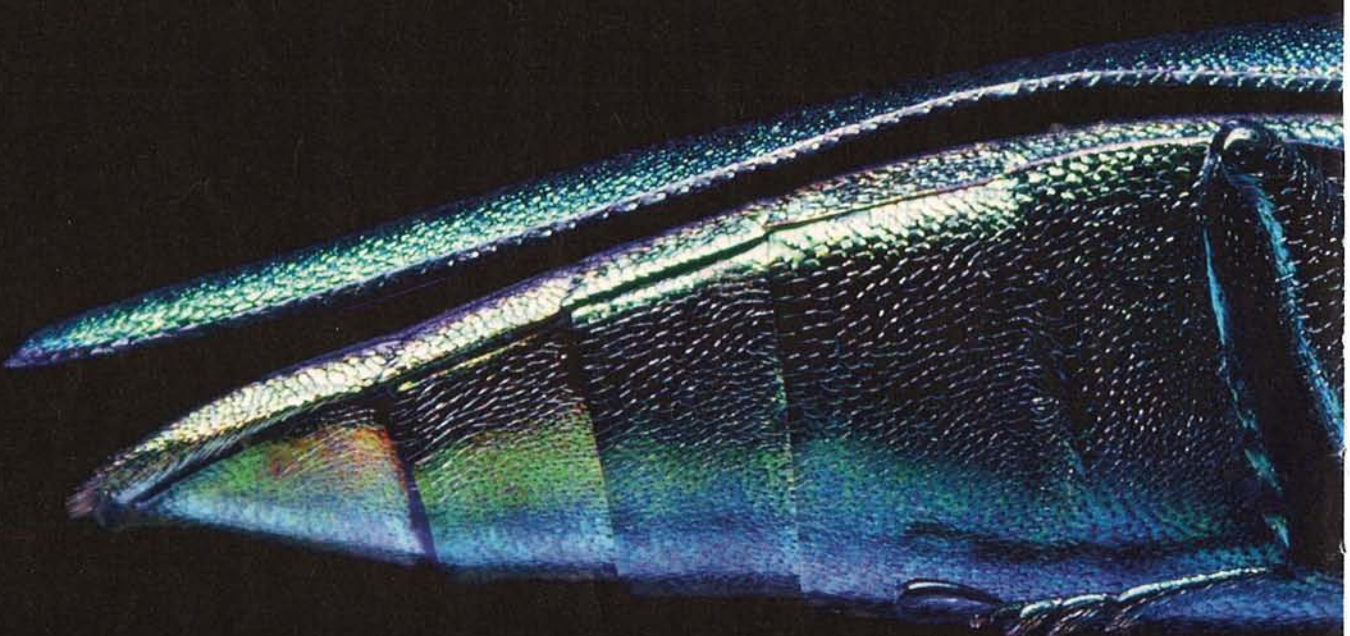
Originally imported to clean catfish ponds in Arkansas in the 1970s, Asian carp quickly escaped and migrated up the Mississippi River as far as the Great Lakes. They grow up to 4 ft. (1.2 m) long and 100 lb. (45 kg) and devour the plankton that native fish need to survive. While jumping out of the water, the "flying" silver carp have even broken people's noses.

BURMESE PYTHON

Popular pets for their dramatic size and lack of venom, Burmese pythons went native after too many pet owners set them free. Around 2000, they began breeding in the Florida Everglades, where there are now an estimated 30,000. The carnivorous snakes typically grow to about 12 ft. (3.6 m) long and feed on endangered birds, fish, wood rats and squirrels.

ENVIRONMENT

This is an ash borer. It's from China. Since it was found in the U.S. in 2002, it has killed some 60 million trees in 15 states. Cities will spend more than $10 billion over the next decade to try to stop...



Photograph by Jamie Chung for TIME

businesses and individuals, incidents that the IT-security experts concede are growing rapidly. Black-hat hackers are adapting social networks to establish an evil ecosystem while exploiting its vulnerabilities to steal data and money. Their tool kit includes social-engineering techniques that dupe you into coughing up passwords. Their malware is getting better: botnets (networks of infected computers) are growing, as are "man in the middle" schemes that redirect your Web traffic.

It's a new plug-and-play environment as hackers specialize, link with other specialists as needed and offer a variety of goods and services. You don't even have to be a hacker to use some of the available products. There's 24/7 customer support. Malware consortiums like Zeus produce botnets that let you invade and infest computer systems. You can obtain specific parts of botnet code that you can customize for your own use to hack individual bank accounts. Need a "mule" to set up an account to transfer stolen money into? That service can be provided too. "There's a whole supply chain here," says AVG's Smith. "The guys who develop it, update, use it, and people who have to get the money. It's hard to find *the* guy."

Not that the cops aren't looking. Zeus suffered a major hit when the U.S. charged 70 people with involvement in the cybercrime ring in September 2010. Its response was to merge with SpyEye, another botnet maker. The point, as with any other merger, is to improve efficiency and profits. The combined Zeus-SpyEye, for example, is making an even more damaging bot called "browser in the middle" that allows thieves to manipulate the data that a user sends to a bank. The bank may see six authorizations for payment when the user thinks she's sending one. When the bank acknowledges the six authorizations, the browser intercepts and shows the user only one.

Hackers have discovered that small and medium-size businesses (SMBs) are far more vulnerable than major corporations. SMBs can't afford the kinds of costly defenses the big guys can erect if they choose. The stakes are higher too. If someone hacks your personal bank account, you'll be made whole. But courts in many states have ruled that if someone hacks a business account and the bank followed standard security protocols, the business is on the hook for the money.

Hackers haven't forgotten about you either. While the Web has encouraged sharing via Facebook and LinkedIn, those networks have become portholes to problems. Friend the wrong person and go to that unknown friend's recommended website, and you are asking for trouble, buddy.

A Facebook bug called Koobface that takes over your account is infecting a million accounts daily, says IronKey's Jevans. As for LinkedIn, he says, "I can make a very authentic-looking LinkedIn invite."

Hackers are also using the data gamed from social-network sites to build credible individual identities with which they can infiltrate corporations and websites. Even if you don't have a Facebook account, someone could create one for you—as happened to the head of Interpol.

The Counterattack

THE GOOD GUYS AREN'T STANDING STILL, of course. The focus now is to disconnect a person's e-mail and browser from the rest of the network with a variety of security layers. Companies are also figuring out new ways to protect themselves from employees who work at home beyond the corporate firewall and from the growing threats via mobile devices, including iPads and other tablet computers. Until then, corporations and government agencies are well advised to keep the doors locked, change the default settings and train employees to be on guard for spear phishing and social engineering.

We think in terms of Moore's law—that computing speed doubles every 18 months. But "hackers are thinking in days," says Entrust's Conner. There are things you can do to help protect yourself: not just changing your passwords but also making them long enough and complex enough to be a meaningful deterrent. But at a more basic level, it's about not oversharing with people you may or may not know and being a little more cautious even with people you think you know. It takes a little of the social out of social networks, but it's safer.

"The main thing is that it's going social. If you look at Lulz, would you believe a hacking group has a p.r. office, a Twitter account and a request line?" asks Jevans. "It's crazy. It's creating a whole new culture of people who feel they are entitled to do it."

That's sort of how LulzSec feels. It has prodded the public for its watching-the-train-wreck attitude toward hacking. But even LulzSec doesn't know how long it can last. British officials recently arrested a hacker who may be part of the group. "We'll continue creating things that are exciting and new until we're brought to justice, which we might well be," says LulzSec. "But you know, we just don't give a living f--- at this point. You'll forget about us in three months' time when there's a new scandal to gawk at."

At the rate the hackers are moving, it may be even sooner than that. It's the damage that could be lasting. ■

High Alert. Are cyberhackers coming for you?

PHISHING 101

1. The phisher e-mails a potential victim claiming to be from a familiar source

2. The message contains a question or threat and urges the victim to go to the company site

3. The victim clicks a link and is taken to a site that looks real—like a bank's, say—but it's a fake

4. The victim enters sensitive data such as account numbers and passwords into the site

5. The phisher uses the data to access a corporate network, for identity theft or to steal money

PASSWORD PROTECTION

Hacking your password gets much harder if you follow these tips

The longer the password the better

PASSword8!

Use a mix of upper and lower case letters

Use numbers

Use special characters

Path of destruction *Trails left by ash-borer larvae, which feed on nutrients below the bark, on a tree in Midland, Mich.*

FROM LEFT: TIERFOTOAGENTUR/ALAMY; WISCONSIN DEPARTMENT OF NATURAL RESOURCES—AP; M. SPENCER GREEN—AP; F1ONLINE DIGITALE BILDAGENTUR GMBH/ALAMY; JAMIE CHUNG FOR TIME

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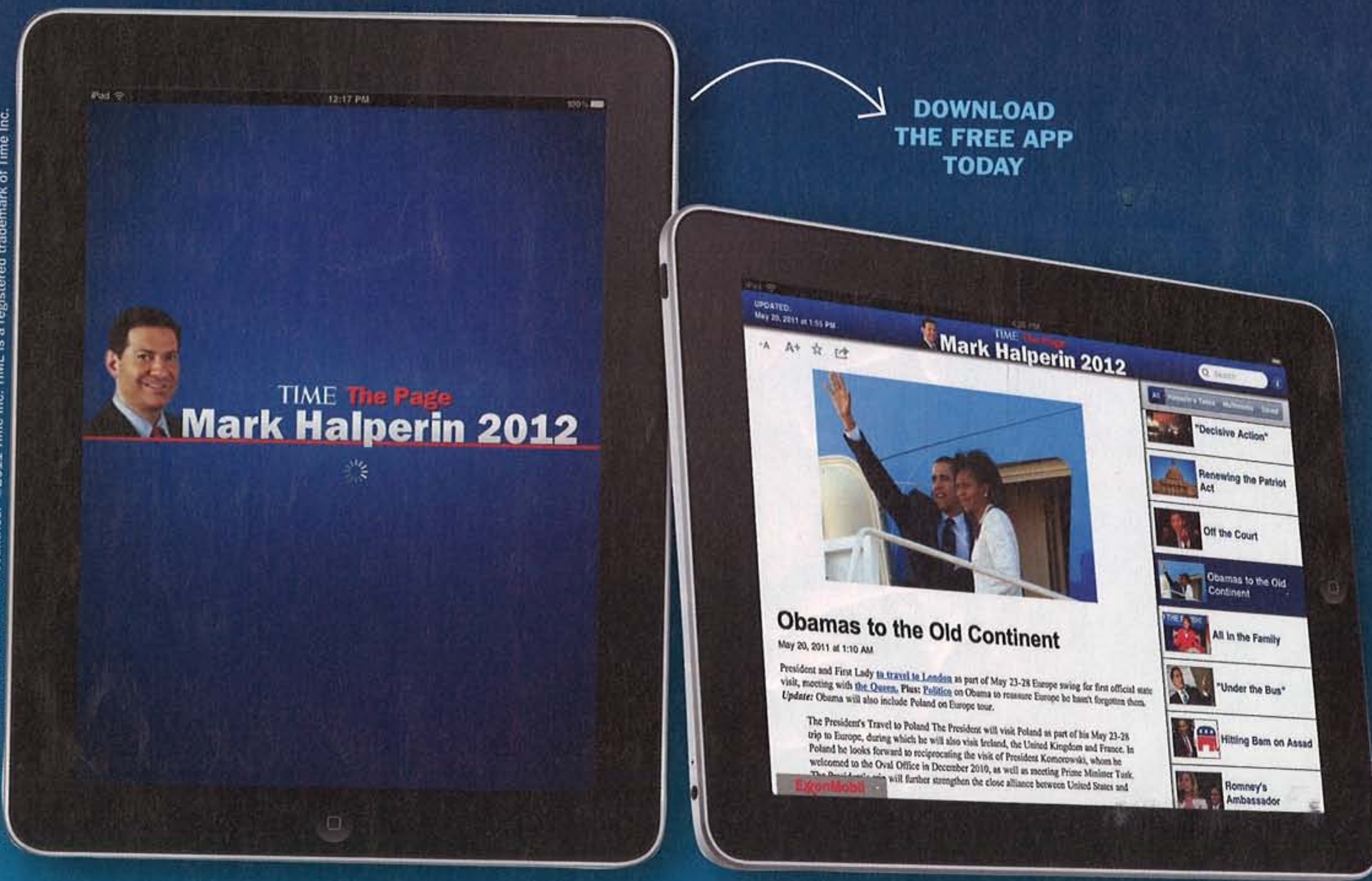

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July 14, 2011

Michele Dias
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Subject: CDFA Statewide Plant Pest Prevention and Management Program

Dear Ms. Dias,

On behalf of the Fresno County Farm Bureau, an agricultural nonprofit representing approximately 4,000 members, I write in support of the California Department of Food and Agriculture's (CDFA) efforts to develop an Environmental Impact Report (EIR) for a Statewide Plant Pest Prevention and Management Program.

The EIR process will allow CDFA to involve the public in assuring that their programs run more efficiently by conducting the environmental review. Additionally, this process will result in a more rapid response by the department when a new pest or plant disease enters California.

If pests infiltrate our borders, farmers can lose their crops and markets; therefore, the eradication of invasive species and plants should be addressed immediately through a comprehensive approach as described in this program.

In sum, the Fresno County Farm Bureau supports CDFA's mission to prevent invasive species through the environmental review and analysis of various pest prevention and management activities statewide.

Sincerely,

Ryan Jacobsen,
CEO/Executive Director

1274 W Hedges Ave • Fresno, CA 93728
559-237-0263 office • 559-237-3396 fax • www.fcfb.org • info@fcfb.org

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Appendix J
WRITTEN COMMENTS RECEIVED DURING SCOPING PERIOD

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DOROTHEA DORENZ
ALBANY/BERKELEY COALITION FOR ENVIRONMENTAL HEALTH
1200 NEILSON ST. B
BERKELEY, CAL 94706

March 17, 2011

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a specific project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

This PEIR's strategy, to evaluate in advance the environmental impacts of various treatments, denies the public the right to information and participation guaranteed by CEQA. Attempting to approve a pest control method now that might not be applied in a community until years in the future does not give residents adequate voice in the decision regarding its use in their neighborhoods.

3) Spending tax money on a two-year process for a consultant to prepare document that would thwart the basic requirements of CEQA and that is almost certain to result in a lawsuit would be unconscionable at any time but particularly now when the state budget and essential programs and services are being dramatically cut.

RECEIVED
MAR 21 2011
DEPT. OF FOOD AND AGRICULTURE

March 17, 2011

Dear CDFA Secretary Ross,

I would love to bring your attention to an urgent issue. As you know, the California Department of Food and Agriculture is preparing a Programmatic Environmental Impact Report (PEIR) of future invasive species eradication and control programs in California. Please consider immediately stopping the process for the following reasons:

– A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

– This PEIR's strategy, to evaluate in advance the environmental impacts of various treatments, denies the public the right to information and participation guaranteed by CEQA. Attempting to approve a pest control method now that might not be applied in a community until years in the future does not give residents adequate voice in the decision regarding its use in their neighborhoods.

- Spending tax money on a two-year process for a consultant to prepare document that would thwart the basic requirements of CEQA and that is likely to result in a lawsuit seems unwise, particularly now when the state budget and essential programs and services are being dramatically cut.

The approach proposed in this PEIR is the same as used by CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. II urge you to propose a different strategy.

Thank you for your help.
Sincerely,

Jenny Josephian
605 Del Valle Circle
El Sobrante CA 94803

Nancy Snedden

4348 Montgomery St.
Oakland CA 94611-4712
Phone/fax: 510.654.3199; nsnedden@earthlink.net

March 17,2011

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento CA 95814

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

This PEIR's strategy, to evaluate in advance the environmental impacts of various treatments, denies the public the right to information and participation guaranteed by CEQA. Attempting to approve a pest control method now that might not be applied in a community until years in the future does not give residents adequate voice in the decision regarding its use in their neighborhoods.

3) Spending tax money on a two-year process for a consultant to prepare document that would thwart the basic requirements of CEQA and that is almost certain to result in a lawsuit would be unconscionable at any time but particularly now when the state budget and essential programs and services are being dramatically cut.

The approach proposed in this PEIR is the same as used by CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. I ask you to stop this attempt to extend a costly and ill-conceived strategy.

I'd like to ask: Where is your conscience in making decisions like this that clearly have a negative, sometimes irreversible, effect on environment and health? How can decisions like this be even considered by intelligent, sensitive and conscientious people, not to mention, public servants? Please wake up and "smell the roses" while there still are some.

Sincerely,

Nancy Snedden

Nancy Snedden
4348 Montgomery St
Oakland CA 94611

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento CA 95814
Fax: 916-558-3160
email at: http://gov.ca.gov/m_contact.php

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
fax:916/653-4723
email: secretary.ross@cdfa.ca.gov

March 17, 2011

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

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Sincerely,

Tamarind C Fleischman

Tamarind Fleischman
109 Monte Vista Ave.
Oakland, CA 94611

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento CA 95814
Fax: 916-558-3160
email at: http://gov.ca.gov/m_contact.php

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
fax:916/653-4723
email: secretary.ross@cdfa.ca.gov

March 17, 2011

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Sincerely,

Phillip Pease
109 Monte Vista Ave.
Oakland, CA 94611

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento, CA 95814

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814

March 19, 2011

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

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Sincerely,

Lauren Schiffman

Lauren Schiffman
1343 S. 59th Street
Richmond, CA 94804

RECEIVED
APR 04 2011
DEPT. OF FOOD AND AGRICULTURE

Charlotte Shoemaker

1618 Parker Street, Berkeley CA 94703
510 540 7185 charshoes @ aol.com

March 19, 2011

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814

Dear CDFA Secretary Ross:

Now that the CDFA has a new Secretary, I am hopeful that this department can shift away from the unscientific, dangerous and expensive policies that characterized the last department, particularly in regard to its' destructive and unnecessary LBAM eradication program.

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a specific project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

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The approach proposed in this PEIR is the same as used by CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. I ask you to stop this attempt to extend a costly and ill-conceived strategy.

Sincerely,

Charlotte Shoemaker

Charlotte Shoemaker

Fax Transmission Sheet

Date: March 20, 2011

To: Karen Ross, Secretary – California Department of Food and Agriculture (CDFA)
Fax: 916/653-4723

From: Nan Wishner – Stop the Spray East Bay (STS EB)
Tom Kelly, JD – Stop the Spray East Bay (STS EB)
Debbie Friedman, JD – Mothers of Marin Against the Spray (MOMAS)

Re: The Invasive Species PEIR, the CISAC Strategic Framework, and Sustainable Agriculture

Pages: 8 (incl. cover page)

---

cc: Governor Jerry Brown (fax 916/ 558-3160)

cc:
Secretaries appointed to the ISCC -
- Secretary John Laird, California Natural Resources Agency (fax 916/653-8102)
- Secretary Linda S. Adams, California Environmental Protection Agency (fax 916/324-0908)
- Secretary Dale E. Bonner, California Business, Transportation and Housing Agency (fax 916/323-5440)
- Secretary Diana S. Dooley, California Health and Human Services Agency (fax 916/654-3343)
- Acting Secretary Mike Dayton, California Emergency Management Agency (fax 916/845-8511)

cc:
Senate Committee on Agriculture -

Senator Anthony Cannella	(fax 916/445-0773)
Senator Michael Rubio	(fax 916/327-5989)
Senator Tom Berryhill	(fax 916/327-3523)
Senator Noreen Evans	(fax 916/323-6958)
Senator Doug La Malfa	(fax916/445-7750)
Senator Juan Vargas	(fax 916/327-3522)
Senator Lois Wolk	(fax 916/323-2304)

STOP THE SPRAY EAST BAY (STSEB) and MOTHERS OF MARIN AGAINST THE SPRAY (MOMAS)

Karen Ross, Secretary
California Department of Food and Agriculture (CDFA)
1220 N Street
Sacramento, California, 95814

March 20, 2011

Via e-mail: secretary.ross@cdfa.ca.gov
Via facsimile: (916) 653-4723

Re: The Invasive Species PEIR, the CISAC Strategic Framework, and Sustainable Agriculture

Dear Secretary Ross,

Congratulations on your recent appointment as Secretary of the California Department of Food and Agriculture (CDFA). You are in a position to guide the state's agricultural industry in a historic and life-changing direction to improve the quality and quantity of food grown here while simultaneously reducing the harmful impacts of industrial agricultural practices. We look forward to working with you on many issues of common concern.

We are looking forward to our meeting with you on April 7th and provide these comments to give you a sense of the issues we would like to cover with you at the meeting.

We believe that it is possible to improve our food production and protect the health and economic well-being of our agricultural community, as well as consumers of California-grown food, while dramatically reducing the amounts of chemical fertilizers and pesticides that are applied to the state's agricultural lands.

We wish to meet with you and your staff to discuss the following issues:

1) The recently announced decision to proceed with preparation of a Programmatic Environmental Impact Report (PEIR) for future invasive species treatments.

2) The final Strategic Framework developed by the California Invasive Species Advisory Committee (CISAC) that has not yet been released for public review.

3) Sustainable agriculture in California as a primary approach to invasive species control that provides many other benefits as well.

Invasive Species PEIR

CISAC recommended, and CDFA has already taken action on, development of a Programmatic Environmental Impact Report (PEIR) to cover all of CDFA's future pest programs. As described by CDFA's attorney at the March 9, 2011 CISAC meeting, that PEIR would be designed to allow the CDFA to manage any pest it deems invasive, at any time or location in the future, without carrying out any further site- or project-specific environmental review. This approach would thwart the basic principles of the California Environmental Quality Act (CEQA). That is, a PEIR of this type will not allow for meaningful public input or adequate information for decision makers to evaluate environmental impacts. The light brown apple moth (LBAM) PEIR is currently being challenged in two lawsuits for precisely this same strategy: attempting to evaluate the impacts of a program that could be carried out at any place in the state, at any time in the future, without any specific assessment of unique conditions at the locations where the treatments might be used. It is, in our opinion, a waste of taxpayer money to undertake a new and even broader PEIR that will have very little chance of withstanding judicial scrutiny. Please note that we are not opposed to advance planning for possible impacts of introduced species on health and agriculture, but we do not believe it is prudent or legal to attempt to prepare a PEIR that would give advance approval years into the future for treatment programs that could significantly impact community and food safety.

Strategic Framework

A revised and final version of the CISAC Draft Strategic Framework (DSF) was apparently approved by the Invasive Species Council of California (ISCC), CISAC's parent organization, at its December 2010 meeting. It is our understanding that the revised document addresses public input received by CISAC last fall; however, the public has never seen the revised document, nor has CISAC published any response to public comment. Therefore, we have no means of knowing whether the approved document adequately incorporates the concerns that so many of us expressed. We tried repeatedly to obtain a copy of the final document before its review and acceptance by Agency Secretaries but have been advised by Dr. Leavitt at the CDFA that there is no current plan in place for its release to the public.

In addition to the issue of the PEIR noted above, a major problem with the DSF is that it did not consider the health and environmental effects of pesticides. We are concerned that this omission might not have been addressed in the final revised document. In the DSF, health was addressed only in the context of the potential health impacts of invasive species, not with regard to the health effects of invasive species management. Our concern about this issue grows out of a long history of invasive species control programs that have had health and environmental impacts, most recently the CDFA's misguided efforts to "eradicate" LBAM by spraying an untested pesticide (whose inert ingredients were not known) over populated areas and sensitive natural environments. As we now know, the LBAM has NOT done any documented damage to California crops or forests. (Attached is a record evidencing no damage by LBAM in California and referencing the CDFA's own Final EIR.) The LBAM program has, however, injured the economic well being of California's farmers and nurserymen and weakened the credibility of, and public trust in, the CDFA and the state agencies that attempted to provide the CDFA with justification for its spray program.

Because we have not been able to review the final Strategic Framework, and we were assured that the DSF reflects the input of the sole public health representative on CISAC, we assume that the Framework's present form is not significantly different from the DSF. When we meet with you, we would like to present some more specific steps on which we can work together regarding the Framework and related issues, but we believe incorporation of the overall approach discussed in the next section below would strengthen the Framework, setting a direction for addressing invasive species that will be more effective and will ultimately make California agriculture more sustainable, healthier, and economically viable.

Sustainable Agriculture

We would very much like to work with you to encourage expansion of sustainable agriculture practices in the state both as a fundamental way of strengthening California's farms against invasive species damage and of providing many other health, environmental, and economic benefits. Other broad positive impacts of expanding sustainable agriculture, several of which are identified in the recent publication "California Agricultural Vision: Strategies for Sustainability,"[1] include: improving the safety of the food supply, the health of the state's residents and growers, and the health of the environment, particularly soil, water, and pollinators; mitigating global warming through carbon sequestration and reduced dependence of agriculture on fossil fuels;[2] creating jobs; strengthening California's reputation for environmental stewardship in agriculture; and reducing costs to farmers for chemical inputs.

[1] American Farmland Trust, California Department of Food and Agriculture, California State Board of Food and Agriculture. 2010. *California Agricultural Vision: Strategies for Sustainability*. December. http://www.cdfa.ca.gov/agvision/

[2] Lasalle, T., P. Hepperly. 2010. *Regenerative Organic Farming: A Solution to Global Warming*. Rodale Institute.

With regard to invasive species and the health of California agriculture, sustainable agriculture practices are possibly the best and most cost-effective tools for protecting farmers against both invasive species damage and global warming. There is mounting evidence that bio-diverse farms with healthy soil produce healthier, stronger plants more robust to pests, with yields equal to or greater than those from conventional agricultural practices.[3] Supporting farmers to undertake these approaches would be an excellent use of invasive species funding and resources. In addition, California's invasive species programs could, according to much scientific testimony in recent years, benefit from updated scientific approaches. Invasive species money could be allocated to researching and encouraging less-chemical-dependent practices. Quarantines and chemical control/eradication programs are costly both to the state and to farmers and create a repeating cycle of chemical use for the same pests, which has cumulative negative impacts on human and environmental health and the safety of the food supply. In short, California's present invasive species programs are not based upon current science. The LBAM program is one example; the National Academies of Science report on the LBAM program[4] and the criticisms of leading scientists in testimony to the state legislature make clear the lack of scientific basis for the classification of that insect as well as the government's response to it.

The CISAC Strategic Framework does little or nothing to shift pest programs toward prevention. It omits what we believe would be the most effective recommendation: encouraging a shift to sustainable agriculture as the best approach to introduced species control, making farms resilient from the soil up and giving farmers safe tools to use when the occasional pest poses a serious threat. Just as in health care, prevention is cheaper and more effective than costly, invasive treatments; making farms diverse, sustainable, and robust to pest infestation is a win-win strategy. We look forward to working with you on specific initiatives to meaningfully support this approach.

We appreciate your rapid response to our request for a meeting and are very much looking forward to meeting with you in April and discussing these issues.

Thank you for your consideration.

On behalf of STOP THE SPRAY EAST BAY (eastbayinfo@stopthespray.org)

Nan Wishner
Albany & Callahan

Thomas G. Kelly, JD
Berkeley

On behalf of MOTHERS OF MARIN AGAINST THE SPRAY (MOMAS) (mothersofmarin@yahoo.com)

Debbie Friedman, JD
Mill Valley

---

[3] See, for example: UN Green Economy Program. 2011. *Agriculture: Investing in Natural Capital.* http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx;
Vasilikiotis, C. Can Organic Farming Feed the World? http://www.cnr.berkeley.edu/~christos/articles/cv_organic_farming.html;

[4] National Research Council of the National Academies of Science. 2009. *Review of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service Response to Petitions to Reclassify the Light Brown Apple Moth as a Non-Actionable Pest.* Washington DC: National Academies Press. August.

Attachment: Record Evidencing No Damage by LBAM

cc: Governor Jerry Brown (fax 916/ 558-3160)

Secretaries appointed to the ISCC -
- Secretary John Laird, California Natural Resources Agency (fax 916/653-8102, secretary@resources.ca.gov)
- Secretary Linda S. Adams, California Environmental Protection Agency (fax 916/324-0908, ladams@calepa.ca.gov)
- Secretary Dale E. Bonner, California Business, Transportation and Housing Agency (fax 916/323-5440, Agency.secretary@bth.ca.gov)
- Secretary Diana S. Dooley, California Health and Human Services Agency (fax 916/654-3343, c/o mcamposv@chhs.ca.gov)
- Acting Secretary Mike Dayton, California Emergency Management Agency (fax 916/845-8511, c/o terri.evans@calema.ca.gov)

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Senator Noreen Evans	(fax 916/323-6958)
Senator Doug La Malfa	(fax916/445-7750)
Senator Juan Vargas	(fax 916/327-3522)
Senator Lois Wolk	(fax 916/323-2304)

Assembly Committee on Agriculture -

Assemblymember Cathleen Galgiani	(email Assemblymember.Galgiani@assembly.ca.gov)
Assemblymember David G. Valadao	(email Assemblymember.Valadao@assembly.ca.gov)
Assemblymember Bill Berryhill	(email Assemblymember.Bill.Berryhill@assembly.ca.gov)
Assemblymember Jerry Hill	(email Assemblymember.Hill@assembly.ca.gov)
Assemblymember Fiona Ma	(email Assemblymember.Ma@assembly.ca.gov)
Assemblymember Tony Mendoza	(email Assemblymember.Mendoza@assembly.ca.gov)
Assemblymember Kristin Olsen	(email Assemblymember.Olsen@assembly.ca.gov)
Assemblymember Henry T. Perea	(email Assemblymember.Perea@assembly.ca.gov)
Assemblymember Mariko Yamada	(email Assemblymember.Yamada@assembly.ca.gov)

Office of Senator Joe Simitian (c/o Alan.Gordon@sen.ca.gov)
Office of Senator Loni Hancock (c/o Hans.Hemann@sen.ca.gov)
Office of Assemblymember Tom Ammiano (c/o misa.yokoi-shelton@asm.ca.gov)
Office of Assemblymember Mary Hayashi (c/o marina.wiant@asm.ca.gov)
Office of Assemblymember Jerry Hill (c/o tony.marino@asm.ca.gov)
Office of Assemblymember Jared Huffman (c/o dan.okenfuss@asm.ca.gov)
Office of Assemblymember Bonnie Lowenthal (c/o lauren.robinson@asm.ca.gov)
Office of Assemblymember Fiona Ma (c/o hillary.thomas@asm.ca.gov)
Office of Assemblymember William W. Monning (c/o kathy.smith@asm.ca.gov)
Office of Assemblymember Nancy Skinner (c/o michael.bedard@asm.ca.gov)
Office of Assemblymember Sandré Swanson (c/o amy.alley@asm.ca.gov)
Assemblymember Rich Gordon (email Assemblymember.Gordon@assembly.ca.gov)
Assemblymember Jim Nielsen (email Assemblymember.Nielsen@assembly.ca.gov)

RECORD EVIDENCING NO DAMAGE BY THE LIGHT BROWN APPLE MOTH IN CALIFORNIA

Declaration of Emergency by the CDFA and Subsequent Admissions by the CDFA of No Damage by LBAM as well as its Earlier Arrival (by 6-7 years) in the U.S.

1. October 2007
   CDFA declares its own State of Emergency, claiming that the Light Brown Apple Moth (LBAM) has just arrived in the U.S. and that it had to be destroyed immediately before it devastated our crops.

2. Fall 2007
   The CDFA sprays Santa Cruz ands Monterey Counties with an untested, registered pesticide. Numerous scientists point out that LBAM could not have spread as far as it had in the State of California if it were a recent arrival.

3. April 24, 2008 – Court Case 158516
   Hon. Paul P. Burdick of the County of Santa Cruz and City of Santa Cruz issues a ruling against the CDFA regarding its LBAM spray program. Based on the CDFA's admission during the court case that there was NO damage from LBAM, the court ruling includes this paragraph:

   5) Respondents' issuance of the October 3, 2007, Notice of Exemption, and the underlying determination that the Project comes within the confines of the statutory emergency and categorical exemptions to CEQA, constitute a prejudicial abuse of discretion under Public Resources Code section 21168.5.

4. May 2008
   In an appearance on the Angie Coiro radio show, Secretary Kawamura acknowledges that the moth has been here 6-7 years. This in contradiction to his declaration of emergency and repeated statements of dire threat due to the sudden arrival of the moth in California. The admission should have had a major impact on the CDFA's spray program. It did not.

Timeline Regarding Alleged Damage to Watsonville Berry Fields by the Light Brown Apple Moth (LBAM)

1. May 2009
   USDA inspectors discover alleged LBAM damage in 3 Watsonville berry fields.

2. June 16, 2009
   Mercury News reports on the story under the headline "Blackberry grower takes loss from light brown apple moth". Article alleges a 20% crop loss caused by LBAM. Article includes confirmation of the May 2009 discovery date *"Officials have released little information about the incident. Though USDA inspectors discovered the problem in May during cooler inspections, it came to light after an agricultural official posted it on his blog earlier this month."*
   Story: By DONNA JONES, Posted: 06/16/2009 01:30:11 AM PDT -
   http://www.mercurynews.com/centralcoast/ci_12598120?nclick_check=1

3. June, July, August 2009 ... and continuing until today
   Additional media outlets, agricultural interests, and other parties repeat the allegations about serious damage caused by LBAM to Watsonville berry fields. This despite the fact that there is no evidence that the berry field damage was caused by LBAM and not by any one of the native California leaf roller moths.

4. July 2009 **(approx. 2 months after the first report of berry damage in Watsonville)**
   CDFA confirms via its own "Light Brown Apply Moth Eradication Program Draft PEIR" that "no direct crop damages have been experienced to date in areas subject to existing infestation". See:
   http://www.cdfa.ca.gov/phpps/LBAMeir/CH%203_Ag%20&%20Econ.pdf

   Relevant paragraph:

   3.2.3.2 Effects on Agricultural Revenues (Crop Damages)

   The No Program Alternative assumes no LBAM Eradication Program and that existing LBAM control measures implemented by individual producers would continue. Based on the continued presence of LBAM in the primary Program Area and proliferation to other parts of the state, it is anticipated that LBAM would ultimately cause direct damages to host crops; no direct crop damages have been experienced to date in areas subject to existing infestation (Roach, pers. comm., 2009b).

5. September 23, 2009
Contra Costa County Agricultural Commissioner, Vincent L. Guise, submits a letter (ref. L-CCCo) to the CDFA (in connection with the Final PEIR) including the following statements:

"In the heaviest infested area of Point Richmond we noticed very significant damage to native plants that are growing in a natural chaparral/forested/grassland area that is approximately 500 acres in size. Larva samples were submitted to the CDFA lab, see PDR #1503041. I have enclosed a disc with a scanned copy of the PDR, associated pictures of the larva that were submitted from the listed hosts, pictures of the host area environment where the samples were collected and two short movie videos of collected larva." *
and
"The worst damage was to California toyon, *Heteromeles arbutifolia*, where there was severe brooming of the growing tips as a response to the feeding damage from LBAM larva on the tenninal growth. As a result of this damage there was almost no flowering or subsequent berry production. There was also damage to wild blackberry fruit, pine and ceanothus. Beyond the damage to the foliage, the lack of production of berries especially on toyon is of great concern because this is a major source of food to wildlife, especially to native birds."
See:
http://www.cdfa.ca.gov/phpps/LBAMeir/Final%20PEIR_CH%203%20Agencies_FEB2010_WEB.pdf

*** Court records, now part of the discovery process in our lawsuit, show that this alleged LBAM damage was erroneous as the lab reports on those larvae ultimately proved that they were not LBAM.**

March 16, 2011

RECEIVED
MAR 24 2011
DEPT. OF FOOD AND AGRICULTURE

March 21, 2011

Dear Governor Brown and Secretary Ross,

I am very concerned about the fact that a PEIR(Pragrammatic Environmental Impact Report) for the California Dept. of Food and Agriculture is being prepared that will obtain advanced approval for activities that we, the public, will nave no way of reviewing and deciding upon before governmental action, and that may , in fact, do great harm to us and the environmnet.

To cutt off open debate and input and not inform the public in specific ways and with clear details what the specifics are in using the CDFA's power to eradicatehat what it deems harmful species , and its control policies .....in other words....to give them a blank check to move foreward, is not in my interest as a citizen or in the interest of the public at large.

I ask that you stop this process and allow a process that enables citizens likew myself to know , in advance, what plans are being made to control and/or eradicate invasive species and gives all us the time to investigae and respond to the CDFA"s plans.

Thank you and I would appreciate a response.

Sincerely,

Lynn MacMichael

3812 F Happy Valley Rd.

Lafayette, Ca. 94549

Shopping List

March 21, 2011

Dear Secretary Ross:

Pls. stop this impact Report. It is unfair and does not give the residents adequate voice in decision making.

I am in the process of going to Colma City Council and San Mateo County for a resolution to stop this unfair Report. I will send (over)

Shopping List

a 31 name petition of Voters that are not in favor of this PEIR.

Thanks for your help.

Sharon

(650) 355-7107

Please have a rep. call me so we can talk about a new plan. Thanks

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
fax:916/653-4723
email: secretary.ross@cdfa.ca.gov

Governor Jerry Brown
State Capitol Suite 1173
Sacramento CA 95814
Fax: 916-558-3160
email at: http://gov.ca.gov/m_contact.php

Dear Governor Brown and CDFA Secretary Ross:

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1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

This PEIR's strategy, to evaluate in advance the environmental impacts of various treatments, denies the public the right to information and participation guaranteed by CEQA. Attempting to approve a pest control method now that might not be applied in a community until years in the future does not give residents adequate voice in the decision regarding its use in their neighborhoods.

3) Spending tax money on a two-year process for a consultant to prepare document that would thwart the basic requirements of CEQA and that is almost certain to result in a lawsuit would be unconscionable at any time but particularly now when the state budget and essential programs and services are being dramatically cut.

The approach proposed in this PEIR is the same as used by CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. I ask you to stop this attempt to extend a costly and ill-conceived strategy.

Sincerely,

~~YOUR NAME AND ADDRESS~~

Jay Haley
4251 Montgomery, #5
Oakland, CA 94611

3/24/11

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

This PEIR's strategy, to evaluate in advance the environmental impacts of various treatments, denies the public the right to information and participation guaranteed by CEQA. Attempting to approve a pest control method now that might not be applied in a community until years in the future does not give residents adequate voice in the decision regarding its use in their neighborhoods.

3) Spending tax money on a two-year process for a consultant to prepare document that would thwart the basic requirements of CEQA and that is almost certain to result in a lawsuit would be unconscionable at any time but particularly now when the state budget and essential programs and services are being dramatically cut.

The approach proposed in this PEIR is the same as used by CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. I ask you to stop this attempt to extend a costly and ill-conceived strategy.

Sincerely,

Sharon Fuchs

3/24/11

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento CA 95814
Fax: 916-558-3160
email at: http://gov.ca.gov/m_contact.php

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
fax:916/653-4723
email: secretary.ross@cdfa.ca.gov

1402 Bancroft Way
Berkeley, CA 94702
March 17, 2011

Dear Governor Brown and CDFA Secretary Ross:

I am asking you to immediately stop the process of preparing a Programmatic Environmental Impact Report (PEIR) for the California Department of Food and Agriculture's future invasive species eradication and control programs in California for the following reasons:

1) A PEIR such as this, which attempts to obtain advance approval for actions at unspecified future places and times, violates basic requirements of the California Environmental Quality Act (CEQA), which mandates that a PEIR must have a *specific* project description, location, and time frame to allow the public and decision makers to make informed judgments about the project's environmental impacts.

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Sincerely

Judith Wilkes

Judith Wilkes

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Sincerely,

132 Hamilton St
Los Altos, Ca 94022
650 9413058

Rec'd 3.28.11
rmv

Dear Governor Brown and CDFA Secretary Ross:

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Sincerely,

Ted Luehs

This PIER denies the public right to information and is costly and unnecessary.

Thanks

Rec'd 3.28.11
MW

Ted Luehs
1107 Crespi Dr
Pacifica, CA 94044

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento CA 95814
Fax: 916-558-3160
email at: http://gov.ca.gov/m_contact.php

Secretary Karen Ross
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
fax:916/653-4723
email: secretary.ross@cdfa.ca.gov

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Given the CDFA's previous actions to 'exterminate' so many species over and over again, and their utterly misguided effort to exterminate the light brown apple moth, any attempt to approve these processes in advance is equally misguided. This PEIR would institutionalize the actions of the CDFA without administrative or public input.

It is ridiculous to approve in advance a pest control action whose consequences could be problematic.

It is wasteful to spend tax money on this as you will surely be set upon with lawsuits by better informed environmental organizations.

The approach proposed in this PEIR is the same as used by the CDFA in the light brown apple moth (LBAM) PEIR, which is currently being challenged in two lawsuits. I ask you to stop this costly and ill-conceived strategy.

Sincerely,

Dennis L. Knepp

Dennis L. Knepp
2 White Tail Lane
Monterey, CA 93940

Merry Wells

From: Carol Tate on behalf of Karen Ross, Secretary
Sent: Wednesday, March 30, 2011 11:36 AM
To: Merry Wells
Subject: PEIR

From: Janis Knepp [mailto:janisknepp@comcast.net]
Sent: Wednesday, March 30, 2011 11:35 AM
To: Karen Ross, Secretary
Subject: PEIR

Stop the PEIR. We certainly hope you are cut from a different ilk than the infamous Kawamura, but alas, your appointment must have been favored by those lobbyists who benefit from CDFA's immoral policies. We learned too, too much about the purpose of CDFA – to line the pockets of the wealthy industrial agriculturists, robbing the taxpayers with every "bug of the month" declaration and endangering our democracy, solvency, and environmental health.

CDFA is a front organization for the very wealthy wine and industrial ag growers, imposing restrictions and advantages for them. It is a sham and a shame. How sad for the public and the environment. Stop hanging all of those damn traps all up and down California and employing those bullies who do so at the expense of the taxpayer. CDFA has negatively impacted the health of many. The public has a right to know with labeled GM products, also. What a shame we have lost what the European public still has - some clout over the wealthy who have captured our legislators and appointed officials.

Please send a resume' of your background qualifications for this post. Our local ag official's first step was to "get up to step on the invasive species" issue (i.e., how to get taxpayer money for his ag friends) and to ask for further water waivers, just what you guys are put in positions to accomplish. Ms Knepp

July 7, 2011

To: Cliff Rechtschaffen
California Department of Food and Agriculture
1220 N Street
Sacramento, CA 95814

From: Michael Boitano
Amador County Agricultural Commissioner
12200-B Airport Road
Jackson Ca 95642

Ref: Notice of Preparation for the Statewide Plant Pest Prevention and Management Program Environmental Impact Report.

Dear Sir:

My name is Mike Boitano. I am the Agricultural Commissioner in Amador County. I stand before you today in support of the Environmental Impact Report that CDFA is now in the process of completing.

I'm also here to encourage CDFA to include terrestrial noxious and invasive weeds in the EIR. Due to budget cutbacks, CDFA has done away with all infrastructures that dealt with weeds. Weed management areas and local county weed programs will now be left without a secure funding source or expertise. Weed management groups are not a new concept but have proven themselves as one that has truly been a tremendous success. The concept of bringing many people with many different backgrounds to the table to deal with noxious or invasive weeds has proven to work. It is the hope of many that CDFA will be able to reconstruct some sort of weed program in the future.

There are counties within the state that have had long-standing weed programs. Amador County has had a continuous weed program for the last 80+ years. It is vital that those counties that can and are willing to continue with these local weed programs must be allowed to do so. We need your help; the document you are about to prepare and get certified needs to include those local noxious and invasive weed programs.

The use of chemicals to control invasive and noxious plants and insects is not a new concept. California has the most stringent laws pertaining to the use of pesticides in the world. While we all strive to lessen the impacts of pesticides on the environment, we find that pesticides used to control these invasive are an integral part of the Integrated Pest Management program. County and weed management areas all use the integrated pest management approach to control invasive plants and insects.

Noxious and invasive weeds are a constant threat to the environment of California. In the heavily farmed areas of the state we do not see the rise or the size of infestations that we can find in nonproduction areas. How many of us have walked down along a river or creek or around a lake and had to change our path because of yellow starthistle? How many areas do we have in the state that has been taken over by noxious weeds that are crowding out natural vegetation? What is the fire danger created by large noxious weeds? I can show you what happens when you allow a stand of Salt Cedar to get established along a creek. (These plants can use up to 300 gallons of water a day). Pesticides are a needed tool in the control of both invasive plants and insects. Please allow us to use these tools.

I would like to leave you with a poem that was written by Patrick J. Griffin, Siskiyou County Agricultural Commissioner. I think it sums up what we are all feeling.

The Silent Invasion

They come by day, they come by night

Taking our land without a fight

They come from near, they come from far

They stick to your shoes and ride on your car

They fight with persistence and show no fear

Claiming millions of acres in just one year

They have no natural enemies in this new land

It's an easy battle and victory is at hand

In conclusion, I would like to state that we in the agricultural departments throughout the state have always considered weeds a major problem. We have worked on them through the good and the bad times. We are now asking that you remember the **outstanding** work that has been done both by the counties and the weed management's groups and give us the tools we need to continue this fight.

I would like to restate that I am very supportive of this effort and will make myself available if you have any questions. My email address is mboitano@amadorgov.org and my phone number is 209-223-6481.

Department of Agriculture/Weights and Measures

COUNTY OF SAN MATEO

Fred W. Crowder
Agricultural Commissioner
Sealer of Weights & Measures

728 Heller Street • P.O. Box 999 • Redwood City, California 94064-0999 • (650) 363-4700 • FAX 367-0130 • www.co.sanmateo.ca.us/agwm

July 8, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

Regarding: California Department of Food and Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR.

Dear Governor Brown:

As the Agricultural Commissioner for San Mateo County I support CDFA's efforts to develop a programmatic Environmental Impact Report (EIR) to serve as a guide for the control and management of exotic invasive species in California.

The San Mateo County Agricultural Commissioners Office inspects incoming agricultural shipments at the San Francisco International Airport as well as other locations in San Mateo County and in some years our staff has intercepted over a thousand exotic pests on shipments. These pests have the potential to impact not only agriculture in San Mateo, but agricultural, residential, and native plant and animal community's through-out California. The EIR would provide the response blue-print should an exotic invasive species be introduced thereby facilitating quick and appropriate response; should eradication be necessary, it would ensure the goals of the eradication project are clear and that the project proceeds with minimal impacts and in accordance with State and federal law.

The development of the EIR will involve five public scoping meeting as well as a web based meeting to ensure transparency and thorough public input. The document will also be routinely reviewed and updated, with public participation, to ensure it is up-to-date, relevant, and relies on the latest pest management methods and developments.

Such a document would help those responsible for pest prevention and eradication to implement this program in compliance with California's Environmental Quality Act. Such anticipatory planning and creation of such a management plan is integral to an Integrated Pest Management (IPM) approach to pest control. This will facilitate the management or eradication of pest populations utilizing least toxic, yet effective pest control methods. Such an approach will provide protection of both our agricultural and natural resources while minimizing impacts.

Sincerely,

Fred W. Crowder
Agricultural Commissioner / Sealer
San Mateo County

County of Santa Cruz

OFFICE OF THE AGRICULTURAL COMMISSIONER

KEN CORBISHLEY
AGRICULTURAL COMMISSIONER
SEALER OF WEIGHTS AND MEASURES
DIRECTOR, MOSQUITO AND VECTOR CONTROL

July 8, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: California Department of Food & Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR.

Dear Governor Brown:

As you know, the California Department of Food and Agriculture is preparing an Environmental Impact Report (EIR) for a Statewide Plant Pest Prevention and Management Program. The overall goal of this statewide program is to create a vehicle which provides a time-sensitive and efficient framework for evaluating potential environmental impacts of the various pest management activities implemented by CDFA and its partners.

I think it is important to note that the Program EIR will focus on management strategies rather than individual pests, analyzing each for their advantages and disadvantages, including alternatives that may result in fewer impacts and necessary mitigation measures.

The EIR will be a comprehensive document based on Integrated Pest Management principles. This in turn will provide for a strong scientific and technical foundation for an open decision making process when invasive pests are discovered. Public participation during the EIR development will be actively solicited through five scoping meetings and a web based meeting; this effort will strengthen the final document and provide for the highest level of transparency as it is developed. The final product will also include an ongoing process to evaluate and include new developments and potential environmental impacts while providing for continued public participation throughout the ongoing pest management process.

This tool will help those responsible for pest prevention to implement effective programs in full compliance with California Environmental Quality Act. We will also be able to better protect the economic vitality of our food system, protect jobs for many in economically depressed areas of the State, and protect California's unique environment.

Sincerely,

Mary Lou Nicoletti

Mary Lou Nicoletti
Acting Agricultural Commissioner

175 WESTRIDGE DRIVE, WATSONVILLE, CALIFORNIA 95076 TELEPHONE (831) 763-8080 FAX (831) 763-8255

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE: STATEWIDE PLANT PEST PREVENTION AND MANAGEMENT PROGRAM

Draft EIR- CEQA Scoping Comment Form **RECEIVED**

JUL 12 2011

OFFICE OF THE CHIEF COUNSEL

Name:	David Brown
Group/Organization (optional):	
Mailing Address:	8631 Bond Rd EG Ca 95624
Telephone No. (optional):	
Email (optional):	dabrown @ ~~s~~ sac-yolomvcd.com

Comments/Issues: CDFA should expand the scope of this document to include livestock disease and pest prevention, and include other state Agencies (such as CDPH) in the process.
Diseases include blue tongue, West Nile virus, Rift Valley fever, Vesicular stomatitis virus, etc...

Please use additional sheets if necessary.

SUBMIT WRITTEN COMMENTS (POSTMARKED BY JULY 25TH, 2011) TO:

MAIL: California Department of Food and Agriculture
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

EMAIL: PEIR.info@cdfa.ca.gov

Questions? Please email us or visit our website: www.cdfa.ca.gov/go/peir

From:	Michele Dias
To:	Michael Stevenson;
Subject:	FYI: Comment from PEIR web page
Date:	Tuesday, July 12, 2011 12:37:06 PM

From: Linda Haque [mailto:lhaque@earthlink.net]
Sent: Tue 7/12/2011 12:25 PM
To: Pest PreventionEIR
Subject: Input

Michelle,
I am a member of the California Avocado Growers with a small avocado acreage as well as being a citrus grower. I learned of your program through a CAC publication. I would like to offer some input to the CDFA if the State is planning to set up an "overseer" group for pest detection and management similar to the group overseeing the threat of the Asian Citrus Psyllid (ACP) to California citrus, the CPDPP. I believe that the Citrus Pest and Disease Prevention Program model is a highly efficient manner to address pest threats by having one central group overseeing State action as regards flora pests, specifically, with that group being composed of a cross section of those people most threatened by such pests.

My specific suggestion would be to explore early on how different groups could be utilized to get word of the threat out to the general public in a coordinated manner.

While I have no authority to speak on behalf of the Master Gardeners, I believe the mission of the Master Gardeners is "to enhance the well-being of people, plants, and the environment through science-based gardening education and community outreach." In Ventura County the Master Gardeners have been active on several fronts in trying to get the word out to homeowners and the general community on the threat, detection, and proper notification to the State as regards the dreaded ACP threat. While the CPDPP is primarily concerned with the commercial grower, they realise the critical role played by home gardeners in the ACP threat. I believe there are other volunteer channels that could be of help as well. My point being that one may be able to draw on past experiences if the goals of this new program are the same as those of the CPDPP. In times of tough financial times for all, while the pest threats have not diminished, the volunteer route, guided by sound scientific principles, may prove especially useful.

Thank you for your time.

Linda Haque

7/18/11

Tulare County Agricultural Commissioner/Sealer

Marilyn Kinoshita, Agricultural Commissioner
Sealer of Weights and Measures
Stevie McNeill, Assistant
Commissioner/Sealer

July 12, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: California Department of Food & Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR.

Dear Governor Brown:

On behalf of the California Agricultural Commissioners and Sealers Association, I am writing to express our strong support for the CDFA's effort to develop a comprehensive and scientifically based Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR). Agricultural Commissioners throughout the state share the responsibility with CDFA to prevent the movement of destructive, invasive pests into and around the state in order to protect our food system and California's natural resources.

The EIR will be a comprehensive document based on Integrated Pest Management principles. This in turn will provide for a strong scientific and technical foundation for an open decision making process when invasive pests are discovered. Public participation during the EIR development will be actively solicited through five scoping meetings and a web based meeting. This effort will strengthen the final document and provide for the highest level of transparency as it is developed. The final product will also include an ongoing process to evaluate and include new developments and potential environmental impacts while providing for continued public participation throughout the ongoing pest management process.

This tool will help those responsible for pest prevention to implement effective programs in full compliance with California Environmental Quality Act. We will also be able to better protect the economic vitality of our food system, protect jobs for many in economically depressed areas of the State, and protect California's unique environment.

Sincerely,

Marilyn Kinoshita

Marilyn Kinoshita
Tulare County Agricultural Commissioner/
Sealers of Weights and Measures

Cc: Karen Ross, Secretary of Agriculture
Cc: Michele Dias, Acting Chief Counsel, CDFA

ALLIED GRAPE GROWERS

QUALITY INTEGRITY STABILITY

July 14, 2011

Governor Jerry Brown
ATTN: Alexis Wilson
Office of the governor
State Capitol
Sacramento, CA 95814

Re: CDFA Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program

Dear Governor Brown,

On behalf of Allied Grape Growers, a winegrape marketing cooperative representing nearly 600 grower-members throughout California since 1951, I applaud the California Department of Food and Agriculture for taking a bold and necessary step to prepare California for current and future threats to Agriculture from invasive pests.

A substantial environmental review of treatment methods for invasives will provide necessary analysis of current defense mechanisms for our integral food system. The thorough review and refinement of management strategies will strengthen the state's preparedness for invasive pest threats. We must move beyond the status quo, which focuses on individual pests and formulating subsequent responses, because of the destructive nature of invasive pests and the importance of timing in responding quickly to prevent damage.

Preventing the establishment of invasives and promoting the production of a safe, secure food supply are key elements to supporting a healthy California agriculture. I encourage your support of the effort's development and recognition of how the program EIR will foster a timelier and adequate invasive pest management response.

Sincerely,

Nat DiBuduo
President CEO

cc: Barry Bedwell

Executive Office
7030 N. Fruit Ave.
Suite 115
Fresno, CA 93711
Tel: 559-276-7021
Fax: 559-276-7129

North Coast Office
347 Healdsburg Ave.
Suite J
Healdsburg, CA 95448
Tel: 707-433-6525
Fax: 707-433-1354

GLENN COUNTY
BOARD OF SUPERVISORS
Willows Memorial Hall, 2nd Floor
525 West Sycamore Street, Suite B1
Willows, CA 95988

John K. Viegas, District 1
Dwight Foltz, District 2
Steve Soeth, District 3
Michael Murray, District 4
Leigh W. McDaniel, District 5

August 18, 2011

The Honorable Jerry Brown
Governor of the State of California
State Capitol, Suite 1173
Sacramento, CA 95814

RE: California Department of Food & Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR

Dear Governor Brown:

On behalf of the Glenn County Board of Supervisors, we are writing to express our strong support for the CDFA's effort to develop a comprehensive and scientifically based Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR). We share an interest in preventing the movement of destructive, invasive pests into and around the state in order to protect our food system and California's natural resources.

The Program EIR will be a comprehensive document based on integrated Pest Management principles. This in turn will provide for a strong scientific and technical foundation for an open decision making process when invasive pests are discovered. Public participation during the EIR development has been actively solicited through five scoping meetings and a web based meeting. This effort will strengthen the final document and provide for the highest level of transparency as it is developed. The final product will also include an ongoing process to evaluate and include new developments and potential environmental impacts while providing for continued public participation throughout the ongoing pest management process.

This tool will help those responsible for pest prevention to implement effective programs in full compliance with California Environmental Quality Act. We will also be able to better protect the economic vitality of our food system, protect jobs for many in economically depressed areas of the State, and protect California's unique environment.

Sincerely,

GLENN COUNTY BOARD OF SUPERVISORS

Steve Soeth, Chairman

cc: Karen Ross, Secretary of Agriculture

~ The County of Glenn is an Equal Opportunity Provider ~

GLENN COUNTY
BOARD OF SUPERVISORS

Willows Memorial Hall, 2nd Floor
525 West Sycamore Street, Suite B1
Willows, CA 95988

John K. Viegas, District 1
Dwight Foltz, District 2
Steve Soeth, District 3
Michael Murray, District 4
Leigh W. McDaniel, District 5

August 18, 2011

The Honorable Jerry Brown
Governor of the State of California
State Capitol, Suite 1173
Sacramento, CA 95814

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Sincerely,

GLENN COUNTY BOARD OF SUPERVISORS

Steve Soeth, Chairman

cc: Karen Ross, Secretary of Agriculture

~ The County of Glenn is an Equal Opportunity Provider ~

TOWN OF FAIRFAX

142 BOLINAS ROAD, FAIRFAX, CALIFORNIA 94930
(415) 453-1584/FAX (415) 453-1618

July 7, 2011

Governor Jerry Brown
State Capitol, Suite 1173
Sacramento, CA 95814

BY FACSIMILE AND U.S. MAIL: (916) 558-3160

Re: CDFA PEIR

Dear Governor Brown:

I am writing to request that you invoke your executive authority to halt the Statewide Pest Prevention Programmatic Environmental Impact Report (PEIR) process that the California Department of Food and Agriculture recently launched.

The Pest Prevention PEIR is costly and, if approved will make it impossible for the public to have a meaningful voice in state pesticide spray decisions affecting our communities. The PEIR is based on an outdated model of pest management that relies too heavily on pesticides, creates unacceptable health risks, and unnecessarily burdens our small and organic farmers.

CDFA's last effort to invoke a top down pesticide spray order with the Light Brown Apple Moth (LBAM) demonstrated serious problems with its public process and research methodology. CDFA failed to conduct a thoroughgoing review of the epidemiological impact of aerial spraying over densely populated urban areas and its threat evaluation of the LBAM was eventually shown to be a sham.

The future of California agriculture and the credibility of CDFA would be far better served by undertaking a much less costly planning process to update the State's pest programs using current independent science. It's time for California to embrace sustainable agricultural practices and abandon outmoded chemically dependent pest eradication programs.

Your independent judgment is needed to redirect this wasteful program.

Respectfully yours,

LARRY BRAGMAN

This letter represents the personal viewpoint of the Council member who signs it and does not necessarily represent an official position of the Town of Fairfax.

Rio Blanco Farms

1998 ROAD 152
DELANO, CALIFORNIA 93215
661 / 792-3151

July 14, 2011

Governor Jerry Brown
Attn: Alexis Wilson
Office of the Governor
State Capitol
Sacramento, CA 95814

Re: CDFA Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program

Dear Governor Brown,

I applaud the California Department of Food and Agriculture for taking a bold and necessary step to prepare California for current and future threats to Agriculture from invasive pests.

A substantial environmental review of treatment methods for invasives will provide necessary analysis of current defense mechanisms for our integral food system. The thorough review and refinement of management strategies will strengthen the state's preparedness for invasive pest threats. We must move beyond the status quo, which focuses on individual pests and formulating subsequent responses, because of the destructive nature of invasive pests and the importance of timing in responding quickly to prevent damage.

Preventing the establishment of invasives and promoting the production of a safe, secure food supply are key elements to supporting a healthy California agriculture. I encourage your support of the effort's development and recognition of how the program EIR will foster a timelier and adequate invasive pest management response.

Sincerely,

Andrew Zaninovich

Sunview Shandon
1998 ROAD 152
DELANO, CALIFORNIA 93215
661 / 792-3151

July 14, 2011

Governor Jerry Brown
Attn: Alexis Wilson
Office of the Governor
State Capitol
Sacramento, CA 95814

Re: CDFA Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program

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Sincerely,

Marko Scott Zaninovich

Marko S. Zaninovich

County of Fresno

DEPARTMENT OF AGRICULTURE
CAROL N. HAFNER
AGRICULTURAL COMMISSIONER/
SEALER OF WEIGHTS & MEASURES

July 14, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: Department of Food & Agriculture's Notice of Preparation for a Statewide Plant Pest Prevention and Management Program Environmental Impact Report (PEIR)

Dear Governor Brown:

The need for a comprehensive, scientifically based, statewide pest prevention program continues as pest pressures from outside of the state's boundaries continue to bombard and threaten our economy and environment. Hand in hand with this need is the necessity for addressing California Environmental Quality Act (CEQA) requirements. The Notice of Preparation for the PEIR is the first critical step towards addressing a systematic approach to plant pest infestations.

The initial development of the PEIR will encompass the full breadth of pest management strategies and scientific tools currently available to address plant pest infestations beyond just chemical control. As I have witnessed in the recent European grapevine moth infestation in Fresno County, integrated pest management approaches including the physical removal of host material is proving to be another key element to the eradication of this pest.

As the future brings new techniques and management tools to the forefront, the PEIR would allow the addition of new strategies which would be open to review and comment by all interested parties which provides transparency and encourages feedback from stakeholders; it is designed to be a living document.

The development and implementation of the Statewide Plant Pest Prevention and Management Program Environmental Impact Report as a tool is long overdue. I strongly support the development of this report and look forward to its full implementation in the future.

Sincerely,

Carol N. Hafner

Carol N. Hafner
Agricultural Commissioner/Sealer of Weights and Measures

cc: Karen Ross, Secretary of Agriculture

1730 S. Maple Avenue / Fresno, California 93702-4596 / (559) 600-7510
http://www.co.fresno.ca.us/fresnoag – e-mail: fresnoag@co.fresno.ca.us

Tulare County Agricultural Commissioner/Sealer

Marilyn Kinoshita, Agricultural Commissioner
Sealer of Weights and Measures
Stevie McNeill, Assistant
Commissioner/Sealer

July 12, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: California Department of Food & Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR.

Dear Governor Brown:

On behalf of the California Agricultural Commissioners and Sealers Association, I am writing to express our strong support for the CDFA's effort to develop a comprehensive and scientifically based Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR). Agricultural Commissioners throughout the state share the responsibility with CDFA to prevent the movement of destructive, invasive pests into and around the state in order to protect our food system and California's natural resources.

The EIR will be a comprehensive document based on Integrated Pest Management principles. This in turn will provide for a strong scientific and technical foundation for an open decision making process when invasive pests are discovered. Public participation during the EIR development will be actively solicited through five scoping meetings and a web based meeting. This effort will strengthen the final document and provide for the highest level of transparency as it is developed. The final product will also include an ongoing process to evaluate and include new developments and potential environmental impacts while providing for continued public participation throughout the ongoing pest management process.

This tool will help those responsible for pest prevention to implement effective programs in full compliance with California Environmental Quality Act. We will also be able to better protect the economic vitality of our food system, protect jobs for many in economically depressed areas of the State, and protect California's unique environment.

Sincerely,

Marilyn Kinoshita

Marilyn Kinoshita
Tulare County Agricultural Commissioner/
Sealers of Weights and Measures

Cc: Karen Ross, Secretary of Agriculture
Cc: Michele Dias, Acting Chief Counsel, CDFA

Sonoma County
WINEGRAPE COMMISSION

July 15, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: Programmatic EIR for Plant Pest Prevention and Management

Dear Governor Brown:

I am writing on behalf of 1800 vineyard owners in Sonoma and Marin counties who have faced a series of invasive pests that are impacting profitable grape production in Sonoma County. Secretary Ross has proposed developing a programmatic Environmental Impact Report (EIR) for a Statewide Plant Pest Prevention and Management Program. We support this proposal because it will allow the state to have a more timely response to new invasive pest introductions. Time is of the essence in dealing with a new pest, and initiating an EIR after an invasion occurred is not working for our growers or California agriculture.

A comprehensive program based upon Integrated Pest Management principles will provide a science-based response to eradicate or manage the new pest while minimizing environmental impacts from the control program. I believe the program development and implementation can be transparent, effective and more efficient than the current process.

We ask that you will support CDFA in pursuing a programmatic EIR for plant pest introductions that threaten California agriculture.

Sincerely,

Nick Frey

Nick Frey
President

Cc Karen Ross

3637 WESTWIND BOULEVARD | SANTA ROSA, CA 95403 [tel] 707.522.5860 [fax] 707.522.5866 | info@sonomawinegrape.org

COUNTY OF KINGS
BOARD OF SUPERVISORS

KINGS COUNTY GOVERNMENT CENTER
1400 W. LACEY BOULEVARD.HANFORD, CA 93230
(559) 582-3211, EXT. 2362, FAX: (559) 585-8047
Web Site: http://www.countyofkings.com

JOE NEVES – DISTRICT 1
LEMOORE & STRATFORD

RICHARD VALLE – DISTRICT 2
AVENAL, CORCORAN & KETTLEMAN CITY

DOUG VERBOON – DISTRICT 3
NORTH HANFORD, ISLAND DISTRICT & NORTH LEMOORE

TONY BARBA – DISTRICT 4
ARMONA, HANFORD & NEW HOME GARDEN

RICHARD FAGUNDES – DISTRICT 5
HANFORD & HOME GARDEN

July 19, 2011

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Re: CDFA's Statewide Program Environmental Impact Report [PEIR]
Kings County Board of Supervisors'….. SUPPORT

Dear Governor Brown:

From time-to-time invasive pests are introduced into the environment of California and when this happens the California Department of Food and Agriculture (CDFA) is called upon to protect this state's environment and food producing resources. It is imperative to initiate a quick response in order to effectively contain, reduce, and eventually remove the threat to our food producing resources and potential damage to the environment. CDFA is currently developing an Environmental Impact Report (EIR) for its statewide pest prevention and management program [Program]. We are told the Program EIR will be comprehensive and employ Integrated Pest Management (IPM) principles and provide a scientific and technical foundation for the Program's decision making for the management of invasive pests.

We believe a statewide PEIR will provide for more timely response to mitigate the impacts to our environment and our food producing resources when the introduction/detection of invasive pests are discovered in the future. We therefore respectfully request your support, along with ours, in the completion of this vital statewide Program Environmental Impact Report.

Thank you for this important consideration.

Respectfully,

Tony Barba, Board Chairman
Kings County Board of Supervisors

Cc: Karen Ross, Secretary of Food and Agriculture
Michele Dias, Acting Chief Counsel, CDFA
Tim Niswander, Agricultural Commissioner-Sealer, Kings County

California Dried Plums

CALIFORNIA DRIED PLUM BOARD

3840 Rosin Court
Suite 170
Sacramento, CA 95834

Phone (916) 565-6232
Fax (916) 565-6237
www.CaliforniaDriedPlums.org

July 21, 2011

The Honorable Jerry Brown
Governor, State of California
State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown:

On behalf of the California Dried Plum Board and its 920 growers and processors, I am writing in support of the California Department of Food and Agriculture's (CDFA) preparation of a Program Environmental Impact Report (PEIR) for a Statewide Plant Pest Prevention and Management Program.

California's agricultural and natural resource assets are a vital component of our economic, environmental and cultural composition. The California dried plum industry proudly represents a part of the multi-billion dollar bounty of specialty crops that make California one of the world's most important providers of safe and nourishing food, producing 99% of the domestic supply and 48% of the international supply of prunes with a farm gate value of $154 million (2010). It is critical that we protect this food supply from the increasing threat of destructive pests and plant diseases.

Unfortunately, as the challenge of managing these risks becomes more complicated, the time and cost investment to prepare environmental documentation becomes greater, even when decisive action is necessary to avoid an uncontrolled outbreak. As each new pest or disease is discovered, a regulatory process of planning, analysis, public input and review must begin again, exposing California agriculture to unnecessary environmental and financial risk. Ironically, the only solution to controlling the outbreak when delays exacerbate the problem is often more intensive use of chemicals and other measures that might have been avoided through a timely response.

As the responsible state agency for management and control of pest infestations and plant diseases, CDFA is creating this PEIR as a vehicle to provide a transparent, time-sensitive and efficient framework for evaluating potential environmental impacts of the various integrated pest management activities implemented by the agency and its partners. The PEIR will provide a comprehensive human health and ecological risk assessment, ultimately providing California Environmental Quality Act compliance for all CDFA pest prevention and management programs. The PEIR will employ the best scientific and technical information for decision making and seek expanded public participation with additional environmental analysis and comment. Ultimately, the

PEIR will enable responsible agencies and agricultural interests to deal most efficiently and cost-effectively with these increasing threats in a time of decreasing budgets and staff.

A vibrant California agricultural economy is too vital to leave to chance each time a potentially devastating pest or plant disease outbreak occurs. I urge you to support the Program Environmental Impact Report for Statewide Plant Pest Prevention and Management being prepared by the California Department of Food and Agriculture.

Sincerely,

Donn Zea
Executive Director
California Dried Plum Board

cc: Secretary Karen Ross
CDPB Executive Committee
CDPB Production Research Subcommittee

GROWER-SHIPPER ASSOCIATION
of Central California
Since 1930

Governor Jerry Brown
State Capitol, Ste. 1173
Sacramento, CA 95814
via fax: 916-558-3160

July 26, 2011

RE: Support for the Statewide Pest Prevention Draft Programmatic Environmental Impact Report (PEIR)

Dear Governor Brown:

This letter is in support of the Statewide Plant Pest Prevention and Management Programmatic Environmental Impact Report (PEIR) now being undertaken by the California Department of Agriculture (CDFA).

Prevention of the introduction and establishment of invasive plant pests, diseases and noxious weeds is a matter of extreme importance to the State. These pests can have serious economic consequences for agriculture and can also have severe consequences for the natural environment. This PEIR will create a framework for evaluating potential economic and environmental impacts of CDFA's pest prevention and management programs.

CDFA's pest prevention and management programs promote and maintain a safe and secure food supply, and minimize the impacts of invasive pests and diseases. This PEIR will support CDFA's goal of rapid response to new pests and streamline the implementation of new programs and the integration of new pest programs and control techniques.

This PEIR will help to ensure the safety of the public and the protection of the environment. The process will have ample opportunities for public input, including during additional environmental analysis that may be required in specific cases.

Please support the preparation of this draft PEIR.

Sincerely,

James W. Bogart

James W. Bogart
President & General Counsel

512 Pajaro St. ♦ P.O. Box 828 ♦ Salinas, CA 93902 ♦ Tel: 831.422.8844 ♦ Fax: 831.422.0868 ♦ www.growershipper.com

California
PEACHES · PLUMS · NECTARINES

July 22, 2011

The Honorable Jerry Brown
Governor of California
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown:

I am the manager of the California Plum Marketing Board, which represents the state's 600 plum producers. On average, we export 22-25% of our annual crop of 10 million boxes to foreign markets. Invasive pests, when found in California, have a dramatic impact on our ability to export plums.

We urge your support for the California Department of Food and Agriculture's program Environmental Impact Report (EIR) for the Statewide Plant Pest Prevention and Management Program that is currently being prepared. The overall goal of this statewide program is to create a vehicle which provides a time-sensitive and efficient framework for evaluating potential environmental impacts of the various pest management activities implemented by CDFA and its partners. The Program EIR will focus on management strategies rather than individual pests, analyzing each for their advantages and disadvantages, including alternatives that may result in fewer impacts and necessary mitigation measures.

In May of 2010 when the European Grapevine Moth was discovered in Fresno County many of our producers were blocked from exporting plums to Mexico for several weeks. By the end of June 2010 we had only exported 33,395 boxes of plums to Mexico. This year by the end of June, we have exported 80,692 boxes of plums to Mexico. With this example you can see the effect an invasive pest find can have with a commodity, especially one that is very perishable such as plums.

Again, we urge your support for the program Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program.

Sincerely yours,

Gary W. Van Sickle

Gary W. Van Sickle
Manager

cc: Mark Bybee, CPMB Chairman

via facsimile

California
Tree Fruit Agreement
PO Box 968, 975 "I" Street
Reedley, California 93654-0968
559.638.8260 PHONE
559.638.8842 FAX
www.caltreefruit.com

COUNTY OF EL DORADO

AGRICULTURAL COMMISSION

311 Fair Lane
Placerville, CA 95667
(530) 621-5520
(530) 626-4756 FAX
eldcag@edcgov.us

July 19, 2011

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown,

We are writing in support of the efforts of the California Department of Food and Agriculture (CDFA) to develop an environmental impact report (EIR) for its statewide pest prevention and management program. This is a good example of a government agency acting in a proactive way that serves not only to fulfill their mission but also use good fiscal management in the pursuit of that mission. The proposed EIR will help make the pest prevention and management program not only more effective and efficient, but also more transparent. The program EIR is scheduled for completion in early 2013.

The proposed EIR will be comprehensive and employ integrated pest management (IPM) principles for management of invasive pests. Because it is comprehensive, it uses the agency funding in a more responsible way than developing an EIR for each pest prevention or management program as it comes along. Because it employs IPM principles, it is also an example of government environmental responsibility.

The proposed EIR will be written in such a way, using a decision-tree, that it will not only be easy to use, it will also make the decision-making process more transparent and easier for the public to understand. This EIR will provide the scientific and technical foundation for the agency's decision making within the program; including choice of management tools, mitigation measures and alternatives.

CDFA is using extraordinary measures to ensure input from the public, stakeholders, and other government partners with multiple public scoping meetings and a website with a listserv to help keep interested parties informed. The completed EIR will be an environmental document that CDFA can use in the future to make informed decisions that the public can easily understand. We feel that this is a benefit to California agriculture, the taxpayer, and the public in general.

Sincerely,

Juli Jensen

Juli D. Jensen, Agricultural Commissioner
On behalf of El Dorado County Agricultural Commission

Cc: Karen Ross, Secretary of Agriculture

Sonoma County
WINEGRAPE COMMISSION

July 15, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: Programmatic EIR for Plant Pest Prevention and Management

Dear Governor Brown:

I am writing on behalf of 1800 vineyard owners in Sonoma and Marin counties who have faced a series of invasive pests that are impacting profitable grape production in Sonoma County. Secretary Ross has proposed developing a programmatic Environmental Impact Report (EIR) for a Statewide Plant Pest Prevention and Management Program. We support this proposal because it will allow the state to have a more timely response to new invasive pest introductions. Time is of the essence in dealing with a new pest, and initiating an EIR after an invasion occurred is not working for our growers or California agriculture.

A comprehensive program based upon Integrated Pest Management principles will provide a science-based response to eradicate or manage the new pest while minimizing environmental impacts from the control program. I believe the program development and implementation can be transparent, effective and more efficient than the current process.

We ask that you will support CDFA in pursuing a programmatic EIR for plant pest introductions that threaten California agriculture.

Sincerely,

Nick Frey

Nick Frey
President

Cc Karen Ross

3637 WESTWIND BOULEVARD | SANTA ROSA, CA 95403 [tel] 707.522.5860 [fax] 707.522.5866 | info@sonomawinegrape.org

From: Michele Dias
To: Michael Stevenson;
Subject: Scoping Comment
Date: Friday, July 15, 2011 6:12:03 PM

From: Javandel, Farid [mailto:FJavandel@ci.berkeley.ca.us]
Sent: Friday, July 15, 2011 4:38 PM
To: Javandel, Farid; Carol Tate; Sandra Schubert
Cc: California Environmental Health Initiative; Debbie Friedman
Subject: RE: AGENDA & **NEW CALL NUMBER** -- CDFA Pest Management Programs Meeting/Call with Secretary Ross

The specific comments that I was hoping to make relative to this and any subsequent EIR's are:

1) The threshold of significance for evaluation of potential health impacts should not be to "minimize" health impacts as stated on the call, but to "completely avoid" or "not have" health impacts.
2) In assessment of potential health impacts of any chemical measures it is not sufficient to assume lack of health impacts if there have been no studies. This applies to both active and inert ingredients. For example "inert" particulate matter in the pesticide proposed for the LBAM program had the potential for significant health impacts when inhaled by humans or animals, but this was not addressed. There are air quality standards for particulate emissions from transportation and other activities, which should be applied here.
3) If a potentially significant health impact can't be mitigated it would be unacceptable to pursue statements of overriding consideration. Given a choice between public health and economic impacts to agricultural interests, public health must be held paramount!

Please treat these as formal comments on the scope of the EIR.

Farid Javandel
Mayor
City of Albany

CalRecycle

DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

801 K STREET, MS 19-01, SACRAMENTO, CALIFORNIA 95814 • (916) 322-4027 • WWW.CALRECYCLE.CA.GOV

July 18, 2011

Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Written Comments Concerning the California Department of Food and Agriculture's Program Environmental Impact Report for the Proposed Statewide Plant Pest Prevention and Management Program

Dear Ms. Dias:

Thank you for allowing the California Department of Resources Recycling and Recovery (CalRecycle) the opportunity to participate and comment on the California Department of Food and Agriculture's (CDFA) program environmental impact report (PEIR) for the proposed statewide plant pest prevention and management program (Statewide Program). We agree with CDFA that programs and activities need to be enacted to protect our state's plants and green material from harmful pests, while keeping the environmental impacts of these programs and activities in mind.

CalRecycle's mandate is to promote diversion of organic materials from being landfilled and the recycling or reuse of the diverted material to the highest end use, which includes compost. As part of this, CalRecycle is lead agency in the state that ensures compost products meet regulatory quality assurance and proper control standards for pathogen reduction and effective performance. Given this role, CalRecycle recommends that the Statewide Program emphasize an integrated pest management program that includes compost for healthy soils, as a proactive measure that minimizes the need for pesticides.

CalRecycle is a Responsible Agency as part of the Technical Advisory Committee and would like to submit the following perspectives:

- We request the Statewide Program consider compost use as a proactive measure to foster healthy soils and possibly reduce the need for pesticides;
- We are concerned with the use of persistent pesticides on plants and other compostable materials, specifically because these pesticides do not completely break down in the composting process and are returned back into the organic agriculture setting (e.g., bifenthrin, clopyralid, aminopyralid, etc.);
- We believe that composting green materials from quarantine zones (due to agriculture pests such as Asian Citrus Psyllid, Sudden Oak Death, Light Brown Apple Moth, European Grapevine Moth, etc.) could be used as a mitigation measure which may suppress the spread of pests; and
- There is also the potential for a significant increase in the amount of chipped green material directly applied to agricultural land due to the upcoming closure of the Puente Hills landfill in Los Angeles County. This material, currently being used for alternative daily cover (ADC), could be destined for land application in surrounding counties and, if not properly handled, may contribute to the spread of imported pests.

As mentioned, CalRecycle is a part of the Technical Advisory Committee and Pat Paswater is our peer review group member. Pat will provide further CalRecycle input to the development of the PEIR at upcoming Committee meetings. You may contact Pat at (916) 341-6870 or you can contact me directly using the information listed below.

Sincerely,

Brenda Smyth

Brenda Smyth, Chief
Statewide Technical and Analytical Resources Branch
CalRecycle
(916) 341-6605

cc: Mark Leary, Acting Director, CalRecycle
Howard Levenson, Deputy Director, CalRecycle

DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION PLANNING
P.O. BOX 942874, MS-32
SACRAMENTO, CA 94274-0001
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Flex your power!
Be energy efficient!

July 18, 2011

Michele Dias
Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Statewide Plant Pest Prevention and Management Program (SCH No. 2011062057)

Dear Ms. Dias:

The California Department of Transportation (Department) appreciates the opportunity to comment on the Notice of Preparation for the Statewide Plant Pest Prevention and Management Program.

The California Department of Food and Agriculture (CDFA) proposes to develop a program Environmental Impact Report (EIR) for the proposed Statewide Plant Pest Prevention and Management Program. Because of California's rich and diverse natural and agricultural environment, many plant and animal communities are present, and the potential exists for a variety of pests to occur in a variety of areas. Plant pests may be found and prevention activities may occur in urban, rural, natural, and agricultural settings.

The Department's Local Development-Intergovernmental Review (LD-IGR) Program is your partner in stewardship of the public interest, our part of which are the present and future mobility needs of California. We offer the following comments at this time:

1. Costs of manual eradication and exposure to traffic by maintenance personnel increase the potential for accidents/fatalities to occur. The safety of Caltrans Maintenance workers is a top priority. Our equipment forces continue to be dwindled by decisions enacted by the Legislature to cut costs. Reduced timebase also lead to less time for equipment to be fully utilized which then compounds the reduction in equipment since it is not used as often.

2. It is possible that individual citizens or citizen groups could petition for not using pesticides in controlling noxious/invasive weeds along roadside corridors. CDFA should identify chemical compounds and their concentrations, and show these against a scale indentifying toxic exposure thresholds. A benefit however of the use of pesticides is that it would reduce the amount of exposure that our maintenance personnel would be subject to along the roadside.

3. Please examine the potential for freight movement and uncovered loads that contribute to the spread of invasive species. The greatest concern for control of noxious weeds is the spreading of seeds by hay transport along the highways.

4. In the analysis, please address how prevention and management techniques would be incorporated into or impact existing practices regarding both construction and maintenance of public transportation facilities.

Encroachment Permits
Roadsides have become more dangerous as the number of people using our highway system keep increasing. Costs of manual eradication and exposure to traffic by maintenance personnel increase the potential for accidents/fatalities to occur.

Please be advised that any work or traffic control that encroaches on State right-of-way (ROW) requires an encroachment permit issued by the Department. Further information is available on the following website: http://www.dot.ca.gov/hq/traffops/developserv/permits/.

To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the Encroachment Permits office in the appropriate Caltrans District to ascertain whether such a permit will be required. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

Enclosed for your reference is a map of the Caltrans Districts and Counties within California, providing contact information for each District's Encroachment Permits office.

Please let me know if I can be of any assistance. My telephone number is 916.653.0808, and I can be reached via e-mail at: josh.pulverman@dot.ca.gov.

Sincerely,

Joshua Pulverman
Statewide Local Development-Intergovernmental Review Coordinator
Office of Community Planning

c: State Clearinghouse, Governor's Office of Planning and Research (OPR)
G. Rosander, LD-IGR Coordinator, District 9
J. Olejnik, Caltrans District 5
K. Murray, Senior Landscape Architect

Enclosure

District Encroachment Permit Offices

District 01
1656 Union Street (95501)
P. O. Box 3700
Eureka, CA 95502-3700
(707) 445-6385
(707) 445-6317 FAX

D01- Satellite Office
90 W. Lake Mendocino Dr.
Ukiah, CA 95482
(707) 463-4743
(707) 463-4736 FAX

District 02
1657 Riverside Drive (96001)
P. O. Box 496073
Redding, CA 96049-6073
(530) 225-3400
(530) 225-3097 FAX

District 03
703 "B" Street
P.O. Box 911
Marysville, CA 95901
(530) 741-4403
(530) 741-4236 FAX

District 04
111 Grand Avenue, 6th Floor
P. O. Box 23660
Oakland, CA 94623-0660
(510) 622-0724
(510) 286-4712 FAX

District 05
50 Higuera Street
San Luis Obispo, CA 93401-5415
(805) 549-3152
(805) 549-3062 FAX

District 06
1352 W. Olive Avenue
Fresno, CA 93728
(559) 488-4058
(559) 445-6510 FAX

District 07
100 South Main Street, Suite 100
Los Angeles, CA 90012
(213) 897-3631
(213) 897-0420 FAX

D07 - Satellite Office
950 County Square Drive, Suite 112
Ventura, CA 93003
(805) 650-7179

District 08
464 W 4th Street MS 619
San Bernardino, CA 92401-1400
(909) 383-4526
(909) 383-4224 FAX

District 09
500 South Main Street
Bishop, CA 93514
(760) 872-0674
(760) 872-5215 FAX

District 10
1976 E. Charter Way/MLK Jr Blvd (95205)
P. O. Box 2048
Stockton, CA 95201
(209) 948-7891
(209) 948-7232 FAX

District 11
4050 Taylor St MS 110
San Diego, CA 92110
(619) 688-6158
(619) 688-6157 FAX

District 12
3347 Michelson Drive., Suite 100
Irvine, CA 92612

Mailing address:
3337 Michelson Drive., Suite 380
Irvine, CA 92612-8894
(949) 724-2445
(949) 724-2265 FAX

* Eastern Kern County and Northern San Bernardino County fall under D09's jurisdiction. Please contact the office if you have any questions.

7/18/11

July 14, 2011

Dear Michele Dias,

My name is Celeste McLean-Reid, and I live in Berkeley, CA.

I am concerned about the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report.

- It is my right to protect my health and the health of children; this effort of the CDFA does not place the health of the community and of the environment above all else.

- There is very sound science to support handling these problems regarding pest management in a way that is less harmful to the community.

- In 2007-2008 I realized that there was a monetary interest in the companies manufacturing these pesticides, to have their products used. Where is the consciousness of these companies? (Only profit?)

Sincerely,
Celeste McLean-Reid

7/18/11

COMMENTS FOR PIER SCOPING PROCESS

My name is William Reid and I live in Berkeley, CA.

It is not clear in your NOP how much warning you would give us if you decide to spray us again. It is absolutely imperative to me that I get a say in the matter if you intend to threaten me, my family and my neighbors with your toxic pesticides. There are alternatives to this "Spray Baby Spray" approach. If you look at the most up to date science regarding pest management you will find there are ways to manage pests that do not threaten the lives of the populace.

Last time you sprayed over Santa Cruz there was no system in place for evaluating the impacts of your actions on human health and the environment (one little boy nearly died and will likely have serious health problems for the rest of his life). If, God forbid, you do spray again, a post spray evaluation system is another very important component to be included in the NOP.

Please take these concerns seriously. As government servants you are supposed to be representing our best interests not threatening our lives and, even more importantly, the lives of our children.

Do you think it might be time to consider another approach that actually works?

William M Reid

California
AVOCADO COMMISSION

RECEIVED

JUL 19 2011

OFFICE OF THE
CHIEF COUNSEL

July 18, 2011

Governor Jerry Brown
State Capitol Building, Suite 1173
Sacramento, CA 95814

Re: Comments on CDFA Draft Programmatic Environmental Impact Report

Dear Governor Brown:

The California Avocado Commission (Commission) appreciates the invitation to comment on the California Department of Food and Agriculture's Programmatic Environmental Impact Report (PEIR) for the Statewide Plant Pest Prevention and Management Program. The Commission supports the goals of the PEIR to facilitate rapid and effective prevention, eradication, and control of pest infestations statewide. Historical incursions of invasive pests have had very significant impact on the California avocado industry, resulting in an unwanted increase in pesticide use on California avocados. The Commission views eradication of known and unknown invasive species to be of vital importance to maintain the profitability of the industry and the economic benefit of the California avocado industry to the State of California.

California avocado growers are environmentally responsible and prefer to grow avocados sustainably and, where possible, support the view that new invasive pests should be eradicated rather than just controlled. To this end the California Avocado Commission supports the principles of Integrated Pest Management when considering control or eradication options for the most effective treatment with the least impact on the environment. To avoid the need for control or eradication, stopping or intercepting invasive pests before they become established in California is viewed by the Commission as the most important activity in responding to invasive pests should border controls fail.

The Commission supports the broad consultation undertaken in the scoping of the PEIR. Having the environmental review conducted in advance of an invasive pest incursion allows more time for public and scientific input, and review of the management tactics for control. The Commission agrees with the process having robust public consultation. The most destructive invasive pests to California avocados in the past 30 years have been unknown to science and initial identifications could only be into broad categories. For this reason, we believe the principal of treatment based on pest type, rather than individual species, is sound.

While supporting the PEIR, in principle, the Commission does have certain concerns. In the documents provided there are no details for a review process for the PEIR. While implied, there appears to be no clear process for adding or removing a pest program and control

12 Mauchly, Suite L, Irvine, CA 92618-6305 ■ 949.341.1955 ■ Fax 949.341.1970 ■ www.avocado.org

techniques. The Commission funds research on identifying new pests, their biology and natural controls and chemical treatments. What would be the process by which this new scientific information is to be considered in the PEIR?

There are additional questions on the system flexibility where the PEIR could change in response to new techniques for best prevention and eradication of invasive pest incursions. For example, once an invasive pest ceases to be unknown and is positively identified, could eradication or control using more targeted and less environmental impactful eradication options be used? The Commission urges that the methods of treatment must be effective and proven, as invasive species by their nature are hyper-virulent and cannot be effectively controlled without chemical treatments or other strong measures. Therefore, the PEIR must not be distracted by "weak" control measures claiming to be effective.

Thank you for your consideration of the Commission's comments on the proposed CDFA PEIR.

Sincerely,

Jonathan Dixon

Jonathan Dixon, PhD
Research Program Director

cc: California Secretary of Agriculture Karen Ross

12 Mauchly, Suite L, Irvine, CA 92618-6305 ■ 949.341.1955 ■ Fax 949.341.1970 ■ www.avocado.org

COUNTY OF EL DORADO

AGRICULTURAL COMMISSION

311 Fair Lane
Placerville, CA 95667
(530) 621-5520
(530) 626-4756 FAX
eldcag@edcgov.us

Greg Boeger, Chair – Agricultural Processing Industry
Lloyd Walker, Vice -Chair – Other Agricultural Interest
Chuck Bacchi – Livestock Industry
Bill Draper – Forestry Related Industries
Ron Mansfield – Fruit and Nut Farming Industry
Tim Nielsen – Livestock Industry
John Smith – Fruit and Nut Farming Industry

July 19, 2011

RECEIVED
JUL 2 ? 2011
DEPT. OF FOOD AND AGRICULTURE

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown,

We are writing in support of the efforts of the California Department of Food and Agriculture (CDFA) to develop an environmental impact report (EIR) for its statewide pest prevention and management program. This is a good example of a government agency acting in a proactive way that serves not only to fulfill their mission but also use good fiscal management in the pursuit of that mission. The proposed EIR will help make the pest prevention and management program not only more effective and efficient, but also more transparent. The program EIR is scheduled for completion in early 2013.

The proposed EIR will be comprehensive and employ integrated pest management (IPM) principles for management of invasive pests. Because it is comprehensive, it uses the agency funding in a more responsible way than developing an EIR for each pest prevention or management program as it comes along. Because it employs IPM principles, it is also an example of government environmental responsibility.

The proposed EIR will be written in such a way, using a decision-tree, that it will not only be easy to use, it will also make the decision-making process more transparent and easier for the public to understand. This EIR will provide the scientific and technical foundation for the agency's decision making within the program; including choice of management tools, mitigation measures and alternatives.

CDFA is using extraordinary measures to ensure input from the public, stakeholders, and other government partners with multiple public scoping meetings and a website with a listserv to help keep interested parties informed. The completed EIR will be an environmental document that CDFA can use in the future to make informed decisions that the public can easily understand. We feel that this is a benefit to California agriculture, the taxpayer, and the public in general.

Sincerely,

Juli Jensen

Juli D. Jensen, Agricultural Commissioner
On behalf of El Dorado County Agricultural Commission

Cc: Karen Ross, Secretary of Agriculture

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Scoping Comment
Date: Wednesday, July 20, 2011 11:50:05 AM

From: Jennifer Jackson [mailto:jwiddy2@comcast.net]
Sent: Tue 7/19/2011 6:14 PM
To: Pest PreventionEIR
Subject: NOP/EIR

To Whom it May Concern:

I would like to share the following questions and concerns regarding the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report:

1) It is not clear in the Notice of Preparation what steps CDFA would take before carrying out, for example, wide-area pesticide spraying such as was done for the light brown apple moth in 2007.

When and how will I, and other members of the public, have a meaningful voice and ability to influence CDFA's future pest management activities, which could involve spraying my community or my food with pesticides?

It is not acceptable to propose a scope for this PEIR that would take away my right to stop or affect state actions that would have a direct impact on my health and the health of my family.

2) The NOP mentions human health only as one of several program objectives. The primary goal for this EIR should be to find alternative ways to manage pests so as to eliminate adverse human and environmental health impacts created by pest management activities.

3) The "Program Components" outlined in the NOP should describe CDFA's plans to develop a system for evaluating human and environmental health impacts from the treatments considered in the Statewide Program, and ways to minimize or eliminate those impacts. It is not enough to simply state in the NOP that a program objective is to minimize impacts to human health and the environment. The PEIR should include the specific plans for achieving that objective in the program.

4) The NOP relies on the same outdated assumptions and approach to pests that CDFA has been using for decades: quarantine, and eradication or containment. This approach does not work as we have seen with the repeated quarantine and eradication projects for the same pests year after year. The NOP makes inaccurate statements, such as that pests often spread rapidly and can be eradicated if rapid action is taken although we know based on prior experience that in general pests do not spread rapidly and that eradication has seldom if ever

succeeded.

Why does the PEIR rely on CDFA’s past practices when new science from our own state universities is available to update the current approach so that it is more effective, less toxic and far less burdensome to our farmers? Where are the provisions in this PEIR for modernizing and updating the state’s approach to pests, to take advantage of this new scientific research and technology and to eliminate the use of toxic chemicals and quarantines that can be devastating to farmers?

Thank you for your time.

Sincerely,
Jennifer Jackson
San Rafael, California

COUNTY OF KINGS
BOARD OF SUPERVISORS

KINGS COUNTY GOVERNMENT CENTER
1400 W. LACEY BOULEVARD.HANFORD, CA 93230
(559) 582-3211, EXT. 2362, FAX: (559) 585-8047
Web Site: http://www.countyofkings.com

JOE NEVES - DISTRICT 1
LEMOORE & STRATFORD

RICHARD VALLE - DISTRICT 2
AVENAL, CORCORAN & KETTLEMAN CITY

DOUG VERBOON - DISTRICT 3
NORTH HANFORD, ISLAND DISTRICT & NORTH LEMOORE

TONY BARBA - DISTRICT 4
ARMONA, HANFORD & NEW HOME GARDEN

RICHARD FAGUNDES - DISTRICT 5
HANFORD & HOME GARDEN

RECEIVED
JUL 25 2011
DEPT. OF FOOD AND AGRICULTURE

July 19, 2011

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Re: CDFA's Statewide Program Environmental Impact Report [PEIR]
Kings County Board of Supervisors'..... SUPPORT

Dear Governor Brown:

From time-to-time invasive pests are introduced into the environment of California and when this happens the California Department of Food and Agriculture (CDFA) is called upon to protect this state's environment and food producing resources. It is imperative to initiate a quick response in order to effectively contain, reduce, and eventually remove the threat to our food producing resources and potential damage to the environment. CDFA is currently developing an Environmental Impact Report (EIR) for its statewide pest prevention and management program [Program]. We are told the Program EIR will be comprehensive and employ Integrated Pest Management (IPM) principles and provide a scientific and technical foundation for the Program's decision making for the management of invasive pests.

We believe a statewide PEIR will provide for more timely response to mitigate the impacts to our environment and our food producing resources when the introduction/detection of invasive pests are discovered in the future. We therefore respectfully request your support, along with ours, in the completion of this vital statewide Program Environmental Impact Report.

Thank you for this important consideration.

Respectfully,

Tony Barba, Board Chairman
Kings County Board of Supervisors

Cc: Karen Ross, Secretary of Food and Agriculture
Michele Dias, Acting Chief Counsel, CDFA
Tim Niswander, Agricultural Commissioner-Sealer, Kings County

Kings County Farm Bureau

870 Greenfield Avenue • Hanford, California 93230
Telephone (559) 584-3557 • FAX (559) 584-1614 • www.kcfb.org

RECEIVED
JUL 25 2011
DEPT OF FOOD AND AGRICULTURE

July 19, 2011

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Re: Support CDFA's Statewide Program Environmental Impact Report [PEIR]

Dear Governor Brown:

From time-to-time invasive pests are introduced into the environment of California. When this happens, the California Department of Food and Agriculture (CDFA) is called upon to protect this state's environment and food producing resources. It is imperative to initiate a quick response in order to effectively contain, reduce, and eventually remove the threat to our food producing resources and potential damage to the environment. CDFA is currently developing an Environmental Impact Report (EIR) for its statewide pest prevention and management program [Program]. We are told the Program EIR will be comprehensive and employ Integrated Pest Management (IPM) principles and provide a scientific and technical foundation for the Program's decision making for the management of invasive pests.

We believe a statewide PEIR will provide for more timely response to mitigate the impacts to our environment and our food producing resources when the introduction/detection of invasive pests are discovered in the future. We therefore respectfully request your support, along with ours, in the completion of this vital statewide Program Environmental Impact Report.

Thank you for this important consideration.

Respectfully,

Jim Crisp, President
Kings County Farm Bureau Board

Cc: Karen Ross, Secretary of Food and Agriculture
Michele Dias, Acting Chief Counsel, CDFA
Tim Niswander, Agricultural Commissioner-Sealer, Kings County

Dennis Knepp

From: Dennis Knepp <dennis.knepp@corvidhut.com>
Sent: Tuesday, July 19, 2011 9:27 AM
To: 'PEIR.info@cdfa.gov'
Subject: Comments to PEIR

RECEIVED

JUL 26 2011

OFFICE OF THE CHIEF COUNSEL

I would like to share the following questions and concerns regarding the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report:

1) It is not clear in the Notice of Preparation what steps CDFA would take before carrying out, for example, wide-area pesticide spraying such as was done for the light brown apple moth in 2007.

When and how will I, and other members of the public, have a meaningful voice and ability to influence CDFA's future pest management activities, which could involve spraying my community or my food with pesticides?

It is not acceptable to propose a scope for this PEIR that would take away my right to stop or affect state actions that would have a direct impact on my health and the health of my family.

2) The NOP mentions human health only as one of several program objectives. The primary goal for this EIR should be to find alternative ways to manage pests so as to eliminate adverse human and environmental health impacts created by pest management activities.

3) The "Program Components" outlined in the NOP should describe CDFA's plans to develop a system for evaluating human and environmental health impacts from the treatments considered in the Statewide Program, and ways to minimize or eliminate those impacts. It is not enough to simply state in the NOP that a program objective is to minimize impacts to human health and the environment. The PEIR should include the specific plans for achieving that objective in the program.

4) The NOP relies on the same outdated assumptions and approach to pests that CDFA has been using for decades: quarantine, and eradication or containment. This approach does not work as we have seen with the repeated quarantine and eradication projects for the same pests year after year. The NOP makes inaccurate statements, such as that pests often spread rapidly and can be eradicated if rapid action is taken although we know based on prior experience that in general pests do not spread rapidly and that eradication has seldom if ever succeeded.

Why does the PEIR rely on CDFA's past practices when new science from our own state universities is available to update the current approach so that it is more effective, less toxic and far less burdensome to our farmers? Where are the provisions in this PEIR for modernizing and updating the state's approach to pests, to take advantage of this new scientific research and technology and to eliminate the use of toxic chemicals and quarantines that can be devastating to farmers?

6) On the face of it, the PEIR ignores new information, new science and old results (namely the utter failure of the CDFA LBAM extermination). The CDFA is still breeding wasps (going on 4 years now), sterile LBAM (I think that has stopped, it does not work), and still exterminating outlier LBAM populations. Bazillions of the LBAM are in Golden Gate Park eating everything (according to the CDFA), and yet there is no extermination effort there. Of course, these LBAM stay there and never move, San Francisco is so welcoming. How can anyone think that the LBAM is or ever was a serious program? And how do you think that this statewide attempt to justify any future action by the CDFA possibly makes any sense?

Dennis Knepp
2 White Tail Lane
Monterey, CA 93940

Dennis T. Knepp

Nor is there any damage!

From: Michele Dias
To: Michael Stevenson;
Subject: Scoping Comment: Opposition to PEIR plan
Date: Tuesday, July 19, 2011 10:03:12 AM

From: Bill Rothman [mailto:iboard@well.com]
Sent: Tue 7/19/2011 9:58 AM
To: Pest PreventionEIR
Subject: Opposition to PEIR plan

From William Rothman, MD

I am writing to oppose the current PEIR proposal, because of its preclusion of public input when the use of a particular pesticide is contemplated.

I wish to point out that it was only after such input that plans for aerial spraying for the Light Brown Apple Moth were stopped.

Almost every week we learn about more and more problems with more and more pesticides. For that reason, it is only public testimony at the time when the use of a particular agent is being contemplated that can guarantee appropriate consideration of toxicities, etc.

A copy of this email is being sent to the Governor.

Sincerely,
William Rothman, MD

From:	Michele Dias
To:	Michael Stevenson;
Subject:	PEIR Scoping Comment
Date:	Wednesday, July 20, 2011 12:12:49 PM

From: robertaanthes@aol.com [mailto:robertaanthes@aol.com]
Sent: Wed 7/20/2011 12:05 PM
To: Pest PreventionEIR
Subject: Notice of Preparation

Dear Michele Dias,

I appreciate the opportunity to respond to the recent Notice of Preparation posted by the CDFA.

I strongly object to the clause which states that "this EIR is not intended to address emergency projects." In an emergency, the CDFA can authorize a project which is exempt from CEQA review.

This offers the CDFA far too much lattitude in defining and acting on "emergencies" before CEQA can review the projects, or the public can react to them.

The LBAM situation was a case in point, severely compromising the credibility of the CDFA. The CDFA defined the limited presence of LBAMs an "emergency" and proceeded to use a poorly-studied aerial spray over residential neighborhoods in Santa Cruz and Monterey. Over 642 illnesses were reported as a result.

Despite public outcry and lack of evidence for its claims, the CDFA then declared an "emergency" in Marin County as well. The aerial spray was halted. No "emergency" ever occurred - because there never was an emergency. Not in Marin, and not in Santa Cruz or Monterey. Unless you count the many millions lost by the Resnicks.

There is no possible circumstance under which we can trust the CDFA to declare an emergency without CEQA and public oversight.

Change this emergency provision and regain public trust.

Sincerely,
Roberta J. Anthes, Ph.D.

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Scoping comment
Date: Wednesday, July 20, 2011 2:03:10 PM

From: Diane Hoffman [mailto:hoffman_diane@yahoo.com]
Sent: Wed 7/20/2011 1:30 PM
To: Pest PreventionEIR
Subject: Notice of Preparation: URGENT!!

Dear Michele Dias,
Thanks for the chance to respond to the recent Notice of Preparation posted by the CDFA.

I do not agree with the clause which states that "this EIR is not intended to address emergency projects." In an emergency, the CDFA can authorize a project which is exempt from CEQA review because
this offers the CDFA far too much lattitude in defining and acting on "emergencies" before CEQA can review the projects, or the public can react to them.

The LBAM situation severely compromisied the credibility of the CDFA. The CDFA defined the limited presence of LBAMs an "emergency" and proceeded to use a poorly-studied aerial spray over residential neighborhoods in Santa Cruz and Monterey. Over 642 illnesses were reported as a result.

Despite public outcry and lack of evidence for its claims, the CDFA then declared an "emergency" in Marin County as well. The aerial spray was halted. No "emergency" ever occurred - because there never was an emergency. Not in Marin, Santa Cruz or Monterey.
There is no possible circumstance under which we can trust the CDFA to declare an emergency without CEQA and public oversight.

Change this emergency provision and regain public trust and regain good standing with the public.

Sincerely,
Diane Hoffman

Diane Hoffman
REAL ESTATE, WITH INTEGRITY
AND ATTENTION TO DETAIL
Bradley Real Estate
44 Bolinas Road
Fairfax, CA 94930
Bus: 415-482-3139
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www.MarinHomeReview.com

California Dried Plums

CALIFORNIA DRIED PLUM BOARD

3840 Rosin Court
Suite 170
Sacramento, CA 95834

Phone (916) 565-6232
Fax (916) 565-6237
www.CaliforniaDriedPlums.org

July 21, 2011

Michele

The Honorable Jerry Brown
Governor, State of California
State Capitol, Suite 1173
Sacramento, CA 95814

Dear Governor Brown:

On behalf of the California Dried Plum Board and its 920 growers and processors, I am writing in support of the California Department of Food and Agriculture's (CDFA) preparation of a Program Environmental Impact Report (PEIR) for a Statewide Plant Pest Prevention and Management Program.

California's agricultural and natural resource assets are a vital component of our economic, environmental and cultural composition. The California dried plum industry proudly represents a part of the multi-billion dollar bounty of specialty crops that make California one of the world's most important providers of safe and nourishing food, producing 99% of the domestic supply and 48% of the international supply of prunes with a farm gate value of $154 million (2010). It is critical that we protect this food supply from the increasing threat of destructive pests and plant diseases.

Unfortunately, as the challenge of managing these risks becomes more complicated, the time and cost investment to prepare environmental documentation becomes greater, even when decisive action is necessary to avoid an uncontrolled outbreak. As each new pest or disease is discovered, a regulatory process of planning, analysis, public input and review must begin again, exposing California agriculture to unnecessary environmental and financial risk. Ironically, the only solution to controlling the outbreak when delays exacerbate the problem is often more intensive use of chemicals and other measures that might have been avoided through a timely response.

As the responsible state agency for management and control of pest infestations and plant diseases, CDFA is creating this PEIR as a vehicle to provide a transparent, time-sensitive and efficient framework for evaluating potential environmental impacts of the various integrated pest management activities implemented by the agency and its partners. The PEIR will provide a comprehensive human health and ecological risk assessment, ultimately providing California Environmental Quality Act compliance for all CDFA pest prevention and management programs. The PEIR will employ the best scientific and technical information for decision making and seek expanded public participation with additional environmental analysis and comment. Ultimately, the

PEIR will enable responsible agencies and agricultural interests to deal most efficiently and cost-effectively with these increasing threats in a time of decreasing budgets and staff.

A vibrant California agricultural economy is too vital to leave to chance each time a potentially devastating pest or plant disease outbreak occurs. I urge you to support the Program Environmental Impact Report for Statewide Plant Pest Prevention and Management being prepared by the California Department of Food and Agriculture.

Sincerely,

Donn Zea

Donn Zea
Executive Director
California Dried Plum Board

cc: Secretary Karen Ross ✓
CDPB Executive Committee
CDPB Production Research Subcommittee

From: Edward Mainland <emainland@comcast.net>
Subject: **PEIR Scoping Comments**
Date: July 21, 2011 7:32:36 PM PDT
To: PEIR.info@cdfa.gov

I am Edward A. Mainland. I reside in Novato (Marin County), California.

I'm very concerned about shortcomings in the Notice of Preparation and scope of the proposed statewide Plant Pest Prevention Programmatic Environmental Impact Report (PEIR). Judging from scoping, it would appear to give too much unchecked power to state agencies and rely on outdate science and misconceptions that are long overdue for reform, replacement and retirement.

PEIR doesn't make clear how residents could have any effective means of influencing CDFA's future pet management activities. If the latter mean continued indiscriminate broad-scale pesticide spraying, count me out. The Light Brown Apple Moth fiasco was evidence enough that CDFA cannot be so easily trusted to uphold the public interest, given pressures to spray. PEIR would apparently erase any means for citizens to affect such decisions. This is a major step backward.

PEIR's primary goal is multiple and confused. Please make the clear, primary EIR goal finding alternative ways to manage pests in order to avoid adversely affecting human and environmental through pest management. Fortunately, modern research is telling us the way to how this can be done if only CDFA can be induced to listen.

PEIR should include specific plans for achieving the objective in the program of protecting human health and the environment..

NOP unfortunately falls back on the old, out-of-date presumptions and approaches for dealing with pests that CDFA has so unsatisfactorily locked itself into for many decades. Quarantine, eradication, containment -- year after year -- they don't work on any consistent basis and they just can't be depended upon to operate safely and without significant harm. Further, we hear again in the NOP the same old malarkey that pests often spread rapidly and can be eradicated if rapid action is taken although scientists tell us, based on past experience, that generally speaking pests do not spread rapidly and that eradication has seldom if ever succeeded.

There is absolutely no reason why PEIR sticks with CDFA's discredited past practices when new science from our own California colleges and universities has emerged to update the current approach and make managing so-called pests more effective, less toxic and far less burdensome to farmers.

Perhaps the chief lack in PEIR, the main failing, is the absence of any attention to reforming state's approach to pests, taking advantage of new scientific research and technology. and phasing out the use of toxic chemicals and quarantines that have proven to be so injurious to both farmers and the wider public.

Can't we try to farm without poisoning ourselves and our surroundings?.

Via U.S. mail and e-mail (PEIR.info@cdfa.ca.gov)

Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

July 21, 2011

RE: Statewide Plant Pest Prevention and Management Program – Scoping Comments

Dear Ms. Dias:

The following agricultural associations appreciate the opportunity to express our support for the Statewide Plant Pest Prevention and Management Program ("Pest Program"), and to submit the following scoping comments in relation to the program Environmental Impact Report ("program EIR") being prepared by the California Department of Food and Agriculture ("CDFA") in compliance with the California Environmental Quality Act ("CEQA").

AB 2763 (Laird) requires CDFA to develop a plan for the detection, exclusion, eradication, control or management of invasive pests within the State of California. We understand the Pest Program to comply with this legislative mandate, setting forth a range of current and potential future pest prevention and control activities throughout California which may be implemented by CDFA and other agencies. The program EIR will provide a program-level framework that may be used for subsequent CEQA analysis including, where necessary, tiering of subsequent project-level CEQA documentation. Together, the Pest Program document and the program EIR will enable a timely and efficient response by CDFA to plant pest threats, allowing for the streamlining of project-level implementation activities.

In compliance with CEQA, we support a full and comprehensive environmental analysis of direct and reasonably foreseeable indirect environmental impacts that may occur as a result of the Pest Program, to be set forth in the program EIR. A robust program EIR will minimize the need for follow-on analysis as to individual implementation activities, and will foreclose the need to revisit policy objectives through CEQA litigation. Both results will facilitate CDFA's future rapid and effective response to emerging plant pest exigencies that threaten California's vibrant and diverse agricultural economy.

We look forward to working with CDFA on both the Pest Program specifically, and on the many pressing issues that face California agriculture generally.

Agricultural Council of California
California Apple Commission
California Association of Pest Control Advisers
California Association of Wheat Growers
California Bean Shippers Association
California Blueberry Commission
California Cut Flower Commission
California Date Commission
California Farm Bureau Federation
California Grape and Tree Fruit League
California Nurseries and Garden Centers
California Pear Growers Association
California Seed Association
California State Floral Association
California Strawberry Commission
California Tomato Growers Association
California Warehouse Association
Nisei Farmers League
Western Growers
Western Pistachio Association
Wine Institute

cc: Karen Ross, Secretary, California Department of Food and Agriculture

BERG HOLDINGS

A CALIFORNIA CORPORATION

July 22, 2011

ATTN: Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814
PEIR.info@cdfa.ca.gov

RE: CDFA's June 23, 2011 Notice of Preparation of a Draft Programmatic Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program

Dear Ms. Dias,

Thank you for the opportunity to comment on the California Department of Food and Agriculture's Draft Programmatic Environmental Impact Report (PEIR) for the Statewide Plant Pest Prevention and Management Program.

Over the past few years, the Department's handling of the light brown apple moth control program has raised serious concerns about agency's ability to accurately and credibly handle non-native pest control in the state. With increased global warming and global trade, pest problems will only grow in the state. It's with these concerns in mind, that I urge you to consider the following:

It is unacceptable for the PEIR to limit public participation in future pest management activities. As was the case with the apple moth, unnecessary aerial pesticide spraying was opposed by the full majority of the public. Stripping the ability of the public to voice concern is not only undemocratic but also unresponsive to community concerns. I urge you to consider additional steps to those outlined in the Notice of Preparation (NOP) to increase public participation as part of any future pest management activities.

Human health should be the primary goal. While the Notice of Preparation mentions human health as one objective, the primary goal for this EIR should be to find alternative ways to manage pests so as to eliminate adverse human and environmental health impacts created by pest management activities.

Adopt modern approaches to pest control. The NOP relies on the same outdated assumptions and approach to pests that CDFA has been using for decades: quarantine, and eradication or containment. This approach does not work as we have seen with the repeated quarantine and eradication projects for the same pests year after year.

The PEIR should include provisions to adapt to emerging science from state universities advance solutions that are more effective, less toxic and far less burdensome to our farmers. Research increasingly from researchers at the University of California is advancing greener, more health-protective solutions to the state's pest problems.

Thank you for the opportunity to comment on the PEIR. Please contact me at skipb@bergholdings.com or 415-289-4920 if you have any questions.

Sincerely,

Skip Berg

Skip Berg

cc: Assemblymember Jared Huffman, Assemblymember.Huffman@outreach.assembly.ca.gov

2330 Marinship Way, Suite 301
Sausalito, California 94965
415.289.4920

Cal-IPC
California Invasive Plant Council

1442-A Walnut St., #462
Berkeley, CA 94709
(510) 843-3902
fax (510) 217-3500
www.cal-ipc.org

July 22, 2011

Michele Dias
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Dear Ms. Dias:

The California Invasive Plant Council is a nonprofit conservation organization serving the state's natural resource managers and researchers. We are writing to submit comment on CDFA's Notification of Preparation (NOP) for a Program Environmental Impact Review (PEIR) of its pest management programs.

Cal-IPC works strictly on invasive plants, so our comments pertain only to the "Noxious Weed Control Program". We cannot comment on the other three programs listed in the NOP which address other types of pests. Our comments are as follows:

1. Include invasive plant species not currently listed as noxious weeds.

The noxious weed list does not currently include many plant species listed as invasive by the Cal-IPC Inventory. Natural resource mangers throughout the state work to manage these invasive plants on the ground, even though the species are not formally listed as noxious. The Weed Management Area program run through CDFA has funded work on such species.

The Cal-IPC Inventory lists some 200 plant species as invasive in California, using a criteria system developed with partners in Arizona and since adopted in several other states. The Cal-IPC Inventory is widely recognized as the definitive list of plants of ecological concern in California. It is cited in the state's model water conservation ordinance, and nursery industry representatives working on the Plantright Partnership have adopted it as their reference source for determining which species are invasive.

The PEIR should address management efforts of species listed in the Cal-IPC Inventory. In addition, the PEIR should address management of other non-native species found in wildlands that are considered a potential threat by early detection efforts like the Bay Area Early Detection Network. (Such species are listed by Cal-IPC on our watch list, but are not included in the Cal-IPC Inventory until impacts are documented.)

2. Assess impacts of all control methods.

All control methods have potential non-target impacts, and these should be identified and assessed in the PEIR. This information helps inform decisions made through an Integrated Pest Management approach.

3. For herbicides, assess all common formulations and adjuvants used.

Natural resource managers using an herbicide may employ a range of formulations or may prepare their own mix (for instance, when wanting to select a particular surfactant). The PEIR should find a way to include all relevant products, including aquatic formulations and surfactants.

4. Involve stakeholders in developing the PEIR, especially potential critics.

Though we believe the PEIR can be an efficient way to provide substantial public review of common practices in an efficient, coordinated way, the PEIR will have to address public concern that "streamlining regulation" potentially avoids full environmental review. Getting critics involved in the development of the PEIR may help address concerns up front and build more support for the eventual product.

Thank you for the opportunity to comment. We stand ready to work with CDFA and other stakeholders to strengthen prevention and response programs for invasive species. Please contact me with any questions.

Sincerely,

Jason Giessow, President
Board of Directors

CALIFORNIA
GRAPE & TREE FRUIT
LEAGUE

TELEPHONE 559.226.6330
FAX 559.222.8326
EMAIL cgtfl@cgtfl.com

978 W. Alluvial, Suite 107
Fresno, California 93711-5700

July 22, 2011

Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 North N Street, Suite 400
Sacramento, CA 95814

Re: Notice of Preparation of Draft Environmental Impact Report (PIER)

Dear Ms. Dias:

The California Grape and Tree Fruit League (League) is a public policy agricultural industry association with origins dating back to 1921. The League represents California's table grape and deciduous tree fruit growers, packers and shippers; our members produce fresh fruit throughout the state and include: Coachella Valley (table grapes), San Joaquin Valley (all commodities), Santa Clara County (cherries), Lake County (pears), as well as Mendocino, Yuba, Stanislaus, San Joaquin and Sacramento Counties (pears, plums, cherries, kiwi and apricots).

We appreciate the opportunity to provide comments to the notice of preparation of the draft PIER, and also communicate that the League is in support of the program's efforts aimed at strengthening pest detection, treatment and eradication capabilities through a transparent stakeholder process. It remains our belief that this process will provide the public with the educational opportunity to learn about the origination of invasive plant pest or disease introduction into the State of California and the importance of effective treatment and response protocols.

Our industry and the members we represent concur that it is important for California to have in place a Statewide program, as it is critical not just to agriculture, but to native plants, forest species, ornamental plants and animal species that are dependent upon them as a food source. To accomplish these goals the State must possess the ability to facilitate rapid and effective prevention, eradication and controls for new or expanding invasive plant pests or disease.

We are encouraged by the initiation of a statewide environmental assessment, especially one that allows the flexibility for project specific mitigations, is able to determine which successful control technique should be applicable to the specific situation or environment and reaches a level of preparedness for the collective goal of eliminating or eradicating the threat to the environment.

The California Grape & Tree Fruit League would like to thank you for consideration of our comments. Please do not hesitate to contact us if we can provide any additional information.

Sincerely,

Barry Bedwell

Barry Bedwell
President

cc: Karen Ross, Secretary of Food and Agriculture

From:	Michele Dias
To:	Michael Stevenson;
Subject:	Comment: NOP of Draft EIR for Statewide Pest Prevention & Management Program
Date:	Friday, July 22, 2011 9:28:25 AM

From: Frederick W. Klose [mailto:fklose@cawildrice.com]
Sent: Fri 7/22/2011 9:15 AM
To: Pest PreventionEIR
Subject: NOP of Draft EIR for Statewide Pest Prevention & Management Program

To Whom It May Concern:

The California Wild Rice Advisory Board represents all wild rice growers in the State – who farm up to 24,000 acres in the Sacramento Valley and in Northeastern California. On behalf of the Board, I wish to register the Board's support of CDFA's proposal to conduct a "systemwide" Environmental Impact Report for Pest Prevention and Management. I believe that such an approach will greatly reduce the timeframe required to meet the challenges of pest findings that could have a drastic negative impact on agricultural production and farmer's livelihoods.

While we realize the importance of ensuring that any pest management / eradication program not be detrimental to California's environment overall, we also understand the need for "quick action" in addressing pest threats before they become even greater. This proposal by CDFA will accomplish both of these important goals, while also incorporating contingencies for future unknown treatment methods. We congratulate CDFA for taking this pro-active step to see the "big picture", rather than following a "piecemeal" approach to the problem.

I look forward to following this process, and having an opportunity to contribute in whatever way possible to the successful conclusion of this important step in protecting California agriculture for the future.

Best Regards,

Frederick W. Klose
Manager
California Wild Rice Advisory Board
Buffum Building
4125 Temescal St.
Fair Oaks, CA 95628

Tel: 916-863-0312
Fax: 916-863-0304

RECEIVED

JUL 22 2011

OFFICE OF THE

County of Fresno

DEPARTMENT OF AGRICULTURE
CAROL N. HAFNER
AGRICULTURAL COMMISSIONER/
SEALER OF WEIGHTS & MEASURES

July 14, 2011

Governor Jerry Brown
c/o State Capitol, Suite 1173
Sacramento, CA 95814

RE: Department of Food & Agriculture's Notice of Preparation for a Statewide Plant Pest Prevention and Management Program Environmental Impact Report (PEIR)

Dear Governor Brown:

The need for a comprehensive, scientifically based, statewide pest prevention program continues as pest pressures from outside of the state's boundaries continue to bombard and threaten our economy and environment. Hand in hand with this need is the necessity for addressing California Environmental Quality Act (CEQA) requirements. The Notice of Preparation for the PEIR is the first critical step towards addressing a systematic approach to plant pest infestations.

The initial development of the PEIR will encompass the full breadth of pest management strategies and scientific tools currently available to address plant pest infestations beyond just chemical control. As I have witnessed in the recent European grapevine moth infestation in Fresno County, integrated pest management approaches including the physical removal of host material is proving to be another key element to the eradication of this pest.

As the future brings new techniques and management tools to the forefront, the PEIR would allow the addition of new strategies which would be open to review and comment by all interested parties which provides transparency and encourages feedback from stakeholders; it is designed to be a living document.

The development and implementation of the Statewide Plant Pest Prevention and Management Program Environmental Impact Report as a tool is long overdue. I strongly support the development of this report and look forward to its full implementation in the future.

Sincerely,

Carol N. Hafner

Carol N. Hafner
Agricultural Commissioner/Sealer of Weights and Measures

cc: Karen Ross, Secretary of Agriculture

1730 S. Maple Avenue / Fresno, California 93702-4596 / (559) 600-7510
http://www.co.fresno.ca.us/fresnoag – e-mail: fresnoag@co.fresno.ca.us

From: Michele Dias
To: Michael Stevenson;
Subject: Scoping Comment, I think
Date: Friday, July 22, 2011 3:38:32 PM

From: valeri hood [mailto:bertmbartsch@yahoo.com]
Sent: Fri 7/22/2011 3:06 PM
To: Pest PreventionEIR; Assemblymember.Huffman@outreach.assembly.ca.gov; Frances D. Hinckley
Subject: LBAM spray- again

Yesterday was the 5th anniversary of that most famous little LBAM losing its way into Professor Powell's trap in Berkeley.
And still no damage-- there is no emergency- no justification for a PEIR. Let's stick to the process, however flawed that we now have in place!
Some informed locals and a very few officials have worked tirelessly to educate the population about the environmental damage of such toxic programs
as the proposed government LBAM intoxication of the populace with pesticides, plus harmful so-called inert chemicals. I am concerned that the same actors involved in the push towards the use of these toxics- even without the interference of the pro-pesticide Schwartzenegger group, are still involved in this-
such as Stuart Resnick. Let's be proactive and protective of our increasingly vulnerable people instead!

Valeri Hood
79 Dominga Ave. Farifax, Ca 94930

LISA M. LEONDIS
AGRICULTURAL COMMISSIONER/
SEALER OF WEIGHTS & MEASURES

County of San Diego

DEPARTMENT OF AGRICULTURE, WEIGHTS AND MEASURES
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SAN MARCOS OFFICE
(760) 752-4700
FAX (760) 752-4703

July 22, 2011

California Department of Food and Agriculture
Attn: Michele Diaz, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

NEED FOR STATEWIDE PEST PREVENTION AND MANAGEMENT PROGRAM EIR

Dear Ms. Diaz:

I am writing on behalf of San Diego County to express support for the California Department of Food and Agriculture's (CDFA) efforts to develop a Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR) including support for the scope of the EIR contained in the Notice of Preparation.

Invasive pests, including fruit flies, beetles, moths, weeds, and plant diseases are a huge threat to San Diego County, as well as California. A comprehensive and scientific EIR based on Integrated Pest Management principles is critical to provide the necessary tools to prevent pest introduction and establishment and manage pests we cannot prevent. Public participation, which will strengthen the final document, is equally critical to the success of this effort. We applaud CDFA's commitment to holding five public scoping sessions and a web-based meeting to facilitate involvement.

San Diego County experiences a continual onslaught of pest introductions due to many risk factors including: a mobile urban population; numerous international ports of entry for passengers and cargo via airplanes, trucks, and ships; and miles of border. Over the last few years, San Diego County has experienced quarantines and eradication projects for pests such as Mediterranean fruit flies, Asian citrus psyllid, Japanese beetle, Light brown apple moth, Oriental fruit flies, Diaprepes root weevil, Mexican fruit flies, Red imported fire ants, Yellow star thistle, Spotted knapweed, and Perennial peppercress.

County Agricultural Commissioners value our partnership with CDFA to protect California's food system, environment and agricultural economy. The Statewide Plant Pest Prevention and Management Program EIR will help us protect these important resources in full compliance with the California Environmental Quality Act, whether we're cooperating with CDFA or applying our own resources to prevent invasive pests.

Sincerely,

Lisa Leondis

LISA M. LEONDIS
Agricultural Commissioner/
Sealer of Weights & Measures

LML:SP:mp

From:	Michele Dias
To:	Michael Stevenson;
cc:	Laura Petro;
Subject:	FW: CDFA Program EIR
Date:	Friday, July 22, 2011 9:17:09 AM

From: Jenny Chen [mailto:hjchen@waterboards.ca.gov]
Sent: Friday, July 22, 2011 9:03 AM
To: Michele Dias
Cc: Philip Isorena
Subject: Re: CDFA Program EIR

Hi Michele,

Followings are our comments for the Notice of Preparation:

In the NOP, CDFA listed the Water Quality together with the Hydrology in the EIR scope. We request CDFA to separate these two areas and list impact to Water Quality from pesticide applications as an independent item.

Under the Water Quality section, we request CDFA to include the water quality impact from both direct discharges, e.g. pesticide spray drift, and indirect discharge, e.g. pesticide discharge with storm water runoff, discharge of pesticide contaminated plant debris,etc. Additionally, we would like to see the eco-toxicity analysis, e.g. toxicity to aquatic life due to pesticide discharges.

Jenny Chen
Water Resources Control Engineer
State Water Resources Control Board
NPDES Unit
Phone No.: 916-341-5570

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Scoping comment: Lodi Winegrape Commissio Letter of Support for PEIR
Date: Monday, July 25, 2011 8:32:00 AM

From: Mark Chandler [mailto:mark@lodiwine.com]
Sent: Sat 7/23/2011 3:34 PM
To: Pest PreventionEIR
Subject: Lodi Winegrape Commissio Letter of Support for PEIR

To: CDFA Pest Prevention Management Program

From: Lodi Winegrape Commission

Re: PEIR

On behalf of its 700 winegrower constituents in the Lodi wine region, at its July 23, 2011 meeting the Lodi Winegrape Commission board passed a motion in support of the PEIR.
We agree with the goal of having a statewide program that will allow for time-sensitive and efficient evaluation of pest management strategies that can be implemented by CDFA and it partners. We strongly endorse more rapid and effective prevention, eradication and control of pest infestations statewide. In these days of enhanced globalization, we are exposed to an increased risk of a broader range of exotic pests that threaten our industry and the state's economy. We feel the PEIR is in the best interests of agriculture, consumers and the citizens of California.

If you require any additional information or clarification regarding our support, please feel free to contact me.

Mark Chandler
Executive Director
Lodi Winegrape Commission
2545 W. Turner Road
Lodi, CA 95242
209.367.4727

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Scoping Comments
Date: Monday, July 25, 2011 8:30:23 AM

From: Charlotte Shoemaker [mailto:charshoes@sbcglobal.net]
Sent: Sat 7/23/2011 12:53 PM
To: Pest PreventionEIR
Subject: PEIR Scoping Comments

My name is Charlotte Shoemaker, and I live in Berkeley, California.

I would like to share the following questions and concerns regarding the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report:

1) It is not clear in the Notice of Preparation what steps CDFA would take before carrying out, for example, wide-area pesticide spraying such as was done for the light brown apple moth in 2007.

When and how will I, and other members of the public, have a meaningful voice and ability to influence CDFA's future pest management activities, which could involve spraying my community or my food with pesticides?

It is not acceptable to propose a scope for this PEIR that would take away my right to stop or affect state actions that would have a direct impact on my health and the health of my family.

2) The NOP mentions human health only as one of several program objectives. The primary goal for this EIR should be to find alternative ways to manage pests so as to eliminate adverse human and environmental health impacts created by pest management activities.

3) The "Program Components" outlined in the NOP should describe CDFA's plans to develop a system for evaluating human and environmental health impacts from the treatments considered in the Statewide Program, and ways to minimize or eliminate those impacts. It is not enough to simply state in the NOP that a program objective is to minimize impacts to human health and the environment. The PEIR should include the specific plans for achieving that objective in the program.

4) The NOP relies on the same outdated assumptions and approach to pests that CDFA has been using for decades: quarantine, and eradication or containment. This approach does not work as we have

seen with the repeated quarantine and eradication projects for the same pests year after year. The NOP makes inaccurate statements, such as that pests often spread rapidly and can be eradicated if rapid action is taken although we know based on prior experience that in general pests do not spread rapidly and that eradication has seldom if ever succeeded.

Why does the PEIR rely on CDFA's past practices when new science from our own state universities is available to update the current approach so that it is more effective, less toxic and far less burdensome to our farmers? Where are the provisions in this PEIR for modernizing and updating the state's approach to pests, to take advantage of this new scientific research and technology and to eliminate the use of toxic chemicals and quarantines that can be devastating to farmers?

Sincerely,

Charlotte Shoemaker

1618 Parker St.
Berkeley, CA 94703
510 540 7185

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Scoping Comment
Date: Monday, July 25, 2011 8:31:54 AM

From: Claudia Tomaso [mailto:catomaso@sbcglobal.net]
Sent: Sat 7/23/2011 1:51 PM
To: Pest PreventionEIR
Cc: Assemblymember.Huffman@outreach.assembly.ca.gov
Subject: against PEIR recommendations

Michele Dias
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Dear Ms. Dias,

I writing today as a concerned citizen of Marin County. It is amazing to me we are still debating the merits of aerial spraying in our local communities when public sentiment is overwhelming against this action.

I am against the California Department of Food and Agriculture (CDFA) using the Environmental Impact Report (EIR) to support Statewide Plant Pest Prevention and Management Program. I am against all treatments included in the Programmatic Environmental Impact Report (PEIR).

Pest control can and has been done effectively at local levels and should continue on this level so local residents can participate and are not held hostage to the state's agriculture/big business interests. Health comes first in California.

Thank you for recognizing this.

Claudia Tomaso
90 Tamalpais Road
Fairfax, CA 94930

July 25, 2011

Ms. Michelle Dias
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Dear Ms. Dias:

I wish to submit the following comments regarding the preparation of the Statewide Plant Pest Prevention and Management Program Environmental Impact Report (PEIR):

1. The development of a broad based EIR is critical to the continued response to invasive pests and diseases that impact our States agricultural programs and the ecology of the State in general. Invasive pests have created extensive damage to the State for over 150 years of recorded history. Various organizations have calculated the frequency of invasions so I will not attempt to quote a figure; however, we have seen a significant increase of new pests in the past 30 years. Each time a new pest enters a new EIR is required to meet the challenge of treatment.

2. Current protocol of creating separate EIR's for each new invasion just delays the process and creates a challenge to the Department to meet the public's expectation for CEQA compliance. By having a central base of information under the proposed EIR, many of the CEQA questions will have been addressed before the treatments begin. There may be specific questions to the pest that will require additional studies, however having a base to operate from will speed the overall process and help relieve many of the questions raised by the public during the development of the response program.

3. It is important that the preparation process of the EIR take into consideration the extensive use of IPM strategies throughout the State. Many of the protocols have been already developed through the University of California system along with input from other institutions around the country. These systems include the best use of available tools including bio-control agents and bio-pesticide. Sterile Insect Technique and Mating Disruption are also elements of a successful IPM program that need to be considered. It is also critical that the evaluation of these tools take a critical look at the level of development of the systems so that a technique that looks good on paper but is not fully developed does not end up as a final recommendation.

I will not take time to list the importance of the Citrus Industry to the California economy, other have done an adequate job of telling that story. I will say that the industry is fully committed to following the CEQA process. The impact of this EIR goes well beyond the scope of production agriculture and will help in dealing with a very wide range of invasive pests. I fully support the efforts and I am willing to help in any way possible to see this process successful.

Sincerely,

Ted Batkin, President
California Citrus Research Board
ted@citrusresearch.org

Via Electronic Mail and U.S. Mail

July 25, 2011

Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814
PEIR.info@cdfa.ca.gov

Re: Notice of Preparation of a Draft Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program

These comments are submitted on behalf of the Center for Biological Diversity ("Center") on the Program Environmental Impact Report ("PEIR") for the California Department of Food and Agriculture's ("CDFA") Statewide Plant Pest Prevention and Management Program ("Statewide Program"). The Center would like to thank the CDFA for giving the public an opportunity to comment on the Notice of Preparation ("NOP"). These comments concern potential impacts of the Statewide Program and suggested mitigation measures and alternatives, with a particular focus on pesticides. These comments should be included and addressed in the Draft PEIR.

Pesticides are dangerous to California species, habitat, water quality, air quality and humans. The Center supports CDFA in the development of a plant pest management program that avoids or minimizes the application of pesticides and the adverse impacts associated with pesticide contamination. Further, the Center opposes the broad scope of the PEIR without further environmental analysis as the Statewide Program is implemented. We encourage CDFA to conduct further analysis under the California Environmental Quality Act ("CEQA") that will facilitate an adequate analysis of the Statewide Program's impact on various species and geographical regions.

The Center for Biological Diversity is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 320,000 members and e-activists throughout California and the greater United States, including residents of cities and counties in California that will be impacted by the Statewide Program. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for the people of California.

351 California St., Ste. 600 · San Francisco, CA 94104
tel: (415) 436.9682 · *fax:* (415) 436.9683 · *email:* jevans@bologicaldiversity.org
www.BiologicalDiversity.org

I. The Statewide Program

CDFA, as the lead agency, is developing a PEIR for a proposed Statewide Plant Pest Prevention and Management Program. The Statewide Program will evaluate CDFA's prevention and management activities that are currently in place, evaluate those likely to occur in the reasonably foreseeable future, and authorize select management tactics for a variety of plant pests.

II. CEQA Compels CDFA to Identify and Disclose Actual and Potential Significant Environmental Impacts and to Adopt Feasible Mitigation Measures and Alternatives

CEQA was enacted to require public agency decision makers to document, analyze and disclose the environmental impacts of their actions. "CEQA compels government to first identify the [significant] environmental effects of projects, and then to mitigate those adverse effects through the imposition of feasible mitigation measures or through the selection of feasible alternatives."[1] CEQA requires a finding of significance if a project results in "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[2] The CEQA Guidelines require disclosure of significant impacts even where the project only has the "potential" to adversely affect the environment.[3]

When it comes to significant impacts on wildlife, a lead agency is required to disclose significant impacts if the project has the potential to "substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare or threatened species."[4] CEQA Appendix G, which implements the Guidelines, requires the agency to determine whether the project has potentially significant impacts because the project could "[h]ave a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species."[5] CDFA's PEIR must disclose actual and potential significant impacts that the Statewide Program has on or endangered, rare, threatened, candidate, sensitive or special species populations and their habitats.

CDFA must identify significant and potentially significant environmental impacts of the Statewide Program in the PEIR. Specifically, CDFA must identify impacts to air quality, water quality, soil, plant and animal communities, and impacts to endangered, rare, threatened, candidate, sensitive and special species. CDFA must also document, disclose,

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[1] *Sierra Club v. State Board of Forestry* (1994) 7 Cal.4th 1215, 1233.
[2] CEQA Guidelines § 15382.
[3] CEQA Guidelines § 15002(a)(1); 15065(a); 15382, App. G.
[4] CEQA Guidelines § 15065(a)(1).
[5] CEQA Guidelines App.G. § IV.(a).

consider and adopt all feasible mitigation measures and alternatives in the draft and final PEIR.

A. The Adverse Impacts of Pesticides on California Species

The Center is supportive of CDFA developing pest management practices that avoid pesticides and use less toxic alternatives. The Center released a report in 2004, *Silent Spring Revisited*, which catalogues some of the dangers modern pesticide application poses on the environment.[6] If the Statewide Program PEIR endorses pesticide use, then CDFA will need to analyze the impacts discussed below.

1. Pesticides Pose a Myriad of Dangers to Species and Habitats

Over two billion pounds of pesticides are used each year in the United States to control weeds, insects and other organisms.[7] The adverse impacts of pesticides have been on the public consciousness since Rachel Carson published *Silent Spring* in the 1960s, where she examined the devastating impacts of pesticides on the environment and on birds in particular. Although the composition and use of pesticides has somewhat changed since that time, pesticides remain dangerous chemicals. As such, pesticides should be avoided if possible and any application should be the result of a fully informed and calculated analysis.

As pesticides enter the environment, they can have acute, ongoing or fatal effects on species and can contaminate habitats. The effects of pesticides can either be direct (ie: an individual species suffers from the toxic effects of a pesticide entering its habitat), or indirect (ie: species ingests contaminated food source).[8] While death is the most obvious and extreme effect of pesticide contamination, sublethal effects can occur at much lower contamination concentrations.[9] Sublethal effects can include impaired growth and development, malformations, reduced reproductive success, immune suppression and more.[10] Sublethal effects can also render a species more susceptible to injury, disease or predation.[11] Finally, while individual pesticides can result in significant adverse impacts, the simultaneous impacts of separate pesticides have a greater total effect than the sum of their individual impacts.[12] This phenomenon is referred to as "synergistic" or "cumulative" impacts and the phenomenon can amplify the adverse effects of contamination by as much

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[6] Litmans, B., et al. *Silent Spring Revisited: Pesticide Use and Endangered Species, A Center for Biological Diversity Report*, 2004. http://www.centerforbiologicaldiversity.org/publications/papers/Silent_Spring_revisited.pdf.
[7] Environmental Protection Agency Office of Pesticide Programs, FY 2002 Annual Report, *Promoting Safety for America's Future*, page 6; Miller, J., et al., *Poisoning Our Imperiled Wildlife, San Francisco Bay Area Endangered Species at Risk from Pesticides, A Center for Biological Diversity Report*, Feb. 2006, http://www.biologicaldiversity.org/publications/papers/bayareapesticidesreport.pdf, page 3.
[8] Litmans page 16.
[9] Rohr, J.R., et al. *Lethal and Sublethal Effects of Atrazine, Carbaryl, Endosulfan, and Octylphenol on the Streamside Salamander*, Enviromental Toxicology and Chemistry, Vol. 22, No. 10, pp. 2385-2392, 2003.
[10] Rohr.
[11] Rohr; Litmans page 19.
[12] Litmans page 13.

as 1,000 times.[13] CDFA must analyze the direct, indirect, acute, ongoing, fatal and sublethal, and the cumulative and synergistic impacts that pesticides have on species and habitats in the PEIR.

In order to fully capture the impacts of pesticide application, the PEIR must include analysis of pesticide drift and runoff. After pesticide application, pesticides may and often do travel from the application site. Two methods of pesticide transportation are pesticide drift and pesticide runoff. Pesticides drift occurs when any airborne pesticides travel away from the application site[14]. Drift can result after aerial application or from wind that moves across contaminated soils. A pesticide can become airborne by attaching to vectors like water droplets, dust, soil particles, or by vapor application. The National Research Council has found that aerial application results in "considerable" off-site drift.[15] More than 90% of pesticides used in California are prone to pesticide drift because they are applied via sprays, dust or gaseous fumigants.[16]

Agricultural and urban runoff also transports pesticides from application sites. Pesticide transportation via runoff can occur when pesticides either dissolve in water or bound to soil particles. Contaminated runoff can impact plant and animal species in acute, chronic or fatal ways. Pesticides can collect in sediment in the beds of water bodies and can persist in this form sometimes in concentrations too low to be detected by conventional sampling methods. Animals that live at the bottom of these water bodies, like clams and insects, can be particularly susceptible to contamination and they may eventually become food for other species.

CDFA must analyze endocrine disruptors when drafting the PEIR for the Statewide program. Even low doses of pesticides can have drastic impacts on wildlife. To illustrate, pesticides that act as "endocrine disruptors" can be particularly damaging. Endocrine disruptors are synthetic chemicals that mimic hormones and disrupt an organism's natural processes by blocking naturally occurring hormones or by disrupting the body's normal functions.[17] As an example, Atrazine, a commonly used herbicide, was one of the most widely detected pesticides in the USGS studies[18] and the synthetic chemical is an endocrine disruptor.[19] At merely 0.1 parts per billion (a level far below the level established by EPA as safe for aquatic organisms), atrazine has been found to disrupt the development of sex characteristics in frogs, preventing the development of masculine characteristics and in some

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[13] Litmans page 13.
[14] Cox, C., *Pesticide Drift, Indiscriminately From the Skies*, Journal of Pesticide Reform, Vol.15, No.1, Spring 1995, pp. 2-6.
[15] Litmans page 4; National Research Council, Board on Agriculture, Committee on Long-Range Soil and Water Conservation, *Soil and Water Quality: An Agenda for Agriculture*, 1993, page 323.
[16] Kegley, S., et al. *Second Hand Pesticides: Airborne Pesticide Drift in California*, Californians for Pesticide Reform, 2003, http://www.pesticideresearch.com/docs/SecondhandPcides.pdf.
[17] Litmans page 5.
[18] Larson page 29.
[19] Litmans page i; Hayes, T.B., et al., *Hermaphroditic demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses*, Proc. Natl. Acad. Sci., April 16, 2002, Vol.99, Issue 8, 5476-5480.

cases resulting in hermaphroditism.[20] Endocrine disruptors are also incredibly hazardous to humans and the synthetic chemicals are linked to testicular damage and developmental neurotoxicity.[21]

2. CDFA Must Analyze Current and Projected Pesticide Contamination Levels in the PEIR

California air, waterways and species are impacted by pesticide contamination; CDFA must analyze the extent of pesticide contamination in the PEIR. Over the last decade, the U.S. Geological Survey ("USGS") conducted a series of nationwide water quality studies and released reports documenting pesticide prevalence throughout the nation's waterways.[22] The studies analyzed water samples from 58 rivers and streams across the country, assessing occurrence and distribution of pesticides.[23] USGS tested for forty-six pesticides and pesticide degradation products which represents 70% of the mass of pesticides applied annually in national agricultural use.[24] USGS found that the water bodies tested were contaminated with pesticides and that the contamination almost always consisted of a mixture of several different pesticides.[25]

The reports indicate that pesticide contamination is particularly high in streams and groundwater surrounding agricultural or urban development.[26] USGS found that "[a]lmost every sample of water and fish from streams and major rivers in all land use settings contained at least one of the pesticides that we measured. This means that, throughout the nation, almost every time and place you observe a stream or river in a populated area you are looking at water that contains pesticides, inhabited by fish that contain pesticides."[27] Since pesticides are particularly pervasive in waterways, aquatic species are particularly vulnerable to the adverse impacts of pesticide contamination. The PEIR must analyze contamination levels throughout California's waterways and must determine the risks posed to aquatic species.

USGS reported common detection of pesticide degradation products. These products persist in the environment longer and were found in higher concentrations than their parent pesticide compounds. As an example, over a two-year period, herbicide breakdown products were detected at more than 10 times the concentration of the parent herbicide

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[20] Litmans page 11; Hayes page 5476-5480.
[21] Litmans page 5.
[22] Larson, S.J. et al, *Pesticides in Streams of the U.S. – Initial Results from the National Water-Quality Assessment Program ("NWQA")*, USGS Water Resources Investigation Report 98-4222, 1999. http://water.usgs.gov/nawqa/pnsp/pubs/wrir984222/.
[23] Larson page 8.
[24] Larson page 12.
[25] Larson page 34.
[26] Gilliom, R., *Pesticides in U.S. Streams and Groundwater*, Environmental Science & Technology, May 15, 2007, page 3409.
[27] Litmans page 1.

compounds.[28] Therefore, in order to accurately assess pesticide persistence and impacts, the PEIR must adequately measure and analyze pesticide degradation products.

The best way to analyze the impacts of a pesticide is to assess the contaminant's effects (or toxicity) and the degree to which it is contained or to which it spreads. In order to fully understand the impacts that the Statewide Program will have on species and habitat, the PEIR must provide a complete picture of current pesticide contamination throughout California. CDFA should assess concentrations through daily and seasonal monitoring to reflect seasonal and climatic variations. The agency should also test for all pesticides currently and historically used in California and their degradation products so that CDFA has an accurate picture of how long pesticides endure in our environment.

B. If CDFA Uses Pesticides in the Statewide Program, CDFA Must Analyze Pesticide Impacts on California ESA and CESA-Listed Species

The attached Appendix A consists of a list of individual species located within California that are listed under the Federal ESA, the CESA, or both. The chemicals listed under the individual species are pesticides that have been identified as toxic to the taxa (ie: mammal, bird, insect, fish, reptile, mollusk, crustacean) to which the species at issue belongs. The Center prepared the content of Appendix A in connection with an ongoing lawsuit[29] with the help of an expert scientist, Dr. Susan Kegley. Dr. Kegley is an organic chemist who has an "expertise in pesticide toxicology, pollutant fate and transport, environmental monitoring and analytical chemistry; and experience with pesticide regulation, pesticide data sources and the pesticide toxicology and epidemiology literature."[30]

Below is a summary of the species listed in Appendix A that may be adversely impacted by pesticides identified as toxic to their taxa. Should CDFA endorse management tactics or projects that utilize pesticides, pesticides that are toxic to the taxa to which the species belongs may adversely affect the following species and must be analyzed in the PEIR:

Amphibians:

Arroyo toad, *Bufo californicus*; California tiger salamander (Central California DPS, except for Bay Area Counties), *Ambystoma californiense (Central California DPS)*; California tiger salamander (Santa Barbara County DPS), *Ambystoma californiense (Santa Barbara DPS)*; Mountain yellow-legged frog (Southern California DPS),

[28] Litmans page 7
[29] *Center for Biological Diversity et al. v. Environmental Protection Agency et al.*, No. 3:11-cv-00293-JCS (N.D. Cal. filed Jan. 19, 2011), *see* "Exhibit A."
[30] *Pesticide Research Institute, PRI Staff*. http://www.pesticideresearch.com/staff.html. Website last modified on March 3, 2011; accessed on July 21, 2011.

Rana muscosa; Santa Cruz long-toed salamander, *Ambystoma macrodactylum croceum*.

Birds:

California condor, *Gymnogyps californianus*; California least tern, *Sterna antillarum browni*; Coastal California gnatcatcher, *Polioptila californica californica*; Light-footed clapper rail, *Rallus longirostris levipes*; Northern spotted owl, *Strix occidentalis caurina*; San Clemente loggerhead shrike, *Lanius ludovicianus mearnsi*; Southwestern willow flycatcher, *Empidonax traillii extimus*; Western snowy plover (Pacific DPS), *Charadrius alexandrinus nivosus (Pacific DPS)*.

Crustaceans:

Conservancy fairy shrimp, *Branchinecta conservation;* San Diego fairy shrimp, *Branchinecta sandiegonensis*; Shasta crayfish, *Pacifastacus fortis.*

Fish:

Bonytail chub, *Gila elegans*; Bull trout (U.S. DPS), *Salvelinus confluentus (U.S. DPS)*; Colorado pikeminnow, *Ptychocheilus lucius*; Desert pupfish, *Cyprinodon macularius+Cyprinodon eremus*; Lost River sucker, *Deltistes luxatus*; North American green sturgeon (southern DPS), *Acipenser medirostris (southern DPS)*; Razorback sucker, *Xyrauchen texanus*; Santa Ana sucker, *Catostomus santaanae*.

Insects:

Behren's fritillary (Behren's silverspot), *Speyeria zerene behrensii*; Callippe silverspot, *Speyeria callippe callippe*; Delhi Sands flower-loving fly, *Rhaphiomidas terminatus abdominalis*; Kern primrose sphinx moth, *Euproserpinus euterpe*; Lange's metalmark, *Apodemia mormo langei*; Myrtle's silverspot, *Speyeria zerene myrtleae (sensu lato)*; Ohlone tiger beetle, *Cicindela ohlone*; Quino checkerspot butterfly, *Euphydryas editha quino*; San Bruno elfin, *Callophrys mossii bayensis*; Zayante band-winged grasshopper, *Trimerotropis infantilis*.

Mammals:

Amargosa vole, *Microtus californicus scirpensis*; Buena Vista Lake ornate Shrew, *Sorex ornatus relictus*; Fresno kangaroo rat, *Dipodomys nitratoides exilis*; Giant kangaroo rat, *Dipodomys ingens*; Morro Bay kangaroo rat, *Dipodomys heermanni morroensis*; Riparian brush rabbit, *Sylvilagus bachmani riparius*; Riparian woodrat, *Neotoma fuscipes riparia*; San Joaquin kit fox, *Vulpes macrotis mutica*; Stephen's kangaroo rat, *Dipodomys stephensi*; Tipton kangaroo rat, *Dipodomys nitratoides nitratoides*.

Mollusks:

Morro shoulderband snail, *Helminthoglypta walkeriana*.

Reptiles:

Blunt-nosed leopard lizard, *Gambelia sila*; Coachella Valley fringe-toed lizard, *Uma inornata*; Desert tortoise (Mojave DPS), *Gopherus agassizii*; Giant garter snake, *Thamnophis gigas*.

C. The Ambiguous Language in the NOP Suggests that the Scope of the PEIR is too Broad for CDFA to Adequately Satisfy CEQA

The scope of the Statewide Program is exceedingly broad and covers all current and potential CDFA plant pest management activities that occur anywhere throughout the state of California. The Center believes that it is impossible for a single PEIR to sufficiently analyze environmental impacts, feasible mitigation measures and alternatives on a management tactic or project level.

It is unclear from the language of the NOP whether CDFA believes it is required to conduct subsequent CEQA analysis, or if all CEQA obligations are fulfilled after the issuance of the PEIR. The NOP explains that "[t]o the extent that the impacts of the activities described [] are addressed in the program EIR, no additional CEQA compliance would be necessary."[31] This language suggests that CDFA may anticipate fulfilling CEQA requirements on a management tactic or project level with a single PEIR.

In another instance, the CDFA notes that the PEIR "will provide a program framework that can be used for subsequent CEQA analysis, including tiering of project-level CEQA documentation for [] plant pest prevention and management activities… and [] integration of new prevention and management tactics and new plant pests."[32] Again, it is unclear whether CDFA intends to create a framework that would eliminate the need for future CEQA compliance, or if CDFA intends to release tiered EIRs per management tactic or project. If CDFA intends to conduct future CEQA analysis or documentation, CDFA should specifically state so and explain how future CEQA obligations will be triggered.

Given the size and geological diversity of California, the Center advises CDFA to either abandon the broad scoped PEIR in favor of several narrower scoped EIRs or to focus the PEIR on broad Statewide Program objectives and then release a series of tiered narrowly scoped EIRs per management tactic or project. California is rich in natural and agricultural diversity and includes regions of mountains, deserts, wetlands and forests. California is both urban and rural and the climate ranges from Mediterranean to subartic. The state is similarly rich in biological diversity and hosts hundreds of endangered, rare, threatened, candidate, sensitive and special species. It would be not only impossible but also cost prohibitive to attempt to sufficiently analyze individual management tactics and projects under a single PEIR given the state's diversity.

[31] NOP page 3.
[32] NOP page 2.

The Center urges CDFA to commit to releasing smaller scoped EIRs to properly analyze the impacts, feasible mitigation measures and alternatives for individual management tactics and individual projects.

D. A Broad Scoped PEIR Would Deny Interested Stakeholders the Ability to Meaningfully Participate in the Decision Making Process Thereby Frustrating CEQA's Goal of Affording Public Participation

"[A] paramount consideration [in the CEQA process] is the right of the public to be informed in such a way that it can intelligently weigh the governmental consequences of any contemplated action and have an appropriate voice in the formation of any decision."[33] If CDFA intends to approve individual management tactics or projects under the umbrella of the Statewide Program PEIR analysis, CDFA will seriously disable public participation. Meaningful public comments cannot be given if the scope of the project is broad enough to encompass every geographic area of California. Since the PEIR is so broad, there is no way for an interested stakeholder to know if or how a subsequent management tactic or project approved under the PEIR analysis would impact their local community. If there is insufficient warning in the PEIR of a subsequent project, then an interested stakeholder cannot meaningfully participate in the decision making process.

Even though CDFA claims that it "conducts public outreach for all of its pest management activities, regardless of whether CEQA compliance is required,"[34] public participation is not compelled. If an interested stakeholder is unaware at the PEIR phase that the broad scoped analysis will be used to approve subsequent management tactic or project years after the final PEIR is certified, the interested stakeholder has been shut out from meaningfully engaging in the CEQA process.

Issuing multiple or tiered EIRs ensures meaningful public participation through CEQA safeguards. CDFA must analyze actual and potential impacts on biological resources including individual endangered, threatened and special species, impacts on water quality, air quality, land use and human health at the management tactic and project level. CDFA should also properly analyze the character and impact of any hazardous or toxic materials that are used in the application of a management tactic or program.

The Center urges CDFA to either abandon the pursuit of the PEIR in favor of smaller scoped EIRs or to maintain the PEIR and commit to releasing subsequent EIRs per management tactic or project. The Center believes that smaller scoped EIRs are necessary to properly inform interested stakeholders of the potentially adverse impacts of management tactics or projects and that they are necessary to satisfy CEQA obligations.

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[33] *Environmental Planning and Information Council v. County of El Dorado* (3d Dist. 1982) 131 Cal.App.3d 350, 354.
[34] NOP page 3.

E. The PEIR Must Analyze and Adopt Feasible Mitigation Measures and Alternatives

CEQA includes a substantive mandate that requires agencies to adopt feasible mitigation measures and or feasible environmentally superior alternatives so as to substantially reduce or avoid significant adverse impacts.[35] An acting agency must deny a proposed project if feasible alternatives or mitigation measures exist that would substantially lessen the project's significant impacts.[36] To satisfy CEQA obligations, an Environmental Impact Report ("EIR") must adopt feasible mitigation measures and alternatives.[37] The EIR must consider a "reasonable range of alternatives to the project, or to the location of the project, which (1) offer substantial environmental advantages over the project proposal…; and (2) may be 'feasibly accomplished in a successful manner' considering the economic environmental, social and technological factors involved."[38]

The Center urges CDFA to implement the following mitigation measures:

- Limit the geographic application of pesticides. Prohibit pesticide application in habitats that are designated as critical habitats or candidate habitats under the Federal ESA or the California Endangered Species Act ("CESA"), in non-designated habitats that are occupied by federally or state listed species or sensitive species, in sensitive habitats and in riparian areas. Prohibit pesticide application within the vicinity of sensitive receptors (ie: no application around childcare facilities, eldercare facilities, hospitals, etc.). Establish buffer zones where no pesticides are sprayed within a certain distance of riparian areas (including subterranean water bodies), critical, candidate and sensitive habitats, and habitat occupied by state or federally listed species.
- Establish and regularly review safety regulations and monitoring requirements that limit the amount of exposure farmworkers have with pesticides.
- Limit the amount or frequency of pesticide use. Only allow pesticide application in ideal weather conditions to minimize the potential for spray drift and pesticide runoff.
- Incorporate pesticide contamination monitoring requirements for every CDFA approved pest management tactic that involves pesticide application. Require contamination monitoring in every project that involves pesticide application and track results in a uniform database. Samples should be collected before and after pesticide application from the surrounding atmosphere, soil, groundwater, nearby water bodies. Samples should be collected throughout the day and at various points throughout the seasons so that seasonal patterns and weather conditions do not distort monitoring results.
- Improve public outreach and notify the surrounding community of pesticide risks

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[35] Pub. Res. Code §§ 21002, 21081; CEQA Guidelines, §§ 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a)(1).
[36] *Mountain Lion Foundation v. Fish & Game Commission* (1997) 16 Cal.4th 105, 134.
[37] Pub. Res. Code § 21100, subd. (b)(3); CEQA Guidelines, §§ 15126, subd. (e), 15216.4.
[38] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 566.

and what the community can do to help prevent the spread of plant pests.
- Create incentives for farmers who voluntarily restrict pesticide application to levels below limitations already imposed by CDFA.

The Center urges CDFA to implement the following alternatives:
- Prohibit the use of all pesticides and only approve management tactics or projects that involve pesticide-free strategies. Create alternative management practices that interfere with pest breeding, only locate plants in areas that are pest-free, utilize crop rotation techniques, engage natural predators, or lure pests away from plants.
- Prohibit the use of the most toxic pesticides including endocrine disruptors.
- Expand the search for less toxic, effective pest management techniques by analyzing programs and techniques that are in use outside of the jurisdiction of CDFA. Look to other states, other countries and the Invasives Vision Process currently in development at U.C. Davis.
- Abandon the idea of a PEIR that analyzes statewide impacts. Create smaller scoped EIRs that are based on individual geographic regions, habitat types, species, pesticides, management tactics or management programs.
- Continue developing the PEIR but also commit to releasing subsequent tiered EIRs based on individual geographic regions, habitat types, species, pesticides, management tactics or management programs. Explicitly indicate what actions will trigger a subsequent EIR.

III. The Statewide Program Must Comply with the ESA

The Federal Endangered Species Act ("ESA") was enacted to provide a conservation program for endangered and threatened species and the ecosystems upon which those species depend.[39] The Statewide Program's management tactics have the potential to adversely impact federally endangered or threatened species and their habitat because potential pesticide application will likely contaminate species and their habitat.

Section 9 of the ESA makes it illegal for any person (which includes a governmental entity like CDFA) to "take" an endangered species listed under the ESA[40]. "Take" has been defined to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct.[41] Further, the U.S. Fish and Wildlife Services ("USFWS"), one of the agencies charged with administering the ESA, has defined "harm" to include "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patters, including breeding,

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[39] 16 U.S.C. § 1531(b).
[40] 16 U.S.C. § 1538(a)(1)(B).
[41] 16 U.S.C. § 1532(19).

spawning, rearing, migrating, feeding or sheltering."[42] CDFA may shield itself from section 9 liability by establishing a Habitat Conservation Plan through negotiations with USFWS.[43]

To limit CDFA's section 9 ESA liability, CDFA should adopt pest management tactics and programs that limit or eliminate pesticide application and their associated harms to listed species and their habitats.

If the Statewide Program involves any Federal agency funding, permits or authorizations in connection to the Statewide Program, ESA's section 7 consultation requirement would apply. The consultation process is designed to prevent jeopardy to listed species or destruction or adverse modification of critical habitat. Section 7(a)(2) requires that "[e]ach Federal agency shall, in consultation with and with the assistance of the [USFWS], insure that any action authorized, funded or carried out by such agency [] is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by [USFWS] …to be critical."[44] Federal agencies are required to consult with the USFWS to determine whether their actions will jeopardize a listed species' survival or adversely modify designated critical habitat. If jeopardy to species or destruction or adverse modification will result, the consultation process will identify ways to modify the action in a way that would avoid those results.[45]

IV. Conclusion

The Center would like to thank CDFA for the opportunity to participate in the decision making process and for their review of these comments. We look forward to working with CDFA in the future to ensure that CEQA requirements are fulfilled. Please send a copy of the Draft PEIR, future notices and any inquiries to Jonathan Evans at the address listed above or by email at jevans@biologicaldiversity.org.

Best Regards,

E. Thompson

Elizabeth Thompson
Law Clerk

Jonathan Evans

Jonathan Evans
Staff Attorney

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[42] 50 C.F.R. § 222.102.
[43] 50 C.F.R. § 17.3.
[44] 16 U.S.C. § 1536(a)(2).
[45] 50 C.F.R. § 402.14 (2011).

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Appendix A

ESA and CESA-Listed Endangered and Threatened Species Located in California & Pesticides Known to be Harmful to the Taxonomic Group of that Species that May Adversely Affect the Individual Species

Below is a list of individual species located within California that are under the Federal ESA, the CESA, or both. The chemicals listed under the individual species are pesticides that have been identified as toxic to the taxa (ie: mammal, bird, insect, fish, reptile, mollusk, crustacean) to which the species at issue belongs. The Center prepared the content of Appendix A in connection with an ongoing lawsuit with the help of an expert scientist, Dr. Susan Kegley. Dr. Kegley is an organic chemist who has an "expertise in pesticide toxicology, pollutant fate and transport, environmental monitoring and analytical chemistry; and experience with pesticide regulation, pesticide data sources and the pesticide toxicology and epidemiology literature."

AMPHIBIANS

Arroyo toad, *Bufo californicus*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion;

Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Warfarin and salts; Ziram.

California tiger salamander (Central California DPS, except for Bay Area Counties), *Ambystoma californiense (Central California DPS)*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide;

Methyl Bromide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Warfarin and salts; Ziram.

California tiger salamander (Santa Barbara County DPS), *Ambystoma californiense (Santa Barbara DPS)*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide;

Methyl Bromide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Warfarin and salts; Ziram.

Mountain yellow-legged frog (Southern California DPS), *Rana muscosa*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion;

Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Warfarin and salts; Ziram.

Santa Cruz long-toed salamander, *Ambystoma macrodactylum croceum*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion;

Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Warfarin and salts; Ziram.

BIRDS

California condor, *Gymnogyps californianus*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluometuron; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPB and salts; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

California least tern, *Sterna antillarum browni*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Coastal California gnatcatcher, *Polioptila californica californica*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin;

Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Light-footed clapper rail, *Rallus longirostris levipes*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb;

Methomyl; Methoxyfenozide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Northern spotted owl, *Strix occidentalis caurina*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethenamide and isomers; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Ethoprop; Famoxadone; Fenbutatin-oxide; Fenitrothion; Fentin hydroxide; Ferbam; Fluazinam; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPB and salts; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metiram; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propachlor; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Sulfosulfuron; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon;

Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

San Clemente loggerhead shrike, *Lanius ludovicianus mearnsi*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Southwestern willow flycatcher, *Empidonax traillii extimus*

1080; 2,4-D, salts and esters; 2,4-DB and salts; 3-chloro-p-toluidine hydrochloride; Acephate; Acetochlor; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Dicrotophos; Difenacoum; Difethialone; Dimethenamide and isomers; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Fentin hydroxide; Fipronil; Flubendiamide; Fluometuron; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPB and salts; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metiram; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Phostebupirim; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Terbufos; Terrazole; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Western snowy plover (Pacific DPS), *Charadrius alexandrinus nivosus (Pacific DPS)*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethenamide and isomers; Dimethoate; Dimethomorph; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Ethoprop; Famoxadone; Fenbutatin-oxide; Fenitrothion; Fentin hydroxide; Ferbam; Fluazinam; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPB and salts; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metiram; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl;

Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propachlor; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Sulfosulfuron; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

CRUSTACEANS

Conservancy fairy shrimp, *Branchinecta conservatio*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetamiprid; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bifenazate; Bifenthrin; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clomazone; Clonitralid; Clothianidin; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; Cyprodinil; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Diflubenzuron; Dimethoate; Dinotefuran; Dithiopyr; Diuron; Endosulfan; Endothall and salts; EPTC; Esfenvalerate; Ethalfluralin; Ethofenprox; Famoxadone; Fenamidone; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fluazifop-P-butyl; Flubendiamide; Fludioxonil; Flumioxazin; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Fosthiazate; Furanone (tanol derivs.); Halofenozide; Hexaflumuron; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Myclobutanil; Nabam; Naled; Napropamide; Nicobifen; N-octyl bicycloheptene dicarboximide; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyriproxyfen;

Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Tebuconazole; Tebufenozide; Tembotrione; Temephos; Terbuthylazine; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralomethrin; Tralopyril; Tributyltin-containing compounds; Triclopyr, salts and esters; Triflumizole; Trifluralin; Triticonazole; Ziram.

San Diego fairy shrimp, *Branchinecta sandiegonensis*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetamiprid; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bifenazate; Bifenthrin; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clomazone; Clonitralid; Clothianidin; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; Cyprodinil; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Diflubenzuron; Dimethoate; Dinotefuran; Dithiopyr; Diuron; Endosulfan; Endothall and salts; EPTC; Esfenvalerate; Ethalfluralin; Ethofenprox; Famoxadone; Fenamidone; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fluazifop-P-butyl; Flubendiamide; Fludioxonil; Flumioxazin; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Fosthiazate; Furanone (tanol derivs.); Halofenozide; Hexaflumuron; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Myclobutanil; Nabam; Naled; Napropamide; Nicobifen; N-octyl bicycloheptene dicarboximide; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyriproxyfen; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Tebuconazole; Tebufenozide; Tembotrione; Temephos; Terbuthylazine; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb;

Thiophanate-methyl; Thiram; Tralomethrin; Tralopyril; Tributyltin-containing compounds; Triclopyr, salts and esters; Triflumizole; Trifluralin; Triticonazole; Ziram.

<u>Shasta crayfish, *Pacifastacus fortis*</u>

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetamiprid; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bifenazate; Bifenthrin; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clomazone; Clonitralid; Clothianidin; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; Cyprodinil; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Diflubenzuron; Dimethoate; Dinotefuran; Dithiopyr; Diuron; Endosulfan; Endothall and salts; EPTC; Esfenvalerate; Ethalfluralin; Ethofenprox; Famoxadone; Fenamidone; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fluazifop-P-butyl; Flubendiamide; Fludioxonil; Flumioxazin; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Fosthiazate; Furanone (tanol derivs.); Halofenozide; Hexaflumuron; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Myclobutanil; Nabam; Naled; Napropamide; Nicobifen; N-octyl bicycloheptene dicarboximide; Oryzalin; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyriproxyfen; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Tebuconazole; Tebufenozide; Tembotrione; Temephos; Terbuthylazine; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralomethrin; Tralopyril; Tributyltin-containing compounds; Triclopyr, salts and esters; Triflumizole; Trifluralin; Triticonazole; Ziram.

FISH

Bonytail chub, *Gila elegans*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetochlor; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Fipronil; Flubendiamide; Fludioxonil; Fluometuron; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Phostebupirim; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Quizalofop-ethyl and isomers; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tefluthrin; Tembotrione; Temephos; Terbufos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters;

Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

<u>Bull trout (U.S. DPS), *Salvelinus confluentus (U.S. DPS)*</u>

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acequinocyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clodinafop-propargyl; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Diclofop-methyl; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Endosulfan; Esfenvalerate; Ethalfluralin; Ethofumesate; Ethoprop; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenoxaprop-P (+/-); Fenoxycarb; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Ferbam; Fluazinam; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluroxypyr 1-methylheptyl ester; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Pirimiphos-methyl; Prallethrin; Prodiamine; Propachlor; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyriproxyfen; Quizalofop-ethyl and isomers; Resmethrin; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Sulfosulfuron; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbufos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiophanate-methyl; Thiram; Tolylfluanid; Tralopyril; Triadimenol; Triallate; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram; Zoxamide.

Colorado pikeminnow, *Ptychocheilus lucius*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetochlor; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Fipronil; Flubendiamide; Fludioxonil; Fluometuron; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Phostebupirim; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Quizalofop-ethyl and isomers; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tefluthrin; Tembotrione; Temephos; Terbufos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol;

Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

Desert pupfish, *Cyprinodon macularius+Cyprinodon eremus*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluometuron; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin;

Tralopyril; Triadimenol; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

Lost River sucker, *Deltistes luxatus*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Diclofop-methyl; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Ethoprop; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenoxycarb; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Ferbam; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propachlor; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Quizalofop-ethyl and isomers; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine;

Sulfluramid; Sulfosulfuron; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Triadimenol; Triallate; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

North American green sturgeon (southern DPS), *Acipenser medirostris (southern DPS)*

1,3-Dichloropropene; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clodinafop-propargyl; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Diclofop-methyl; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Ethoprop; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenoxycarb; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Ferbam; Fluazinam; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propachlor; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Quizalofop-ethyl and isomers; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Sulfosulfuron; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Triallate; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram; Zoxamide.

Razorback sucker, *Xyrauchen texanus*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acetochlor; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Diquat dibromide; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Fentin hydroxide; Fipronil; Flubendiamide; Fludioxonil; Fluometuron; Fluopicolide; Fluoxastrobin; Fluridone; Fluroxypyr 1-methylheptyl ester; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metiram; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Phostebupirim; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn;

Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Prothioconazole; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Quizalofop-ethyl and isomers; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tefluthrin; Tembotrione; Temephos; Terbufos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Triallate; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

Santa Ana sucker, *Catostomus santaanae*

1,3-Dichloropropene; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-iodo-2-propynyl butyl carbamate; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acequinocyl; Acibenzolar-S-methyl; Acrolein; Alachlor; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Ammonium bromide; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bensulide; Bethoxazin; Bifenazate; Bifenthrin; Bis-(N-cyclohexyldiazeniumdioxy)-copper; Brodifacoum; Bromacil and salts; Bromethalin; Bromoxynil, salts and esters; Buprofezin; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chelerythrine chloride-sanguinarine chloride mixt.; Chlorantraniliprole; Chlorfenapyr; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clofentezine; Clonitralid; Coal tar hydrocarbons; Coumaphos; Creosote and creosote oil; Cyazofamid; Cybutryne; Cyfluthrin isomer mixtures; Cyhalofop butyl; Cyhalothrin isomer mixtures; Cymoxanil; Cypermethrin isomer mixtures; Cyphenothrin; Cyromazine; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dicofol; Difenacoum; Difenoconazole; Difethialone; Diflubenzuron; Dimethoate; Dipropyl isocinchomeronate; Dithiopyr; Diuron; Emamectin, benzoate; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Ethofenprox; Ethofumesate; Etoxazole; Famoxadone; Fenamidone; Fenarimol; Fenbuconazole; Fenbutatin-oxide; Fenitrothion; Fenpropathrin; Fenpryroximate; Flubendiamide; Fludioxonil; Fluopicolide; Fluoxastrobin; Fluridone; Fluthiacet-methyl; Fluvalinate; Halofenozide; Hexaflumuron; Hexythiazox; Hydramethylnon; Imiprothrin; Indoxacarb; Iprodione; Isoxaben; Kresoxim-methyl; Lactofen; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metalaxyl and isomers; Metam salts; Methidathion; Methiocarb; Methomyl; Methoprene and isomers; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Nabam; Naled; Nicarbazin; N-octyl bicycloheptene dicarboximide; Nonyl phenol ethoxylates; Oryzalin; Oxadiazon; Oxydemeton-Methyl; Oxyfluorfen; Para-dichlorobenzene; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet;

Phosphine; Picloram and salts; Piperalin; Piperonyl butoxide; Pirimiphos-methyl; Prallethrin; Prodiamine; Profenofos; Prometryn; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyraclostrobin; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Pyrimethanil; Pyriproxyfen; Reactive phosphide salts (Al, Mg); Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Sethoxydim; Siduron; Simazine; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spiromesifen; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tebufenpyrad; Tembotrione; Temephos; Terbuthylazine; Tetramethrin; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tolylfluanid; Tralomethrin; Tralopyril; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Triclosan; Trifloxystrobin; Triflumizole; Trifluralin; Triticonazole; Warfarin and salts; Ziram.

INSECTS

Behren's fritillary (Behren's silverspot), *Speyeria zerene behrensii*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Callippe silverspot, *Speyeria callippe callippe*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole. CS

Delhi Sands flower-loving fly, *Rhaphiomidas terminatus abdominalis*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Kern primrose sphinx moth, *Euproserpinus euterpe*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate;

Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Lange's metalmark, *Apodemia mormo langei*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Myrtle's silverspot, *Speyeria zerene myrtleae (sensu lato)*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide;

Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Ohlone tiger beetle, *Cicindela ohlone*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Quino checkerspot butterfly, *Euphydryas editha quino*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin;

Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

San Bruno elfin, *Callophrys mossii bayensis*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

Zayante band-winged grasshopper, *Trimerotropis infantilis*

Acephate; Acetamiprid; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Atrazine; Avermectin; Azinphos-Methyl; Bifenthrin; Carbaryl; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Clothianidin; Cyfluthrin isomer mixtures; Cyhalothrin isomer mixtures; Cypermethrin isomer mixtures; DDVP; Diazinon; Dicofol; Difenacoum; Diflubenzuron; Dimethoate; Dinotefuran; Emamectin, benzoate; Endosulfan; EPTC; Esfenvalerate; Ethofenprox; Etoxazole; Famoxadone; Fenamidone; Fenhexamid; Fenitrothion; Flubendiamide; Fluridone; Fluvalinate; Fosthiazate; Imidacloprid; Indoxacarb; Inorganic nitrate/nitrite; Malathion; Mefluidide and salts; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl Bromide; Methyl parathion; Metofluthrin; Milbemectin (A mixture of >=70% Milbemcin A4, & <=30% Milbemycin A3); Naled; Oxamyl; Oxydemeton-Methyl; PCNB; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Pinoxaden; Pirimiphos-methyl; Prallethrin; Profenofos; Propoxur; Pyraflufen-ethyl; Pyrasulfotole; Pyrethrins; Pyridaben; Pyridalyl;

Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Temephos; Tetramethrin; Thiamethoxam; Thiencarbazone-methyl; Thiobencarb; Tralomethrin; Triticonazole.

MAMMALS

Amargosa vole, *Microtus californicus scirpensis*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Buena Vista Lake ornate Shrew, *Sorex ornatus relictus*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone;

Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Fresno kangaroo rat, *Dipodomys nitratoides exilis*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB;

Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Giant kangaroo rat, *Dipodomys ingens*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Morro Bay kangaroo rat, *Dipodomys heermanni morroensis*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Riparian brush rabbit, *Sylvilagus bachmani riparius*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP

(Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Riparian woodrat, *Neotoma fuscipes riparia*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

<u>San Joaquin kit fox, *Vulpes macrotis mutica*</u>

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

<u>Stephen's kangaroo rat, *Dipodomys stephensi*</u>

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate;

Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

Tipton kangaroo rat, *Dipodomys nitratoides nitratoides*

1080; 10,10'-Oxybisphenoxyarsine; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Alpha-chlorohydrin; Aminopyralid and salts; Amitraz; Atrazine; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Cycloate; Cyfluthrin isomer mixtures; Cypermethrin isomer mixtures; Dazomet; DCPA; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Endosulfan; EPTC; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Flurprimidol; Fluvalinate; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Indoxacarb; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl iodide; Methyl parathion; Metolachlor and isomers; Metribuzin; Naled; Napropamide; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Rotenone; S,S,S-tributyl phosphorotrithioate; Sabadilla alkaloids; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium dimethyl dithio carbamate; Sodium fluoride; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat;

Strychnine; Tebufenozide; Tembotrione; Tetraconazole; Thiacloprid; Thidiazuron; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Warfarin and salts; Zinc Phosphide; Ziram.

MOLLUSKS

Morro shoulderband snail, *Helminthoglypta walkeriana*

2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; 3-Trifluoromethyl-4-nitrophenol; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Antimycin A; Atrazine; Azinphos-Methyl; Azoxystrobin; Benfluralin; Bromacil and salts; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Chromium (VI) compounds; Clonitralid; Coumaphos; Creosote and creosote oil; Cypermethrin isomer mixtures; DCPA; DDVP; Diazinon; Dichlobenil; Dicofol; Diflubenzuron; Dimethoate; Diuron; Endosulfan; Endothall and salts; Esfenvalerate; Ethalfluralin; Famoxadone; Fenitrothion; Flubendiamide; Fluoxastrobin; Fluridone; Fluvalinate; Furanone (tanol derivs.); Halofenozide; Iprodione; Kresoxim-methyl; Linuron; Malathion; Mancozeb; Mandipropamide; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaflumizone; Metal naphthenate salts (Cu, Zn); Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metofluthrin; Naled; Napropamide; Nicobifen; N-octyl bicycloheptene dicarboximide; Oxadiazon; Oxamyl; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Permethrin; Phenothrin; Phorate; Phosmet; Phosphine; Picloram and salts; Pinoxaden; Piperonyl butoxide; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propylene oxide; Propyzamide; Pyrasulfotole; Pyrethrins; Pyridalyl; Resmethrin; Rotenone; S,S,S-tributyl phosphorotrithioate; Siduron; Simazine; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirodiclofen; Spirotetramat; Tebufenozide; Tembotrione; Terbuthylazine; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tributyltin-containing compounds; Triclopyr, salts and esters; Triflumizole; Triticonazole; Ziram.

REPTILES

Blunt-nosed leopard lizard, *Gambelia sila*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin;

Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Coachella Valley fringe-toed lizard, *Uma inornata*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet;

Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Desert tortoise (Mojave DPS), *Gopherus agassizii*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluometuron; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPB and salts; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Trichlorfon; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

Giant garter snake, *Thamnophis gigas*

1080; 2,4-D, salts and esters; 3-chloro-p-toluidine hydrochloride; Acephate; Acrolein; Aldicarb; Allethrin stereoisomers, Bioallethrin; Aminopyralid and salts; Amitraz; Antimycin A; Atrazine; Avermectin; Azinphos-Methyl; Benfluralin; Bentazon and salts; Brodifacoum; Bromacil and salts; Bromadiolone; Bromethalin; Bromoxynil, salts and esters; Captan; Carbaryl; Carbendazim and salts; Carbofuran; Chlorantraniliprole; Chlorfenapyr; Chlorflurenol, methyl ester; Chlorophacinone; Chloropicrin; Chlorothalonil; Chlorpyrifos; Chlorpyrifos-methyl; Cholecalciferol; Chromium (VI) compounds; Clothianidin; Coumaphos; Cyclanilide; Cyfluthrin isomer mixtures; Dazomet; DDVP; Diazinon; Dicamba and salts; Dichlobenil; Dichloran; Dichlorprop (2,4-DP), salts and esters; Dicofol; Difenacoum; Difethialone; Dimethoate; Diphacinone and salts; Diuron; Emamectin, benzoate; Endosulfan; Famoxadone; Fenbutatin-oxide; Fenitrothion; Flubendiamide; Fluridone; Forchlorfenuron; Formetanate hydrochloride; Fosthiazate; Hydramethylnon; Imidacloprid; Indoxacarb; Inorganic arsenic compounds; Inorganic nitrate/nitrite; Iprodione; Linuron; Malathion; Mancozeb; Maneb; MCPA, salts and esters; MCPP (Mecoprop) and salts; Mefluidide and salts; Metaldehyde; Methidathion; Methiocarb; Methomyl; Methoxyfenozide; Methyl parathion; Metofluthrin; Metolachlor and isomers; Metribuzin; Naled; Nicobifen; Nonyl phenol ethoxylates; Oxadiazon; Oxamyl; Oxydemeton-Methyl; Oxyfluorfen; Paraquat dichloride; PCNB; Pendimethalin; Pentachlorophenol and salts; Phorate; Phosmet; Phosphine; Pirimiphos-methyl; Profenofos; Prometryn; Propamocarb hydrochloride; Propanil; Propargite; Propiconazole; Propoxur; Propyzamide; Pymetrozine; Pyrasulfotole; Pyridalyl; Pyrimethanil; Reactive phosphide salts (Al, Mg); Resmethrin; S,S,S-tributyl phosphorotrithioate; Sethoxydim; Siduron; Simazine; Sodium chlorate; Sodium cyanide; Sodium Tetrathiocarbonate; Spinetoram and spinosad; Spirotetramat; Strychnine; Sulfluramid; Tebufenozide; Tembotrione; Temephos; Tetraconazole; Thiacloprid; Thiencarbazone-methyl; Thiobencarb; Thiodicarb; Thiophanate-methyl; Thiram; Tralopyril; Triadimefon; Triadimenol; Tributyltin-containing compounds; Triclopyr, salts and esters; Trifluralin; Triticonazole; Vinclozolin; Warfarin and salts; Zinc Phosphide; Ziram.

From:	Michele Dias
To:	Michael Stevenson;
Subject:	Scoping Comments: Statewide PEIR
Date:	Monday, July 25, 2011 12:46:01 PM

From: Kris Brewer [mailto:kris@krbrewer.com]
Sent: Mon 7/25/2011 12:34 PM
To: Pest PreventionEIR
Cc: Assemblymember.Huffman@outreach.assembly.ca.gov
Subject: Statewide PEIR

July 25, 2011

To Whom It May Concern:

I am writing regarding the California Department of Food and Agriculture's plans to conduct a statewide Programmatic Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program.

I am adamantly opposed to this.

I understand that "the overall goal of this statewide program is to create a vehicle which provides a time-sensitive and efficient framework for evaluating potential environmental impacts of the various pest management activities implemented by CDFA and its partners." However, I believe the goal is also to eliminate the potential for people to actively oppose the CDFA's pest-control methods, including so-called "inerts," which are outdated and toxic to the environment, and to all living things in it.

As we know, the chemical program the CDFA proposed for the Light Brown Apple Moth several years ago would have gone forward were it not for tremendous public outcry. This program would have entailed years of monthly spraying and other methods of chemical distribution to saturate our environment. Yet, even without this program, the LBAM has not devastated California Agriculture as the CDFA threatened it would. How many other false threats will the CDFA insist on treating to the detriment of human and environmental health? A statewide PEIR will only result in speeding up their access to do so.

We cannot take lightly the serious impacts that chemicals, synthetic pheromones and inerts, as well as sterile moths and other insects can have on the health of us all and our environment. There are more sustainable, non-toxic methods of pest control available, and many knowledgeable, experienced people already using them.

Please do not go forward with this PEIR.

Most sincerely,
Kris Richardson Brewer

California State Grange

3830 U Street Sacramento, California 95817
(916) 454-5805 / fax: (916) 739-8189
master@californiagrange.org

July 25, 2011

Karen Ross, Secretary of Agriculture
California Department of Food & Agriculture

Via fax: 916-653-4783

Dear Secretary Ross:

We took interest in your comments at the recent meeting of the Committee for Sustainable and Organic Agriculture. We'd like to take this opportunity to comment on the scope of the Statewide Plant Pest Prevention Programmatic Environmental Impact Report.

The Grange is the oldest agricultural organization in California with 10,000 members in 189 communities. For 140 years, we have supported farmers and healthy communities.

Your commitment to protecting California's crops from invasive pests is laudable, but only if the methods of eradication are sound, safe and consider the impact on our citizens living in farming communities. The Grange supports a holistic approach that supports our farmers and considers the protection and promotion of healthy communities.

The California State Grange urges that any pest eradication program put the interest of public safety FIRST.

Kindest Regards,

Bob McFarland

Bob McFarland, President
California State Grange

Certified CCOF Organic

CCOF

Organic Certification Trade Association Education & Outreach Political Advocacy

July 25, 2011

The Honorable Edmund G. Brown, Jr.
Governor, State of California
State Capitol
Sacramento, CA 95814

Sent via fax: 916-558-3177

Re: California Department of Food and Agriculture (CDFA) Programmatic Environmental Impact Report (PEIR) for Statewide Plant Pest Prevention and Management Program

Dear Governor Brown:

I am writing on behalf of the California Certified Organic Farmers (CCOF) to underscore the importance, to organic farmers of CDFA's current Statewide Pest Prevention Plan and Management Program and California Environmental Quality Act Project Environmental Impact Review (PEIR) processes. CCOF, founded in 1975, is a non-profit organic certifier, trade association and foundation that represents 2400 organic operations in California and across the country. Nearly 60 percent of our members fall within the USDA small farmer designation, and we also represent many larger companies including Earthbound and Whole Foods.

National organic industry sales grew to $29 billion in 2010 and California is the largest organic producer in the nation. An effective Pest Prevention Plan and Management program, operating under the following PEIR conditions, is critical to protecting the diversity of California agriculture – and the growing organic sector:

The PEIR should encourage CDFA to develop a hierarchy of choices for pest eradication which starts with preventative and exclusionary measures, runs through cultural and biological choices next, and always includes an organically approved pesticide in the control choices. The PEIR should not replace the Environmental Impact Report (EIR) for individual pest prevention programs, but rather, provide a larger context for valuable individual EIR input.

Recognition of the University of California, Davis definition of Integrated Pest Management (IPM):

A pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as encouraging biological control, use of resistant varieties, and adoption of alternate cultural practices such as modification of irrigation or pruning to make the habitat less conducive to pest development. Pesticides are used only when careful monitoring indicates they are needed according to preestablished guidelines, treatment thresholds, or to prevent pests from significantly interfering with e purposes for which plants are being grown.

Thank you for your consideration.
Sincerely,

Cathy Calfo, Executive Director/CEO

cc: Karen Ross, Secretary, California Department of Food and Agriculture
Rick Jensen, Director, CDFA Director of Plant Health

From: Michele Dias
To: Michael Stevenson;
Subject: FW: PEIR Plant Pest Mgmt Program - Comments & Questions
Date: Tuesday, July 26, 2011 11:22:22 AM

From: Glen Chase [mailto:glenchase@aol.com]
Sent: Mon 7/25/2011 10:27 PM
To: Pest PreventionEIR
Cc: yphillips@comcast.net Yannick Phillips; fegger@pacbell.net Egger Fairfax; David Dilworth; glen chase; debbie.friedman@mac.com; Moth Stephan C. Volker, Attorn
Subject: PEIR Plant Pest Mgmt Program - Comments & Questions

To: Michele Dias
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814

Statewide Plant Pest Prevention and Management Program
Environmental Impact Report (EIR)

Public Response: Comments and Questions by Glen Chase, July 25, 2011.

Comment #1:
1. Past Assemblyman Laird requested that an invasive pest management program be developed in advance so that inappropriate, unnecessary and incompetent invasive pest management programs such as the CDFA Light Brown Apple Moth program would never be repeated again.

However, Laird did not intend that his request would result in the CDFA creating a broad management program PEIR attempting to avoid and circumnavigate CEQA law and the required EIR process for each individual pest program and circumstance as they occur as this current CDFA EIR is attempting.

Question #1:
Please list the complete list of errors that were made by CDFA in:
1.a Misrepresenting the LBAM program as an "Emergency"
1.b Reporting agriculture damage from LBAM to media, elected representatives and the public when in fact no documented LBAM damage had occurred anywhere in the State of California.
1.c Aerially spraying a pheromone substance onto 100's of thousands of people, their homes and schools in Santa Cruz and Monterey Counties, yet neglecting to report to them that it was also a category 3 toxin.
1.d Aerially spraying a pesticide directly onto people and their homes and doing no

inhalation test for danger under the rational that the pesticide particles were greater in size than 25 microns, when in fact more than half of the particles were less than 10 microns in size, the size known to be able to directly enter the blood stream via the lungs and be extremely damaging and life threatening to the population.
1.e Receiving over 600 reports of illness after the CDFA aerial spray and being alerted to thousands of others who became ill, yet ignoring them all and not responding to a single person who suffered, including the family of the 11-month-old child whose life was saved by opening his airway with steroids, etc. at Community Hospital of Monterey Peninsula following the aerial spray.

Comment #2:
CEQA law has EIR requirements that are TIME sensitive. That is because there have to be cutoff dates or else the EIR would never end as new and additional information could continue to flow in, but the EIR must consider the bundle of current data and issues that are relevant at some time or for some time period during the EIR process.

CEQA law requires the analysis and consideration of the interaction of factors, issues and data that are available at the time or within the time period that the EIR is prepared. Since that time period would be very unlikely to include optimum preparations for interactions with future factors and data, the EIR must be time sensitive to availability of known factors, issues and data currently and the EIR can only be expected to include factors, issues and data relevant to the current time.

The CDFA is attempting at this time to complete a management portion of an EIR for pest programs across the state of California, some which are known today, others that are imagined and still others that haven't even been thought of, as the future is not yet known. This approach is inappropriate since future issues, factors and data cannot simply be added in later, but they need to interact with each other and the other current factors of their times. By completing the significant portion of the PEIR today, it marginalizes the issues as they interact in the future and it reduces the ultimate effectiveness of programs due to a heavy anchor fixed into the past.

Environments are often complex and interrelated and the purpose of the EIR is to integrate various factors as they effect each other individually, in complement and as they affect the total environments. To complete the management program portion of all or a substantial number of EIR's to come on this subject is an inappropriate administrative tool that defeats the substantial purpose of the EIR process.

Management programs and processes require change as frequently or more frequently than the issues and factors and data that they manage, so this CDFA attempt to complete the EIR process for the management program portion of pest programs is (1) to ignore the need for flexibility over time to accommodate factors at the time; (2) to lay extra layers of unnecessary bureaucracy and protocol that may not even be relevant at later dates; (3) to make it difficult to move quickly as times, scenarios, needs and priorities change over time and (4) to make it more difficult to effectively address and protect the environments of the future.

CDFA in the past LBAM EIR process held scoping meetings at locations and times that were near impossible to attend for those people familiar with the subject who wanted to attend such meetings. Even though these members of the public identified times and places they could attend and requested in writing such times and places of CDFA, CDFA ignored their requests and avoided hundreds of people attending and contributing and instead held sessions in areas and times where four or five people were in attendance, rather than hundreds.

CDFA has continuously and consistently spent their time and efforts with strategies to minimize the administrative requirements of the EIR process and even more to avoid the substantive requirements and purpose of the EIR process.

There is no good reason to have to average the effectiveness of an EIR process in six years or eight years from now with an old outdated program that CDFA is now trying to get past the EIR process.

Because the CDFA bungled the EIR process with the Light Brown Apple Moth is not substantiation for CDFA to do an "End run" now and avoid the full scrutiny and scope on what would normally and correctly be multiple EIR's.

Question #2.1
Would CDFA please prepare management plans and programs for their own internal use and to share with the public as they and the public sees fit, but not try to ram these management plans through an EIR process that does not have the complete information that a proper EIR evaluation requires?

Question #2.2
Would the CDFA please prepare EIR's when the specific program circumstances arise as is the method and the intention of the CEQA EIR process?

Comment #3:
I am a professional in developing management systems and it is fine to prepare and consider and plan for a variety of scenarios. But until the actual scenario is identified, it is inappropriate to complete the construction of the actual management system and even more inappropriate to present it for EIR approval. CEQA EIR's are the people's tools to evaluate and protect and effectively handle our environments. The people see no emergency or necessity to rush such that they would want to apply The CEQA EIR process to only a portion of the full issues, data and factors at this time to satisfy the CDFA strategy to piece meal and avoid the true intent of the CEQA EIR process.

Comment #4:
CDFA is attempting to get blanket approval for multiple projects that cannot be appropriately identified to satisfy CEQA EIR requirements at this time.

An example that is similar to what CDFA is doing is as follows. A building contractor, rather than applying for building permits as he identifies each property and building that he intends to build, is instead trying to get a permit for any and all properties and buildings throughout the state based on a management and construction plan, and then to simply add in the individual sights and buildings later on as he selects them. That is NOT legal nor the way it is done in California for obvious reasons. For reasons of CEQA EIR law and for obvious reasons, The CDFA should also not be allowed to do such a thing, should not be allowed to avoid CEQA law regarding EIR.

Comment #5:
The CDFA does NOT have the authority, the reputation or the resume to be granted extreme exceptions to CEQA law nor be allowed to manipulate and violate CEQA EIR law.

From: Michele Dias
To: Michael Stevenson;
Subject: Scoping Comments: CA Statewide PEIR
Date: Monday, July 25, 2011 12:46:28 PM

From: lisa chipkin [mailto:lisachipkin@gmail.com]
Sent: Mon 7/25/2011 12:37 PM
To: Pest PreventionEIR
Cc: Assemblymember.Huffman@outreach.assembly.ca.gov
Subject: CA Statewide PEIR

July 25, 2011

To Whom It May Concern:

I am writing regarding the California Department of Food and Agriculture's plans to conduct a statewide Programmatic Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program.

I am adamantly opposed to this.

I understand that "the overall goal of this statewide program is to create a vehicle which provides a time-sensitive and efficient framework for evaluating potential environmental impacts of the various pest management activities implemented by CDFA and its partners." However, I believe the goal is also to eliminate the potential for people to actively oppose the CDFA's pest-control methods, including so-called "inerts," which are outdated and toxic to the environment, and to all living things in it.

As we know, the chemical program the CDFA proposed for the Light Brown Apple Moth several years ago would have gone forward were it not for tremendous public outcry. This program would have entailed years of monthly spraying and other methods of chemical distribution to saturate our environment. Yet, even without this program, the LBAM has not devastated California Agriculture as the CDFA threatened it would. How many other false threats will the CDFA insist on treating to the detriment of human and environmental health? A statewide PEIR will only result in speeding up their access to do so.

We cannot take lightly the serious impacts that chemicals, synthetic pheromones and inerts, as well as sterile moths and other insects can have on the health of us all and our environment. There are more sustainable, non-toxic methods of pest control available, and many knowledgeable, experienced people already using them.

Please do not go forward with this PEIR.

Sincerely,
Lisa Chipkin, San Rafael, CA

SANTA CLARA
CALIFORNIA

Santa Clara
All-America City
2001

Planning Division

July 25, 2011

Michele Dias, Acting Chief Counsel
Dr. Robert Leavitt, Director Plant Health and Pest Prevention Services
California Department of Food and Agriculture
1220 N Street
Sacramento CA 95814

via email to: PEIR.info@cdfa.gov

Re: NOP Response: Statewide Plant Pest Prevention and Management Program

Thank you for bringing to the attention of the City of Santa Clara Mayor and City Council the Notice of Preparation (NOP) for the California Department of Food and Agriculture's Statewide Plant Pest Prevention and Management Program. City staff have reviewed the materials provided and understand that you have prepared a comprehensive list of issues that will be included and analyzed in the Draft EIR. We would ask that your project description define the role of local governments in administering the program in any way and that the analysis include the possible impacts on local urban communities on an ongoing basis with respect to any hazardous pesticides or any planting restrictions that may be a part of the program.

Please be sure to include us in your list for distribution of the Notice of Completion of the Draft EIR. We look forward to reviewing the Draft EIR when it is made available and providing to you any comments that we may have at that time.

Sincerely,

Kevin L. Riley

Kevin L. Riley
Director of Planning and Inspection

cc: Mayor and City Council
City Manager

I:\PLANNING\2011\CC-CM 2011\CMAs -Assignments\State CDFA - Plant Pest Program NOP - July 2011 ltr.doc

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CALIFORNIA
NATIVE PLANT SOCIETY

July 25, 2011

California Department of Food & Agriculture
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suite 400
Sacramento, CA 95814

Dear Ms. Dias:

The California Native Plant Society (CNPS) provides herein our comments regarding the California Department of Food & Agriculture's (CDFA's) Pest Management Programmatic Environmental Impact Report (Pest PEIR).

CNPS is a non-profit organization working to protect California's native plant heritage and preserve it for future generations. Our nearly 10,000 members professional and volunteers who work to promote native plant conservation through 33 chapters statewide.

CNPS recognizes the potential for a statewide Pest PEIR to facilitate the implementation of effective invasive species management practices, by both state agencies and local authorities. Additionally, the Pest PEIR represents an opportunity for a full review and vetting of chemicals to be employed by the Statewide Program which can help clarify concerns over their use.

Our organization also acknowledges the concerns of citizen stakeholders who have expressed strong opposition to the current PEIR effort, and have articulated these concerns in a letter to Governor Brown and Secretary Karen Ross (June 24, 2011), and in meetings with representatives of both CDFA and Governor Brown's office.

The draft PEIR should provide a regulatory means that would allow CDFA or other appropriate agencies to address non-native invasive species effectively through a Statewide Program, while ensuring that management tactics and programs will use tools and methods that do not pose health or environmental risks. We make the following recommendations regarding how the CDFA can ensure more public acceptance of the Pest PEIR and the information assessed within it.

<u>Ensuring public input, providing a methodology for new information, building public trust.</u>

CNPS recognizes that chemical treatments (e.g. herbicides) can be an effective tool for controlling invasive non-native species that impact native vegetation. However, chemical sprays, like other vegetation treatments, have potential adverse effects. The decision of whether or not to use chemicals in a specific invasive species management project should be based on an evaluation of chemical and alternative treatments. The NOP states that the draft PEIR will address discretionary actions including, "(a) methodology for evaluation of environmental impacts related to new pests, pest management tactics, and pest prevention and management programs." Therefore the draft PEIR must clearly describe what methodology will provide for future input and modifications to current management tactics and programs assessed in the PEIR, whereby advances in effective pest management practices resulting from scientific research, which make them less dependent on potentially harmful chemicals and more sensitive to protecting human and environmental health, are incorporated into the Statewide Program.

The "methodology for evaluation" must include the creation of an independent advisory committee that will monitor current practices identified and assessed within the PEIR, as well as novel methods that are effective and less-dependent on chemical pesticides and herbicides and provide objective recommendations to the CDFA.

The "methodology" must also describe how CDFA will be required to respond to recommendations of the independent advisory committee.

The CDFA should convene a series of stakeholder meetings - beyond those already held - during the development of the draft PEIR to solicit stakeholder input on how to integrate new tools and practices into the Statewide Program, and incorporate this input into the Statewide Program as appropriate.

We urge the CDFA not to trade trust for expediency, and to consider these recommendations for a transparent, science-based approach to developing a Pest PEIR that incorporates a broad spectrum of stakeholder input. In this way, the CDFA can build public trust, avoid challenges to the PEIR, and implement an effective, enforceable Statewide Program.

We are concerned that the proposed Pest PEIR is overly broad, and will not be able to adequately address, or even identify, environmental concerns associated with current and future pest management programs. To address this concern, we strongly feel the organization of pest prevention and management information into pest groups, as described in the NOP, should include categories that divide agricultural pests from wildlands pests to further facilitate the use of the PEIR.

Statewide Program Objectives and Guiding Principles

The NOP lists Statewide Program Objectives. In addition to these Program Objectives, CNPS recommends that the CDFA adopt the Statement of Principles developed by the California Invasive Species Advisory Committee (CISAC) as guiding principles for the development of the Pest PEIR:

1. *We are committed to creating a sustainable future for California.*

   Managing invasive species is essential to creating a sustainable future for California. Invasive species cause ecological, economic and cultural harm to the natural world and human society. We are committed to reducing these damages in ways that advance environmental stewardship, economic development and social equity, while ensuring human health.

2. *California has tools to address invasive species, but stronger efforts are needed to meet increasing pressures.*

   Many local, state and federal agencies provide vital services in preventing, detecting and managing invasive species, but growing domestic and international travel and transport increase California's vulnerability. California needs to build on successful existing programs and develop new efforts to increase its effectiveness at addressing the problem. Given the complex and diverse ways that invasive species reach and impact our State, effective coordination among public agencies and members of the public is essential to good stewardship.

3. *Criteria for decision making must be clear and consistent.*

   Prevention and management of invasive species requires strategic decision-making based on a thorough assessment of the risks posed both by target species and by management tactics. Innovative solutions to complex problems require the best available scientific evidence as well as consistent, transparent criteria that are based on widely shared values and offer broad public benefits.

4. *Public engagement is vital.*

All Californians have a stake in dealing with invasive species, and all Californians should have a voice in our collective response to the harm they pose to our State. Public agencies must employ transparent methods of making decisions and actively encourage public involvement. When conflicts arise, we believe that mediation, public deliberation and consensus building are preferable to legal action and offer the best routes to wise choices and improved outcomes.

Noxious Weed Control Program

We provide the following comments regarding information that our organization feels should be addressed in the draft PEIR regarding noxious weed control management tactics and programs. These comments are based on our CNPS Herbicide Policy, adopted in 2008, which we provide in full as an attachment to this letter.

CNPS recognizes that herbicide can be an effective tool for controlling invasive non-native plants (weeds) that impact native vegetation. However, herbicide, like other vegetation treatments, has potential adverse effects. The decision of whether or not to use herbicide in a specific weed management project is site-specific, and should be based on an evaluation of herbicide and alternative treatments, especially from an environmental standpoint. Project plans should address the conservation of native plants and their habitat.

We are concerned that when herbicide is used for controlling roadside vegetation, its use should be conducted under a plan that addresses the conservation of native plants and their habitat.

CNPS opposes the use of herbicide in forest management, to maximize timber production by targeting non-timber native species.

The tradeoff between the benefits and costs of using herbicide - either proven or alleged - has made it difficult for the public at large, CNPS members, other organizations, and public agencies to evaluate whether or not to use herbicide.

In the context of native vegetation, CNPS distinguishes between the types of herbicide use that it considers appropriate, and those it considers inappropriate. Where the use of herbicide is appropriate, CNPS offers suggestions that will help ensure that herbicide is used properly. We recommend the CDFA incorporate these recommendations into the Pest PEIR assessment of the Statewide Noxious Weed Control Program:

1. Appropriate Use – Weed management
Herbicide is a potentially useful tool for controlling weedy or invasive plants. However, the following precautions and considerations should be made before herbicide is selected and applied as a treatment in locations where native vegetation may be affected:

A. Compare herbicide and alternative treatments for effectiveness, and for potential impacts, both on the environment and on human beings. Monetary cost should not be the only consideration. Herbicide may be appropriate if it is among the most biologically effective or among the least harmful of the alternatives for the task at hand. The most effective treatment may be a combination of methods.

B. As with all vegetation treatments, herbicide treatment should have clear and achievable objectives, preferably including a gradual reduction or phase-out of the need for continued intervention.

C. Ensure that herbicide is used in accordance with label instructions and applicable laws and regulations, and that it is applied by trained personnel, with sufficient supervision to insure that it is applied in the manner and locations intended.

D. Application personnel must be able to distinguish between the target weeds and native plants, particularly any native plants of concern, and should avoid herbicide drift.

E. Adverse impacts to natural resources, such as pollinators, wildlife, and water, and to people, their property, and cultural resources must be avoided or mitigated.

F. Public notification and posting of herbicide application sites should be required on public lands, and on private lands where the public may be affected, such as near public roads.

2. Use of Concern – Controlling roadside vegetation
In those areas where roadside herbicide use is permissible under public law and policy, it should be done within the context of an approved, long-term and comprehensive management plan that addresses not only maintenance and public safety, but also the conservation of native plants and their habitat. Where feasible, the plan should encourage the establishment of native vegetation of a type that would ultimately reduce the need to continue to use herbicide. The Integrated Roadside Vegetation Management Plan of the state of Iowa is an example of this type of management.[1]

3. Inappropriate Use – Post-logging, post-fire treatment to maximize timber-production
CNPS opposes the use of herbicide or any other method of post-fire or post-logging treatment where the main objective is to suppress the natural re-growth of native plants in order to maximize timber production. This practice is likely to have severe and long lasting impacts to forest plant diversity. Among our concerns are the following:

A. **Extent -** Herbicide is currently being used for this purpose on hundreds of thousands of acres of private and public forest lands in California.

B. **Cumulative impact unknown-**If this practice continues, each harvest rotation will likely reduce the presence of non-timber native plants. The specific and cumulative impacts to native seed banks and to biological diversity have not been quantified, nor are they currently being monitored or mitigated by any public or private agency or entity.

C. **May contribute to the risk of wildfire -** It has been observed that herbicide use can contribute to the establishment of a dense understory of non-native grasses likely to increase fire hazard.[2] When wildfires occur in plantations (a frequent occurrence[3]), the management response usually includes re-application of herbicide, which may exacerbate the problem.

D. **Poor protections -** The regulatory system currently governing private timberland operations in

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1 State of Iowa. 2007. Integrated Roadside Vegetation Management, website maintained by Roadside Office, University of Northern Iowa, Cedar Falls. Accessed on Tue, Aug. 21, 2007 at http://www.uni.edu/irvm/.

2 Weatherspoon, C.P., and C.N. Skinner. 1995. An assessment of factors associated with damage to tree crowns from the 1997 wildfires in northern California. Forest Science, 41:430-451.

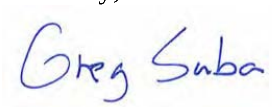
3 Franklin, J.F., and J.K. Agee. 2003. Forging a science-based national forest fire policy. Issues in Science and Technology. Fall 2003

California does not provide for the protection of threatened, rare or endangered plant species after logging operations have been completed.

CNPS believes the use of herbicides in commercial forestry is resulting in cumulative impacts that violate California Forest Practice Rules, Subch.2, Art. 1, § 897 (b) (1)-(2) which require the goal of forest management to be forests that are “healthy and naturally diverse, with a mixture of trees and understory plants”.

We appreciate the opportunity to provide comments during the Scoping period of the CDFA's Pest PEIR process. Please accept and fully review our recommendations, and do not hesitate to contact me if you have questions regarding our information.

Sincerely,



Greg Suba
CNPS Conservation Program Director
(916)-447-2677 x-206
gsuba@cnps.org

Attachment: CNPS Herbicide Policy

CNPS Policy - THE USE OF HERBICIDE IN SITUATIONS WHERE NATIVE VEGETATION MAY BE AFFECTED (3-08-08)

Policy Statement

1. CNPS recognizes that herbicide can be an effective tool for controlling invasive non-native plants (weeds) that impact native vegetation. However, herbicide, like other vegetation treatments, has potential adverse effects. The decision of whether or not to use herbicide in a specific weed management project is site-specific, and should be based on an evaluation of herbicide and alternative treatments, especially from an environmental standpoint. Project plans should address the conservation of native plants and their habitat.

2. CNPS is concerned that when herbicide is used for controlling roadside vegetation, its use should be conducted under a plan that addresses the conservation of native plants and their habitat.

3. CNPS opposes the use of herbicide in forest management, to maximize timber production by targeting non-timber native species.

Background

The tradeoff between the benefits and costs of using herbicide—either proven or alleged—has made it difficult for the public at large, CNPS members, other organizations, and public agencies to evaluate whether or not to use herbicide.

Goal/purpose

In the context of native vegetation, CNPS distinguishes between the types of herbicide use that it considers appropriate, and those it considers inappropriate. Where the use of herbicide is appropriate, CNPS offers suggestions that will help ensure that herbicide is used properly.

Recommendations

1. **Appropriate Use – Weed management**

   Herbicide is a potentially useful tool for controlling weedy or invasive plants. However, the following precautions and considerations should be made before herbicide is selected and applied as a treatment in locations where native vegetation may be affected:

   A. Compare herbicide and alternative treatments for effectiveness, and for potential impacts, both on the environment and on human beings. Monetary cost should not be the only consideration. Herbicide may be appropriate if it is among the most biologically effective or among the least harmful of the alternatives for the task at hand. The most effective treatment may be a combination of methods.

   B. As with all vegetation treatments, herbicide treatment should have clear and achievable objectives, preferably including a gradual reduction or phase-out of the need for continued intervention.

C. Ensure that herbicide is used in accordance with label instructions and applicable laws and regulations, and that it is applied by trained personnel, with sufficient supervision to insure that it is applied in the manner and locations intended.

D. Application personnel must be able to distinguish between the target weeds and native plants, particularly any native plants of concern, and should avoid herbicide drift.

E. Adverse impacts to natural resources, such as pollinators, wildlife, and water, and to people, their property, and cultural resources must be avoided or mitigated.

F. Public notification and posting of herbicide application sites should be required on public lands, and on private lands where the public may be affected, such as near public roads.

2. Use of Concern – Controlling roadside vegetation

In those areas where roadside herbicide use is permissible under public law and policy, it should be done within the context of an approved, long-term and comprehensive management plan that addresses not only maintenance and public safety, but also the conservation of native plants and their habitat. Where feasible, the plan should encourage the establishment of native vegetation of a type that would ultimately reduce the need to continue to use herbicide. The Integrated Roadside Vegetation Management Plan of the state of Iowa is an example of this type of management. (1)

3. Inappropriate Use – Post-logging, post-fire treatment to maximize timber-production

CNPS opposes the use of herbicide or any other method of post-fire or post-logging treatment where the main objective is to suppress the natural re-growth of native plants in order to maximize timber production. This practice is likely to have severe and long lasting impacts to forest plant diversity. Among our concerns are the following:

A. **Extent** - Herbicide is currently being used for this purpose on hundreds of thousands of acres of private and public forest lands in California.

B. **Cumulative impact unknown** - If this practice continues, each harvest rotation will likely reduce the presence of non-timber native plants. The specific and cumulative impacts to native seed banks and to biological diversity have not been quantified, nor are they currently being monitored or mitigated by any public or private agency or entity.

C. **May contribute to the risk of wildfire** - It has been observed that herbicide use can contribute to the establishment of a dense understory of non-native grasses likely to increase fire hazard (2). When wildfires occur in plantations (a frequent occurrence (3)), the management response usually includes re-application of herbicide, which may exacerbate the problem.

D. **Poor protections** - The regulatory system currently governing private timberland operations in California does not provide for the protection of threatened, rare or endangered plant species after logging operations have been completed.

CNPS believes the use of herbicides in commercial forestry is resulting in cumulative impacts that violate California Forest Practice Rules, Subch.2, Art. 1, § 897 (b) (1)-(2) which require the goal of forest management to be forests that are "healthy and naturally diverse, with a mixture of trees and understory plants".

References cited

1. State of Iowa. 2007. Integrated Roadside Vegetation Management, website maintained by Roadside Office, University of Northern Iowa, Cedar Falls. Accessed on Tue, Aug. 21, 2007 at http://www.uni.edu/irvm/.
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3. Franklin, J.F., and J.K. Agee. 2003. Forging a science-based national forest fire policy. Issues in Science and Technology. Fall 2003

Supporting references

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CALIFORNIA
TABLE GRAPE
COMMISSION

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July 25, 2011

Governor Jerry Brown
c/o Cliff Rechtschaffen
State Capitol, Suite 1173
Sacramento, CA 95814

Re: Notice of Preparation of a Draft Environmental Impact Report

Dear Governor Brown:

The California Table Grape Commission is the promotional, educational, research and issues management arm of California's fresh grape industry. Established by an act of the California legislature in 1967, the commission's mandate is to promote the sale of fresh grapes by advertising and other similar means for the purpose of maintaining and expanding present markets and creating new and larger intrastate, interstate and foreign markets for fresh grapes. California produces 98 percent of the U.S. fresh table grape production and exports to more than 60 countries with export shipments representing 40 percent of the yield. California's table grape growers understand the complexity of international trade, and pest and disease restrictions play a major part in these complexities.

Invasive pests are a major threat to the California table grape industry. Last year's detection of the European grapevine moth in Fresno County resulted in imposed restrictions on California table grape shipments by some of the industry's leading trade partners, including Canada, Mexico, Australia, New Zealand and South Africa. If a new invasive pest is established, new control methods will have to be adopted to prevent crop damage, which will result in additional pesticide applications, and exported grapes will have to undergo postharvest fumigations in order to prevent its introduction to the country of export.

In response to the threat of invasive pests and plant disease, the California Department of Food and Agriculture (CDFA) proposes creation of a Statewide Plant Pest Prevention and Management Program and accordingly is developing a proposed Environmental Impact Report that would look at a host of potential threats to the state's multi-billon dollar farm economy. The plan is to evaluate the range of plant pest prevention and management activities currently implemented by CDFA and those that are likely to be needed in the near future.

It is critical for California to have this statewide program in place to facilitate rapid and effective prevention, eradication and controls for new or expanding invasive plant pests or disease. Without it, the viability of the state's $34 billion agricultural industry is at risk.

The commission fully supports the creation of the Statewide Plant Pest Prevention and Management Program and of the proposed Environmental Impact Report by CDFA. We believe this statewide program will result in early detections, smaller infestations and effective eradications of invasive species, which will increase the economic viability of the state's agricultural industry.

Please contact me with any questions.

Regards,

Kathleen Nave

Kathleen Nave
President

cc: Karen Ross, Secretary, CDFA
Michele Dias, Acting Chief Counsel, CDFA

EARTHJUSTICE

BOZEMAN, MONTANA DENVER, COLORADO HONOLULU, HAWAII
INTERNATIONAL JUNEAU, ALASKA NEW YORK, NEW YORK OAKLAND, CALIFORNIA
SEATTLE, WASHINGTON TALLAHASSEE, FLORIDA WASHINGTON, D.C.

Via Electronic Mail

July 25, 2011

Attention: Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814
PEIR.info@cdfa.ca.gov

Re: CDFA's June 23, 2011 Notice of Preparation of a Draft Programmatic Environmental Impact Report for a Statewide Plant Pest Prevention and Management Program

Dear Ms. Dias:

On behalf of California Environmental Health Initiative, MOMS Advocating Sustainability, and Center for Environmental Health, I submit these comments on the California Department of Food and Agriculture's ("CDFA") June 23, 2011 Notice of Preparation of a Draft Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program ("Pest PEIR"). These groups support sensible management of non-native species in California that protects public health and the environment.

The Statewide Program being considered by CDFA appears to broadly consist of an undisclosed number of plant pest prevention and management programs and activities implemented by CDFA throughout California. The actual environmental impacts of these activities are likely to be far-reaching and highly dependent on site-specific environmental variables, such as geography and climatic conditions. Given the apparent grand scale of CDFA's proposal, it is highly unlikely that CDFA could predict or analyze all of the on-the-ground environmental impacts in the Pest PEIR.

Thus, to comply with CEQA, it is critical that CDFA focus on developing a comprehensive *programmatic* EIR that addresses broad-scale policy issues across CDFA's Statewide Program. It must clearly define the proposed Statewide Program, evaluate alternative pest management approaches, including mitigation measures that could reduce or eliminate potential environmental effects, and comprehensively analyze environmental effects that are reasonably foreseeable at this time.

If, on the other hand, CDFA intends to use the Pest PEIR to "cover" site-specific environmental impacts of future pest management projects, and thereby avoid future CEQA analysis—an objective we disagree with given the broad scope of the Statewide Program—CDFA must clearly explain this in the Pest PEIR so that the public may fully understand the proposal and provide useful comments on it. Any other approach would plainly violate CEQA's public disclosure requirements.

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CALIFORNIA ENVIRONMENTAL QUALITY ACT

The Legislature adopted CEQA in 1970 concerned both with protecting environmental resources and with safe-guarding public health and safety. (See Pub. Resources Code, §§ 21000, 21001 [purposes of CEQA include "ensur[ing]" the "long-term protection of the environment" and "identify[ing] critical thresholds for the health and safety of the people of California"].) To that end, CEQA prohibits agencies from approving projects that may cause "significant" environmental effects if there are "feasible alternatives or feasible mitigation measures" that can avoid or "substantially lessen" those effects. (See Pub. Resources Code, § 21002; *Mountain Lion Foundation v. Fish & Game Comm'n* (1997) 16 Cal. 4th 106, 134.)

The primary means of achieving CEQA's goals is the requirement that government agencies prepare an environmental impact report (referred to as an "EIR") whenever a proposed project "may have a significant effect on the environment." (Pub. Resources Code, § 21080(d).) In general, an EIR is an "informational document" that must inform public agency decision makers and the public generally of the proposed project and its significant environmental effects, including direct, indirect, and cumulative effects, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. (See CEQA Guidelines § 15121.)

CEQA provides for different kinds of EIRs depending on the type of project being carried out. The most common type of EIR is a project EIR, which examines the environmental impacts of a specific development project or action. (CEQA Guidelines, § 15161.) A "program" EIR may be prepared "on a series of actions that can be characterized as one large project" and are related either (1) geographically, (2) as logical parts in a chain of contemplated actions, (3) in connection with issuance of rules, regulations, plans, or other general criteria or govern the conduct of a continuing program, or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects. (CEQA Guidelines, § 15168(a).)

After an agency develops a program EIR, it may develop a "tiered" EIR for any projects which arise after the program EIR was prepared and certified. (Pub. Resources Code, § 21094(a).) "Tiering" refers to the "coverage of general matters in broader EIRs (such as on general plans or policy statements) with subsequent narrower EIRs or ultimately site-specific EIRs incorporating by reference the general discussions and concentrating solely on the issues specific to the EIR subsequently prepared." (CEQA Guidelines, § 15385.)

When CEQA's procedures are followed, EIRs ensure that government officials who approve projects "do so with a full understanding of the environmental consequences and, equally important, that the public is assured those consequences have been taken into account." (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 449-50.

DISCUSSION

I. CDFA Must Clearly Inform the Public of the Full Scope and Extent of Pest Prevention and Management Activities That Will Be Assessed in the Pest PEIR.

The purpose of CEQA is to inform the public of the environmental effects of a proposed project. To that end, EIRs must accurately describe the full scope of a proposed project. (See *County of Inyo v. City of Los Angeles* (1977) 71 Cal. App. 3d 185, 193 ["An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."].) Where, as here, an agency prepares a program-level EIR for numerous activities within its jurisdiction, it is imperative that the agency clearly inform the public whether the EIR will serve as a program- or project-level EIR. Otherwise, the public will not be fully informed of the extent of environmental impacts being assessed in the EIR.

Unfortunately, the June 23, 2011 Notice is confusing and vague as to the scope and extent of activities that will be analyzed in the Pest PEIR. Especially confusing is the extent to which CDFA plans to rely on the Pest PEIR to provide "CEQA coverage" for future site-specific pest prevention and management activities. (Notice at 3.) On the one hand, the Notice suggests that the Statewide Program anticipates a tiered framework for analyzing future site-specific projects, such that CDFA will prepare CEQA analyses for future site-specific projects. (Notice at 2.) On the other hand, the Notice makes clear that individual projects may be "covered" by the Statewide Program, and that if impacts are adequately addressed in the Pest PEIR, "no additional CEQA compliance would be necessary." (*Ibid*.)

It is difficult to see how a programmatic EIR for the entire "range of plant pest prevention and management activities currently implemented by CDFA and its partners throughout the state" (Notice at 1) could accurately and comprehensively assess and disclose the site-specific impacts of pest management activities in all affected ecosystems and bioregions in California. However, if no further CEQA analyses will be completed for future projects, the Pest PEIR must inform the public of this fact and explain how specific activities will be implemented under the PEIR.

For example, CDFA must explain how the public will be informed of future proposed actions that are already "covered" by the Statewide Program Pest PEIR, and how and when their involvement and input will be allowed. What permits or approvals would be needed before site-specific actions can be taken? Is public involvement mandatory, or at the discretion of CDFA? Public and other stakeholder involvement is an important part of the CEQA process and is critical to environmentally considerate decision making. To the extent that the Pest PEIR will limit or eliminate public participation in site-specific pest prevention and management activities, or the public's ability to challenge any such projects in court, the public should be informed and the consequences assessed in the Pest PEIR.

Additionally, if further CEQA analyses will not occur, the Pest PEIR must comprehensively analyze all of the environmental and public health impacts of the agency's pest prevention and management activities, including all direct, indirect, and cumulative impacts, as well as alternatives that may reduce those impacts, *at the site-specific level.* Impacts that must be assessed and disclosed to the public include impacts 1) to non-target insects, such as native moths and pollinators, 2) to vegetation and wildlife, especially threatened or endangered species, 3) to air and water quality (including an assessment of the potential for drift and runoff), and 4) to human health, especially vulnerable populations such as children, the elderly, and agricultural workers. The PEIR also must account for environmental variables, including geography, topography, climate, weather, and water and air quality.

II. Given the Broad Scope of the Statewide Program, CDFA Should Prepare a Programmatic EIR That Evaluates CDFA's Current Approach to Pest Management.

Because it would be extremely difficult, if not impossible, for CDFA to adequately assess all of the site-specific environmental effects of all current and future activities falling within the Statewide Program in all affected areas in California, it is important that CDFA focus the Pest PEIR on evaluating true programmatic issues that are relevant to all of CDFA's pest management activities. In this way, CDFA may comply with CEQA, as it must, "as early as feasible in the planning process to enable environmental considerations to influence project program and design . . ." (CEQA Guidelines, § 15004(b).)

Foremost, the PEIR should analyze the agency's current "quarantine, eradication and control" approach to managing non-native species, and whether there are other alternatives to this approach that would reduce and/or eliminate potential effects on the environment and public health. Aspects of CDFA's current approach to managing non-native species that must be clearly defined and considered in the Pest PEIR include:

1. the scientific bases for CDFA's management assumptions, such as the assumption that non-native plant pests can be completely eradicated;

2. the costs associated with CDFA's eradication and control programs both to the state and to growers;

3. a rigorous evaluation of the effectiveness of current practices in terms of actual control or eradication of pests as well as impacts on the growers whose products and livelihoods pest management programs are intended to protect;

4. the criteria (if any) CDFA uses to determine if non-native plant pests are a serious environmental risk and should be eradicated;

5. CDFA's current practice of declaring "emergencies" for pest eradication projects instead of following CEQA's procedures for preparing EIRs prior to taking action, how CDFA determines if a pest infestation represents a true emergency under CEQA, Public Res. Code § 21060.3 [defining "emergency" as a "sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, property, or essential public services"], and an analysis of how the Statewide

Program and Pest PEIR will change this practice and/or address infestations that by definition are unexpected;

6. the impact of global warming on the movement of and rate of arrival and spread of pests in California, and the implications for the impacts and effectiveness of CDFA's current/proposed programs as well as alternatives to the proposed program.

In addition, CDFA must analyze, at the appropriate scale, the direct, indirect, and cumulative impacts to public health and the environment, including the resources identified in the preceding section. The PEIR must incorporate a complete health and environmental analysis that considers the full formulas, including "inert" or "other" ingredients, of any pesticides employed, as well as chronic and subchronic exposures to those pesticides. CDFA also should consider the most recent research on the impacts of pesticides on public health and the environment from institutions such as UCSF's Program on Reproductive Health and the Environment. Decisions regarding pest management must give primary consideration to impacts to human health and the environment.

III. The Pest PEIR Must Analyze Less Toxic Alternatives to the Proposed Program.

CEQA requires that an EIR describe all reasonable alternatives to a proposed program, including those capable of reducing or eliminating adverse effects on public health and the environment. (Public Res. Code, §§ 21002, 21100.) The Notice states that the Pest PEIR will analyze the environmental impacts of "the management tactics authorized for use against a variety of plant pests." (Notice at 2.) It is important that CDFA structure the EIR so that it considers impacts of the proposed program of management activities and alternatives to that program, rather than addressing each potential management tactic as a separate program alternative.

Alternatives that should be considered in the Pest PEIR include:

1. An alternative based on true Integrated Pest Management (IPM), in which chemical control is an absolute last resort, least toxic chemicals are considered, and pest management is achieved by a variety of preventative practices, establishment of thresholds for pests, monitoring, and, if intervention is needed, with primary reliance on the manual and cultural approaches that organic and sustainable growers use;

2. An alternative that considers innovative methods of meeting national and international trade requirements other than chemical treatments, wide-area quarantines, and required treatment of growing areas. This alternative should explore diplomatic and other means for resolving concerns that establishment of non-native pest species in California could harm trade relationships with other states or countries, including removing or changing species' domestic legal classifications and establishing alternative forms of phytosanitary and grower-purchaser agreements that do not rely on chemical treatments on farms and in communities and other non-agricultural areas.

3. An alternative, or alternatives, that include(s) mitigation measures to protect 1) sensitive human populations, such as children, agricultural workers, and the elderly, 2) sensitive ecosystems and wildlife, including threatened and endangered species and aquatic habitats, 3) monitoring for impacts of program activities, and 4) independent scientific review of the risks posed by non-native pest species, and the health impacts of pesticides proposed for use in the programs.

Finally, in developing and considering program alternatives, CDFA should consider the most up-to-date scientific information. For example, entomologists at U.C. Davis are currently working to develop an Invasive Pest Policy that would be less dependent on widespread chemical intervention, more effective in preventing physical damage from pests and in satisfying economic and trade concerns, less burdensome to farmers, and more cost-effective than CDFA's current model. CDFA should carefully consider the work of these scientists, and any policy framework produced as part of the U.C. Davis process, to develop science-based alternatives to the Statewide Program.

CONCLUSION

Thank you for the opportunity to provide comments on the scope of the Pest PEIR. Please contact me if you would like to discuss any of the issues raised in this letter.

Sincerely,

Erin M. Tobin

Erin M. Tobin
Earthjustice

Attorney for California Environmental Health Initiative,
MOMS Advocating Sustainability, and
Center for Environmental Health

From: Michele Dias
To: Michael Stevenson;
Subject: Peir Comments
Date: Monday, July 25, 2011 4:37:45 PM

From: Sandy Ross [mailto:healthhab@igc.org]
Sent: Mon 7/25/2011 4:21 PM
To: Pest PreventionEIR
Subject: Peir Comments

Health & Habitat, Inc.
76 Lee Street, Mill Valley, CA, 94941, 415-383-6130

Via Electronic Mail
July 25, 2011
Attention: Michele Dias, Acting Chief Counsel California Department of Food and Agriculture 1220 N Street, Suite 400 Sacramento, CA 95814 PEIR.info@cdfa.ca.gov

This document is a great disappointment – but what we have come to expect from agencies that have become more and more allied with the chemical companies. Workers are afraid to speak out against this toxic tide, for fear of losing job and pension. These companies line legislator's pockets and persuade actions that ensure big pesticide sales. At the same time, big pharma has "bought" the medical schools – so our health professionals do not protect their patients from chemicals and pesticides.

But here in California we have a chance to do it right – if CDFA has the integrity to do it. For example, excuses abound about relationships with other countries and trade "balances". So, lets turn the whole thing upside down – clear the deck – scrap the old, mostly false mantras. Which convoluted regulations are to protect farmers in various countries – and which are to to prevent spread of pests?

Really embrace UC Davis's emerging Invasive Plant Policy which is less burdensome to farmers and more effective in actually preventing real insect damage, rather than spraying for imagined damage.

CDFA PEIR Comments

1. Prove that you can accurately anticipate future "invasive pests" and ways to reduce their impact on CA food.
2. Prove that it is not better to work on having food growers plant crops that are best suited to their climate – rather than trying to grow a species that requires chemicals to make it viable. Why should Californians suffer pesticides in the air and on their food just because someone decides to grow strawberries or cherimoyas out of their "native" territory and climate?
3. Why are you planning to spend such a huge amount of money, when for 1/10 (or 1/20 if you run over budget), UC Davis is fast tracking a good plan – 21st Century Invasive Pest Policy, c/o Professors Carey & Zalom.
4. Explain why you are not using the Carey plan from UC Davis.
5. How does CDFA plan to rise above the industry wide layers of pesticide prevarication and payoffs?
6. Heretofore CDFA has put out a lot of platitudes and obfuscations about its past, present, and future plans for handling pests. Do you plan to be forthright, and how will you do this?
7. In the past, one of the tricks CDFA used to get money was to declare an emergency and get Federal funds. If you are reducing incidence of "emergencies" under the PEIR, how will you get the federal dollars you depend on?
8. What happened to the 100 people you hired in an LBAM "department"? Do you plan top keep them on? How will you pay them, and under what guise?
9. Who defines what a pest is? Too often we go about killing things we do not know enough about, without considering the web of life. WE are all aliens – should we be eradicated or sprayed with poisons?
10. So what are these regulations you plan to promulgate?
11. If a person has letter form a health professional saying that chemical pesticides will harm them. Will you avoid getting chemicals on them and their property, be it from hand, truck, or aerial delivery – and how will you do this.
12. What about people with chemical sensitivities who are legally

disabled? What will you do to protect them??

13. How do you plan to protect the 17% of the State's population which state survey shows to be chemically sensitive? Will you notify them, move them, and compensate them for their property no longer useful to then when contaminated with pesticides?

14. What do you mean by "minimize impacts..to human health? You set things up so there is someone who will say its "OK". Well, pesticides KILL, so no matter what you do, you will be killing plants, pets, and people – some more rapidly than others.

15. The so-called State health people who investigated the LBAM complaints were just as cavalier as CDFA, spouting pesticide company propaganda and criminally neglecting a population of people the State made sick.

16. A safe food supply – is NOT one covered in CDFA applied pesticides.

17. Your NPDES permit is in a shambles – as it appears agencies like mosquito districts will not have to abide by it.

18. Your protestations that you are doing 5 times the required public explanatory is a sham – as there will be NO chance to challenge future activities. All this blather about public participation is a sham.

19. And what's this about "Authorization of existing CDFA.. programs"??!! Are you trying to get the LBAM program grandfathered in?? That is a total SHAM – misuse of people's money. The moth has not harmed anyone or caused financial loss of crops – except where you prevented people from selling their produce.

20. In your notice of preparation you list potential environmental issues to address – PLEASE ADD: PEOPLE, PETS, & PLANTS as these will be the most effected. What about native vegetation?

21. CDFA's whole LBAM program was shameful – and this PEIR appears to cast the same process in cement. Once an insect population has reached the point that it shows up, it has already become established. Best place to catch them is in shipments coming into the country. We need to really think if we need to have tropical fruits off-season - or for that mater, biscuits from Scotland. We should live within our means and local capabilities.

22. And what's wrong with a worm in an apple? Shows it wasn't

sprayed with poison.

23. Bottom line – this PEIR is just a Carte Blanche for CDFA to do whatever it wants, whenever it wants – regardless of the poisons it will be dumping on people, pets, and plants. Your scoping memo says it all: “.. no additional CEQA compliance would be necessary”.. !!!!!!!!!!!!

24. It is not acceptable to do a PEIR that takes away MY rights to stop or affect state actions that would have a direct impact on my health, that of my family and friends, and the health of the thousand of people who do not know to protest this diabolical action.

25. Your primary goal should be to have NO impact on human health – instead of figuring our ways to spray us when we cannot protest.

From: Michele Dias
To: Michael Stevenson;
Subject: Scoping: Progam Environmental Impact Report for Pest Management
Date: Tuesday, July 26, 2011 11:23:07 AM

From: Frances D. Hinckley [mailto:francesbiz@yahoo.com]
Sent: Mon 7/25/2011 9:06 PM
To: Pest PreventionEIR
Subject: Progam Environmental Impact Report for Pest Management

The California Department of Food and Agriculture, CDFA, is requesting a Program Environmental Impact Report (P-EIR) for pest management.

There are a continually increasing number and type of pesticides and related chemicals being created, all the time. These chemicals are not adequately analyzed for the array of applications in which they are often used. I think it pretty much impossible to adequately analyze them all of the kind of blanket approval for which the CDFA seeks.

Approval of this PEIR would broaden CDFA powers and amounts to giving blanket permission to CDFA's "best judgment" and removes the need for situational EIRs, which allow for a relatively transparent process, allow for public input and are required by law.

I would say that the CDFA has recently shown a LACK of capability in passing even "good enough" judgment when it comes to all of the following:
- identifying what constitutes an actionable pest,
- use the best possible, 'robust' science,
- what damage a given pest may present,
- what type of response to mount, what is an appropriate level of response,
- apply the response within the designated treatment area only and at a consistent, accurately measured, appropriate dosage,
- choose a proven, safe treatment, that complies with best integrated pest management practices (IPM) and the best available rigorous science,
- how often such a response needs to be administered,
- when such responses are administered (timing),
- what chemicals (or other treatments) that are appropriate to use,
- apply treatments within appropriate designated boundaries only,
- choose treatments that are safe for all that might come in contact with

them, especially those most vulnerable populations, like children, in addition to our shared environment,
- whether such damage outweighs the probably result of the proposed response,
- what an "emergency" is
- be truthful about what exact treatments they are actually administering.

* Since 2007, the CDFA has maintained that the Light Brown Apple Moth (LBAM) was such a huge threat to California's agriculture as to require a state of emergency that allowed them to administer multiple areal spays of urban areas in Monterey and Santa Cruz Counties. This state of emergency was conducted for a moth, LBAM, that has approximately fifty same family moths already in the state, is not quarantined by Europe, nor other countries and about which the National Academy of Sciences' chair, May Berenbaum, raised grave concerns about its designation, saying that the "APHIS response would greatly benefit from the use of more robust science to support its position." It is now four years later, and, by CDFA's won admission, no damage has been caused by the LBAM, in spite of the fact that their pesticide plans were stopped.

These facts cast grave doubt on CDFA's ability to accurately identify a pest based on "robust science" and what kind of damage it may actually cause.

* For LBAM (the pest of questionable designation), CDFA did administer aerial pesticide spray. The action plan called for multiple areal sprays, over areas that included urban centers, once a month for 3 to an undetermined number of years. Arial spays are notoriously inaccurate in staying inside any kind of designated area and are prone to drift, being subject to any type of air movement and turbulence caused by any kind of variation (hills, trees, buildings, etc) in topography and. How can that administration plan be justified, when it is such an uncontrolled and uneven application? It would inevitably lead to over application in some areas and underapplication in others. It also makes it impossible to avoid application to our surface water, probably the single most valuable resource that the state of California has! Because of the questionable 'state of emergency' called by the state, I am not even sure how was determined that "eradication" was the goal, rather than containment? Numerous entomologists are on record in public hearings stating that 'eradication' was not even a possibility.

It really seems like a case of extreme over response, with inappropriate delivery system, that guaranteed an inconsistent distribution and application of the chosen chemical response, all for a moth that was a questionable threat, at most.

* Integrated Pest Management systems are the approach used by enlightened, advanced, integrated communities. Over response is not part of a sound IPM program. An IPM tries to use the least toxic solution to the problem, choosing pesticides as a last resort; IPMs are the choice of the evolved society. CDFA seemed to have used the reverse philosophy for the LBAM. The chemicals they choose to spray ('checkmate') was untested against the moth, but known to be harmful to humans. The spray was to be monthly, but the time release was supposed to take 30-90 days, meaning a continual threefold cover rate after the third month. The long release would multiply the issue of drift.

This seems a case of a poorly applied and over applied chemical that was not in any way in line with IPM practices.

* After much public outcry it was disclosed that the ingredients of checkmate, include Type 3 carcinagens. How can this be thought of as an appropriate to spray over anything: people, animals, our water supplies or any part of the environment? This was to be spray over heavily populated urban areas, over school yards and hospitals. It seemed that spraying after 8PM was supposed to be a good time? As I write this it is after 8 PM on a mild summer evening and I am at the library, from which I will walk home. I can smell bar-b-qs going and hear families outside enjoying the evening. I do not consider any time before 2AM to adequately reduce the number of people outdoors. On top of that buildings are required to have fresh air ventilation, which means being inside really makes inadequate difference. And I certainly do not approve of any type of application of a Type 3 carcinogen anywhere near our water supplies, our schools, playgrounds, hospitals, day and eldercare facilities or anywhere else that might house anyone with any sort of extra physical vulnerability. Mind you, we are all, regardless of how healthy, subject to damage from Type 3 carcinogens.

This was a bad administration of a toxic chemical that in no way protected vulnerable portions of the population, nor of our water supplies nor our environment.

*The CDFA is charged with protecting "food and agriculture" within the larger context of the people and the environment. In this case I found them to only give consideration to agribusiness and not to small farmers, organic farmers, "we, the people," our health, the cost to the state of an unhealthy population (having been systematically exposed to Type 3 carcinogens, as proposed), our water supply, our livestock, domestic and wild animals, our tourism, our ecosystem, our air, and I could go on! The response they did mount cost small farmers and Organic farmers money. If the spray had continued, CA produce would have been looked on as being questionable, because, why would one choose food sprayed with known carcinogens? Europe certainly would not want to buy it. I wouldn't want to buy it. (I would have moved out of state.) The USDA Organic label would have been called into question for allowing the proposed waver for 'checkmate' on otherwise organic produces. I would have expected a major drop in tourism, for why would tourists want to come to California to be spayed? What about our poor pollinators, on whom our crops depend and who are already having such a hard time of it with colony collapse syndrome? They are definitely susceptible to such an intensive and continuous, pesticide application. We would lose most of our crops without pollinators and why would any out of state pollinator supplier want to bring his/her bees anywhere near CA?

I think the CDFA's response to LBAM is a classic example of only being able to see one's own point of view and not being able to see the bigger picture and appropriately weigh all the factors.

* The CDFA appears to have a different definition of an "emergency" from that of a reasonable person when referring to a tiny light brown apple moth. CDFA Secretary Kawamura declared, "This emergency (LBAM) clearly posses such an immediate, serious harm that delaying action by providing five working days advance notice to allow public comment would be inconsistent with the public interest. This emergency action is to avoid serious harm to the public peace, health, safety or general welfare."

Harm? As an architect, I am bound to "protect the public health, safety and welfare." I do not think that poisoning our environment, homes, air, etc is in any way protecting the people or the environment. Nor is it protecting the small and/or Organic farmers, who were hurt by the LBAM quarantines. CDFA has a strange sense of emergency and of protecting. Protecting who? Maybe the people who sell the pesticides?

* It is sad to say that the CDFA was not completely truthful in their representation of the chemicals they sprayed and intended to continue to spray for the LBAM. At first they described what they were spraying as harmless, pheromones, natural and the like. After intense pressure they admitted that they were spaying a pesticide, "checkmate" but would not release the ingredients. Ultimately it came to light that the ingredients contained chemicals classified as Type 3 carcinogens. They proved themselves to not be transparent, nor truthful.

It is also questionable if a P-IER is even legal. To me it violates by right to "life, liberty and the pursuit of happiness." Administration of pesticides to me and my children damages our health, thus limiting our life and inhibiting our pursuit of happiness. To me it is also a violation of my liberty and property rights to spray is on our own private property, at our schools and school yards, etc.

One might say 'stay inside during the sprays. The proposed response to the LBAM called for monthly areal spray with a timed release that would deliver for 30-90 days, making no time when it would be possible to go outside without being exposed. Furthermore, I can tell you as a CA Architect that building are designed to have continual air changes, expelling inside air and replacing it with outside air. Being inside would offer absolutely no protection from an aerial spray.

Furthermore, back to the legal question I would say:

1) United States Constitution "…No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws." Article XIV

2) California State Constitution - The very document that creates the state of California, Guarantees safety for its residents: "All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy." Article 1 DECLARATION OF RIGHTS - Section 1

3) "The people have the right of access to information concerning the conduct of the people's business, and, therefore, the meetings of public bodies and the writings of public officials and agencies shall be open to public scrutiny." CA Constitution, Article, 1, Section 3(b)(1)

4) California Code requires consent before spray: "No person shall directly discharge onto a property without consent of the owner or operator of the property." California Code, Division 6, Chapter 3, subchapter 2, Section 6616

5) California Code requires protection of persons, animals and property b) Notwithstanding that substantial drift would be prevented, no pesticide application shall be made or continued when: 1. There is a reasonable possibility of contamination of the bodies or clothing of persons not involved in the application process; 2. There is a reasonable possibility of damage to nontarget crops, animals or other public or private property; or 3. There is a reasonable possibility of contamination of nontarget public or private property, including the creation of a health hazard, preventing normal use of that property. California Code, Division 6, Chapter 3, subchapter 2, Section 6614

6) CEQA - California Environmental Quality Act Protection of the environment consistent with the provision of a decent home and suitable living environment for every Californian shall be the guiding criterion in public decisions.

CA. Public Resources Code, Div 13, Environment. This section states that it is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man. It further states that governmental agencies at all levels are required to consider qualitative factors, as well as economic and technical factors, and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

7) Further, Title 14, California Code of Regulations, Chapter 3. Guidelines

for Implementation of the California Environmental Quality Act, Article 18. Statutory Exemptions, Section 15269. Emergency Projects. "The following emergency projects are exempt from the requirements of CEQA: Specific actions necessary to prevent or mitigate an emergency. This does not include long-term projects undertaken for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term." An emergency is defined as: "A sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to life, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage" The Legislature had a chance to exempt CDFA from CEQA and purposefully chose not to do so. The legislature desired full CEQA review of projects undertaken to eradicate LBAM.

8) Thematic Strategy on the Sustainable Use of Pesticides Expert Meeting on Aerial Spraying Minutes of the Meeting, March 31, 2004, European Commission*, wherein the Commission states that, due to inherent high risk (in particular from spray drift), aerial spraying should be banned…and would require member states to severely restrict or ban aerial spraying when the conditions for safeguarding bystanders or the environment cannot be fulfilled [and this statement was made in consideration of aerially spraying crops, not human populations] The Precautionary Principle is the guiding hand in the European Union's response to pesticides and genetically modified foods and animals, and is a reason U.S. agricultural products are rejected in these countries. The European Union Commission Communication notes "The Precautionary Principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health, may be inconsistent with the high level of protection chosen by the EU."

9) CDFA has not yet obtained clearance to begin spraying from the US Fish and Wildlife Service as it relates to the impact of spraying on endangered species. APHIS has designated CDFA to find out if endangered species would be affected, also to see if minority populations and EXECUTIVE ORDER 13045 , Protection of children from environmental risks is violated.

NOT A THIRD PARTY, INDEPENDENT, UNBIASED AGENCY, APHIS and CDFA and EPA and USDA are all committed to this assault on citizens to further limit competition of interstate and foreign commerce, all components defined as violations under the RICO Act.

10) CDFA's actions act as a nuisance and a trespass (County of Santa Cruz vs CDFA Superior Ct. of California. County of Santa Cruz Case No. 158516, Oct. 31, 2007) Officials would uphold laws to forcefully blunt citizen nuisance and trespass on their homes and their properties. There would be no equal application of enforcement.

11) CDFA has yet to provide the public with evidence of a permit from the Monterey Bay Marine Sanctuary. Undersecretary Gomes states that "The Department will not apply pesticides to water bodies, riparian habitat areas or areas lacking host insects."

12) CDFA refuses to answer questions from citizen interest groups and legislators in compliance with CPRA and FOIA in a timely and complete manner, if at all.

13) Section 18 of the Federal Insecticide, Fungicide, and Rodenticide ACT (FIFRA), EPA regulation 40 CFR Part 166 (ref. 10) has not approved pheromone products for chronic or repeated use or for aerial spraying or in any preparation, micronized or aerially delivered, even in times of true emergencies…

14) The Americans with Disabilities Act protects people with chemical sensitivities and other disabilities from discrimination. From: http://www.healthcentral.com/asthma/index-3259-149.html The Americans with Disabilities Act (ADA) is a civil rights law that gives you the right to ask for changes where policies, practices or conditions exclude or disadvantage you. As of January 26, 1992, public entities and public accommodations must ensure that individuals with disabilities have full access to and equal enjoyment of all facilities, programs, goods and services. The ADA borrows from Section 504 of the Rehabilitation Act of 1973. Section 504 Prohibits discrimination on the basis of disability in employment and education in agencies, programs and services that receive federal money. The ADA extends many of the rights and duties of Section 504 to public accommodations such as restaurants, hotels, theaters, stores, doctors' offices, museums, private schools and child care programs. They must be readily accessible to and usable by individuals with disabilities. No one can be excluded or denied services just because he/she is disabled or based on

ignorance, attitudes or stereotypes.

Does the ADA Apply to People with Asthma and Allergies?
Yes. In both the ADA and Section 504, a person with a disability is described as someone who has a physical or mental impairment that substantially limits one or more major life activities, or is regarded as having such impairments. Breathing, eating, working and going to school are "major life activities." Asthma and allergies are still considered disabilities under the ADA, even if symptoms are controlled by medication. … Under Section 504, public schools and programs cannot avoid their responsibility by claiming to have limited funds or resources. Nor can they impose a "disparate impact" on people with disabilities. The ADA requires public accommodations to make changes, except in cases where an "undue burden" would result. This program violates the intent of the Light Brown Apple Moth Act (2)(C) (senate bill 556) which states, "Eradication activities undertaken pursuant to this article shall comply with all applicable laws and regulations and shall be conducted in a environmentally responsible manner."
If the CDFA had been operating in a truly "environmentally responsible manner," they would have allowed the necessary environmental impact reports to supersede their aerial pesticide spraying program. Instead, the State used its powers to push through a totally unproven, unsubstantiated false "emergency" in order to intentionally evade all environmental impact reports and spray residential areas with an untested pesticide applied in an unconventional way. It seems that these actions made hundreds of people sick, while causing damage to the environment, like the deaths of hundreds of birds from an undocumented "mystery oil" spill, and the worst "red tide" in the history of California, which made many surfers sick.

At best the CDFA's recent track record is questionable enough to warrant no increase in their authority. At worse CDFA's lack of judgment is criminal.
I do not think CDFA can, alone, consistently choose the safest, most scientifically sound, tested, proven course of action in every instance. I do not think there are any grounds for expanding their authority and limit the public's right to know what they are doing and eliminate the public’s opportunity to provide feedback, input and insight through the existing, and at times cumbersome and bureaucratic, individual EIR process. I do not

believe that CDFA has shown itself worthy of approval of the PEIR, nor do I think it would be a good idea, even if CDFA had a perfect track record.

Please do NOT authorize a PEIR to CDFA. Please require that the CDFA continue to be required to continue to follow our imperfect, but better, system.

Thank you,
Frances Hinckley

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Comments: Proposed PEIR Re: "pest" management
Date: Monday, July 25, 2011 11:57:04 AM

From: cherielj [mailto:cherielj@earthlink.net]
Sent: Mon 7/25/2011 11:33 AM
To: Pest PreventionEIR
Subject: Comments of Cheriel Jensen on Proposed PEIR Re: 'pest' management

Cheriel Jensen
13737 Quito Road, Saratoga California 95070

July 25, 2011

Michele Dias

California Department of Food and Agriculture

1220 N Street, Suite 400

Sacramento, CA 95814

via:
PEIR.info@cdfa.ca.gov

Comments on the Notice of Preparation for the PEIR for the Statewide Pest Prevention and Mangement Program:

The California Environmental Quality Act provides the guidance for the preparation of an EIR for all public and private projects having an impact on the environment.

The federal Environmental Policy Act provides for the guidance for the preparation of an Environmental Impact Statement (EIS) for projects using federal money.

An EIR and an EIS are intended to find, identify and describe the relevant facts in such a way as to document potential impacts of potential actions or projects, and disclose these facts for the decision makers and the public before a decision or action takes place so that impacts are actually recognized, minimized in the project design, and significant impacts are avoided. The EIS and the EIR are somewhat different in their scope and disclosure requirements.

The concept of being able to address the environmental impacts of pest prevention and management in a single PEIR across the entire state, and for the variety of pests, many of which are currently unknown, all with their individual aspects, is laughable if it weren't so potentially ignorant and deadly in its design.

It appears this effort is simply an attempt to avoid the timelines of the EIR/EIS when the Department of Food and Agriculture wants to take an action. But there is a reason for the timelines and the process. The EIR process provides an opportunity for each center of expertise, official and from the public, to be notified and to have time to examine the project and provide their expertise to the body of knowledge to better predict impacts and to thus result in a more thoughtful project with less impact.

The idea that a PEIR will be able to cover the essential aspects of any of the potential pests, let alone all the potential pests and existing environments boggles the mind. We are talking about the contents of a huge library and a forest felled for publication.

The existing environment must be described in the PEIR. California consists of thousands of microclimates, intricate landscapes, local flora and fauna communities, live soil/rock/sand complexes and water/fog/ice scapes. Can the single EIR document each of these throughout the state? Can a single PEIR document the effects on each of these communities by each projected ‘pest’ and for each ‘pest’ a range of ‘solutions’?

Hormone influencing chemicals and pesticides each have specific mechanisms of action. Can the PEIR document each of these mechanisms, the flora and fauna to be injured or otherwise affected by all the possible chemicals that may be used? For example, Pyrethrums and Pyrethins and many other pesticides kill bees including our most important pollinator, the non-native honeybee? Does the PEIR plan to inventory the various types of bees across the state and propose an acceptable level of bee killing?

What other parts of the California environment are non-native but have become essential within the native plant and animal communities? Steelhead comes to mind. The role of the Eucalyptus in the life of the Monarch butterfly comes to mind. Would anyone attempt to convert the Italian Ryegrass back to the native bunch grasses? Would we attempt to reintroduce the grizzly bear to the San Francisco Bay Area? So will the PEIR address the benefits, necessity for adaptation and evolution of the landscape as well as the native environment?

Does the PEIR assume all non-natives are equally unwelcome? How will that assumption be evaluated? Say-so is not sufficient for an PEIR.

How does a PEIR evaluate the short term and long term impact of individual pests, including pests not known to be present now, and on which landscapes? For example, the Light Brown Apple Moth (LBAM) was trapped at high levels in Monterey and Santa Cruz counties before, during and increasing just after the overhead spraying by CDFA. After actions had been stopped two years, the trapped numbers plummeted. Would a PEIR have predicted the natural environment to have minimized this CDFA defined ‘pest’ all by itself? Not learning from these numbers, CDFA continues to meddle in the natural environmental processes minimizing the LBAM. What would a PEIR have predicted?

Third, most chemical formulas contain so called ‘inerts,’ sometimes as much in the formula as 95%. How is it possible for a PEIR or EIS to address the environmental impact of chemicals that are not and will not be disclosed?

While some documentation on some of the environmental effects of some of the named chemicals is published, much less documentation exists on brand-named chemical combinations. How is it possible for the PEIR to address combinations of chemicals of individual brands where the research is sparse or non-existent?

Addressing long term impacts is required by CEQA. While some information is available for individual chemicals for short-term effects, information on long term effects for most potential chemicals is far more sparse and almost non-existent for brand named chemical combinations. For example it took 40 or more years for the information on brown pelican egg thinning, and thus their near demise, to come to light as an effect of DDT. It took almost 70 or more years to find out the degradation product of DDT, DDE is found in almost all cancerous breast tissue.

Will the PEIR disclose human impacts for all the potential chemicals, unnamed chemicals and chemical combinations?

Will the PEIR disclose the manufacturer’s studies kept secret? How is this to be accomplished?

Will the EIR disclose and make use of the body of research by individuals and institutions not connected to chemical manufacturers? For example, our testing has shown that even small exposure to Roundup in the air increases the flammability of trees by a factor of 5 to 10 even though the trees appear to be the same as non-exposed tress. But how are we as a public to contribute to this PEIR when there are hundreds of potential chemicals to be addressed and thousands of such facts.

Will the PEIR address people with the whole host of specific conditions? For example, will it disclose how the various chemicals that may be used will impact people with liver damage?

Will the PEIR disclose how each of the various chemicals will impact people with kidney damage, MS, post polio syndrome, shingles, hyperactivity, insomnia, chemical allergy, thyroid deficiency, cancer, deficiencies of p45, p450, etc?

Will medical experts in toxicology, who have actually treated people who have been poisoned with pesticides, be enlisted to describe the impact of each of the potential pesticides in the medical parts of the PEIR? Will there be a medical part of the PEIR? People are a part of the environment.

Will the PEIR address pregnant women and how the various chemicals that may be used, in their various potential dosages, will impact the baby being created and the process of pregnancy? For example, after the Malathion applications went on over the southern San Francisco Bay Area two years, it was found in a Kaiser Hospital study that higher numbers of infants were born with deformed intestinal tracts.

Will the PEIR address the impact on humans, flora and fauna, and soil complexes of chemicals that are not disclosed? How is this to be done?

Will the PEIR address the climate impacts of the use of each of the solvents and pesticides and the other chemical formulas?

As can be seen here, the task of a sufficient PEIR for such a ‘program’ is not really possible. Individual EIRs/EISs addressing individual ‘pests’ is the only way such environmental issues can reasonably and honestly be addressed, as the task for a PEIR would amount to a library of documents and participation of scientists, the numbers of which, do not now exist.

If this PEIR goes forward, I expect all of the above issues to be sufficiently addressed to inform decision making.

Yours truly,

Cheriel Jensen

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR COMMENTS
Date: Monday, July 25, 2011 5:42:44 PM

From: Eleanor Lyman [mailto:eleanor@eleanorlyman.com]
Sent: Mon 7/25/2011 5:18 PM
To: Pest PreventionEIR
Subject: PEIR COMMENTS

My name is Eleanor Lyman

I would like to share the following questions and concerns regarding the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report.

1) It is not acceptable to propose a scope for this PEIR that would take away the public's right to stop or affect state actions. The public has a right to be involved in actions that directly effect their health and the health of the environment.

2) The PEIR should include specific plans for achieving the objective of minimizing or elminating impacts on human health and the environment by pest management's use of toxic chemicals.

3) This PEIR should include modernizing and updating the state's approach to pests, to take advantage of the new scientific research and technology from our state universities to eliminate the use of toxic chemicals and quarantines.

4) The NOP statements, such as that pests often spread rapidly and can be eradicated if rapid action is taken, is questionable. According to the records there is a lack of success of this approach, the treatments go on indefinitely. It is time to update and change the approach taken by the CDFA.

Thank you.
Eleanor Lyman
49 Wharf Road
Bolinas, California 94924

From:	Michele Dias
To:	Michael Stevenson;
Subject:	PEIR Scoping comment
Date:	Monday, July 25, 2011 8:36:58 AM

From: lauren schiffman [mailto:crackmagazine@hotmail.com]
Sent: Mon 7/25/2011 12:02 AM
To: Pest PreventionEIR
Subject: PEIR

To Whom It May Concern,

I live in Richmond, California, and I would like to share the following questions and concerns regarding the Notice of Preparation and the scope of the proposed Statewide Plant Pest Prevention Programmatic Environmental Impact Report:

1) It is not clear in the Notice of Preparation what steps CDFA would take before carrying out, for example, wide-area pesticide spraying such as was done for the light brown apple moth in 2007.

When and how will I, and other members of the public, have a meaningful voice and ability to influence CDFA's future pest management activities, which could involve spraying my community or my food with pesticides?

It is not acceptable to propose a scope for this PEIR that would take away my right to stop or affect state actions that would have a direct impact on my health and the health of my family.

2) The NOP mentions human health only as one of several program objectives. The primary goal for this EIR should be to find alternative ways to manage pests so as to eliminate adverse human and environmental health impacts created by pest management activities.

3) The "Program Components" outlined in the NOP should describe CDFA's plans to develop a system for evaluating human and environmental health impacts from the treatments considered in the Statewide Program, and ways to minimize or eliminate those impacts. It is not enough to simply state in the NOP that a program

objective is to minimize impacts to human health and the environment. The PEIR should include the specific plans for achieving that objective in the program.

4) The NOP relies on the same outdated assumptions and approach to pests that CDFA has been using for decades: quarantine, and eradication or containment. This approach does not work as we have seen with the repeated quarantine and eradication projects for the same pests year after year. The NOP makes inaccurate statements, such as that pests often spread rapidly and can be eradicated if rapid action is taken although we know based on prior experience that in general pests do not spread rapidly and that eradication has seldom if ever succeeded.

Why does the PEIR rely on CDFA's past practices when new science from our own state universities is available to update the current approach so that it is more effective, less toxic and far less burdensome to our farmers? Where are the provisions in this PEIR for modernizing and updating the state's approach to pests, to take advantage of this new scientific research and technology and to eliminate the use of toxic chemicals and quarantines that can be devastating to farmers?

Thank you for taking my concerns into consideration.

Best,

Lauren Schiffman
1343 S. 59th Street
Richmond, CA 94804

SIERRA CLUB CALIFORNIA

California Department of Food and Agriculture July 25, 2011
Attn: Michele Dias, Acting Chief Counsel
1220 N Street, Suit 400
Sacramento, CA 95814
PEIR.info@cdfa.ca.gov

Dear Ms. Dias:

Sierra Club California welcomes this opportunity to share our views regarding the Programmatic Environmental Impact Report (PEIR) on CDFA's Statewide Plant Pest and Management Program. While recognizing the damage that invasive species may cause to California's agriculture and environment, we believe that the efforts to defend against these organisms must cause the "least possible hazard to people, property, and the environment" (www.epa.gov/opp00001/factsheets/ipm.htm).

Although a number of the PEIR objectives as detailed in the Notice of Preparation (NOP) offer certain benefits, the area of investigation is extremely complex, and both the value of the PEIR and its legal justification under the California Environmental Quality Act (CEQA) will depend on its being conducted in great detail and at a very high level of rigor.

Specifically, the Sierra Club Ca recommends that the PEIR include a comprehensive discussion of the following subjects:

- Ecological variation. Besides being structured around treatment methods and pest categories, if the PEIR is to be truly comprehensive it has to take ecological categories into account. Control methods differ in both efficacy and consequences depending on location: the desert is not the same as the coastline, urban areas must be treated differently from farmland. We recommend that a detailed list of ecological categories be devised, and that control choices be systematically evaluated relative to each category throughout the PEIR.

- Non-target organisms. Ideally, all pest control mechanisms would impact their intended target and no others, but in the real world such a high level of specificity is rarely obtainable. Therefore environmental analysis of each pest, each control method and each delivery system must examine possible effects on non-target organisms. Such effects are obvious in the case of broad-spectrum pesticides (and provide one reason why such chemicals should be regarded as an instrument of last resort), but even comparatively low-impact techniques such as the use of pheromones for mating disruption can sometimes affect closely related but non-target species. Furthermore the elimination of invasive species can on occasion lead to broader environmental consequences that are not always benign: for example, removal of invasive riparian tamarisk can result in streambank degradation and loss of wildlife habitat. To minimize unintended negative consequences, it's necessary first to identify the potential for occurrence of such negative consequences, and second to provide compensatory mitigation—in the case of the example above, erosion control structures and a revegetation program with appropriate native species.

- Special status species. A clear and effective process is needed for appropriate ways of dealing with any rare or endangered species that might be affected by control programs, not only by being inadvertently targeted, but also if the program results in the loss of habitat or prey animals. Since these impacts would ordinarily be highly site-specific, it seems impossible for the PEIR to cover them all to the degree of specificity required, but a general procedure for identifying special status species and mitigating any deleterious consequences should be provided in detail.

- Designated Wilderness areas. Invasive species' potential to damage wildlands comes with no exemptions for designated federal Wilderness, but control programs in Wilderness face constraints particular to the designation, most usually in the form of forbidden application methods. The PEIR would provide a significant benefit by delineating protocols that permit effective control methods to be implemented without violating the special character of these very special lands.

- Riparian areas. Aquatic Invasive Species (AIS) pose a severe and growing threat to the environment in California, and because of their capacity to adversely impact irrigation systems they threaten agriculture as well. Comprehensive evaluation of AIS control methods in this PEIR will facilitate effective management. On the other hand, some chemicals (both active and "inert") that can be used with comparatively little risk in terrestrial environments may pose serious hazards if applied to bodies of water, either directly or as a result of drift or runoff. The PEIR should routinely evaluate each treatment method in relation to the riparian environment, i.e., an analysis that includes the method of application as well as the chemical treatment itself.

- Integrated Pest Management. As defined by the University of California, "Integrated pest management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment" We recommend that the PEIR be explicitly structured around IPM strategies, and that all management decisions be based upon them.

- Aerial spraying. Although this delivery method sometimes provides the only reasonable means of controlling invasive species that have infested large segments of crop lands or wild lands, it is inherently likely to affect non-target areas and non-target species, and to have unintended impacts on human beings. For that reason we recommend that aerial spraying be systematically regarded as a method of last resort, and that it never be employed in populated areas except in those rare circumstances when no reasonable alternative exists, and when failing to spray would result in demonstrably dire consequences to human health or the environment. In addition, all reasonable precautions must be taken to control the effects of such spraying on non-target organisms, human health and the environment and the least poisonous & least environmentally damaging chemical and means of application must be used.

- Prevention. The PEIR proposes to evaluate a broad range of management methods that can be used to control or eradicate invasive species that enter California, with the objective of permitting rapid response and thus "preventing" their spread, but genuine prevention also includes strategies that keep pests from entering the state at all. Such strategies can offer significant benefits, not only in avoiding damage from invasive organisms, but also in avoiding the risks and costs associated with treatment methods. A detailed analysis of prevention methods -- for example, increased surveillance at border stations or establishment of effective protocols for the treatment of imported firewood -- would be a valuable addition to the PEIR.

- Persistent Organic Pollutants. Avoidance of Persistent Organic Pollutants should be a priority. Any evaluation of this category of chemicals in the PEIR should include a review of the science leading to the Stockholm Convention banning their use, and the current or residual effects of these dangerous substances should be included in any review of synergistic long-term impacts as mentioned elsewhere in these comments.

- Cumulative impacts. The PEIR will undoubtedly evaluate the effects of a wide variety of individual chemicals on target organisms, the environment, and human health. It is also necessary to consider cumulative impacts from repeated exposure, and to exposure to more than one substance. From an environmental perspective, natural areas in close proximity to agricultural areas need very close scrutiny; from a human health perspective, the need is particularly stringent in the case of farm workers. The document should also analyze the synergistic effects of these chemicals on human health and the environment.

- Sensitive receptors. The effects of pest control treatments vary from one individual to another and therefore cannot be predicted with full certainty, but certain categories of people such as children, pregnant women, the elderly, and those with compromised immune systems are commonly found to be at greater risk. Evaluations of "safe" levels of exposure to toxic substances cannot wholly rely on average responses found in the general population, but must take these special categories into consideration, and wherever possible provide mechanisms to avoid putting the vulnerable in harms way. Practices such as refraining from pesticide applications at schools, hospitals, and playgrounds provide an example of such mechanisms.

- Inert ingredients. Chemical pest control formulations consist of "active" ingredients affecting the target organism, and "inert" substances that by definition do not directly harm the pest in question. Such "inert" substances are not necessarily chemically non-reactive, nor are their impacts on other organisms (including human beings) always insignificant. To be complete, analysis of any given chemical product must include inert ingredients such as surfactants, propellants, and attractants.

- Tiering criteria. We recognize that CDFA hopes to be able to implement future control programs without the necessity for undertaking further project-level EIRs when a new invasive species is discovered. Whether or not this objective will prove feasible in any specific instances, additional environmental review tiered upon the PEIR will always be necessary, if only to establish that all impacts have been identified and appropriate mitigations provided. In some cases additional studies will have to be conducted, either to establish the criteria for a mitigated negative declaration or as a component of a project EIR. In all cases it is important that communities affected by control programs be given an opportunity to participate in decision-making, in an open and transparent process. The criteria for requiring any of several stages of environmental review and the process for conducting it should also be spelled out during this PEIR process. Explicitly providing these criteria now will help allay public anxieties about inappropriate attempts to avoid full review, and also facilitate prompt action on the part of responsible agency staff in initiating follow-up studies when necessary.

- Future revisions. The PEIR will inevitably require regular revision, re-evaluation, and updates, not only to include pest control mechanisms that haven't been developed yet, but also to include possible negative consequences of existing substances and techniques that may be revealed by future scientific investigation. We recommend that the process and schedule for the revision process be spelled out in detail within the PEIR itself.

Sierra Club California looks forward to participating in further dialogue regarding the PEIR at all appropriate later occasions. Please keep us apprised of the release of any public drafts, and all future opportunities for comment.

Sincerely.

Michael Endicott
Resource Sustainability Advocate
Sierra Club California
Work 916-557-1100
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July 25, 2011

California Department of Food and Agriculture
ATTN: Michele Dias, Acting Chief Counsel
1220 N Street
Sacramento CA 95814
via email to: PEIR.info@cdfa.ca.gov

RE: Comments on Notice of Preparation for CDFA Statewide Pest Prevention Programmatic Environmental Impact Report

Dear Ms. Dias:

Please find enclosed comments on the June 23, 2011 Notice of Preparation for the Statewide Pest Prevention and Management Programmatic Environmental Impact Report (PEIR).

The attached comment letter describes research currently funded and under way by myself and my colleagues at University of California, Davis to transform the paradigm for agency policy and operations to manage pests.

We ask that at least one of the program alternatives analyzed in the PEIR be developed using the policy framework that will be prepared as part of the retreat planned for February, 2012. We believe it will be resource-effective for CDFA to benefit from the results input of this process of expert, collaborative transformation of the approach to pest policy and operations based on the latest academic and field research.

The purpose of the CEQA alternatives analysis in an EIR is to identify alternatives that would have fewer environmental impacts than the program proposed in the EIR. We expect that the new UCD approach will have significantly fewer environmental impacts than the state's current programs. In addition, it would save financial and personnel resources, be effective at controlling pests, ensure that policies are based on the best science, and potentially be more acceptable to the public because it would greatly reduce or eliminate reliance on widespread chemical intervention.

Sincerely,

J R Carey

James R. Carey, Professor
Department of Entomology
One Shields Ave.
University of California
Davis, CA 95616 USA

TOWARD A 21ST-CENTURY INVASIVE PEST POLICY: TRANSFORMING THE STRATEGIC FRAMEWORK

July 2011

CO-ORGANIZERS: Michael Parrella, Department of Entomology, UC Davis
Frank Zalom, Department of Entomology, UC Davis
James R. Carey, Department of Entomology, UC Davis

SPONSOR: College of Agriculture and Environmental Sciences, UC Davis

Background

To say that the invasive pest situation in California is near crisis would not be an exaggeration. During the past 25 years, there have been 126 emergency projects on the oriental fruit fly alone. From 1982 to 2008, the California Department of Food and Agriculture conducted 274 emergency eradication programs for the same 9 pests, including the medfly, Mexican fruit fly, guava fruit fly, melon fly, and peach fruit fly. Many of these programs have repeated annually. New pests recently added to this cycle of repeated treatments include the light brown apple moth (LBAM), European grapevine moth (EGVM), and Asian citrus psyllid (ACP). Data indicate that many of the insects that are the subjects of these programs are established residents in the state, so eradication is not feasible. In 2010, nearly 60,000 square miles or approximately a quarter of California's land area was under quarantine for 8 pests.

The pest management policies and operational tactics the state uses today are essentially updated versions of those originally formulated in the 1930s. These strategies do not meet current realities, including dramatically expanded urbanization, trade, human migration, and the state's ecological diversity. The current approach of identifying high-risk or "Class A" pests has outlived its usefulness. As indicated by the statistics above, eradication programs, once conceived of as temporary or at most intermittent, have become continuous for a number of pests, such as the medfly and oriental fruit fly. Realistically, agencies can only expend so many resources for so long on perpetual eradication programs for even a small number of species.

As global warming, expanding global trade, and other pressures increase the numbers of introduced species arriving in the U.S., it will become impossible for agencies to mount the financial and human resources to carry out eradication programs for scores of species (Myers et al. 2000). It is not feasible to exclude, monitor, and eradicate or manage all of these pests. Further, the direct cost of quarantine to growers plus the environmental and human health costs of using pesticides to reduce pest numbers below detection levels impacts the economy in ways that are not widely considered. A new approach is needed.

To date, efforts to improve the state's approach have focused on enhancing details of the outdated protocols currently in use rather than on revisiting the broad strategic framework for invasive pest policy and operations. The current approach relies on quarantines, chemical pesticide treatments (although the chemicals change, they all pose health and environmental risks, which are often discovered after the chemical has been registered for use), as well as so-called "softer" approaches such as sterile insect technology (SIT) and pheromone attractants. Although these approaches been heralded as the tools of the future, improvements in each of these tools have peaked so that only miniscule additional improvements can now be obtained in return for what are often monumental investments.

In short, attempting to improve the existing framework has achieved only marginal advances. After decades of experience, it is not reasonable to think that we will obtain a different result from modifying the same approach, particularly given the magnitude of the problem.

Without major changes in invasive pest policy and operations, California is poised to enter a fourth decade a policy of repeated emergency pest eradication programs that are based on a 75-year-old approach that can never adequately address the list of pests currently defined as needing treatment in the state, let alone achieve real control of the pests that pose true threats to agriculture or native species.

In addition, the state operates today in a context where health environmental concerns are a public priority and must be integrated into the state's overall plan. The current policies cannot accommodate these public concerns because these policies are controlled by the state agency and do not obligate the agency to modify its actions in response to public input. If the state does not voluntarily enter into a meaningful partnership with the public to build a new strategy from the ground up, it will likely be forced to do so as a result of litigation as well as public and media pressure.

Breathtaking and revolutionary advances during the past decade in many areas of data-intensive science, including genetics, genomics, molecular biology, informatics, and modeling, can be applied to make invasive species policy more cost- and resource-efficient, more effective in preventing physical damage and satisfying economic and trade concerns, less burdensome and disruptive to farmers, and less dependent on widespread chemical intervention and therefore potentially more acceptable to the public. The scientific and technological advances of the past 10 years call on us to take stock, not just of specific tactics and protocols that are currently being used, but of the entire invasive pest paradigm, from monitoring and intervention to quarantine and trade. The whole and not just the individual components of overall invasion policy need to be transformed to enhance its congruency and the complementarity as well as to respond to pressure from an increasingly sophisticated public.

Approach & Outcomes
University of California at Davis (UCD) proposes a transformational agenda in which the entire program of state policies and operational protocols for pest management is reconceived.

History shows a "ground-up" re-envisioning of this type is best achieved with a small group of key thinkers and policy experts committed to innovation. An agenda of incremental improvements in the existing system (such as might be the focus of a large workshop made up of hundreds of participants and stakeholders as has been undertaken many times in the past) yields only small changes whereas what is needed now is nothing less than complete transformation.

The UCD process will initially bring together, for an intensive retreat at UCD in February 2012, 12-15 individuals from academia, agencies, industry, environmental organizations, and community advocates to: (1) Discuss and ultimately reframe the major components of invasive pest policy (i.e., exclusion, monitoring, intervention, trade); (2) Publish a position paper in a high-impact journal such as *Science* (in the Policy Forum section) and (3) create a plan to move the overall framework forward with series of topic-specific working groups (e.g., detection, quarantine) followed by a synthesis colloquium involving academia, industry, and state and federal agencies.

The outcome of the initial retreat in the re-envisioning process will be preparation of a 2,000 word policy paper that will be submitted to a high impact journal such as *Science* tentatively titled "*Towards a 21st century invasive pest policy in agriculture: Transforming the strategic framework*". This paper will be patterned after the recent paper by Gomez et al [Gomez MI , al e (2011). Research principles for developing country food value chains. *Science*. **332**, 1154-1155]. Basic principles will be identified that will serve as the foundation upon which a new paradigm of invasive policy will rest. One of the overarching themes in this planned retreat is the convergence of two pest management and control paradigms, each of which have been in place for nearly a century—the Area-wide Control paradigm typically associated with the USDA and the IMP paradigm more associated with academia. In the past decade these two different approaches have begun to converge. We believe that a 21st century paradigm will begin to emerge from the retreat that will be a mixture involving parts taken each of the old paradigms as well as new concepts and ideas from basic biology, ecology, and population biology, environmental sciences and economics.

Topics Areas
Below is a sampling of topics that would be addressed in the initial invasive pest paradigm transformation retreat and subsequent working group efforts:

1. **Dichotomous residency policy**. Currently, policy considers pest residency as dichotomous; that is, a pest is either present or absent (or on the way to eradication). In reality, there are degrees of residence along a "residence spectrum," from a sole individual that dies without ever finding a mate to a resident continuously-breeding population. Zero tolerance is too extreme in many cases, for many reasons, including the economic infeasibility of enforcing such a standard. Therefore, management policy must be based on risk assessment. The key trade risk is the likelihood that an affected locality might EXPORT the pest in question. That risk is of course also impacted by the quarantine and biosecurity measures of the export partner (destination). This topic is directly related to the *Grower and Trade* topic below.
2. **Genetic observatories**. Although genetics is now being used to identify source regions for invasive agricultural pests of California, there are far greater potential uses for genetic information that could enable agencies to develop a more solid basis for pest strategies (Davies et al 1999.; Bohonak et al. 2001). Research initiatives are needed to build 21st-century "genetic observatories" that could provide unparalleled insight into the population dynamics of invasive (as well as other) species. These observatories could provide crucial empirical data on why some introductions lead to outbreaks (i.e., move up the residency risk spectrum) while others just peter out. Imagine a real-time visualization of the genetic flux of insects across a geographic area over many years, with vegetation, climate, and human activities (roads, ports, land-use) overlaid on it and algorithms for dynamically assessing risk to commerce (trade to specific destinations) and production/conservation (locally). Such a system could start relatively simply and increase in sophistication over time. It would provide an "eco-intelligent" strategic basis for USDA and CDFA to develop policies and establish appropriate monitoring infrastructure for application of these policies. While the research needed for full implementation of genetic observatories would not be available immediately, research in this area is moving extremely fast and within 2 to 3 years practical applications will almost certainly emerge.
3. **Control tools.** Endosymbotic bacteria can provide a genetic modification (GM)-like approach, which is sometimes considered biocontrol, making it easier to gain acceptance and permits. Lethal semen is one candidate strategy that could kill females on mating rather than simply rendering them sterile as with current sterile insect technology (Lung et al. 2002). Although and other advances in the molecular biology of *Drosophila* have yet to find their way into the applied literature, they are ready to be tested in the field and could form the basis of a new approach to biological control.
4. **Arrival time of invasive pests.** Determining the arrival time of invasive pests is critical not only for understanding the biology of invasions but also to guide decisions for management and control (Carey et al. 1996). Estimating arrival time is typically difficult for several reasons, including: the size of invasive populations is often small; invasive species populations can grow in size undetected; and many species considered invasive here are also invasive in many other places, making it difficult to track invasion pathways based only on ecological presence/absence data. New "next-generation" DNA genotyping tools (for a review, see Metzker 2010) should allow us to estimate, at least qualitatively and perhaps also quantitatively, demographic parameters such as time since colonization, as well as founding population size and current population size. Previously, these tools

have been available only for model organisms such as humans and *Drosophila*, but they are now becoming accessible at reasonable cost for the study of non-model species, such as invasive pests (Roderick 1996).

5. **Invasion lags and "sleeper" pests.** Two important new concepts have emerged in the general invasion biology literature that have direct relevance to invasive agricultural pest research and policy. The first is time lags which can be found throughout the invasion process, including in the arrival, establishment, and impacts of invaders (Crooks and Soule 1999; Crooks 2005). Exotics can exist in relatively low numbers for decades before exploding, or invaders can become more aggressive over time and increase their numbers dramatically. Invasion-related lags are critical for efforts to manage invaders because they may lead us to make inaccurate assessments of the risks posed by invaders as well as miss critical windows for action. Recognition of the phenomenon of long lags before sudden changes in invader dynamics also suggests that we adopt a strict precautionary principle: long periods of seemingly consistent behaviour (e.g. extremely small populations) can be poor predictors of what invaders will do in the future. A complementary concept has emerged in the invasive weed literature referred to as "sleeper weeds" defined as a sub-group of invasive plant species whose population sizes are known to have increased significantly more than 50 years after they became naturalized (Groves 2006). These concepts could be integrated into both research and intervention policy within 3 to 5 years.

6. **Grower and trade**. A revisited invasive pest policy must evaluate ways of placing more responsibility with and power in the hands of the growers. Agreements between a buyer and a seller could, for example, be based on a minimum number of traps or detection counts that are defined as low risk, allowing the grower to ship. Or quarantine compliance could be based on inspections of shipments rather than farmers' fields, such as is done for some imported produce. Placing the responsibility in growers' hands is where pest policy is moving, of necessity. Government agencies have neither the funding nor the infrastructure to manage the likely increase in the number of invasive species that will accompany both global warming and the ever-increasing movement of invasive pests around the world. Strategies such as low-risk agreements, backed by the types of scientific research described in the subsections above, will minimize health and environmental impacts of pesticides, and, in this scenario, if pesticides must be used, their use by individual farmers will be "rifle" rather the wide-area "shotgun" approach of an agency carrying out a regional program. Farmers can also avail themselves of sterile flies for applicable species, as Mexican mango growers use for Mexfly. Allowing each farmer to determine the strategy that makes most sense for his or her circumstances means that farmers whose produce might be devalued in the eyes of consumers if certain types of treatments are used will be able to make the choices that are best for their clientele. Trade policy in this scenario would involve certification from USDA/APHIS that a region is pest free (low risk) based on criteria worked out with a grower cooperative and could involve state-by-state and/or state-by-country agreements (i.e., conditional on agreed-upon risk level).

Via Electronic Mail

July 25, 2011

Attention: Michele Dias, Acting Chief Counsel
California Department of Food and Agriculture
1220 N Street, Suite 400
Sacramento, CA 95814
PEIR.info@cdfa.ca.gov

Re: CDFA's Notice of Preparation of a Draft Programmatic Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program

Dear Ms. Dias:

The undersigned groups submit this comment letter on the California Department of Food and Agriculture's June 23, 2011 Notice of Preparation of a Programmatic Environmental Impact Report for the Statewide Plant Pest Prevention and Management Program. All of these groups join in and incorporate by reference the July 25, 2011 comment letter submitted by Earthjustice on behalf of California Environmental Health Initiative, MOMS Advocating Sustainability, and Center for Environmental Health.

Sincerely,

Pesticide Watch Education Fund
Paul Towers, State Director
Sacramento CA

City of Albany CA
Farid Javandel, Mayor

Gayle McLaughlin, Mayor
City of Richmond CA

San Francisco Baykeeper
Jason Flanders, Staff Attorney
San Francisco CA

California Sportfishing Protection Alliance
Bill Jennings, Executive Director
Stockton CA

Teens Turning Green
Erin Schrode

Marin County CA

Butte Environmental Council
Maggi Barry
Chico CA

Health & Habitat, Inc.
Dr. Sandra Ross, President
Mill Valley CA

Sustainable Marin
Stacy Weinberg Dieve, Board of Directors
Marin County CA

Sustainable Fairfax
Pam Hartwell-Herrero, Executive Director
Fairfax CA

CDFA Statewide Plant Pest Prevention and Management Program
Draft EIR-CEQA Scoping Comments

Name: Frank Zalom
Organization:
Mailing Address: 204 Lindo Place, Davis, CA 95616
Email: fgzalom@ucdavis.edu

Comments/Issues:

1. Introduction, sentence 1: I believe that developing an EIR for a proposed program seems premature. If an as yet undefined program is to be developed, how can one know whether a single EIR will be needed or appropriate?

2. Project Area: Figure 1 presents a map of the entire state, yet the sentence states there is the potential for a variety of pests to occur in a variety of areas. Given that it is inherently difficult to predict what pest(s) will occur, and when and what the appropriate response might be, a single document attempting to address all potential iterations seems to me to be meaningless unless the primary goal of the PEIR is to codify the ability to utilize any approach for any given situation. That would seem dangerous to me and could lead to cases where unanticipated outcomes may occur that could cause harm to the environment or human health.

3. Page 3, first bullet point: Clarify what is meant by this statement, especially ‘new or more significant impacts’ and how they are to be addressed. The process is unclear.

4. Page 3, last paragraph: What is meant by ‘emergency’ and what process is used to determine that something is an emergency? Including this exception allows CEQA or any EIR to be circumvented. A clear process to define an emergency would make this more acceptable. At what point does an emergency end? Is there a process for periodic re-evaluation of the emergency designation to determine if it remains valid?

5. Page 4, Pest Detection and Response: This section lacks specificity yet appears to be the basis of the proposed Statewide Program.

6. Page 4, Rapid Response/ Eradication section: Detection/delineation plays an important role in evaluating the population density and distribution. How is it determined if the most effective approaches are being used? It is mentioned that most pests spread rapidly – this is perhaps too generalized. Each pest is quite different from one another and spread may be more a function of intensity of delineation trapping and human transportation than of natural spread. These should be considered.

7. Page 4, Containment: I appreciate ‘containment’ being included as an option. How widely has containment been used as a response previously relative to eradication? Is there a mechanism for eradication to become containment?

8. Page 4, IPM (misspelled in second sentence): IPM is typically site and pest-specific, which is somewhat at odds with an overarching PEIR that portends to cover all possible responses for all pests and sites statewide. How are pest population thresholds used? This is clear in a containment program or once a pest is established, but it does not seem compatible with eradication or quarantine where the threshold is zero.

9. Page 6, first full sentence: Public (community) comment is necessary in the process of prescribing the use of a pest management tactic and this may change by circumstances (for example local community interests) – there should be provision for this.

10. Page 7, sentence beginning with ‘This scoping meeting information’: Will numbers attending these meetings and making comments (and affiliations) be reported as part of the process?

11. Page 11, Draft EIR: How is ‘threshold of significance determined, and by what standards are they determined? There may be different standards based on site and community interests. On bullet points, also include cost to farmers from quarantine and treatment costs, and include environmental impacts of increased use of pesticide by farmers to comply with quarantines and avoid detections.

General comment and question:
I feel that it would be better to take a broader view of invasive species detection and management than is currently practiced when developing the Statewide Plant Pest Prevention and Management Program, and that this is a necessary prerequisite to deciding if an EIR for the program is appropriate and what it should include. A new paradigm for the program should be based on identification and development of principles of detection and management that are not inhibited by structures and policies that have become established, although a new paradigm would likely draw upon existing research and experience.

I believe that it will still be necessary to have a meaningful opportunity for community comments/suggestions to help guide implementation of individual pest management projects in the future, even if a PEIR ‘checklist’ is used to define a response. There should be a clear mechanism for this to occur.

Has an assessment of whether or not a PEIR will indeed reduce the number of project-specific EIRs needed in the future been made?

Thank you for the opportunity to provide these written comments.

From: Michael Stevenson
To: Michele Dias;
cc: Sandy Devoto;
Subject: RE: PEIR Comments from Cal Fire
Date: Wednesday, July 27, 2011 11:46:34 AM

From: Smith, Tom [mailto:Tom.Smith@fire.ca.gov]
Sent: Wed 7/27/2011 9:13 AM
To: Pest PreventionEIR
Subject: Comments from Cal Fire

Hi,

I am sorry that I am so late in submitting comments about the programmatic EIR. I had been on leave through a large portion of the time involved and missed the deadline. Even though it is after the deadline I figured I will send in some of the California Department of Forestry and Fire Protections thoughts anyway:

1. It is important to the forestry community that CDFA understand that all timber harvest plans in California are also covered by CEQA. Timber harvest plans must take into account cumulative impacts. Anything that CDFA does could have an impact on the Timber Plan Review process so it would be good to keep Cal Fire informed of any projects going on.
2. There is a concern about the potential defunding of weed management areas and the impact that this could have on noxious weed suppression/eradication efforts around the state.
3. The best control of any invasive pest is exclusion from the state in the first place. Cal Fire is concerned that the border stations be maintained to help in the exclusion process. The border stations have been instrumental in intercepting gypsy moth, emerald ash borer and other potential threats to the natural environment, urban resources and agriculture of California.
4. How well is exclusion of pests working at the international borders, ports, etc. We need to work with those folks in a more open manner.
5. Please keep the potential impact of exotic invasive pests on the wild lands, natural ecosystems, industrial and urban forests as well as agriculture in mind.
6. Cal Fire has a concern about pests that are native to the United States but not to California. They tend to not be covered by exotic pest programs but can still due considerable damage in these new environments. Examples of this are pitch canker disease (Fusarium circinatum) and the gold spotted oak borer. Neither pest is native to California but they are both native to other regions of the United States. Here in California they have killed huge numbers of trees. Similar problems could occur in agricultural crops. Such indigenous exotics should not be ignored. This issue could even be true within California, a large state with diverse ecosystems. For example an insect or disease from the far north of the state that has little impact there could cause havoc if accidentally moved to the southern reaches of the state.
7. Whenever lists of potential pests are presented that is a concern. What is a future pest is not

on the list. Anti-control activists could consider that we did not believe that those pests were truly pests in the past and therefore should not be trying to suppress/eradicate them. We have no idea what pests might be out there that could ultimately cause problems. An example would include sudden oak death (Phytophthora ramorum), a disease that was completely unknown until it appeared here in California and in Europe.

8. We do understand that this is a general PEIR and that individual pest incidents may require further EIRs.
9. We need to learn from the mistakes of the light brown apple moth project. It is absolutely important to educate the public and political leaders about what is going on for a successful project. Otherwise the public feels that they are not getting all of the information and that we are hiding things from them. They will also start to get their information from unreliable sources that tend to be trusted more than official scientists trying to do what is right for the public. We need to counteract the mis-information with extensive education. The people want to know what is going on, why, what it entails, when it will be done, where, how, all the options involved and why the option chosen was chosen. The more information the better!

Thanks,

Dr. Thomas F. Smith
Forest Pest Management
California Department of Forestry and Fire Protection
1416 9th Street
P.O. Box 944246
Sacramento, CA 94244-2460
916-599-6882
tom.smith@fire.ca.gov

California Department of Food and Agriculture
Attn. Michele Dias, Acting Chief Counsel
1220 N. Street, Suite 400
Sacramento, CA 95814
PEIR.info@cdfa.ca.gov

RECEIVED
JUL 28 2011
OFFICE OF THE CHIEF COUNSEL

ACTION NOW
Dedicated to ending chemical and pesticide abuse

Action Now
2219 West Olive Ave.#254
Burbank, CA 91506
(818)-762-6462

California Department of Food and Agriculture:
Statewide Plant Pest Prevention and Management Program
Draft EIR-CEQA Scoping Comment

Action Now urges the CDFA, while it is preparing the new Statewide Plant Pest Management Program Environmental Impact Report (PEIR), to make its first and strongest commitment to public safety. We maintain that healthier pest control alternatives are economically superior to toxic methods. CDFA and the public have learned over many years that using measures such as Sterile Insect Technique and Integrated Pest Management strategies that significantly minimize environmental exposures to toxic substances are more economically feasible than the methods that poison people and the environment.

The tremendous economic costs of eradication programs must be determined holistically. Costs to the state, to individuals, to businesses, schools, counties and cities for healthcare, for lost productivity due to illnesses such as asthma and other health impacts, for the costs of battling lawsuits from an outraged public, etc., that we have seen from earlier eradication efforts, can and should be avoided.

We are deeply concerned that any environmental degradation that results from eradication programs will threaten pollinators and other sensitive or endangered species. The future of agriculture in this state depends on the well-being of our bees and other pollinators. Likewise, Organic farmers, who have created the fastest growing sector of the market, must be protected from destructive drift and intrusion by eradication efforts that do not conform to organic methods.

The efficacy of eradication programs must be demonstrated. California is a dynamic, bio-diverse state with numerous ecosystems and a multitude of crops. State treasure has been wasted in the past by futile efforts to eradicate ineradicable, established infestations. Steps should be taken to protect the public from untenable trade deals that barter the status of relatively minor pests which result in unnecessary and expensive eradication programs. Furthermore, the influence of global trade and climate change will bring increased need for the preventative strategies that true IPM mandates, as well as increased monitoring and research on safe alternatives.

Action Now is a grassroots, educational, nonprofit organization, dedicated to the prevention of the misuse of chemicals and pesticides. Our goal is clear. We urge you to use a precautionary approach to achieving control of pests and diseases. If scientific evidence can not assure the safety of a chemical or other procedure, we feel it is the responsibility of the state to re-evaluate the use of that procedure and to adopt the least-harmful strategies. We expect the implementation of all reasonable ways of preventing infestations from occurring in the first place, and we urge a thorough examination of a full range of the least-toxic alternatives that emphasize precaution as a part of any long term management plan.

Sincerely,

Mitzi Shpak

Mitzi Shpak
Executive Director
Action Now

From: Michele Dias
To: Michael Stevenson;
Subject: PEIR Comment: LBAM
Date: Monday, August 01, 2011 6:54:13 AM

From: leighako@aol.com [mailto:leighako@aol.com]
Sent: Sun 7/31/2011 4:10 PM
To: Pest PreventionEIR
Subject: LBAM

There was a very small window to submit public comments during times people often vacation and I hope mine will be acknowledged though late. Harming the respiratory tracts of individuals in the effort to protect the food system is a poor means to an end. Please do not treat these pests. Nature has a track record of coping with these issues. Please let it continue to do so. Do NOT upset the food system with chemicals.

Thank you,

Lee Kohl,
Sonoma County, Ca

GLENN COUNTY
BOARD OF SUPERVISORS

Willows Memorial Hall, 2nd Floor
525 West Sycamore Street, Suite B1
Willows, CA 95988

John K. Viegas, District 1
Dwight Foltz, District 2
Steve Soeth, District 3
Michael Murray, District 4
Leigh W. McDaniel, District 5

August 18, 2011

The Honorable Jerry Brown
Governor of the State of California
State Capitol, Suite 1173
Sacramento, CA 95814

RE: California Department of Food & Agriculture's (CDFA) Notice of Preparation for a Statewide Plant Pest Prevention and Management Program EIR

Dear Governor Brown:

On behalf of the Glenn County Board of Supervisors, we are writing to express our strong support for the CDFA's effort to develop a comprehensive and scientifically based Statewide Plant Pest Prevention and Management Program Environmental Impact Report (EIR). We share an interest in preventing the movement of destructive, invasive pests into and around the state in order to protect our food system and California's natural resources.

The Program EIR will be a comprehensive document based on integrated Pest Management principles. This in turn will provide for a strong scientific and technical foundation for an open decision making process when invasive pests are discovered. Public participation during the EIR development has been actively solicited through five scoping meetings and a web based meeting. This effort will strengthen the final document and provide for the highest level of transparency as it is developed. The final product will also include an ongoing process to evaluate and include new developments and potential environmental impacts while providing for continued public participation throughout the ongoing pest management process.

This tool will help those responsible for pest prevention to implement effective programs in full compliance with California Environmental Quality Act. We will also be able to better protect the economic vitality of our food system, protect jobs for many in economically depressed areas of the State, and protect California's unique environment.

Sincerely,

GLENN COUNTY BOARD OF SUPERVISORS

Steve Soeth, Chairman

cc: Karen Ross, Secretary of Agriculture

~ The County of Glenn is an Equal Opportunity Provider ~

California Environmental Health Initiative ◆ MOMS Advocating Sustainability
c/o 5926 Masterson Road, Gazelle CA 96034
info@cal-ehi.org ◆ debbie@GreenWaveStrategies.com

August 27, 2011

Mr. Craig McNamara, President
CA State Board of Food & Agriculture
1220 N Street
Sacramento, CA 95814

Via email: farming@sbcglobal.net

Re: Approval by DPR and OEHHA of the Chemical Treatments for Invasive Species to be Evaluated in CDFA's Pest Programmatic Environmental Impact Report (PEIR)

Dear Mr. McNamara:

During the State Board of Agriculture meeting on August 24, 2011, Dr. Leavitt stated that CDFA works with DPR to ensure that chemical applications do not exceed levels approved by DPR and also OEHHA. CDFA's Pest PEIR Project Manager has stated that the list of chemical treatments to be evaluated in the Pest PEIR would be sent to DPR and subsequently to OEHHA for their review.

One of the Board members commented during the meeting that the CDFA should look at other areas where risk analysis has been a factor, adding that CDFA needs to involve those who are concerned about the health and environmental consequences of chemical applications because there is no agreement on the scientific baseline for chemicals. This Board member's comment is particularly relevant in light of the news yesterday that DPR manipulated the results of their tests for methyl iodide in a non-scientific manner to make the risk appear less than the test results indicated and to justify their decision to approve this highly toxic chemical for use in California. This decision was not supported by the scientific evidence or testimony, and, based on the quote from former DPR head Mary-Ann Warmerdam cited below, was apparently motivated more by concern about what was desirable or acceptable to the pesticide's manufacturer than by concern about public health. In a document in which Ms. Warmerdam responds to recommendations, from her scientists, about how to protect workers from methyl iodide, Ms. Warmerdam writes that scientists' recommendations are "excessive" and may be "unacceptable" to the pesticide manufacturer. See the attached articles from The California Report of 8/26 and from HealthyCal on 8/25.

We have no doubt that many staff at the state agencies charged with protecting the residents of California are dedicated and unbiased. However, it is also clear that some agency staff will bend to the will of the chemical industry and are prepared to override their own scientists' research and results, such as happened with the methyl iodide decision process at DPR. We heard during the 8/24 Board meeting that CDFA would like to rebuild the public trust; however, given DPR's tarnished reputation, if CDFA is relying on DPR as the final word on the impacts of agricultural pesticides on human health and the environment, it is unlikely that much trust will be established.

Per the statements of PEIR Project Manager Michele Dias and the PEIR consultant's description of the risk assessment procedure, the CDFA will call upon DPR for the foundational analysis of the chemicals evaluated in the PEIR; the public cannot be expected to have confidence in the accuracy of DPR's analysis. Building upon this uncertain foundation will provide even less assurance to the public about the safety of the listed chemicals. During the LBAM controversy, state agencies continued to accept without question CDFA's claims regarding the declared emergency and the particle size of the Checkmate pesticide even after learning that these claims were not accurate. The public does not want to see a repeat of this situation. DPR and OEHHA analyses will also not relieve CDFA of the responsibility for performing its own meaningful environmental impact and risk analyses for any chemical intended for use in CDFA's programs, as one of our CEQA legal advisors explains:

"Courts have previously admonished the CDFA for violating CEQA based on its failure to meaningfully analyze the potential environmental impacts of proposed pesticide use. In Californians for Alternatives to Toxics v. Department of Food and Agriculture (2005) 136 Cal.App.4th 1, the Court of Appeal held that the CDFA abused its discretion in foregoing environmental analysis of use of pesticide products by relying solely on certified regulatory program of Department of Pesticide Regulation.

The Court's opinion states: "[o]ur review of the EIR reveals that CDFA repeatedly referred to the DPR regulatory scheme instead of analyzing environmental consequences of pesticide use and therefore fell short of its duty under CEQA to meaningfully consider the issues raised by the proposed project." (Id., p. 16.)

As the above court opinion makes clear, evaluation by DPR is not a sufficient basis for concluding that CDFA's use of a pesticide is safe or appropriate. And as members of the IPM panel at the State Board meeting on 8/24 stated, CDFA need not rely on pesticides in the manner that has become the agency's standard approach. The availability of safe alternatives to pesticides, the lack of objective scientific review by state agencies of pesticide safety, and the growing body of research indicating that exposure to even infinitesimal amounts of pesticides can have lifelong adverse health impacts all make clear to our organization that CDFA's approach has to change. We can no longer rely primarily on pesticides for pest management.

For this reason, the position of our coalition of 35 member organizations and cities is that the CDFA Pest PEIR based on treatment methods, the centerpiece of which is a long list of chemicals, is the wrong approach, and that preparing a PEIR now is premature because we should first pursue the independent "21st Century" invasive species paradigm work initiated at UC Davis. That work will bring together a focused but broadly representative group of experts and key stakeholders committed to transforming invasive species policy, not simply making adjustments in the outdated model in use currently.

We request that the State Board recommend to the CDFA that they pursue the UCD 21st Century approach in lieu of pushing forward with the Pest PEIR with its inherent problems.

Thank you for your continuing consideration of the public's concerns. Kindly provide a copy of this letter and attachments to your Board members. We look forward to your response.

Sincerely,

Jane Kelly, Nan Wishner, Thomas G. Kelly, JD, Lynn Elliott-Harding, RN, Board Members
California Environmental Health Initiative (CEHI)

Debbie Friedman, Co-Chair
MOMS Advocating Sustainability (MAS)

cc: Karen Ross, Secretary, California Department of Food and Agriculture (secretary.ross@cdfa.ca.gov)
Michele Dias, Acting Chief Counsel, California Department of Food and Agriculture (PEIRinfo@cdfa.ca.gov)
Office of Governor Edmund D. Brown, Jr., Attention Ken Alex, Senior Policy Advisor and OPR Director and Cliff Rechtschaffen, Senior Advisor (fax 916-558-3160)
Diana S. Dooley, Secretary, California Health and Human Services Agency (fax 916/654-3343)
George Alexeeff, Acting Director, OEHHA (fax 916/327-1097)
Chris Reardon, Chief Deputy Director and Dr. Marylou Verder-Carlos, Assistant Director, DPR (fax 916/324-1452 and email mverdercarlos@cdpr.ca.gov)

Attachments:

1. The California Report "Documents Detail Controversial Pesticide Approval", dated August 26, 2011
2. HealthyCal Article "Memos show staff questioned rationale for pesticide approval", dated August 25, 2011

http://www.californiareport.org/archive/R201108260850/b

Fri, Aug 26, 2011

Documents Detail Controversial Pesticide Approval

Download audio (MP3)

Donna Sutton/Flickr
Farmworkers in a strawberry field in California.

The state Department of Pesticide Regulation has released internal documents showing its own scientists did not support the decision to approve methyl iodide for use on strawberry fields. The documents were released by court order, in a lawsuit filed by environmental groups against the state. The suit argued that methyl iodide may cause cancer and miscarriages in farmworkers. Reporter: Amy Standen

Rachael Myrow: The state Department of Pesticide Regulation has released internal documents showing the agency's own scientists did not support the decision to approve the chemical methyl iodide for use on strawberry fields.

The documents were released by court order, in a lawsuit filed by environmental groups against the state. The suit argued that methyl iodide may cause cancer and miscarriages in farm workers. The California Report's Amy Standen has more.

Amy Standen: The question that plaintiffs have is this: Why did the state approve methyl iodide, allowing exposure levels more than 100 times higher than what staff scientists believed was safe?

When asked for documents that could spell out this decision, the head of the agency, MaryAnne Warmerdam declined to release them, saying they were legally protected. A public records request filed by KQED got the same response.

Earlier this month, a judge disagreed, and ordered the DPR to release the documents. Susan Kegley was one of the first to read them.

Susan Kegley: It's been very illuminating.

Standen: Kegley is a consulting scientist for Pesticide Action Network, one of the groups suing the state. She points to a document in which Warmerdam responds to recommendations, from her scientists, about how to protect workers from the chemical.

Kegley: Her method was to consult with the pesticide manufacture and determine what was acceptable to them, and then decide on what an acceptable level of exposure was.

Standen: In that document, for example, Warmerdam writes that scientists' recommendations are quote "excessive," and may be quote "unacceptable" to the pesticide manufacturer.

The newly-released documents show a deep rift between scientists who believed the chemical was dangerous, and Warmerdam, who approved it.

Referring to the DPR's allowable exposure levels for methyl iodide, a staff toxicologist wrote, quote, "I am puzzled by the numbers cited." And later, that Warmerdam's methods for reaching those exposure levels were quote, "not scientifically credible."

Warmerdam resigned in March and hasn't been replaced. DPR Spokeswoman Lea Brooks declined to comment on the documents, citing the pending litigation.

For the California Report, I'm Amy Standen

Myrow: The pesticide that methyl iodide replaced is also making news. The U.S. Environmental Protection Agency says state officials did violate the civil rights of Latino residents in several California communities when they approved the use of methyl bromide.

EPA officials note this move is a first for them. They have a backlog of about 30 similar civil rights complaints. The EPA's settlement with the state comes 12 years after Latino families in towns like Watsonville and Oxnard raised concerns about the use methyl bromide near schools.

Lawyers representing those families say they aren't happy with the settlement. Among other things, they point out it does nothing to protect children from the newly-approved replacement chemical methyl iodide.

Memos show staff questioned rationale for pesticide approval

Posted By Dan On August 25, 2011 @ 9:00 pm In California Health Report | No Comments

By Robin Urevich

Environmentalists fighting to roll back the approval of a controversial pesticide released documents Thursday that they said show regulators put politics before science when they approved methyl iodide for use in California agriculture last December.

“They take all the technical numbers and do this mix and match,” said Greg Loarie, an attorney for Earthjustice, which has sued the state Department of Pesticide Regulation on behalf of farm workers and environmental groups over its decision.

DPR spokeswoman Lea Brooks declined to comment, citing the pending litigation.

“Earthjustice is one of the litigants. It is inappropriate to try this case in the media,” Brooks wrote in an email.

Methyl iodide, now marketed as Midas, is designed to kill weeds and soil pests before strawberry, tomato and host of other plants are put in the ground.

Its manufacturer, Arysta Lifesciences, has touted the chemical as a so-called drop-in replacement for methyl bromide, which many California growers had widely depended on, but which is now being phased out under the Montreal Protocol because it depletes the earth’s ozone layer.

DPR scientists, however, concluded in early 2010 that it was only safe for use at low levels far away from homes and schools.

But in the last days of the Schwarzenegger administration, DPR managers appeared to disregard those conclusions and approved methyl iodide for use at concentrations 120 times higher than those its staff scientists had recommended.

An April 28, 2010 memo from primary state toxicologist Jay Schreider to supervisor Gary Patterson, which was released by Earthjustice Thursday questions the managers’ decision-making process.

“I am.. puzzled by some of the numbers cited in the draft regulation on methyl iodide …,” Schreider wrote.

“They appear to have been extracted from different MeI [methyl iodide] risk assessment methodologies that are not interchangeable. Each approach is made up of a series of interrelated values and assumptions: one value or assumption is predicated on the preceding one. It is not scientifically credible to select a value or assumption from one and combine it with a value or assumption from another.”

Schreider appears to have written his memo in response to a draft notice of decision dated the day before, in which DPR managers outlined a rationale for methyl iodide approval.

After looking over that draft, Dr. Susan Kegley, a consulting scientist for the Pesticide Action Network, which is also a plaintiff in the Earthjustice lawsuit, said DPR managers seemed to cherry pick numbers from two different mathematical models used to estimate methyl iodide's toxicity to humans.

"You can't take just the bits and pieces you want to get the number you want at the end," Kegley said.

Earthjustice obtained the memo and draft decision along with some 800 pages of methyl iodide material last week when Alameda County Superior Court Judge Frank Roesch ordered the DPR to release them in connection with the Earthjustice litigation.

DPR has staunchly defended its decision to register methyl iodide
Brooks pointed to a statement former DPR Director Mary Ann Warmerdam gave at a legislative hearing last February.

"The restrictions and conditions California has imposed on the use of methyl iodide products are the most stringent that exist in the United States, including those required by U. S. EPA," Warmerdam said.

The document release comes as Pesticide Action Network has launched a renewed effort to pressure the Brown administration to reverse the Schwarzenegger decision.

"We think today's release is enough information to give the governor and his administration pause to consider taking methyl iodide off the shelf," said Paul Towers, a spokesman for the group.

A spokesman for Gov. Brown declined to comment.

From:	Laura Smith
To:	Karen Ross, Secretary;
Subject:	Stop California"s newly proposed pro-toxic pest control process
Date:	Saturday, September 10, 2011 7:35:32 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Anaheim, California

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Wendy Chrisman
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 8:42:31 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Columbus, Ohio

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Tammy Du
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 1:17:00 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Goleta, California

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Vanessa Enferadi
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 2:15:39 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

hayward, California

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Jacqueline Garrett
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 12:32:38 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Columbus, Ohio

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Ourelian J. Haley
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 7:41:18 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Hempstead, New York

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Tania Hays
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 11:15:58 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

portland, Oregon

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Cynthia Henley
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 2:10:54 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Houston, Texas

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Thomas Kruggel
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 3:40:38 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Kissimmee, Florida

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Mikayla McAdams
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 11:35:37 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Riverside, Rhode Island

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From: Henry Parker
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 4:42:39 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Fayetteville, North Carolina

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From:	Linda Porter
To:	Karen Ross, Secretary;
Subject:	Stop California"s newly proposed pro-toxic pest control process
Date:	Sunday, September 11, 2011 9:17:07 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

West Chicago, Illinois

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From:	David Rose
To:	Karen Ross, Secretary;
Subject:	Stop California"s newly proposed pro-toxic pest control process
Date:	Sunday, September 11, 2011 11:40:34 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Martins Ferry, Ohio

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From: Madison Sanchez
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 10:11:40 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Salem, Oregon

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Rachel Scott
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 8:50:42 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Whitewater, Wisconsin

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Sara Skierkiewicz
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 8:16:00 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Loveland, Ohio

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Eliza Starbuck
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 8:20:54 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Brooklyn, New York

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Maike Sudau
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 5:40:59 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Stevensville, Montana

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Mark Wiseley
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 11:14:26 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Santa Cruz, California

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Greg Wisserman
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Sunday, September 11, 2011 11:15:23 AM

,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Milwaukee, Wisconsin

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From:	Jennifer Belcastro
To:	Karen Ross, Secretary;
Subject:	Stop California"s newly proposed pro-toxic pest control process
Date:	Monday, September 12, 2011 8:45:59 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

los Angeles, United States Minor Outlying Islands

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Lauren McDonald
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Monday, September 12, 2011 2:57:29 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Menlo Park, California

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Laraine Irizarry
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Tuesday, September 13, 2011 10:55:32 AM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Austin, Texas

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

From: Nissa Urban
To: Karen Ross, Secretary;
Subject: Stop California"s newly proposed pro-toxic pest control process
Date: Tuesday, September 13, 2011 12:10:54 PM

Greetings,

As a concerned citizen, I am writing to ask that you take immediate steps to curtail the newly proposed Programmatic Environmental Impact Report (PEIR) process for future invasive species eradication and control in California. I believe this approach fails to prioritize non-toxic and least-harmful pesticide and other control methods and is inappropriate for addressing the environmental and health concerns of the state of California and all those who depend on the agriculture produced there. Instead, I request that you consider the critical steps contained in the letter provided by Earth Justice to your department, which outline a process that allow for far more public input and protects the health of the people and the planet. I look forward to your swift action on this pressing issue. Sincerely ---------------- Stop The PIER process would provide an inappropriate "one size fits all" approach to species control that fails to prioritize the LEAST toxic methods, including harmful pesticides, and does not evaluate the risk of such approaches to vulnerable populations, such as children. It also could limit public feedback and information regarding pesticide use, especially on a case by case basis. For all these reasons, a coalition of environmental and health advocates are calling for a revised approach to pest control that would not only be less toxic, but less costly for the state. ---------------- Sincerely,

Tyler, Texas

Note: this email was sent as part of a petition started on Change.org, viewable at www.change.org/petitions/stop-californias-pro-pesticide-pier-process. To respond, email responses@change.org and include a link to this petition.

cdfa CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Horizon WATER and ENVIRONMENT

Appendix E

CDFA's Statewide General NPDES Pesticide Permit

STATE WATER RESOURCES CONTROL BOARD

1001 I Street, Sacramento, California 95814
http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml

WATER QUALITY ORDER NO. 2011-0004-DWQ
GENERAL PERMIT NO. CAG 990007

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM SPRAY APPLICATIONS

The following Dischargers may apply for coverage under this General Permit in compliance with the waste discharge requirements as set forth in this General Permit:

Table 1. Discharger Information

Dischargers	• California Department of Food and Agriculture (CDFA) for full coverage and • United States Department of Agriculture (USDA) Forest Service for specified biological controls only.

Table 2. Administrative Information

This General Permit was adopted by the State Water Resources Control Board (hereinafter State Water Board) on:	**March 1, 2011**
This General Permit shall become effective on:	**March 1, 2011**
This General Permit shall expire on:	**February 29, 2016**
The U.S. Environmental Protection Agency (U.S. EPA) and the State Water Board have classified this discharge as a **minor** discharge.	

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this General Permit with all attachments is a full, true, and correct copy of the General Permit adopted by the State Water Board on **March 1, 2011**.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Dwight P. Russell

NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend

Jeanine Townsend
Clerk to the Board

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I. DISCHARGE INFORMATION

Pesticide formulations may include "active ingredients"[1] and "inert ingredients"[2]. Adjuvants[3] or surfactants may be added to the ingredients in the application equipment that is used in the delivery of the pesticide. As part of the registration process of pesticides for use in California, U.S. EPA and the California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. The Clean Water Act (CWA), at section 301(a), broadly prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Biological and residual pesticides* discharged into surface waters constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Therefore, coverage under an NPDES permit is required.

The discharge of biological and residual pesticides to surface waters from spray applications for pest control throughout the State of California may pose a threat to existing and potential beneficial uses of waters of the United States if not properly controlled and regulated.

II. PERMIT COVERAGE AND APPLICATION REQUIREMENTS

A. General Permit Coverage

Except for discharges on tribal lands which are regulated by a federal permit, this General Permit covers the point source* discharge of biological and residual pesticides resulting from spray applications using the following: acetamiprid, aminopyralid, Bacillus thuringiensis kurstaki (Btk), carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus (NPV), pheromone, pyrethrins, Spinosad A and D, triclopyr butoxyethyl ester (BEE) and triclopyr triethylamine salt (TEA).

Attachment E, which is a part of this General Permit, lists the products containing these active ingredients.

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[1] Active ingredients are manufacturer disclosed ingredients that yield toxic effects on target organisms.
[2] Inert ingredients are additional ingredients and are often trade secrets; therefore, they are not always disclosed by the manufacturer.
[3] Adjuvants are ingredients that are added to pesticides during an application event and are whose exact formulation is often a trade secret. These ingredients are chosen by the Discharger, based on site characteristics, and typically increase the effectiveness of pesticides on target organisms.
* Defined in Attachment A – Definitions.

B. Discharger

This General Permit covers spray applications by CDFA and USDA Forest Service (collectively Dischargers). However, this General Permit regulates only USDA Forest Service's use of biological control.

C. General Permit Application

To obtain authorization under this General Permit, Dischargers must submit a complete application to the State Water Board as described below:

1. A Notice of Intent (NOI) shown as Attachment F signed in accordance with the signatory requirements of the Standard Provisions in Attachment B;
2. An application fee; and
3. A Pesticide Application Plan (PAP)

State and Regional Water Board staff will review the application package for completeness and applicability to this General Permit. Additionally, the State Water Board's Deputy Director of the Division of Water Quality (Deputy Director) may issue a Notice of Exclusion (NOE)[4]**,** which either terminates the permit coverage or requires submittal of an application for an individual permit or alternative general permit.

Permit coverage will be effective when all of the following have occurred:

1. The Discharger has submitted a complete permit application;
2. The PAP has been posted on the State Water Board's website for a 30-day comment period[5] and approved by the Deputy Director; and
3. The Deputy Director has issued a Notice of Applicability (NOA). The NOA will specify the pesticide products or type(s) of pesticides that may be used and any Region-specific conditions and requirements not stated in this General Permit. Any such Region-specific conditions and requirements shall be enforceable. The Discharger is authorized to discharge starting on the date of the NOA.

D. Fees

The annual fee for enrollment under this General Permit shall be based on Category 3 in section 2200(b)(9) of Title 23, California Code of Regulations (CCR). This category is appropriate because pesticide applications incorporate best management practices (BMPs) to control potential impacts to beneficial uses, and this General Permit prohibits biological and residual pesticides from causing exceedance of water quality objectives. The annual fee associated with this rating can be found in section 2200(b)(9) of Title 23, CCR, which is available at

[4] An NOE is a one-page notice that indicates that the Discharger or proposed Discharger is not eligible for coverage under this General Permit and states the reason why. This justification can include, but is not limited to, necessity to comply with a total maximum daily load or to protect sensitive water bodies. The NOE can also indicate that the coverage is denied if feasible alternatives to the selected pesticide application project are not analyzed.

[5] *See Waterkeeper Alliance, Inc. v. EPA,* 399 F.3d 486 (2nd Cir. 2005).

http://www.waterboards.ca.gov/resources/fees/docs/fy10_11_fee_schedule.pdf and is payable to the State Water Board.

E. Terminating Coverage

To terminate permit coverage, a Discharger must submit a complete and accurate Notice of Termination (NOT) provided in Attachment G. The Discharger's authorization to discharge under this General Permit terminates on the day of the coverage termination letter issued by the Deputy Director. Prior to the termination effective date, the Discharger is subject to the terms and conditions of this General Permit and is responsible for submitting the annual fee and all reports associated with this General Permit.

A Discharger must submit an NOT when one of the following conditions occurs:

1. A new operator has taken over responsibility of the Discharger's pesticide control activities covered under an existing NOI;
2. The Discharger has ceased all discharges from the application of pesticides for which it obtained General Permit coverage and does not expect to discharge during the remainder of this General Permit term; or
3. The Discharger has obtained coverage under an individual permit or an alternative general permit for all discharges required to be covered by an NPDES permit.

III. FINDINGS

The State Water Board finds:

A. Background

1. An NPDES Permit is required for applications of pesticides that result in a discharge of pollutants to waters of the US. Courts have determined that pesticides may constitute chemical wastes or biological materials within the meaning of the CWA.[6] Under current case law, whether a permit is required depends upon whether it is a biological or chemical pesticide and, for chemical pesticides, whether there is any residue or unintended effect from its application.
2. U.S. EPA's 2006 regulation attempting to exempt certain FIFRA-compliant applications of pesticides was invalidated and vacated by the Sixth Circuit Court of Appeals in 2009.[7] A two-year stay of the effect of that decision was granted, such that the invalidated regulation will remain in effect until April 9, 2011.
3. Although the point at which a pesticide becomes a pollutant may not be known, a permit is required if a pollutant will be deposited into waters of the US. This General

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[6] *Headwaters, Inc. v. Talent Irrigation District*, (9th Cir. 2001) 243 F.3d 526; *League of Wilderness Defenders v. Forsgren* (9th Cir. 2002) 309 F.3d 526; *Fairhurst v. Hagener* (9th Cir. 2005) 422 F.3d. 1146.
[7] *National Cotton Council v. U.S. EPA* (6th Cir. 2009) 553 F.3d 927.

Permit is intended to regulate applications of pesticides that result in a discharge of pollutants to waters of the US, consistent with the CWA.

4. In 2001, the State Water Board adopted Water Quality Order No. 2001-12-DWQ, Statewide General NPDES Permit for Discharges of Aquatic Pesticides to Waters of the US issued in response to a Ninth Circuit decision[8]. Order No. 2001-12-DWQ covered broad categories of aquatic pesticide use in California. When that permit expired in 2004, it was replaced by Order Nos. 2004-0008-DWQ (larvicide discharges for vector control) and 2004-0009-DWQ (aquatic herbicide discharges for weed control).

B. Legal Authorities

This General Permit is issued pursuant to section 402 of the federal CWA and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). Section 122.28(a)(1) of Title 40 of the Code of Federal Regulations [40 C.F.R. §122.28(a)(1)] allows NPDES permits to be written to cover a category of discharges within the State political boundaries, except as provided by Federal law for recognized Indian Reservations, as a general NPDES permit. U.S. EPA Region 9 has granted the State Water Board the authority to issue general NPDES permits.

This General Permit shall serve as a General NPDES permit for point source discharges of biological and residual pesticides from spray applications for pest control. Pest control covered by this General Permit includes, but is not limited to, invasive species of both insects and weeds. This General Permit also serves as general Waste Discharge Requirements pursuant to article 4, chapter 4, and division 7 of the California Water Code (commencing with section 13260).

C. Background and Rationale for requirements

The State Water Board developed the requirements in this General Permit based on information submitted by CDFA and USDA Forest Service and other available information and studies. The Fact Sheet (Attachment D), which contains background information and rationale for General Permit requirements, is hereby incorporated into this General Permit and constitutes part of the Findings for this General Permit. All other attachments (A, B, C, and E through G) are also incorporated into this General Permit.

D. California Environmental Quality Act (CEQA)

Pursuant to California Water Code section 13389, State and Regional Water Boards are exempt from the requirement to comply with Chapter 3, Division 13 of the Public Resources Code when adopting NPDES permits.

[8] *Headwaters, Inc. v. Talent Irrigation District* (9th Cir. 2001) 243F.3d 526.

E. Related Pesticide Regulations

U.S. EPA, DPR, and County Agricultural Commissioners regulate pesticides uses in California. The responsibility of each agency is discussed in detail below:

1. U.S. EPA

U.S. EPA has the sole jurisdiction of pesticide label language according to the FIFRA. Label language and any changes thereto must be approved by U.S. EPA before the product can be sold in this country.

As part of the labeling process, U.S. EPA evaluates data submitted by registrants to ensure that a product, if it is used in accordance with label instructions, will cause no harm (or “adverse impact”) on non-target organism. Pesticide registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as effects on non-target pests. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, degradation byproducts, leach ability, and persistence. However, FIFRA is not necessarily as protective of water quality as the CWA.

2. DPR

DPR is responsible for reviewing the toxic effects of pesticide formulations and determining whether a pesticide is suitable for use in California through a registration process. DPR also reviews data submitted by the registrants. Although DPR cannot require manufacturers to make changes in labels, it can refuse to register products in California unless manufacturers address unmitigated hazards by amending the pesticide label. Consequently, requirements that are specific for use in California are included in many pesticide labels that are already approved by U.S. EPA.

DPR also issues licenses to applicators who apply those pesticides that are designated as a “restricted material”[9]. To legally apply these pesticides, the applicator must hold a Qualified Applicator Certificate or License from DPR or work under the supervision of someone who is certified.

3. County Agricultural Commissioners

County Agricultural Commissioners implement and enforce the sale and use of pesticides in California except on tribal lands and reservations as provided by federal law for tribal lands and reservation. County Agricultural Commissioners also issue Use Permits for applications of pesticides deemed as restricted materials by DPR.

During the Use Permit permitting process, County Agricultural Commissioners determine if the pesticide use will result in substantial adverse environmental

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[9] CDPR designates a pesticide as a restricted material in California if it poses hazards to public health, farm workers, domestic animals, honeybees, the environment, wildlife, or crops other than those being treated (“Regulating Pesticides: A Guide to Pesticide Regulation in California,” October 2001, CDPR).

impact, whether appropriate alternatives were considered, and if any potential adverse effects are mitigated. The Use Permit conditions contain minimum measures necessary to protect people and the environment.

The County Agricultural Commissioners also conduct pre-project inspections on at least five percent of projects.

F. Technology-Based Effluent Limitations

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. §122.44, require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

G. Water Quality-Based Effluent Limitations (WQBELs)

Section 301(b) of the CWA and 40 C.F.R § 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. The federal regulation mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an excursion of a water quality standard, including numeric and narrative objectives within a standard. Section 122.44(k)(3) of 40 C.F.R. allows the use of other requirements such as BMPs in lieu of numeric effluent limits if the latter are infeasible. The State Water Board finds that numeric effluent limits for pollutant discharges associated with the application of pesticides are infeasible because:

1. This General Permit regulates discharges of biological and residual pesticides which are pesticide ingredients or degradation byproducts that are present after the use of the pesticide for pest control. Therefore, the exact effluent is unknown; and
2. It would be impractical to provide effective treatment for biological and residual pesticide to protect water quality, given that typically, pesticide applications consist of the numerous short duration intermittent pesticide releases to surface waters from many different locations.

The effluent limitations contained in this General Permit are narrative and include requirements to develop and implement a PAP that describes appropriate BMPs, including compliance with all pesticide label instructions, as well as requirements to comply with receiving water limitations. The BMPs required herein are intended to: 1) minimize the area and duration of impacts caused by the discharge of biological and residual pesticides in the target area* and 2) allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event*.

H. Receiving Water Monitoring Triggers

Following pesticide applications in or near surface waters, biological and residual pesticides may cause both acute and chronic toxicity to aquatic life. Regional Water Boards in their Water Quality Control Plans (Basin Plans) include a narrative toxicity objective (“no toxics in toxic amounts), which specifically prevents the presence of toxic substances, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. Since information regarding biological and residual pesticides deposited in the receiving water as a result of spray applications is not adequate to develop receiving water limitations for individual and combinations of pesticides, this General Permit only contains receiving water monitoring triggers for residual pesticides of concern except malathion. The monitoring triggers will be used to assess compliance with the narrative toxicity receiving water limitation and to initiate additional investigations for the toxicity caused by the insecticides and herbicides used and their additive or synergistic effects. If monitoring data for residual pesticides of concern indicate that concentrations of these residual pesticides exceed the monitoring trigger, this General Permit may be re-opened and Receiving Water Limitations for these pesticide ingredients could be added. This General Permit includes an Instantaneous Maximum Receiving Water Monitoring Trigger for each residual pesticides of concern. Receiving Water Monitoring Triggers for residual pesticides of concern are summarized in Section VII, Table 4 (Receiving Water Monitoring Triggers) of this General Permit.

I. Beneficial Uses in Basin Plans

The typical relevant beneficial uses identified in the Regional Water Boards’ Basin Plans include: municipal and domestic supply, agricultural irrigation, stock watering, process supply, service supply, hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, rare, threatened, or endangered species habitat, groundwater recharge, and freshwater replenishment. Requirements of this General Permit implement the applicable Basin Plans.

J. National Toxics Rule (NTR) and California Toxics Rule (CTR)

U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR were applicable in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality standards for priority pollutants.

K. State Implementation Policy (SIP)

The State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters*, Enclosed Bays*, and Estuaries* of California* (State Implementation Policy or SIP) in March 2000 and amended it in February 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. This General Permit includes a narrative Receiving Water Limitation for toxicity and acute and chronic toxicity testing requirements for residual pesticides of concern. Therefore, this General Permit is consistent with the SIP.

L. Antidegradation Policy

Section 131.12 of 40 C.F.R. requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plans implement, and incorporate by reference, both the state and federal antidegradation policies.

This General Permit requires that discharges must be consistent with the provisions of 40 C.F.R. § 131.12 and Resolution No. 68-16. The conditions of this General Permit require biological and residual pesticide discharges to meet applicable water quality objectives. Specifically, the General Permit sets receiving water limitation for malathion and receiving water monitoring triggers for the other active ingredients of chemical pesticides. The General Permit also requires toxicity testing to determine if residues, including active ingredients, inert ingredients, and degradation byproducts, in any combination, from pesticide applications cause toxicity to the receiving water or add toxicity to it if there is pre-existing toxicity prior to pesticide applications. If residues cause toxicity or add to an existing toxicity, the Discharger is required to perform an iterative process of evaluating its application methods, BMPs, or alternatives to the pesticide causing toxicity until the applications no longer cause or add toxicity. The BMPs and other controls required pursuant to the General Permit constitute Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).

The General Permit requirements are protective of the broad range of beneficial uses set forth in basin plans throughout the state, constituting best control available consistent with the purposes of the pesticide application in order to ensure that pollution or nuisance will not occur. The conditions also ensure maintenance of the highest water quality consistent with maximum benefit to the people of state. The nature of pesticides is to be toxic in order to protect beneficial uses such as human health or long-term viability of native aquatic life. Lake Davis and Silver King Creek are examples of water bodies where the Department of Fish and Game has used chemical pesticides to eradicate the Northern Pike and non-native trout, respectively. Waters of exceptional quality may be degraded due to the application of pesticides; however, it would only be temporary and in the best interest of the people of the State. While surface waters may be temporarily degraded, water quality standards and objectives will not be exceeded after project completion.

Another example of the benefits of pesticide application and any temporary degradation of water quality occurring as a result is the Asian clam infestation in Lake Tahoe which may require the use of pesticides to eradicate the pest. The Asian clam is undesirable because it: (1) displaces native clams, snails, and other organisms living on the lake bottom, which are important members of the lake's native food web;

(2) fosters the growth of bright green algae, which change the look of the water, and smell when they decompose; and (3) could help foster an invasion of quagga mussels, another aggressive non-native species, by creating desirable habitat for them. Eradication of these species is important to protect beneficial uses, including habitat for native species, and water conveyance. Discharges in compliance with this permit will maintain existing levels of water quality over the long term.

Given the nature of a General Permit and the broad range of beneficial uses to be protected across the state, data analysis of specific water bodies is infeasible. While surface waters may be temporarily degraded, water quality standards and objectives will not be exceeded. The nature of pesticides is to be toxic in order to protect human health. However, compliance with receiving water limitations and other permit requirements is required. Therefore, this General Permit is consistent with State and federal antidegradation policies.

M. Endangered Species Act

This General Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 et. seq) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 et. seq). This General Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

N. Monitoring and Reporting

Section 122.48 of Title 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. California Water Code sections 13267 and 13383 authorize the State and Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment C.

O. Standard and Special Provisions

Attachment B provides the Standard Provisions which apply to all NPDES permits in accordance with 40 C.F.R. § 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. § 122.42. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 C.F.R. § 122.42. In addition, the Discharger must comply with all the Special Provisions which are provided in Section IX.C of this General Permit.

P. Notification of Interested Parties

The State Water Board has notified interested agencies and persons of its intent to prescribe WDRs and has provided them with an opportunity to submit comments. Details of the notifications are provided in the Fact Sheet of this General Permit.

Q. Consideration of Public Comment

The State Water Board, in a public meeting, heard and considered all comments pertaining to discharges to be regulated by this General Permit. Details of the Public Hearing are provided in the Fact Sheet of this General Permit.

THEREFORE, IT IS HEREBY ORDERED, that in order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted there under, and the provisions of the federal CWA and regulations and guidelines adopted there under, the Dischargers shall comply with the requirements in this General Permit.

IV. DISCHARGE PROHIBITIONS

A. The discharge of biological and residual pesticides at a location or in a manner different from that described in this General Permit is prohibited.

B. The discharge of biological and residual pesticides shall not create a nuisance as defined in section 13050 of the California Water Code.

C. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable standard or criterion promulgated by U.S. EPA pursuant to section 303 of the CWA, or water quality objective adopted by the State or Regional Water Boards.

V. EFFLUENT LIMITATIONS

A. The discharge of biological and residual pesticides must meet applicable water quality standards; and

B. Dischargers shall implement BMPs when applying pesticides. The BMPs must be provided in the PAP which is described in Section VIII.C below.

VI. RECEIVING WATER LIMITATIONS

The discharges shall not result in any of the following:

A. Cause or contribute to an exceedance of the following in the receiving water:

Table 3. Receiving Water Limitation

Ingredient	Unit	Instantaneous Maximum
Malathion	µg/L	0.1

B. Floating Material. Floating material to be present in the amounts that cause nuisance or adversely affect beneficial uses.

C. Settleable Substances. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

D. Suspended Material. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

E. Taste and Odors. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses or domestic or municipal water supplies.

F. Toxic Pollutants. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

G. Temperature. The ambient temperature to increase more than 5ºF.

H. Color. Esthetically undesirable discoloration.

I. Aquatic Communities. Aquatic communities and populations, including vertebrates, invertebrates, and plant species to be degraded.

VII. RECEIVING WATER MONITORING TRIGGERS

The Receiving Water Monitoring Triggers shown in Table 4 below will be used to assess compliance with the narrative receiving water toxicity limitation and initiate additional investigations for the toxicity caused by the residual pesticides used and their additive or synergistic effects.

Table 4. Receiving Water Monitoring Triggers

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
Insecticide Active Ingredients			
Acetamiprid	µg/L	6.6	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Carbaryl	µg/L	2.53	California Department Fish and Game Criterion
Cyfluthrin	µg/L	0.00022	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Dinotefuran	µg/L	79	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Imidacloprid	µg/L	3.8	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Naled	µg/L	0.014	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Herbicide Active Ingredients			
Pyrethrins	µg/L	0.14	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Clopyralid	µg/L	2,874	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Glyphosate	µg/L	700	U.S. EPA primary MCL for protection of drinking water quality

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
Triclopyr Butoxyethyl Ester	µg/L	36	U.S. EPA Office of Pesticides *Ecotoxicity Database*

VIII. PESTICIDE USE REQUIREMENTS

A. Application Schedule

The Discharger shall provide a phone number or other specific contact information to all persons who request the Discharger's application schedule. The Discharger shall provide the requester with the most current application schedule and inform the requester if the schedule is subject to change. Information may be made available by electronic means, including posting prominently on a well-known web page.

B. Public Notice Requirements

The Discharger shall notify potentially affected governmental agencies and the public as soon as a pesticide application for a project is scheduled by posting a notification on its website. The notification shall include the following information:

1. A statement of the Discharger's intent to apply pesticide(s);
2. Name of pesticide(s);
3. Purpose of use;
4. General time period and locations of expected use;
5. Any water use restrictions or precautions during treatment; and
6. A phone number that interested persons may call to obtain additional information from the Discharger.

C. Pesticides Application Plan (PAP)

Each Discharger shall develop a project- and/or program-specific PAP, which is tailored to each pest control project or program. PAP that contains the following elements:

1. Description of any surface waters within and near the application area;
2. Discussion of the factors influencing the decision to select pesticide spray applications for pest control;
3. Pesticide products or types of pesticides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
4. Description of the application area* and the target area in the system;
5. Other control methods used (alternatives) and their limitations;
6. How much product is needed and how this amount was determined;

7. Representative monitoring locations* and the justification for selecting these locations;;
8. Off-target Drift Management Plan, including the following:
   a. Procedures used when applying pesticides;
   b. Procedures used when off-target drift is anticipated due to the nature of the application and environmental conditions;
   c. Procedures used when off-target drift is not anticipated, but does occur; and
   d. Site record sheet.
9. If applicable, describe details of the buffer zone that will be used to prevent off-target spray drift*;
10. Description of implementation of all reasonable alternatives to limit amount of biological and residual pesticide discharge;
11. Evaluation of available BMPs to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts;
12. Description of site-specific BMPs to be implemented. The BMPs shall include, at the minimum:
    a. measures to prevent pesticide spill;
    b. measures to ensure that only a minimum and consistent amount of pesticide is used in all applications;
    c. a plan to educate Discharger's staff and pesticide applicator on any potential adverse effects from the pesticide application;
    d. descriptions of specific BMPs for each spray mode, e.g. aerial spray, truck spray, hand spray, etc.;
    e. descriptions of specific BMPs for each pesticide products to be used; and
    f. descriptions of specific BMPs for each type of environmental settings, i.e., agricultural, urban, and wetland.
13. Identification of the Problem. Prior to the first pesticide application covered under this General Permit that will result in a discharge of biological and residual pesticides to waters of the US, and at least once each calendar year thereafter prior to the first pesticide application for that calendar year, the Discharger must do the following for each pest management area:
    a. If applicable, establish densities for pest populations to serve as action threshold(s) for implementing pest management strategies;
    b. Identify each target pest species to develop species-specific pest management strategies based on developmental and behavioral considerations for each species;
    c. Identify known breeding areas for source reduction, larval control program, and habitat management; and

d. Analyze existing surveillance data to identify new or unidentified sources of each pest problem as well as areas that have recurring pest problems.

14. Examination of the Possible Alternatives. Dischargers should examine the alternatives to pesticide use to reduce the need for applying pesticide. Such methods include:

a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms, pesticide resistance, feasibility, and cost effectiveness should be considered:

- No action
- Prevention
- Mechanical or physical methods
- Cultural methods
- Biological control agents
- Pesticides

If there are no alternatives to pesticides, Dischargers shall use the least amount of pesticide necessary to control the pest.

b. Using the least intrusive method of pesticide application.

c. Applying a decision matrix concept to the choice of the most appropriate formulation.

15. Correct Use of Pesticides

Dischargers must ensure that all reasonable precautions are taken to prevent off-target spray drift. Reasonable precautions include using the right spraying techniques and equipment, taking account of weather conditions and the need to protect the environment.

a. Consider Buffer Zone

When spraying near water with certain pesticides, it might be necessary to leave an unsprayed area at the margin to prevent spray drifting out of the target area. This unsprayed area is called a buffer zone. The size of the margin is dependent upon the type of sprayer used, e.g. aerial application will require a larger buffer zone than ground application.

b. Prevent Off-Target Spray Drift

Users of pesticides must ensure that all reasonable precautions are taken to prevent off-target spray drift. A combination of factors may affect off-target spray drift, including wind velocity at spray nozzle height, stability of the local atmospheric conditions, wrong nozzles or pressure choice affecting spray quality, vehicle speed, boom height, poor equipment maintenance, and incorrect equipment setting.

It is important that the appropriate environmental or conservation agency is contacted before spraying, in case there are particularly susceptible areas that the spray operator is not aware of. The following should be considered to avoid off-target spray drift:

i. Check the weather forecast before starting the spray application;
ii. Do not spray if the wind direction and speed would cause spray to drift onto sensitive areas;
iii. If applicable, release the pesticide as close as possible to the target;
iv. Check spray angles and adjust height accordingly; and
v. Use the lowest effective rates of application.

c. All errors in application and spills are reported to the proper authority.
d. Staff training in the proper application of pesticides and handling of spills.

16. Specify a website where public notices, required in Section VIII.B, may be found.

D. PAP Processing, Approval, and Modifications

Upon receipt of a PAP, staff will post it on the State Water Board's website for a 30-day public comment period in accordance with the Second Circuit Court's decision in Waterkeeper Alliance, Inc. v. EPA[10]. If no comments are received and staff deems that the PAP is complete, the Deputy Director will issue an NOA within three (3) working days of closure of the comment period. If comments are received, staff will try to address the comments as expeditiously as possible to allow the Deputy Director to issue an NOA within 10 working days.

Major changes to the PAP shall be submitted to the Deputy Director for approval. Examples of major changes include using a different product other than what is specified in the PAP, changing an application method that may result in different amounts of pesticides being applied, or adding or deleting BMPs. Changes in monitoring locations are not considered major changes. However, these changes shall be reported in the annual report.

E. Pesticide Application Log

The Discharger shall maintain a log for each pesticide application. The application log shall contain, at a minimum, the following information:

1. Date of application;
2. Location of application;
3. Name of applicator;
4. The names of the water bodies impacted (e.g. canal, creek, lake. etc.);
5. Application details, such as time application started and stopped, pesticide application rate and concentration, wind speed and direction, vehicle speed;
6. Visual monitoring assessment; and
7. Certification that applicator(s) followed the PAP.

[10] See Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2nd Cir. 2005).

IX. PROVISIONS

A. Standard Provisions

1. All Dischargers authorized to discharge under this General Permit shall comply with the Federal Standard Provisions included in Attachment B of this General Permit.
2. This General Permit does not authorize the discharge of biological and residual pesticides or their degradation byproducts to waters of the US that are impaired by the same pesticides used or any pesticide in the same chemical family. Impaired waters are those waters not meeting water quality standards pursuant to section 303(d) of the CWA. California impaired waters are listed on http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/2010_combo303d.xls (to be reviewed and adopted by U.S. EPA).
3. The State Water Board may use this General Permit to regulate the discharge of biological and residual pesticides to a surface water classified as Outstanding National Resource Waters or as a water body impaired by unknown toxicity only after the following conditions are satisfied:(1) the proposed project will comply with the limitations and discharge requirements specified in the General Permit; and (2) if required, the proposed pesticide application qualifies for and has been granted a Basin Plan prohibition exception prior to discharge. The two bodies of water that are classified as Outstanding National Resource Waters in California are Lake Tahoe and Mono Lake.
4. The Discharger must follow all FIFRA pesticide label instructions and any Use Permits issued by a County Agricultural Commissioner.
5. The Discharger must be licensed by DPR if such licensing is required for the pesticide application project.
6. The Discharger must comply with effluent limitations and must develop and implement a PAP.
7. In accordance with the PAP, Section VIII.C.10, the Discharger shall implement the identified alternative measures that are feasible and effective to the selected pesticide application project that could reduce potential water quality impacts.
8. All Dischargers authorized to discharge under this General Permit shall comply with discharge prohibitions and other requirements contained in water quality control plans, as implemented by the State and the nine Regional Water Boards.
9. All Dischargers authorized to discharge under this General Permit shall comply with the following provisions:
   a. After notice and opportunity for a hearing, this General Permit may be terminated or modified for cause, including, but not limited to:
      i. violation of any term or condition contained in this General Permit;
      ii. obtaining this General Permit by misrepresentation or by failing to disclose fully all relevant facts;

iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge (if applicable).

b. The provisions of this General Permit are severable. If any provision of this General Permit is found invalid, the remainder of this General Permit shall not be affected.

c. The Discharger shall maintain a copy of this General Permit and make it available at all times to operating personnel. Key operating personnel shall be familiar with its content.

d. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the State and Regional Water Boards.

e. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

f. Each Discharger shall file with the State Water Board and the appropriate Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this General Permit.

g. The State and Regional Water Board are authorized to enforce the terms of this General Permit under several provisions of the California Water Code, including, but not limited to, sections 13385, 13386, and 13387.

B. Monitoring and Reporting Program Requirements

1. The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment C of this General Permit.
2. The Deputy Director may add monitoring and reporting requirements to the Monitoring and Reporting Program.
3. The Deputy Director may approve reductions in monitoring frequencies if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

C. Special Provisions

1. **Reopener Provisions**

a. This General Permit may be reopened for modification, or revocation and reissuance in accordance with the provisions contained in 40 C.F.R. §122.62.

b. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. §122.62, including:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this General Permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

c. **Acute and Chronic Toxicity.** If the State Water Board revises its toxicity control provisions that would require new implementation procedures including the establishment of numeric chronic toxicity limitations, this General Permit may be reopened to include numeric acute and chronic toxicity receiving water limitations based on the new provisions.

d. **Receiving Water Limitations**. This General Permit may be reopened to add receiving water limitations if the monitoring result for residual pesticides specified in the Table 4 (Receiving Water Monitoring Triggers) exceeded the associated monitoring trigger.

e. **Endangered Species Act**. If U.S. EPA develops biological opinions regarding pesticides included in this General Permit, this General Permit may be re-opened to add or modify Receiving Water Limitations/Monitoring Triggers for biological and residual pesticides of concern, if necessary.

f. **Pesticide Products.** This General Permit may be re-opened to add additional pesticide products registered by DPR.

g. This General Permit may be reopened and modified to incorporate toxicity monitoring requirements if the State Water Board-funded toxicity study demonstrates probable toxicity for particular pesticide ingredients. The State Water Board will consider any potential reopener, at a board meeting, no later than December 31, 2012. Staff will use “Alternative D” of the toxicity testing requirements from the March 1, 2011 public meeting as a template for toxicity testing requirements in any proposed reopener.

2. **Special Studies, Technical Reports, and Additional Monitoring Requirements**

Each Discharger shall conduct additional investigations when toxicity testing shows toxicity or increased toxicity in the receiving water, or when the chemical monitoring shows exceedance of a receiving water limitation or a receiving water monitoring trigger. The additional investigations shall identify corrective actions to eliminate toxicity and/or exceedance of monitoring trigger caused by the pesticide application. The investigation shall include, but not be limited to, revising and improving existing BMPs, revising the mode of application, using less toxic pesticide products, or selecting alternative methods for pest control.

3. **Reporting**

a. **Twenty-Four Hour Report**

The Discharger shall report to the State Water Board and the appropriate Regional Water Board any noncompliance, including any effect of a pesticide’s use that is unexpected or unintended, that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances and must include the following information:

i. The caller's name and telephone number;
ii. Applicator name and mailing address;
iii. Waste Discharge Identification (WDID) number;
iv. The name and telephone number of a contact person, if different than the person providing the 24-hour notice;
v. How and when the Discharger become aware of the noncompliance;
vi. Description of the location of the noncompliance;
vii. Description of the noncompliance identified and the U.S. EPA pesticide registration number for each product the Discharger applied in the area of the noncompliance; and
viii. Description of any steps that the Discharger has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

If the Discharger is unable to notify the State Water Board and the appropriate Regional Water Board within 24 hours, the Discharger must do so as soon as possible and also provide the rationale for why the Discharger was unable to provide such notification within 24 hours.

b. **Five-Day Written Report**

The Discharger shall also provide a written submission within five (5) days of the time the Discharger becomes aware of the noncompliance. The written submission shall contain the following information:

i. Date and time the Discharger contacted the State Water Board and the appropriate Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board ;
ii. Information required to be provided in Section C.3.a above;
iii. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the pests to be eliminated);
iv. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc);
v. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);
vi. Pesticide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of pesticide product, description of pesticide ingredients, and U.S. EPA registration number;
vii. Description of the habitat and the circumstances under which the noncompliance activity occurred (including any available ambient water data for pesticides applied);

viii. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;

ix. If applicable, explain why the Discharger believes the noncompliance could not have been caused by exposure to the pesticide from the Discharger's application; and

x. Actions to be taken to prevent recurrence of adverse incidents.

4. **Corrective Action**

a. **Situations Requiring Revision of Control Measures.** If any of the following situations occur, the Discharger must review and, as necessary, revise the evaluation and selection of the control measures to ensure that the situation is eliminated and will not be repeated in the future:

i. An unauthorized release or discharge associated with the application of pesticides (e.g., spill, leak, or discharge not authorized by this or another NPDES permit) occurs;

ii. The Discharger becomes aware, or the State Water Board concludes, that the control measures are not adequate/sufficient for the discharge to meet applicable water quality standards;

iii. Any monitoring activities indicate that the Discharger failed to:

1) Follow the label instructions for the product used;

2) Use the lowest amount of pesticide product per application and optimum frequency of pesticide applications necessary to control pests, consistent with reducing the potential for development of pest resistance;

3) Perform regular maintenance activities to reduce leaks, spills, or other unintended discharges of pesticides associated with the application of pesticides covered under this General Permit; or

4) Maintain pesticide application equipment in proper operating condition by adhering to any manufacturer's conditions and industry practices, and by calibrating, cleaning, and repairing such equipment on a regular basis to ensure effective pesticide application and pest control. The Discharger must ensure that the equipment's rate of pesticide application is calibrated to deliver the precise minimum quantity of pesticide needed to achieve greatest efficacy against pests.

b. **Corrective Action Deadlines.** If the Discharger determines that changes to the control measures are necessary to eliminate any situation identified in Section C.4 above, the Discharger shall make such changes within 60 days. The Discharger shall take the corrective action before any further discharge of the biological and residual pesticides will be allowed.

c. **Effect of Corrective Action.** The occurrence of a situation identified in Section C.4 above may constitute a violation of this General Permit. Correcting the situation according to Section C.4 does not absolve the Discharger of liability for any original violation. However, failure to comply with Section C.4 constitutes an additional permit violation. The State Water Board will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

The State Water Board and the appropriate Regional Water Board may impose additional requirements and schedules of compliance, including requirements to submit additional information concerning the condition(s) triggering corrective action or schedules and requirements more stringent than specified in this General Permit. Those requirements and schedules will supersede those of Section C.4 if such requirements conflict.

5. **Adverse Incident to Threatened or Endangered Species or Critical Habitat**

If the Discharger becomes aware of an adverse incident* to a federally-listed threatened or endangered species or its federally-designated critical habitat, that may have resulted from the Discharger's pesticide application, the Discharger must immediately notify the National Marine Fisheries Service (NMFS) Santa Rosa office by phone at 707-575-6050 in the case of an anadromous or marine species, or the U.S. Fish and Wildlife Service (FWS) in the case of a terrestrial or freshwater species. This notification must be made by telephone or email immediately when the Discharger becomes aware of the adverse incident and must include at least the following information:

a. The caller's name, telephone number, and email address;

b. Applicator name and mailing address;

c. The name of the affected species;

d. How and when the Discharger became aware of the adverse incident;

e. Description of the location of the adverse incident;

f. Description of the adverse incident, including the U.S. EPA pesticide registration number for each product applied in the area of the adverse incident; and

g. Description of any steps that have been taken or will be taken to alleviate the adverse impact to the species.

Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from NMFS (www.nmfs.noaa.gov) for anadromous or marine species or FWS (www.fws.gov) for terrestrial or freshwater species.

ATTACHMENT A – DEFINITIONS

Active Ingredient
Active ingredients are manufacturer disclosed ingredients that yield toxic effects on target organisms.

Adjuvants
Adjuvants are ingredients that are added to pesticides during an application event and are often trade secrets. These ingredients are chosen by the Discharger, based on site characteristics, and typically increase the effectiveness of pesticides on target organisms.

Adverse Incident
Adverse Incident means a situation where the Discharger observes upon inspection or becomes aware of in which**:**

- A person or non-target organism may have been exposed to a pesticide residue, and
- The person or non-target organism suffered an adverse or toxic effect.

Adverse or Toxic Effect
An "adverse or toxic effect" includes any impact that occur within US waters on non-target plants, fish, or wildlife that is unusual or unexpected (e.g., effects are to organisms not otherwise described on the pesticide product label or otherwise not expected to be present) as a result of exposure to a pesticide residue, and may include:

- Distressed or dead juvenile and small fishes
- Washed up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

An "adverse or toxic effect" also includes any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either directly or indirectly from a discharge to waters of the U.S. that are temporally and spatially related to exposure to a pesticide residue (e.g., vomiting, lethargy).

Agricultural Supply
Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.

Application Area
The application area is the area to which pesticides are directly applied. It is the responsibility of the Discharger to determine the application area. The application area may be synonymous with the target area.

Application Event
The application event is the time that introduction of the pesticide to the application area takes place, not the length of time that the environment is exposed to the pesticide.

Biological Pesticide
A chemical which is derived from plants, fungi, protozoa, bacteria, or other non-man-made synthesis and which can be used for pest control.

Cold Freshwater Habitat
Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuaries do not include inland surface waters or ocean waters.

Freshwater Replenishment
Uses of water for natural or artificial maintenance of surface water quantity or quality.

Groundwater Recharge
Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Half-Life
Half-life is the time required for half of the compound introduced into an ecosystem to be eliminated or disintegrated by natural processes.

Herbicide
Herbicide is a chemical agent that destroys unwanted plants or inhibits their growth. Selective herbicides kill specific targets while leaving the desired crop relatively unharmed

Hydropower Supply
Uses of water for hydropower supply.

Industrial Process Supply
Uses of water for industrial activities that depend primarily on water quality.

Inert Ingredients
Inert ingredients are additional ingredients and are often trade secrets; therefore, they are not always disclosed by the manufacturer.

Inland Surface Waters
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Insecticides
A chemical agent used to control insects in various life stages.

Migration of Aquatic Organisms
Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Municipal and Domestic Supply (MUN)
Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Navigation
Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Non-Contact Water Recreation
Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, etc.

Off-target Area
The off-target area is the area adjacent to the target area where off-target spray drift may occur.

Off-target Spray Drift
Off-target spray drift is the physical movement of a pesticide through air at the time of application or soon thereafter, to any area other than that intended for application. Pesticide applications for pest control are generally intended to drift through the application and target areas.

Point Source
Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Priority Pollutants
Priority pollutants are listed within the California Toxics Rule in 40 Code of Federal Regulations, section 131.38(b)(1). Criteria to protect aquatic life and human health are set for priority pollutants in the California Toxics Rule.

Rare, Threatened, or Endangered Species Habitat
Uses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Receiving Waters
See Waters of the US.

Self Monitoring
Sampling and analysis performed by the Discharger to determine compliance with the Permit. All laboratory analyses must be conducted by a laboratory certified by the California Department of Public Health.

Representative Monitoring Location
To be considered "representative," at a minimum, a location must be similar in hydrology, pesticide use, and other factors that affect the biological and residual discharge to the areas being represented in that environmental setting.

Residual Pesticides
Residual pesticides are those portions of the pesticides that remain in the water after the application and its intended purpose (elimination of targeted pests) have been completed**.**

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan and/or as defined in State Water Board Resolution No. 88-63.

Spawning, Reproduction, and/or Early Development
Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Target Area
The target area is the area designated for pest control. This may be synonymous with the application area.

Warm Freshwater Habitat
Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Water Contact Recreation
Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

Waters of the United States (Waters of the U.S.)

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

   a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;

   b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

   c. Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. [See Note 1 of this section.] Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wildlife Habitat

Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

ATTACHMENT B – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE (IF APPLICABLE)

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this General Permit. Any noncompliance constitutes a violation of the CWA and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. §122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement. (40 C.F.R. §122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit. (40 C.F.R. §122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this General Permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. §122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. (40 C.F.R. §122.41(e).)

E. Property Rights

1. This General Permit does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. §122.41(g).)
2. The issuance of this General Permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. §122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (U.S. EPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. §122.41(i); Water Code, §13383) to:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this General Permit (40 C.F.R. §122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this General Permit (40 C.F.R. §122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this General Permit (40 C.F.R. §122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring General Permit compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. §122.41(i)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition. (40 C.F.R. §122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this General Permit after the expiration date of this General Permit, the Discharger must apply for and obtain a new permit. (40 C.F.R. §122.41(b).)

C. Transfers

This General Permit is not transferable to any person except after notice to the State Water Board. The State Water Board may require modification or revocation and reissuance of the General Permit to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §122.41(l)(3); §122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. §122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 unless other test procedures have been specified in this General Permit. (40 C.F.R. §122.41(j)(4); §122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this General Permit, and records of all data used to complete the application for this General Permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Deputy Director at any time. (40 C.F.R. §122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. §122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. §122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. §122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. §122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. §122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. §122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. §122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. §122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. §122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this General Permit or to determine compliance with this General Permit. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this General Permit. (40 C.F.R. §122.41(h); Water Code, §13267.)

B. Signatory and Certification Requirements

All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. §s122.41(k).)

1. **For a municipality, State, federal, or other public agency:** All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. §122.22(a)(3).)
2. All reports required by this General Permit and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.1 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.1 above (40 C.F.R. §122.22(b)(1));
   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or an individual or a position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. §122.22(b)(2)); and
   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. §122.22(b)(3).)
3. If an authorization under Standard Provisions – Reporting V.B.1 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.1 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. §122.22(c).)
4. Any person signing a document under Standard Provisions – Reporting V.B.1 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. §122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment C) in this General Permit. (40 C.F.R. §122.22(l)(4).)
2. Monitoring results must be reported on a Self Monitoring Report (SMR) form as agreed to by the Deputy Director and the Discharger.
3. If the Discharger monitors any pollutant more frequently than required by this General Permit using test procedures approved under Part 136 or as specified in this General Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the State Water Board. (40 C.F.R. §122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this General Permit. (40 C.F.R. §122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this General Permit, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. §122.41(l)(5).)

E. Planned Changes

The Discharger shall give notice to the State and the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted activity or discharge. Notice is required under this provision (40 C.F.R. §122.41(l)(1)) only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this General Permit nor to notification requirements under section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1). (40 C.F.R. §122.41(l)(1)(ii).)

F. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board and the State Water Board of any planned changes in the permitted discharge or activity that may result in noncompliance with General Permit requirements. (40 C.F.R. §122.41(l)(2).)

G. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.F above. (40 C.F.R. §122.41(l)(7).)

H. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. §122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The State and the Regional Water Board are authorized to enforce the terms of this General Permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

ATTACHMENT C – MONITORING AND REPORTING PROGRAM

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ATTACHMENT C – MONITORING AND REPORTING PROGRAM

Section 122.8 of Title 40 of the Code of Federal Regulations (40 C.F.R., §122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the State Water Resources Control Board (the State Water Board) and the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements which implement federal and California State laws and regulations.

This MRP is designed to address the two key questions shown below.

Question No. 1: Does the biological and residual pesticide from spray applications cause an exceedance of receiving water limitations or monitoring triggers?

Question No. 2: Does the biological and residual pesticide, including active ingredients, inert ingredients, and degradates, in any combination cause or contribute to an exceedance of the “no toxics in toxic amount” narrative toxicity objective?

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the nature of the monitored discharge. All samples shall be taken at the monitoring locations specified in the PAP submitted by the Discharger. The Discharger may change monitoring locations; however, the Discharger must clearly indicate the revised monitoring locations and the corresponding monitoring results in its annual report.

B. All analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health (CDPH), formerly Department of Health Services). Laboratories that perform sample analyses shall be identified in all monitoring reports. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by the State Water Board and the appropriate Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to U.S. EPA guidelines or to procedures approved by the Deputy Director.

C. All laboratory analyses shall be conducted in accordance with the latest edition of “Guidelines Establishing Test Procedures for Analysis of Pollutants” (Guidelines), promulgated by the U.S. EPA (40 C.F.R. Part 136). If a test method for any of active ingredients is not available, the Discharger may use alternative analytical methods. The alternative analytical methods must be capable of achieving the method detection limits below the Receiving Water Monitoring Triggers for the active ingredients and approved by the Deputy Director. Any procedures to prevent the contamination of samples as described by the PAP shall be implemented.

D. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements;
2. The individuals who performed the sampling or measurements;
3. The dates analysis were performed;
4. The individuals who performed the analyses;
5. The analytical techniques or methods uses; and
6. The results of such analyses.

E. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their accuracy.

F. All monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

G. Laboratories that conduct the analysis shall be certified by CDPH, in accordance with the provision of California Water Code section 13176, and must include quality assurance/quality control data with their reports.

II. MONITORING LOCATIONS AND SAMPLE TYPES

A. Monitoring Locations

Each Discharger shall establish monitoring locations specified in the PAP to demonstrate compliance with the receiving water limitations, discharge specifications, and other requirements in this General Permit. The number and location of samples shall be selected to answer the two key questions. A Discharger may use representative monitoring locations to characterize water quality for all waters of the US within the Discharger’s boundaries for each environmental setting (agriculture, urban, and wetland). However, the Discharger must provide justification for the selection of the representative monitoring locations. To be considered “representative,” at a minimum, a location must be similar in hydrology, pesticide use, and other factors that affect the discharge of biological and residual pesticides to surface waters as a result of applications to the areas being represented in that environmental setting. Each Discharger must provide technical justification and identify which areas are to be considered representative. Monitoring location information shall include a description of the treatment area, GPS coordinates, and pesticides being applied. The specific monitoring locations initially identified as representative monitoring locations may be changed based on surveillance of the Discharger.

B. Sample Types

1. **Background Monitoring.** Background samples shall be collected at the application area or target area, just prior (up to 24-hours in advance of application) to the application event.

2. **Event Monitoring.** Event monitoring samples shall be collected in the application area or the target area immediately after the application event but shall not exceed 24 hours after the application event.

III. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

The PAP shall be designed to answer the two key questions stated above. The PAP shall describe the tasks and time schedules in which these two key questions will be addressed.

Monitoring shall take place at locations that are being planned to be applied or may be applied as described in the Discharger's PAP.

Developing the details of a monitoring design requires clearly defining several inputs to the design and then organizing these in a logical framework that supports effective decision making about indicators, monitoring area locations, and monitoring frequency. The logical framework should describe:

A. The basic geographic and hydrographic features of the area, particularly application points and the pathways(s) of residue flows;

B. Pesticide application practices and how they are distributed in space and time;

C. Relevant knowledge about the transport, fates, and effects of pesticides, including best- and worst-case scenarios;

D. Description of the designated uses in each water body;

E. Relevant knowledge about the action of cumulative and indirect effects, and of other sources of impact;

F. Mechanisms through which pesticide applications could lead to designated use impacts, given the basic features of the area;

G. Known and potential impacts of pesticide applications on water quality, ranked in terms of relative risk, based on factors such as magnitude, frequency and duration;

H. Sufficient number of sampling areas to assess the entire Discharger's area of influence; and

I. The approach, including a schedule, to sample monitoring areas.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions within the treatment area. Attention shall be given to the presence or absence of:

A. Floating or suspended matter;

B. Discoloration;

C. Bottom deposits;

D. Aquatic life;

E. Visible films, sheens, or coatings;

F. Fungi, slimes, or objectionable growths; and

G. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

Monitoring for all active ingredients must include frequent and routine monitoring on a pre-determined schedule, as summarized in the Table C-1 below:

Table C-1. Monitoring Requirements

Sample Type	Constituent/Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Visual	1. Monitoring area description (pond, lake, open waterway, channel, etc.) 2. Appearance of waterway (sheen, color, clarity, etc.) 3. Weather conditions (fog, rain, wind, etc.)	Not applicable	Visual Observation	[1]	Background and Event Monitoring	Not applicable
Physical	1. Temperature[2]	ºF	Grab[4]	[5]	Background and Event Monitoring	[6]
	2. pH[3]	Number				
	3. Turbidity[3]	NTU				
	4. Electrical Conductivity[3] @ 25°C	μmhos/cm				
Chemical	1. Active Ingredient[7]	μg/L	Grab[4]	[5]	Background and Event Monitoring	[6]
	2. Dissolved Oxygen[3]	mg/L				

1 All applications at 10% of all application areas or six application areas, whichever is greater, unless inappropriate. If applying to less than six application areas, monitor at all application areas, unless inappropriate.
2 Field testing.
3 Field or laboratory testing.
4 Samples shall be collected at the surface of the water body.
5 If applying six or more times a year, collect six samples for each active ingredient in each environmental setting (agricultural, urban, or wetland). If applying less than six times a year, collect a sample during each application for each active ingredient in each environmental setting (agricultural, urban, or wetland).
6 Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136.
7 1) Inseclticides containing acetamiprid, carbaryl, cyfluthrin, dinotefuran, imidacloprid, malathion, naled, and pyrethrins; 2) Herbicides containing aminopyralid, chlorsulfuron, clopyralid, glyphosate, imazapyr, and triclopyr butoxyethyl ester (BEE).

IV. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall inform the State Water Board and the appropriate Regional Water Boards 24 hours or the earliest feasible time before the start of each application.
2. The Discharger shall comply with all Standard Provisions (Attachment B) related to monitoring, reporting, and recordkeeping.
3. Upon written request of the State and/or the appropriate Regional Water Board, the Discharger shall submit a summary monitoring report.
4. The Discharger shall report to the State Water Board and the appropriate Regional Water Boards any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986 (42 U.S.C. §11001 et. seq.)
5. Monitoring frequencies may be adjusted by the Deputy Director to a less frequent basis if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.
6. Additional monitoring and reporting requirements may be added to the MRP by the Deputy Director.

B. Annual Reports

1. Annual reports shall contain the following information:
   a. An Executive Summary discussing compliance or violation of this General Permit and the effectiveness of the PAP to reduce or prevent the discharge of pollutants associated with pesticide applications;
   b. A summary of monitoring data, including the identification of water quality improvements or degradation, and recommendations for improvements to the PAP (including proposed BMPs) and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to applicable water quality standards;
   c. Identification of BMPs currently in use and a discussion of their effectiveness in meeting the requirements in this General Permit;
   d. A discussion of BMP modifications addressing violations of this General Permit;
   e. A map showing the location of each application area where spray drift may occur;
   f. Types and amounts of pesticides used at each application event during each application;
   g. Information on surface area and/or volume of application and target areas and any other information used to calculate dosage, concentration, and quantity of each pesticide used;

h. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (i.e., address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body sampled, and a comparison with applicable water quality standards, description of analytical QA/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and

i. Recommendations to improve the monitoring program, BMPs, and PAP to ascertain compliance with this General Permit.

j. Pesticide Application Log.

2. At any time during the term of this General Permit, the State Water Board or the appropriate Regional Water Boards may notify Dischargers of the requirement to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, each Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

3. Dischargers shall report the results for all monitoring specified in this Monitoring and Reporting Program in the SMR. Dischargers shall submit annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this General Permit. If a Discharger monitors any pollutant more frequently than required by this General Permit, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

4. Monitoring reports shall be submitted to the Deputy Director and the appropriate Regional Water Board Executive Officer in accordance with the following schedule:

Table C-2. Reporting Schedule

Reporting Frequency	Reporting Period	Annual Report Due
Annual	1 January through 31 December	1 March

5. If there is no discharge of residual pesticides, or the discharge is to dry riverbeds, the Discharger shall provide the Deputy Director and the appropriate Regional Water Board Executive Officer a certification that pesticide application activities did not result in a discharge to any water body.

C. Reporting Protocols

Dischargers shall report with each sample result the applicable reported Minimum Level (ML) and the current Minimum Detection Limit, as determined by the procedure in 40 C.F.R. Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

1. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the Report Limit, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (plus a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
3. Sample results less than the laboratory's MDL shall be reported as "<" followed by the MDL.
4. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Multiple Sample Data: If two or more sample results are available, each Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. Dischargers shall submit the Annual Report in accordance with the following requirements:
   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the spray applications are conducted in compliance with effluent and receiving water limitations. The

Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. Each Discharger shall attach a cover letter to the Annual Report. The information contained in the cover letter shall clearly identify violations of the permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. Annual Report must be submitted to the State Water Board and the appropriate Regional Water Board, signed and certified as required by the Standard Provisions (Attachment B).

ATTACHMENT D – FACT SHEET

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ATTACHMENT D – FACT SHEET

As described in the Findings in section III of this General Permit, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this General Permit.

This General Permit has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California.

I. PERMIT INFORMATION

A. Background

1. The Regulatory Background

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act) was amended to provide that the discharge of pollutants to waters of the US from any point source is effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit.

On September 22, 1989, the U.S. EPA granted the State of California, through the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards), the authority to issue general NPDES permits pursuant to 40 Code of Federal Regulations Parts 122 and 123 (40 C.F.R., §122 and 123).

Section 122.28 of 40 C.F.R. provides for issuance of general permits to regulate a category of point sources if the sources involve the same or substantially similar types of operations; discharge the same type of waste; require the same type of effluent limitations or operating conditions; require similar monitoring; and are more appropriately regulated under a general permit rather than individual permits.

On March 12, 2001, the Ninth Circuit Court of Appeals held that discharges of pollutants from the use of aquatic pesticides in waters of the United States require coverage under an NPDES permit. (*Headwaters, Inc. v. Talent Irrigation District)*[1]. The *Talent* decision was issued just prior to the major season for applying aquatic pesticides.

Because of the serious public health, safety, and economic implications of delaying pesticide applications, in 2001 the State Water Board adopted Water Quality Order (Order) No. 2001-12-DWQ, Statewide General NPDES Permit for Discharges of Aquatic Pesticides to Waters of the US on an emergency basis to provide immediate NPDES permit coverage for broad categories of aquatic pesticide use in California.

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[1] 243 F.3d 526 (9th Cir 2001).

Order No. 2001-12-DWQ imposed requirements on any discharge of aquatic pesticides by public entities to waters of the US in accordance with the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Policy). The Policy establishes procedures for implementing water quality standards for priority pollutants in NPDES permits.

Section 5.3 of the Policy allows for short-term or seasonal exceptions from its requirements for resource or pest management conducted by public entities. In order to qualify for an exception from meeting priority pollutant standards, a public entity must fulfill the requirements listed in section 5.3 and the State Water Board must decide to grant the exception. Among other requirements, entities seeking an exception to complying with water quality standards for priority pollutants must submit documents in compliance with California Environmental Quality Act (CEQA)[2]. Because of the emergency adoption of Order No. 2001-12-DWQ, the State Water Board invoked an exemption to the requirements of section 5.3 of the SIP and issued the permit incorporating a categorical exception to water quality standards for priority pollutants.

Order No. 2001-12-DWQ required that Dischargers develop a best management practices (BMPs) plan that minimizes adverse impacts to receiving waters and a monitoring and reporting plan that is representative of each type of aquatic pesticide application.

In August 2001, Waterkeepers Northern California (Waterkeepers) filed a lawsuit against the State Water Board challenging several aspects of Order No. 2001-12-DWQ. Major aspects of the challenge included the emergency adoption of the Order without compliance with CEQA and other exception requirements of the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP); failure to address cumulative impacts; and failure to comply with the California Toxics Rule (CTR)[3].

In a settlement of the Waterkeepers' lawsuit, the State Water Board agreed to fund a comprehensive aquatic pesticide monitoring program that would assess receiving water toxicity caused by aquatic pesticide residues. Pesticide formulations may include "active ingredients" and "inert ingredients". Adjuvants or surfactants may be added to the active ingredients in the application equipment that is used in the delivery of the pesticide. In November 2002, the Ninth Circuit issued another opinion concerning the need for an NPDES permit for pesticide application. (*League of Wilderness Defenders v. Forsgren*[4].) In this case, the court held that the USDA Forest Service must obtain an NPDES permit before it

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[2] Cal. Pub. Resources Code §§ 21000 et. seq.
[3] § 131.38.
[4] 309 F.3d 1181 (9^{th} Cir., 2002).

sprays insecticides from an aircraft directly into or over rivers as part of silviculture activities. The court found that the insecticides are pollutants under the CWA. The court also defined the exemption for silvicultural pest control from the definition of “point source” in U.S. EPA’s regulations to be limited to pest control activities from which there is natural runoff.

Also in 2002, the Second Circuit issued an unpublished decision regarding the need for an NPDES permit for application of pesticides for mosquito control in federal wetland areas. (*Altman v. Town of Amherst*.) The lower court had dismissed a citizens’ suit, holding that pesticides, when used for their intended purpose, do not constitute a “pollutant” for purposes of the CWA, and are more appropriately regulated under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The appeals court vacated the trial court’s decision and remanded the matter. In its unpublished decision, the Second Circuit expressed concern that: [u]ntil the EPA articulates a clear interpretation of current law - among other things, whether properly used pesticides released into or over waters of the United States can trigger the requirements for NPDES permits - the question of whether properly used pesticides can become pollutants that violate the [Clean Water Act] will remain open.

Order No. 2001-12-DWQ expired on January 31, 2004. In May 2004, it was replaced by two general permits: a vector control permit for larvicides (Order No. 2004-0008-DWQ) and a weed control permit (Order No. 2004-0009-DWQ). The vector control permit does not cover spray applications of pesticides to control adult mosquitoes. The State Water Board determined that adoption of these two permits was consistent with the Ninth Circuit decisions.

In 2005, the Ninth Circuit held that a pesticide that is applied consistent with FIFRA is not a “chemical waste” (*Fairhurst v. Hagener*[5]*)*, but also stated that it would not change its decision in *Headwaters.* The court stated that whether an NPDES permit was required depends on whether there was any “residue or unintended effect” from application of the pesticide. In *Fairhurst*, the court found neither residue nor unintended effect was present. Therefore, the pesticide application at issue did not require an NPDES permit.

U.S. EPA’s Final Rule: On November 20, 2006, U.S. EPA adopted a final regulation providing that NPDES permits are not required for pesticide applications as long as the discharger follows FIFRA label instructions. According to this new regulation, pesticides applied under the following two circumstances are not pollutants and, therefore, are not subject to NPDES permitting requirements:

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[5] 422 F.3d 1146 (9th Cir. 2005).

(1) The application of pesticides directly to waters of the United States in order to control pests. Examples of such applications include applications to control mosquito larvae, aquatic weeds, or other pests that are present in waters of the United States.

(2) The application of pesticides to control pests that are present over waters of the United States, including near such waters, where a portion of the pesticides will unavoidably be deposited to waters of the United States in order to target the pests effectively; for example, when insecticides are aerially applied to a forest canopy where waters of the United States may be present below the canopy or when pesticides are applied over or near water for control of adult mosquitoes or other pests.

Lawsuits Against U.S. EPA's Final Rule: After U.S. EPA's new regulation was adopted in 2006, lawsuits were filed by both the pesticide industry and environmental groups in 11 of the 13 Circuits, including the Ninth Circuit Court, challenging U.S. EPA's Final Rule.

The National Cotton Council of America v. U.S. EPA*[6]*: The petitions for review were consolidated in the Sixth Circuit Court by an order of the Judicial Panel on Multidistrict Litigation.

On January 7, 2009, the Sixth Circuit Court of Appeals determined that U.S. EPA's Final Rule is not a reasonable interpretation of the CWA and vacated the Final Rule. U.S. EPA did not request reconsideration of the decision, but did file a motion for a two-year stay of the effect of the decision in order to provide agencies time to develop, propose, and issue NPDES general permits for pesticide applications covered by the ruling. On June 8, 2009, the Sixth Circuit granted the motion, such that the U.S. EPA exemption will remain in place until April 9, 2011.

2. **Related Pesticide Regulation Information**

Pesticide formulations may include "active ingredients" and "inert ingredients". Adjuvants or surfactants may be added to the ingredients in the application equipment that is used in the delivery of the pesticide.

As part of the registration process of pesticides for use in California, U.S. EPA and California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. Registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as non-target effects. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, degradation byproducts,

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[6] 553 F.3d 927 (6th Cir. 2009).

leachability, and persistence. Requirements that are specific to use in California are included in many pesticide labels that are approved by U.S. EPA. Use must be reported to the County Agricultural Commissioner where required by law or by agreement with DPR.

The Clean Water Act (CWA), at section 301(a), broadly prohibits the discharge of any pollutant to waters of the US, except in compliance with an NPDES permit. Pesticides discharged into surface waters may constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of FIFRA, thus, requiring coverage under a valid NPDES permit.

DPR and the County Agricultural Commissioners regulate the sale and use of pesticides in California. Pesticide applications subject to this General Permit must be consistent with permits issued by County Agricultural Commissioners and the pesticide label instructions approved by U.S. EPA under FIFRA. According to federal law, pesticide label language is under the sole jurisdiction of U.S. EPA. Label language and any changes thereto must be approved by U.S. EPA before the product can be sold in this country. DPR cannot require manufacturers to make changes on labels; however, DPR can refuse to register products unless manufacturers address unmitigated hazards by amending the pesticide label.

State regulations require that the County Agricultural Commissioners determine if a substantial adverse environmental impact will result from the proposed use of a restricted material. If the County Agricultural Commissioner determines that this is likely, the commissioner may deny the Use Permit or may issue it under the condition that site-specific use practices be followed (beyond the label and applicable regulations) to mitigate potentially adverse effects. DPR conducts scientific evaluations of potential health and environmental impacts and provides commissioners with information in the form of suggested permit conditions. DPR's suggested permit conditions reflect minimum measures necessary to protect people and the environment. County Agricultural Commissioners use this information and its evaluation of local conditions to set site-specific limits in permits.

3. **Pesticide Program Descriptions**

California Department of Food and Agriculture (CDFA) Programs

In February and April 2010, State Water Board staff met with CDFA representatives to discuss CDFA's pest management and eradication programs and the need for a pesticide spray application permit as a result of the Sixth Circuit Court's ruling. CDFA staff provided State Water Board staff with information on its pest management and eradication programs for invasive insects and terrestrial weeds. CDFA also provided State Water Board staff with information about the pesticides used in each program. These programs are described below.

a. Emergency Invasive Insect Control

Specific emergency program action is based on current information available at the time the pest is detected. Each new project will commence with guidance from an Emergency Action Plan that has been developed by the California CDFA, in consultation with the Pest Prevention Committee of the California Agricultural Commissioner's Association, The United States Department of Agriculture (USDA) Animal and Plant Health Inspection Services and a Science Advisory Panel. These plans contain Action Statements, Pest Profiles, Organization, Responsibilities and Staffing, Administrative Actions, Delimitation Procedures, Eradication Activities, Pesticide Monitoring, Regulatory Procedures and Public Information. Specific Work Plans are generated for field use. Work plans will contain trapping, survey and treatment information. Eradication treatment plans begin with proper pesticide selection. A CDFA selection criterion includes:

- The material is registered for use in California.
- The material must have been tested and found to be effective against the target pest.
- The material must be suitable for use in target environment.
- The environmental fate and non-target effects are understood.
- The environmental persistence and toxicity to non-target organisms must be minimal.

Notification – In order to present accurate information in an understandable and non-threatening format to concerned groups CDFA begins a notification/public awareness campaign prior to start of each eradication program. Local and state elected representatives of the residents in the treatment are will be notified and appraised on major developments before and during treatment. During ground treatment each resident in the treatment area will be notified in writing prior to the treatment. This notification will include name of pest to be eradicated, material to be used, and a phone number to call for more information on project operations. Following treatments, a completion notice is left detailing precautions a homeowner should take, including harvest intervals on treated fruit.

i. Beetle Program

CDFA's beetle program uses both foliar and systemic insecticides, which are applied depending on insect population models. Foliar treatments may be used to kill adult beetles in order to knock down adult populations. If used, foliar treatments will occur during the adult season and in the following years according to the recommendations of a Technical Work group assembled for consultation on the new invasive beetle. A degree day model protocol will be used in each case to predict adult emergence. The foliar treatment method kills adult beetles in order to reduce the adult beetle populations. Ground sprays will be applied to all host foliage on all properties in a treatment area at pre-specified day intervals using hydraulic (tank) spray or hand spray equipment. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal. Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the homeowners detailing precautions to take and preharvest intervals applicable to any fruit or vegetables on the property

Treatment Options: Both foliar and systemic insecticides are applied depending on insect population models. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while Systemic insecticides are necessary to kill other life stages including sedentary and active stages. The frequency of the treatment is dependent on the insecticide applied and severity of the infestation. A degree day model protocol is again used to predict when sedentary and active stages are most vulnerable.

CDFA's beetle program uses pesticide products such as Sevin® SL (active ingredient: carbaryl) and Merit® 75 WSP(active ingredient: imidacloprid) and Merit®0.5G (active ingredient imidacloprid).

ii. Moth Program

CDFA's moth program may use foliar and mating disruption treatment methods. For foliar treatment, it uses spinosad products such as Naturalyte® for control or suppression of many foliage feeding pests. Bacillus thuringiensis kurstaki (Btk) products such as DiPel®Pro DF and DiPel® DF are used specifically for control of caterpillars of many species of moths and butterflies. They do not have significant risk to healthy humans, wildlife, and the environment. Ground sprays will be applied to all host foliage on all infected properties using hydraulic spray or hand spray equipment.

Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the homeowners detailing precautions to take and preharvest intervals applicable to any fruit or vegetables on the property. The EGVM project is an example of a CDFA Moth Program.

Lobesia botrana (*L. botrana*) or European grapevine moth (EGVM) is a significant pest of berries and berry-like fruits in Europe, the

Mediterranean, southern Russia, Japan, the Middle East, Near East, Chile, and Northern and Western Africa. EGVM is particularly damaging to grape production because larvae feed on the flowers and berries. In October 2009, EGVM was detected for the first time in the United States in a commercial vineyard in Napa County, California. Since that detection, nearly 50,000 traps to capture EGVM adult males have been placed around the State of California to determine the extent of the infestation. Although EGVM attacks many hosts (such as olives, pomegranate, persimmon, rosemary, and stone fruits), grapes are the primary host and the most economically vulnerable. (United States Department of Agriculture (USDA) Movement of Grapes and Other Regulated articles from the European Grapevine Moth (Lobesia botrana)Quarantine Zone, EA June 2010
http://www.aphis.usda.gov/plant_health/ea/downloads/egvm-ea.pdf

One of the tools for suppression of the EGVM population is Mating Disruption. A synthetic pheromone can be used by both organic and conventional growers to disrupt and reduce mating success of the population.

CDFA uses Isomate®-EGVM, (E,Z)-7,9-Dodecadien-1-yl Acetate) . Isomate-EGVM is a double tube dispenser that is hand applied to the plant or a trellis wire. The double tube dispenser is made of polyethylene plastic. One side of the double tube contains a thin piece of aluminum wire which assures that the dispenser will stay as applied throughout the season, and the other side contains 0.0097 fluid ounces of the pheromone.

These pheromone formulations were developed for and are used mainly in agriculture. The primary objective is to aid in the production of high quality, pest free crops using economically viable and ecologically sound methods of pest control with minimal use of insecticides. These dispensers are deployed per square mile or per acre depending on recommendation of a Technical Work Group. Locations may include natural areas and/or hard to reach areas such as steep terrain where it is not feasible to perform foliar treatment.

iii. Fruit Fly Program

This program controls Mediterranean fruit fly (Medfly), Mexican fruit fly, oriental fruit fly, and all other target flies that are deemed harmful to agriculture may at some time be included in this program. This program uses foliar treatment, aerial bait spray, male attractant technique, and sterile insect technique.

For foliar treatment, CDFA uses the product GF-120® NR Naturalyte® [active ingredient: spinosad. If a mated female, immature life stages, or multiple flies are detected on a property, the foliage of host shrubs and trees on the infested and adjacent properties is treated using hand spray equipment.

For aerial bait spray (pertaining to Mexican fruit fly and Medfly), CDFA would use GF-120® NF Naturalyte® (active ingredient: spinosad). Aerial spray is only used for extremely large infestations in cropland areas. In 15 years, CDFA has used this method only twice in 2002.

In the male attractant technique, CDFA uses Dibrom® Concentrate (active ingredient: naled). The male attractant technique uses small amounts of attractant (methyl eugenol) and pesticide (naled) to lure the male flies to bait stations. The flies are killed when they contact at the stations. The naled/lure mixture is applied to utility poles, street trees, and other unpainted surfaces using pressurized tree marking guns. Application is made to at least 600 evenly distributed sites in each square mile. Treatment is repeated every two weeks and continues for two fly life cycles beyond the date of the last fly find or for a minimum of four applications. Project boundaries may be enlarged if warranted by subsequent trapped flies. The sterile insect technique relies on flooding the infested area with sterile Medflies. When the sterile males mate with wild females, no offspring are produced. Gradually, the wild fly population decreases, while the sterile fly population increases through continued release. When wild flies can find only sterile flies with which to mate, the wild population will become extinct. This technique is used after bait sprays have been used to kill existing fertile wild Medflies. In order for the technique to succeed, a minimum over-flooding ratio of 100:1 must be maintained. The release area will be nine square miles around each infested site. Release of sterile flies will be continued for at least two life cycles past the last fly find. Multilure and Jackson traps are deployed to monitor the success of the sterile insect release program. If the goal of 100:1 is not maintained due to environmental pressures on the sterile flies, additional baits sprays must be resumed to control wild fly populations. Bait sprays will again continue for two life cycles of the Medfly.

iv. Asian Citrus Psyllid

The Asian citrus psyllid (ACP), an aphid-like insect, is a serious pest of all citrus and closely-related plants because it can transmit the disease huanglongbing (HLB) when it feeds on the plants' leaves and stems. HLB is the most devastating disease of citrus in the world. Symptoms of HLB include yellow shoots, leaf mottle, small upright leaves and lopsided fruit with a bitter flavor. Infected trees decline in health, produce inedible fruit and eventually die.

There is no cure for the disease and infected trees must be removed and destroyed to prevent further spread of HLB. Establishment of ACP and HLB would cause economic losses via direct damage to citrus plants and quarantine restrictions designed to mitigate the spread of ACP. California has a $1.88 billion citrus industry. If the ACP begins to transmit the disease HLB, the entire industry could be at risk. In one recent study in Florida, the presence of HLB increased citrus production costs by 40%.

CDFA's Asian Citrus Psyllid program uses both foliar and systemic insecticides. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while systemic insecticides are necessary to kill the sedentary nymphs. Treatment frequency is dependent on the insecticide applied and severity of the infestation.Foliar treatment uses Tempo® SC Ultra (active ingredient: cyfluthrin) and, Sevin® SL (active ingredient: carbaryl). Sevin® is held as an alternative knockdown tool, used rarely and with limitations. Pesticides are applied with hydraulic spray or hand spray equipment at least once to the foliage of host plants at designated residential properties. This insecticide may be applied to all host plants within a 200 - 800 meter radius of the detection sites. The treatment area is determined both by funding and insect flight dispersal patterns.

A second contact insecticide (Sevin® at this time) may be used due to yearly label use restrictions or Scientific Advisory Panel recommendations.

For soil treatment, a systemic insecticide will be applied to soil beneath the drip line of host plants to kill developing nymphs and adult psyllids. Systemic insecticides, such as Merit 75 WSP (active ingredient: imidacloprid), are applied to the soil below the host plant and are absorbed by the plant roots and then move (or translocated) to the above-ground parts (leaves, twigs, and branches). Insects ingest the insecticide while feeding on the plants. The most common application method of systemic insecticides is soil drenching around the host plants. The pesticides will be applied at least once to the soil of host plants at designated residential properties.

v. Palm Weevil Program

Palm weevil program includes the control of red palm weevil (RPW), scientific name *Rhynchophorus ferrugineus*. The RPW is considered the most destructive pest of palms worldwide. RPW is a native of Southeast Asia; its discovery in a residential planting in Laguna Beach in the Fall of 2010 is the first time this weevil has been found in the United States. The presence of the RPW in

California represents a serious threat to palms, many of which are highly valued as landscaping plants. The sale of palms generates approximately $70 million in nursery plant sales in California annually. Palm trees are also used for producing crops and marketable agricultural commodities including coconuts, dates and oils. In California, date palm growers harvest an annual crop worth approximately $30 million. The vast majority of these farms are in the Coachella Valley region.

Female red palm weevils bore into a palm tree to form a hole into which they lay eggs. Each female may lay an average of 250 eggs, which take about three days to hatch. Larvae emerge and tunnel toward the interior of the tree, inhibiting the tree's ability to transport water and nutrients upward to the crown. After about two months of feeding, larvae pupate inside the tree for an average of three weeks before the reddish-brown adults emerge. Adults live for two to three months, during which time they feed on palms, mate multiple times and lay eggs.

Adult weevils are considered strong fliers, venturing more than a half-mile in search of host trees. With repeated flights over three to five days, weevils are reportedly capable of traveling nearly four-and-a-half miles from their hatch site. They are attracted to dying or damaged palms, but can also attack undamaged host trees. Feeding symptoms of the weevil and the larval holes are often difficult to detect because these sites can be covered with offshoots and tree fibers. Careful inspection of infested palms may show holes in the crown or trunk, possibly along with oozing brown liquid and chewed fibers.

b. A Technical Working Group comprised of scientific experts on RPW has been formed by USDA, and treatment options are being evaluated at this time. Preliminary recommendations include a drench/foliar spray with Merit 2F® (active ingredient: imidacloprid), and/or a trunk spray/foliar spray with Safari® 20 SG (active ingredient: dinotefuran) and/or a crown foliar treatment with Sevin® SL (active ingredient: carbaryl). Timing of these treatments has not been decided. As an example of what might be decided upon, treatment for RPW in other countries can involve an imidacloprid drench applied twice a year, with the other treatments applied at least once, or more often as needed. Ongoing Invasive Insect Control

i. Beet Curly Top Virus Control Program (BCTVCP)

The BCTVCP is an overall strategy for the statewide control of the sugar beet leafhopper (BLH), *Circulifer tenellus* (Baker), the only known vector of beet curly top virus (BCTV). BCTV is a viral disease of sugar beets, tomatoes, melons, peppers, beans, cucumbers, squash, pumpkins, spinach, vine seed and ornamentals. On an annual basis, the BCTVCP surveys for and monitors the development and movement of the BLH from historical breeding grounds on the west side of the San Joaquin Valley, and portions of the Salinas, Cuyama, Imperial and Palo Verde Valleys. Sweep net surveys determine the size and location of BLH populations during the winter, spring and fall. Control is a year-round effort linked to disrupting the continuity of the BLH's life cycle. Aerial treatments (fixed-wing) are employed to control BLH populations in rangeland habitat, oil fields and large cultivated fallow fields. Ground-rigs are utilized to spot treat BLH populations host plants developing on roadsides and right-a-ways within intensive agriculture adjacent to BCTV susceptible crops.

The Program uses Fyfanon ULV AG (67760-35) in both aerial and ground-rig spot applications. The Malathion product is diluted with water at a rate of 7.7 ounces per gallon of mix. The end use dilution is applied by aircraft, or ground-rig, to BLH host plants at a rate of one gallon mix per acre.

ii. The light brown apple moth (LBAM) *Epiphyas postvittana* (*Lepidoptera: Tortricidae*), which is originally from Australia. LBAM is an invasive species and is reported to attack more than 120 plant genera in over 50 families, including many economically important species. LBAM feeding "destroys, stunts, or deforms young seedlings, spoils the appearance of ornamental plants, and injures deciduous fruit-tree crops, citrus, and grapes (U.S. EPA 2007a[7]). "Because the LBAM is a new pest to the North American Continent that affects a broad range of plants (as many as 2,042 plants, including native plants, forest species, agronomically important crops and ornamentals), both the U.S. Department of Agriculture and CDFA have taken immediate action to control and suppress LBAM from California to prevent its spread to susceptible host plants throughout the United States and neighboring Mexico and Canada.

The CDFA control and suppress strategy is to delimit and contain LBAM populations and is expected to take 3-5 years to achieve. The strategy will require ongoing monitoring of the infestation, suppression at the edges of the populations, and population reduction in areas with a higher LBAM population density. The control and suppression strategy will require ground application of several control techniques: mating disruption (using pheromones),

[7] United States Environmental Protection Agency (U.S. EPA). 2007a. EPA Quarantine Exemptions for Light Brown Apple Moth Pheromones. Accessed on August 20, 2008. Website: http://www.epa.gov/region09/pesticides/light-brown-moth.html.

insecticide treatments, sterile insects, and other techniques such as biological control (biocontrol) (USDA 2008a[8]). Products containing the following active ingredients are used in the LBAM eradication program: spinosad A and D, and Btk.

iii. Pierce's Disease Control Program

CDFA's Pierce's Disease Control Program uses both foliar and systemic insecticides to control or eradicate populations of the glassy-winged sharpshooter (GWSS), a leafhopper-type insect which spreads Pierce's disease. Foliar insecticides are used to achieve immediate control of GWSS adults and nymphs present on host plants at the time of treatment, while systemic insecticides are used to control GWSS adults and nymphs which arrive later on the host plants.

c. For foliar treatments, products containing cyfluthrin, imidacloprid, acetamiprid, or carbaryl are used. For systemic treatments, products containing imidacloprid are used. Foliar treatments are applied from the ground using hydraulic spray or hand spray equipment. Systemic treatments are applied from the ground as either soil drenches or soil injections.Noxious Weeds Control

The objective of the Noxious Weeds Control Program is the early detection, containment, and eradication of federal and state listed noxious weeds. A-rated noxious weeds are those weeds with potential great economic or environmental importance, and with the current limited distribution in the State and for which eradication efforts will likely be successful. Noxious Weed Eradication projects are a cooperative effort between the CDFA, County Agricultural Commissioners, US Department of Agriculture (USDA) Forest Service, and Weed Management Areas (WMAs) across the State. The program mainly uses herbicide products with aminopyralid, chlorsulfuron, clopyralid, glyphosate, imazapyr, triclopyr butoxyethyl ester, and triclopyr triethylamine salt as active ingredients. The herbicides are applied by backpack spray by truck mounted spray rigs, ATV mounted spray rigs, backpack spray or other handheld low pressure equipment, and in rare instances CDFA cooperators may apply herbicides to rangeland by helicopter. These applications are far removed from water sources.

USDA Forest Service Program Description

USDA Forest Service conducts both area wide and individual tree insect controls. Following is a detailed description of these control programs:

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[8] United States Department of Agriculture (USDA). 2008a. Treatment program for light brown apple moth in California. Environmental Assessment, February 2008. 46 pp.

a. Area-Wide Insect Control

In area-wide insect control, insecticides are applied over large forest acreages, usually by fixed-wing planes. In California, the area-wide control applications in forestry are used primarily for two insects: Douglas Fir Tussock Moth (DFTM) and the gypsy moth. DFTM is a native insect that can have localized population increases (several hundred to hundreds of thousands of acres). DFTM treatments would involve TM-Biocontrol, which is a bio-insecticide specifically for DFTM control. TM-Biocontrol is preferred than Btk because it is more host specific than Btk. Population outbreaks requiring treatment are not common in California, perhaps occurring to outbreak stage somewhere in the state every 3-5 years. Gypsy moth is a non-native insect that rarely shows up, but when it does, it is aggressively treated. There are two species of concern, one from existing infestations in the eastern US (typically European gypsy moth) and one from new infestations from the Far East (Siberian gypsy moth).

Area-wide control using a fixed wing aircraft covers an entire infested area, and the acreage is very large; therefore, it is difficult to avoid most streams within the control area, although larger lakes and rivers can be avoided. With smaller infestations, or where specific areas are of concern, such as campgrounds, either a helicopter or treatments from the ground can be used.

b. Individual Tree Treatments

There are mainly two situations that require individual treatments: 1) for bark beetle prevention; and 2) for seed orchard treatments of trees for seed or cone insects, mostly in an agricultural setting.

The bark beetle prevention treatments involve the application of insecticides with active ingredients of bifenthrin (good for one season) and carbaryl (usually good for two seasons) to the tree trunk surface to provide a chemical barrier for incoming beetles. It is a preventative treatment not a treatment for infested trees. Typically, these treatments are only used where trees of high value exist, such as in a campground or administrative area, because of the expense. Treatment areas are normally buffered from nearby watercourses by some untreated zone, typically at least 100 feet. Applications use high-pressure ground-based spray guns.

The seed orchard treatments are more of agricultural type application, with treatments by air blast sprayers or high pressure ground-based spray guns. Seed orchard treatments may occur on numerous times in a growing season. These applications are also typically buffered against nearby watercourses.

B. General Criteria

1. This General Permit serves as a general NPDES Permit for the discharge of biological and residual pesticides to surface waters as a result of spray applications for pest control.
2. Dischargers who submit a complete application under this General Permit are not required to submit an individual permit application. The Deputy Director may request additional information or determine that a Discharger is not eligible for coverage under this General Permit and would be better regulated under an individual permit or other general NPDES permit adopted by the appropriate Regional Water Board. If the discharge becomes covered by an individual or another General Permit, the applicability of this General Permit to the specified discharge will be immediately terminated on the effective date of the individual permit or coverage under the other General NPDES permit.

II. NOTIFICATION REQUIREMENTS

A. General Permit Application

To obtain authorization under this General Permit, Dischargers must submit to the State Water Board and the appropriate Regional Water Board a complete application as described below:

1. A Notice of Intent (NOI shown as Attachment G) signed in accordance with the signatory requirements of the Standard Provisions in Attachment B;
2. An application fee; and
3. A Pesticide Application Plan (PAP).

State and Regional Water Board staff will review the application package for completeness and applicability to this General Permit. Additionally, the Deputy Director may issue a Notice of Exclusion**,** which either terminates permit coverage or requires submittal of an application for an individual permit or alternative general permit.

Permit coverage will be effective when all of the following have occurred:

1. The Discharger has submitted a complete permit application;
2. The PAP has been posted on the State Water Board website for a 30-day public comment period[9] and approved by the Deputy Director; and
3. The Deputy Director has issued a Notice of Applicability (NOA). The NOA will specify the pesticide products or type(s) of pesticides that may be used and any Regional Water Board specific conditions and requirements not

[9] See Waterkeeper Alliance, Inc. v. EPA, 399 F. 3d 486 (2nd Cir. 2005)

stated in this General Permit. Any such region-specific conditions and requirements shall be enforceable. The Discharger is authorized to discharge starting on the date of the NOA.

B. **Fees**

The annual fee for enrollment under this General Permit shall be based on Category 3 in section 2200(b)(9) of Title 23, California Code of Regulations (CCR). This category is appropriate because pesticide applications incorporate BMPs to control potential impacts to beneficial uses, and this General Permit prohibits pollutant discharge associated with pesticide applications from causing exceedance of CTR criteria or water quality objectives. Information concerning the applicable fees can be found at http://www.waterboards.ca.gov/resources/fees/docs/water_quality_fee.pdf.

C. **Public Notification**

The State Water Board has notified interested agencies and persons of its intent to prescribe waste discharge requirements in this General Permit and provided them with an opportunity to submit their written comments and recommendations.

III. DISCHARGERS AND DISCHARGE DESCRIPTION

A. **Dischargers**

This General Permit only covers CDFA and USDA Forest Service. Coverage for the USDA Forest Service is for biological pesticide applications only.

B. **Discharge Description**

This General Permit covers the point source discharge of pesticide residues resulting from spray applications using acetamiprid, aminopyralid, Bacillus thuringiensis kurstaki (Btk), carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus (NPV), pheromone, pyrethrins, spinosad A and D, triclopyr butoxyethyl ester (BEE) and triclopyr triethylamine salt (TEA).

The pesticide products permitted by this General Permit are labeled for land use only. The biological and residual pesticide discharges regulated by this General Permit are from accidental pesticide drifts during spray applications occur near surface waters. The discharge is necessary only when no feasible alternative to the discharge (alternative application techniques, buffer zones, etc) is available; and the discharge is limited to that increment of waste that remains after implementation of all reasonable alternatives for avoidance are employed.

C. Pesticide Applications

1. Insecticides

a. Immature Insect Treatments

CDFA applies pesticides to immature insect life stages as part of a complete eradication program that is triggered by an insect of significance found and submitted to the State Plant Pest Diagnostic Center. The CDFA Plant Pest Diagnostics Branch serves as a scientific resource, providing timely and accurate plant pest diagnostics and professional expertise. If required samples are also submitted to the USDA, APHIS, National Identification Services NIS collaborates with scientists who specialize in various plant pest groups, including weeds, insects, mites, snails and plant diseases. These scientists are stationed at a variety of institutions around the country, including federal research laboratories, plant inspection stations, land-grant universities, and natural history museums.

Pesticides use to control immature life stages are applied using foliar or soil treatment methods once an infestation is determined to exist. Treatment begins when an up to date Action Plan is in place. When a new insect pest is found and there is no Action Plan in place, treatment is held until the extent of infestation is determined, California registered chemicals are examined by qualified experts, and consultations are completed. Approved treatments do not begin until notification of local agencies, affected property owners, and cooperative partners has been made.

Ground Application Equipment.

A contact insecticide can be applied from a low pressure system, equipped with a jet agitator in tank to ensure continuous mixing. Hydraulic spray equipment is fixed to treatment trucks. Currently programs use fan type nozzle spray guns which are set at 90-100 psi pressure. Product is applied to foliage of host trees at designated residential properties. Spray coverage is monitored and controlled by operator and spotter to ensure light coverage and no overspray on fences, adjacent yards and personal items. Property owners are notified 24 hrs in advance and appointments are made for properties with special needs. Personal items, fish ponds, bird feeders and pet items are covered or removed. Wind speed is monitored throughout the treatment. Weather conditions are also monitored before treatment. More than 50% chance of rain 48 hrs prior to treatment will result in postponement of treatment as well as chance of high winds, or unstable weather conditions. Local officials are notified in case of public events that may warrant postponement of treatment.

Additionally, ground treatment may utilize hand spray equipment. Hand spray equipment is used when host cannot be reached by hose and/or ultra low pressure is required. These hand sprayer treatments are applied by non-motorized pump type backpack sprayers (Solo). Also used in some instances are the motorized pump type backpack sprayers (Echo-USA) which are also low-pressure systems and are run at 30-50 psi,

b. **Mature Insect Treatments**

Integrated pest management (IPM) is an ecological approach to managing pests that often provides economical long term protection from pest damage and competition. Before decisions are made pest managers must utilize pest history, growth and development of host, weather, visual observations pest monitoring and cultural practices. The primary responsibilities of CDFA are the early detection and prompt eradication of serious agricultural pests from California. This goal is accomplished through an IPM approach because CDFA is concerned about pesticides in the environment and IPM addresses many of the problems associated with chemical pest control. IPM results in less pesticide use, lower risks to people and the environment. For pests that are unacceptable at any level eradication is generally the only option. Once pest monitoring information confirms the need for eradication agencies determine the geographical extent of pest infestation. CDFA then can begin measures to eliminate this pest from the defined area. Adults are usually the first evidence found that identifies an infestation. In the Action Plan and later on the work Plan, CDFA will use practices which include, mechanical, cultural, sterile insect release, intensive monitoring, host-free periods, host-free areas and other components of an IPM program to eradicate the pest. Utilizing the most efficacious and environmentally friendly pesticides is at the forefront of the CDFA eradication program. Mode of pesticidal action, and insect specificity including susceptible life stages are always considered.

For adult insects CDFA may utilize the same foliar and soil treatments as for the immature. Monitoring is essential to determine the presence of an adult population. Biologically, some insects go into diapauses during a season or may be at a stage inside the host foliage or fruit which can leave them protected from pesticide treatment. Predicting presence of Adult population is done with trapping and visual survey. Visual survey will include observing for insect damage as well as for the pest. Trapping is very effective for catching emergence of the first generation to emerge after diapauses.

Once the presence of an adult population is determined foliar contact sprays are utilized. An example of a foliar program is the Asian Citrus Psyllid program. This program uses the hydraulic fixed mount spray equipment. The spray gun is a fan type nozzle set at approximately 90 to 100 psi pressure. In the event that a host cannot be reached, the program uses a motorized backpack sprayer at the flow rate of 30-50 psi pressure.

For Fruit Fly Bait applications, a bait concentrate is diluted with water. A large droplet size (4-6mm) is used to optimize length of attraction. The solution is viscous, similar to sugar-based syrup in consistency. Fruit flies can detect the bait from several yards away. A foliar spray is applied as a spot spray inside the canopy at an application rate of undiluted product equals 1-3oz. per tree (SLN CA-020018). Spray equipment consists of non-motorized, pump type, backpack sprayer (e.g.Solo) with very low psi. Weather conditions that could result in drift to non-target areas are monitored and the BMP's are strictly enforced; drift is minimal due to droplet size.

Another ground treatment for Bactrocera or Dacus fruit flies is a spot application, Male Attractant Technique (MAT). This is applied to tree trunks, utility poles and similar structures out of reach of people. The spot treatment is a mixture of methyl eugenol or cuelure, naled and a thickening agent. Public exposure to naled and related residues as a result of its use in fruit fly eradication is negligible and well below levels of concern. The male fruit fly is attracted to the bait station and is eradicated before they can mate with the female fruit fly. This program is specific to the male as the target pest. This treatment option disrupts the breeding cycle and the population is eliminated. California has utilized this approach for over 30 years, CDFA periodically reviews the literature for any updates or improvements to this technique. With consultation from Primary State Entomologist and a Technical Work Group this option is currently still in use as an effective eradication tool for Q and A rated fruit fly pests.

Soil treatments are also used for adults. A systemic insecticide will be applied to the soil beneath the drip line of host plants. Currently the systemic insecticide in use by the program works by fitting into the insect nerve receptors meant to receive the insect neurotransmitter acetylcholine .

2. **Herbicides**

Herbicides are effectively used to control invasive and noxious plants that threaten natural communities and rare species, high value sites, forested lands, recreational sites, parkways, public right-of -way, riparian areas, vegetation under or adjacent to power transmission lines, and in a variety of other situations. Herbicides may be sprayed onto the leaves or other vegetative plant structures of targeted weeds to kill the weed plant, or may also be basally applied/cut stump treated to the targeted species and hollow-stem treatments. Herbicides may be sprayed by truck mounted spray rigs, ATVs, backpack sprayer or other handheld low-pressure equipment. On rare occasions aerial herbicide applications to private rangeland can occur, usually in remote locations that are inaccessible. These applications utilize helicopters and are far removed from water sources. The applicators are licensed by the FAA (Federal Aviation Administration) and are required to obtain CDPR (CA Department of Pesticide Regulation) certification. Normal flight altitudes are well below 100 feet and most occur at 10 feet above the target weeds.

IV. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this General Permit are based on the applicable plans, policies, and regulations identified in the Findings in Section III of this General Permit. This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authorities

This General Permit is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the California Water Code; commencing with section 13370). It shall serve as an NPDES permit for point source discharges of biological and residual pesticides to surface waters. This General Permit also serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Pursuant to California Water Code section 13389, State and Regional Water Boards are exempt from the requirement to comply with Chapter 3, Division 13 of the Public Resources Code when adopting NPDES permits.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans

The Regional Water Boards have adopted Water Quality Control Plans (hereinafter Basin Plans) that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plans. In addition, the Basin Plans implement State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plans identify typical beneficial uses as follows: municipal and domestic supply, agricultural irrigation, stock watering, process supply, service supply, hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, rare, threatened, or endangered species habitat, groundwater recharge, and freshwater replenishment.

Requirements of this General Permit implement provisions contained in the applicable Basin Plans.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR)**

U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy (SIP)**

On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plans. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this General Permit implement the SIP.

4. **Antidegradation Policy**

Section 131.12 of 40 C.F.R. requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plans implement, and incorporate by reference, both the state and federal antidegradation policies.

The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. § 131.12 and Resolution No. 68-16. The conditions of this General Permit require biological and residual pesticide discharges to meet applicable water quality objectives. Specifically, the General Permit sets receiving water limitations for malathion to protect aquatic life from the toxic effects of malathion. The General Permit also requires toxicity testing to determine if residues, including active ingredients, inert ingredients, and degradation byproducts, in any combination, from pesticide applications cause toxicity to the receiving water or add toxicity to it if there is pre-existing toxicity prior to pesticide applications. If residues cause toxicity or add to an existing toxicity, the Discharger is required to perform an iterative process of evaluating its application methods, BMPs, or alternatives to the pesticide causing toxicity until the applications no longer cause or add toxicity. The BMPs and other controls required pursuant to the General Permit constitute Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).

The General Permit requirements are protective of the broad range of beneficial uses set forth in basin plans throughout the state, constituting best control available consistent with the purposes of the pesticide application in order to ensure that pollution or nuisance will not occur. The conditions also ensure maintenance of the highest water quality consistent with maximum benefit to the people of state. The nature of pesticides is to be toxic in order to protect beneficial uses such as human health or long-term viability of native aquatic life. Lake Davis and Silver King Creek are examples of water bodies where the Department of Fish and Game has used chemical pesticides to eradicate the Northern Pike and non-native trout, respectively. Waters of exceptional quality may be degraded due to the application of pesticides; however, it would only be temporary and in the best interest of the people of the State. While surface waters may be temporarily degraded; water quality standards and objectives will not be exceeded after project completion.

Another example of the benefits of pesticide application and any temporary degradation of water quality occurring as a result is the Asian clam infestation in Lake Tahoe which may require the use of pesticides to eradicate the pest. The Asian clam is undesirable because it: (1) displaces native clams, snails, and other organisms living on the lake bottom, which are important members of the lake's native food web; (2) fosters the growth of bright green algae, which change the look of the water, and smell when they decompose; and (3) could help foster an invasion of quagga mussels, another aggressive non-native species, by creating desirable habitat for them. Eradication of these species is important to protect beneficial uses, including habitat for native species, and water conveyance. Discharges in compliance with this permit will maintain existing levels of water quality over the long term.

Given the nature of a General Permit and the broad range of beneficial uses to be protected across the state, data analysis of specific water bodies is infeasible. While surface waters may be temporarily degraded, water quality standards and objectives will not be exceeded. The nature of pesticides is to be toxic in order to protect human health. However, compliance with receiving water limitations is required. Therefore, this General Permit is consistent with State and federal antidegradation policies.

5. **Endangered Species Act**

This General Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 et. seq) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 et. seq). This General Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. **Impaired Water Bodies on CWA 303(d) List**

Under section 303(d) of the 1972 CWA, states, territories, and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On November 30, 2006 U.S. EPA gave final approval to California's 2006 section 303(d) List of Water Quality Limited Segments. The Basin Plans reference this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (40 C.F.R. §130.2(j))." The Basin Plans also state, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Impaired waters do not support beneficial uses.

This General Permit does not authorize the discharge of biological and residual pesticides listed in Attachment E and their degradation byproducts or class of pesticides of the active ingredient to water bodies that are already impaired due to the same product active ingredients, their degradation byproducts, or any pesticide in the same chemical family. California's impaired waters bodies are listed on http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/2010_combo303d.xls (to be reviewed and adopted by U.S. EPA).

E. **Other Plans, Polices, and Regulations**

The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this General Permit are consistent with the Policy.

V. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 C.F.R. 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to numeric criteria specifying maximum amounts of particular pollutants. Pursuant to 40 C.F.R. § 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Section 122.44(d)(1)(vi) of 40 C.F.R. further provides that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits*."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in 40 C.F.R.: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established.

With respect to narrative objectives, the State Water Board must establish effluent limitations using one or more of three specified sources: (1) U.S. EPA's published water quality criteria; (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria; or (3) an indicator parameter (i.e., 40 C.F.R. 122.44(d)(1)(vi)(A), (B) or (C)). Basin Plans contain a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. Basin Plans state that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. Basin Plans also limit chemical constituents in concentrations that adversely affect surface water beneficial uses. Basin Plans further state that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. **Discharge Prohibitions**

1. The discharge of biological and residual pesticides at a location or in a manner different from that described in the Findings is prohibited.
2. The discharge of biological and residual pesticides shall not create a nuisance as defined in section 13050 of the California Water Code.
3. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable criterion promulgated by U.S. EPA pursuant to section 303 of the CWA, or any water quality objective adopted by the State or Regional Water Boards.

B. **Effluent Limitations**

NPDES permits for discharges to surface waters must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require controls that use BAT, BCT, and any more stringent controls necessary to reduce pollutant discharge and meet water quality standards.

Section 122.44 of 40 C.F.R. states that if a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a numeric or narrative water quality criterion, the permitting authority must develop effluent limits as necessary to meet water quality standards. Section 122.44(k)(3) of 40 C.F.R. allows the use of other requirements such as BMPs in lieu of numeric effluent limits if the latter are infeasible. It is infeasible for the State Water Board to establish numeric effluent limitations in this General Permit because:

1. The application of pesticides is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S. EPA* 553 F.3d 927 (6th Cir. 2009) and other applicable case law. The Sixth Circuit Court of Appeals ruled that biological and residual pesticides associated with the application of pesticides at, over, or near water constitute pollutants within the meaning of the CWA and that the discharge must be regulated under an NPDES permit;
2. This General Permit regulates biological and residual pesticides, which are degradation byproducts or other pesticide ingredients that are present after the use of the pesticide for pest control. In spray applications to control pests, any pesticide product or its degradation byproduct that is deposited

in waters of the US is a pollutant. However, at what point the pesticide becomes a residue is not precisely known and varies depending on the type of spray system, wind speed and direction, temperature, droplet size distribution, droplet drift, water chemistry, etc. Therefore, in the application of pesticides, the exact effluent is unknown; and

3. It would be impractical to provide effective treatment of the pesticide residue to protect water quality, given typically, pesticide applications consist of numerous short duration intermittent pesticide residue releases to surface waters from many different locations.

Therefore, the effluent limitations contained in this General Permit are narrative and include requirements to develop and implement a PAP that describes appropriate BMPs, including compliance with all pesticide label instructions, and to comply with narrative receiving water limitations.

The BMPs required herein constitute BAT and BCT and will be implemented to minimize the area and duration of impacts caused by the discharge of pesticides in the target area and to allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event.

C. **Best Management Practices**

The development of BMPs provides the flexibility necessary to establish controls to minimize the area extent and duration of impacts caused by the discharge of pesticides. This flexibility allows dischargers to implement appropriate BMPs for different types of applications and different types of waters.

Much of the BMP development has been incorporated into the pesticide regulation process by the U.S. EPA, DPR, CDPH, and County Agricultural Commissioners. The Dischargers must be licensed by DPR or CDPH if such licensing is required for the pesticide application project. The pesticide use must be consistent with the pesticide label instructions and any Use Permits issued by County Agricultural Commissioners.

U.S. EPA and DPR scientists review pesticide labels to ensure that a product used according to label instructions will cause no harm (or “adverse impact”) on non-target organisms that cannot be reduced (or “mitigated”) with protective measures or use restrictions. Many of the label directions constitute BMPs to protect water quality and beneficial uses. Label directions may include: precautionary statements regarding toxicity and environmental hazards; directions for proper handling, dosage, application, and disposal practices; prohibited activities; spill prevention and response measures; and restrictions on type of water body and flow conditions.

A Use Permit issued by the County Agricultural Commissioner incorporates applicable suggested permit conditions from DPR and local site-specific conditions necessary to protect the environment. State regulations require that specific types of information be provided in an application to the County Agricultural Commissioners for a pesticide use permit. The County Agricultural Commissioners review the application to ensure that appropriate alternatives were considered and that any potential adverse effects are mitigated. The County Agricultural Commissioners also conduct pre-project inspections on at least five percent of projects.

This General Permit requires that Dischargers use BMPs when implementing control programs in order to mitigate effects to water quality resulting from pesticide applications. Dischargers are required to consider alternative control measures to determine if there are feasible alternatives to the selected pesticide application project that could reduce potential water quality impacts. If the Discharger identifies alternative control measures to the selected pesticide application project that could reduce potential water quality impacts and that are also feasible, practicable, and cost-effective, the Discharger shall implement the identified alternative measures. The selection of control measures that use non-toxic and less toxic alternatives is an example of an effective BMP.

1. CDFA General Best Management Practices for Spray Applications

   California's agricultural abundance includes more than 400 commodities. The state produces nearly half of U.S. - grown fruits, nuts, and vegetables. CDFA is tasked with protecting this food supply from the devastating impact of exotic pests and protecting the environment and natural resources from direct pest impacts and increased pesticide use. It is imperative that CDFA maintain a rapid response capability to quickly and safely protect California agriculture and the environment. The ability to act quickly in the event of an infestation allows for localized eradication programs with minimal pesticide use.

   The following general BMP guidelines have been developed by CDFA for spray applications. They will facilitate an optimal pesticide application and protect the natural environment by preventing off-site movement. These BMP's will prevent unintentional discharge to waters of the United States.

   a. Conduct a site assessment.
      i. Identify the pest species to be treated. CDFA has compiled EIR's for many pests of concern.
      ii. Take note of site conditions, such as soil texture, slope, irrigation or storm drains.
      iii. Identify and avoid streamside management areas and surface water to prevent chemicals not labeled for aquatic use from

drifting over open water, or from accidentally being applied directly on the water.

iv. Choose integrated pest management methods designed to minimize the scale and number of pesticide applications: Integrating multiple measures such as quarantines, sterile release, host removal, bait stations or mass trapping. Programs use small quantities of materials

v. Choose the least persistent and lowest toxicity pesticide that will efficaciously treat the target pest.

b. All equipment must be properly cleaned and calibrated to apply chemicals uniformly and in the correct quantities.

i. Calibrate spray equipment per manufactures specifications.
ii. Equipment screening tests and tank sampling.
iii. Dedicate specific equipment for specific products.
iv. Clean equipment regularly following the manufactures specifications and the pesticide label directions.
v. Select the appropriate nozzle to ensure proper coverage.
vi. Maintain and equipment log to track calibration, cleaning and repairs.
vii. Conduct visual inspection of equipment prior to use. Check all equipment for leaking hoses, connections and nozzles.
viii. Monitor the operation of the nozzles during the application.
ix. Request CAC PUE inspections of all programs.
x. **DO NOT** use any equipment that appears to be damaged.
xi. Discontinue use immediately in the event of an equipment malfunction.
xii. Staff are trained to clean up spills

c. Follow pesticide label directions, regulations, or internal procedures which ever is the most conservative.

i. Read pesticide label.
ii. Staff is trained to properly apply pesticide.
iii. Be aware of any regulations or internal procedures prior to application.
iv. Ensure that treatment is consistent with Integrated Pest Management for the pest and crop/location.
v. Use appropriate application methods and rates to minimize over application.
vi. Mix and load chemicals out of streamside areas, mix and load in areas where spills can be contained.
vii. Annual safety & endangered species training for all personnel mixing or applying pesticides.
viii. Annual search for MSDS and Label updates or revisions for materials used.

d. Apply chemicals only under favorable weather conditions.
   i. Do not make spray applications if wind speeds are less that 3 mile per hour or over 10 miles per hour (limited to 5 miles per hour for CTV program).
   ii. Avoid spraying during stable (inversion) conditions (early morning and early evening) when there is little or no vertical mixing of the air. These conditions generate concentrated drift clouds and increase the chance of drift fallout.
   iii. Check weather service prior to application and **DO NOT** make application if rain (50% chance or higher) is forecast 48 hours prior to an intended application.
   iv. Monitor wind direction and do not spray when there are sensitive crops/areas immediately downwind.
   v. Keep records of air temperature, wind speed, and wind direction for aerial applications.

e. Follow integrated pest management and drift reduction techniques.
   i. Use buffer zones to protect sensitive areas, such as bodies of water, T & E “critical habitat” (as prescribed through Section 7 Consultations), and any other sensitive area.
   ii. Use of spotters to avoid accidents and to aide in identifying buffer zones.
   iii. Use low pressure application equipment.
   iv. Use “bait station” application methods when possible over full coverage spray applications to avoid run off and or effects to non-target species.
   v. Conduct spot treatment when applicable.
   vi. Host plant manual removal.
   vii. Solarization.
   viii. Hold notices (quarantine).

f. Clean equipment and dispose of rinse water per label directions.
   i. Rinse equipment according to manufacturer’s label instructions.
   ii. Discharge rinse water only in areas that are part of the application site or at a certified waste treatment facility.
   iii. Dispose of surplus chemical and containers according to label instructions.

D. **Water Quality-Based Effluent Limitations (WQBELs)**

1. **Scope and Authority**

Section 122.44(d)(1)(i) of 40 C.F.R. mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) U.S. EPA criteria under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 C.F.R. § 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plans, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. **Receiving Water Beneficial Uses**

Spray applications for pest control may potentially deposit biological and residual pesticides to surface waters. Beneficial uses of receiving waters are as follows: municipal and domestic supply, agricultural irrigation, agricultural stock watering, process water supply, service water supply, and hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, groundwater recharge, and freshwater replenishment.

3. **Determining the Need for WQBELs**

a. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR, as well as antidegradation policies. The Basin Plans include numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." With regard to the narrative chemical constituent's objective, the Basin Plans state that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR.* The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard.

4. **Antidegradation Policy**

The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. § 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Due to the low volume of discharge expected from discharges regulated under this General Permit, the impact on existing water quality will be insignificant. Dischargers seeking authorization to discharge under this General Permit are required to demonstrate compliance with receiving water limitations during the application. If, however, the appropriate Regional Water Board, subsequent to review of any application, finds that the impact of a discharge will be significant, then authorization for coverage under this General Permit will be denied and coverage under an individual permit will be required (including preparation of an anti-degradation analysis).

VI. RATIONALE FOR RECEIVING WATER LIMITATIONS AND MONITORING TRIGGERS

A. **Groundwater**

[Not Applicable]

B. **Surface Water**

CWA section 303(a-c), requires states to adopt water quality standards, including criteria necessary to protect beneficial uses. Regional Water Boards adopted water quality criteria as water quality objectives in the Basin Plans. The Basin Plans state that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plans include numeric and narrative water quality objectives for various beneficial uses and water bodies. This General Permit contains receiving surface water limitations based on the Basin Plans' numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, temperature, floating material, settleable substances, suspended material, tastes and odors, and toxicity. This General Permit also requires compliance with any amendment or revision to the water quality objectives contained in the Basin Plans adopted by Regional Water Boards subsequent to adoption of this General Permit.

Once a pesticide has been applied to an application area, the pesticide product can actively control pests within the application area. The discharge of biological and residual pesticides from the spray applications to surface water must meet applicable water quality criteria and objectives. The receiving water limitations ensure that an application event does not result in an exceedance of a water quality standard in the receiving water. Receiving water is defined as any surface water or drainage courses where the pesticide may be deposited as a result of direct or spray applications.

To protect all designated beneficial uses of the receiving water, the most protective (lowest) and appropriate (to implement the CTR criteria and WQOs in the *Water Quality Control Plans*) limit should be selected as the water quality limit for a particular water body and constituent. In many cases, water quality standards include narrative, rather than numerical, water quality objectives. In such cases, numeric water quality limits from the literature or publicly available information may be used to ascertain compliance with these standards.

Pesticide formulations contain disclosed “active” ingredients that yield toxic effects on target organisms and may also have toxic effects on non-target organisms. Residual active ingredients that do not contain pollutants for which there are applicable numeric CTR criteria may still have toxic effects on receiving water bodies. In addition, the inactive or “inert” ingredients of pesticides, which are trade secrets and have not been publicly disclosed, may also contain toxic pollutants or pollutants that could affect water quality.

DPR is responsible for reviewing toxic effects of product formulations and determining whether a pesticide is suitable for use in California’s waters. In this General Permit, inert ingredients are also considered on a constituent-by-constituent basis. U.S. EPA regulates pesticide use through strict labeling requirements in order to mitigate negative impacts to human health and the environment, and DPR environmental and medical toxicologists review toxicity data on formulations and can deny registration or work with registrants or County Agricultural Commissioners to impose additional requirements in order to protect human health or the environment.

U.S. EPA and DPR require that pesticides undergo toxicity testing and meet specific toxicity requirements before registering the pesticide for application to surface waters. U.S. EPA has found that the application of properly registered pesticides pose a minimum threat to people and the environment. In addition, the effects of these pesticides on water quality will be mitigated through compliance with FIFRA label requirements, application of BMPs, and monitoring.

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) set forth in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

Establishing Receiving Water Limitation

This General Permit contains an instantaneous maximum receiving water limitation for malathion.

Malathion is an OP insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in public health pest control programs.

Malathion is used to kill adult pests. Malathion can be applied by truck-mounted or aircraft-mounted sprayers.

Malathion is highly toxic to insects, including beneficial insects such as honeybees. For that reason, U.S. EPA has established specific precautions on the label to reduce such risks. Although it is less acutely toxic than other OPs, adverse health effects have been reported by exposed persons.

U.S. EPA has also refined its characterization of the potential risk from *malaoxon*, a more toxic compound that is formed from malathion under certain conditions. For example, malathion runoff and spray drift may reach drinking water sources downstream from where the malathion was used. Malathion present in untreated water will form malaoxon during the chlorination process in water treatment facilities. Malaoxon can also form more slowly when malathion is deposited on hard, dry surfaces and exposed to air over time. U.S. EPA's assessment shows that even when considering the presence of malaoxon on surfaces following applications of malathion, the relatively low application rates and small droplet sizes used in these types of applications result in minimal exposure to people in the treated area.

U.S. EPA has established an ambient water quality criterion of 0.1 µg/l both as a continuous concentration (four-day average) and instantaneous maximum concentration for the protection of freshwater aquatic life for malathion. U.S. EPA Aquatic Life Acute Benchmarks for freshwater fish and invertebrates are 0.295 µg/l and 0.005 µg/l, respectively. U.S. EPA Aquatic Life Chronic Benchmarks for freshwater fish and invertebrates are 0.014 µg/l and 0.000026 µg/l, respectively. U.S. EPA Aquatic Life Acute Benchmarks for nonvascular plants and vascular plants are 2,040 µg/l and 24,065 µg/l, respectively. The U.S. EPA Integrated Risk Information System (IRIS) Reference Dose as a drinking water level for malathion is 140 µg/L. The U.S. EPA Suggested-No-Adverse-Response-Level (SNARL) for toxicity other than cancer risk for malathion is 100 µg/L.

Under section 303(d) of the CWA, states, territories, and authorized tribes are required to develop a list of water quality limited segments. The waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires for waters on the list that priority rankings be established for the development of action plans, called Total Maximum Daily Loads (TMDLs), to improve the water quality. California waters impaired due to malathion are listed on http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/2010_combo303d.xls (to be reviewed and adopted by U.S. EPA). Because impairment by malathion, this General Permit does not authorize the discharge of residual malathion to the water bodies identified on the California 303(d) listing as impaired by malathion.

DPR collected water and sediment samples during the summer of 2003 for OP and pyrethroid pesticides in the San Joaquin River Watershed (Stanislaus County) and Salinas River Watershed (Monterey County). The purpose of this study was to determine the presence of pyrethroid insecticides in water and bed sediments and the presence of OP pesticides in water during the summer growing season. The Salinas and San Joaquin valleys were selected because they are important agricultural regions in California. Sampling sites were chosen on waterways whose flows are dominated by summer agricultural run-off. For Monterey County, malathion was detected in 17 of 64 samples with a maximum concentration of 0.544 µg/l, while 9 of 17 detected samples were reported as “trace,” which means the concentration was detected above the method detection limit (MDL) but below reporting limit (RL). The MDL and RL for malathion were reported at 0.0117 µg/l and 0.04 µg/l, respectively. For Stanislaus County, malathion was detected in 1 of 68 samples at a concentration of 0.0741 µg/l.

Based on the above information, this General Permit contains an Instantaneous Maximum Receiving Water limitation of 0.1 µg/l for malathion. This is because 0.1 µg/l is U.S. EPA promogated water quality criterion per Clean Water Act sction 304(a).

Establishing Receiving Water Monitoring Triggers

In pesticide applications for pest control, it is reasonable to conclude that some biological and residual pesticides will be deposited in surface waters. These biological and residual pesticides may cause toxicity to aquatic life. However, information regarding biological and residual pesticides deposited in the receiving water as a result of spray applications is not adequate to develop receiving water limitations for individual and combinations of pesticides; therefore, this General Permit only contains Receiving Water Monitoring Triggers. The monitoring triggers will be used to assess compliance with the narrative toxicity receiving water limitation and initiate additional investigations for the causes of toxicity from pesticides used and their additive or synergistic effects. This General Permit includes an Instantaneous Maximum Receiving Water Monitoring Trigger for residual pesticides of concern.

The Instantaneous Maximum Receiving Water Monitoring Triggers are based on promulgated water quality criteria such as those provided in the CTR, water quality objectives adopted by the State and Regional Water Boards in their water quality control plans, water quality criteria adopted by the California Department of Fish and Game, or water quality standards such as drinking water standards adopted by the California Department of Public Health. In the absence of these adopted criteria, objectives, or standards, the State Water Board used U.S. EPA's *Ambient Criteria for the Protection of Freshwater Aquatic Life* (Ambient Water Quality Criteria) which are directly applicable as a regulatory level to implement narrative toxicity limitations included in all Regional Water Board Basin Plans. Where Ambient Water Quality Criteria are unavailable in addition to adopted criteria, objectives, or standards, the State Water Board used data from the *Ecotoxicity Database* to develop the Receiving Water Monitoring Triggers for individual pesticides and combinations of pesticides to protect all beneficial uses of the receiving water. In most, if not all cases, protection of the most sensitive aquatic life in receiving water provides protection of all beneficial uses of that receiving water.

For constituents that do not have Ambient Water Quality Criteria, the Instantaneous Maximum Receiving Water Monitoring Trigger is based on one-tenth of the lowest 50 Percent Lethal Concentration (LC50) from the *Ecotoxicity Database*. Using one-tenth of the lowest LC50 as the receiving water monitoring trigger is consistent with the Central Valley Regional Water Board's Basin Plan approach when developing the Daily Maximum limitation for pesticides that do not have water quality criteria.

The following is a detailed discussion of Eco-toxicity data, applicable water quality criteria, if available, and Receiving Water Monitoring Triggers, if required, for: acetamiprid, aminopyralid, Bacillus thuringiensis kurstaki (Btk), carbaryl, chlorsulfuron, clopyralid, cyfluthrin, dinotefuran, glyphosate, imazapyr, imidacloprid, malathion, naled, nuclear polyhedrosis virus (NPV), pheromone, pyrethrins, spinosad A and D, triclopyr butoxyethyl ester (BEE) and triclopyr triethylamine salt (TEA). This General Permit may be re-opened to add receiving water limitations if the monitoring results show exceedance of the monitoring triggers.

1. **Insecticides**

a. **Microbial Insecticides**

Microbial larvicides are bacteria or viruses that are registered as pesticides for control of invasive insect larvae. Duration of effectiveness depends primarily on the species, the environmental conditions, and the formulation of the product. Microbial insecticides may be used along with other control measures in an Integrated Pest Management (IPM) program. The microbial insecticides used for invasive insect control are Btk, NPV, and Spinosad A and D.

i. **Btk**

Btk acts by producing proteins that react with the cells of the gut lining of susceptible insects. The Btk proteins paralyze the digestive system, and the infected insect stops feeding within hours. Btk affected insects generally die from starvation, which can take several days.

According to U.S. EPA, (http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet_006452.htm#description) the risk of Btk is minimal to nonexistent to nontarget organisms including endangered species except endangered insect species. A label limitation to terrestrial use was necessary since 1) an aquatic risk level of concern was triggered for endangered species based on the freshwater aquatic invertebrate study, and 2) only one freshwater fish species was tested and minimal toxicity was observed.

Based on the above information from U.S. EPA, this General Permit does not include a Receiving Water Monitoring Trigger and does not require monitoring for Btk.

ii. **NPV**

The NPV belongs to a sub group of *Baculoviruses,* is a virus that affects insects, predominantly moths and butterflies. It has been used as an active ingredient in bio-pesticide, such as TM Biocontrol, for crops infested by insects, such as Douglas-fir tussock moth that are susceptible to contraction.

Baculoviruses are pathogens that attack insects and other arthropods. Like some human viruses, they are usually extremely small (less than a thousandth of a millimeter across), and are composed primarily of double-stranded DNA that codes for genes needed for virus establishment and reproduction. Because this genetic material is easily destroyed by exposure to sunlight or by conditions in the host's gut, an infective baculovirus particle (*virion)* is protected by protein coat called a *polyhedron.* Most insect baculoviruses must be eaten by the host to produce an infection, which is typically fatal to the insect.

The majority of baculoviruses used as biological control agents are in the genus *NPV,* so "baculovirus" or "virus" refers to nucleopolyhedroviruses. These viruses are excellent candidates for species-specific, narrow spectrum insecticidal applications. They have been shown to have no negative impacts on plants, mammals, birds, fish, or even on non-target insects. This is especially desirable when beneficial insects are being conserved to aid in an overall IPM program, or when an ecologically sensitive area is being treated. The USDA Forest Service in California currently uses the Douglas fir tussock moth (*Orgyia pseudotsugata*) nuclear polyhedrosis viruses, also referred to as*OpNPV)*. This product, registered as TM Biocontrol, is effective against Douglas-fir tussock moths but leaves all other animals unharmed (http://www.nysaes.cornell.edu/ent/biocontrol/pathogens/baculoviruses.html#references). Although TM Biocontrol's registration in California expired in 2008, USDA Forest Service can still use the remaining product purchased previously. USDA Forest Service is actively seeking re-registration in California.

According to U.S. EPA re-registration, the NPV has low acute toxicity to human with the exception of eye irritation. The aerial applications of NPV to forest ecosystems to control Douglas-fir tussock moth can be expected to result in exposure to a wide variety of birds, mammals, fish, aquatic invertebrates, and non-target insects. However, the submitted studies, scientific literature and twenty years of use of NPV as active ingredient in bio-pesticides for controlling Douglas-fir tussock moth indicate no adverse effects on non-target wildlife, including endangered species. Based on the above information from U.S. EPA, this General Permit does not include a Receiving Water Monitoring Trigger and does not require monitoring for NPV.

iii. **Spinosad**

Spinosad is a biologically derived insecticide produced via fermentation culture of the actinomycete *Saccharopolyspora spinosa*, a bacterial organism isolated from soil. It is composed of a mixture of two members of the chemical class of 12-membered macrocyclic lactones in a unique tetracyclic ring. Each component, designated spinosyn A and spinosyn D, is an unsaturated tetracyclic ester with two sugar derivatives (forosamine and rhamnose sugars) attached through ether linkages. Spinosyn A and D are identical in structure except for an additional methyl group on the core macrolide of spinosyn D. Technical grade spinosad is a light gray to white crystalline solid with an odor of slightly stale water.

Spinosad is a naturally occurring insecticide. It activates the central nervous system of insects through interaction with the nicotinic acetylcholine receptors. Immediately after application, insect pests exhibit irreversible tremors, prostrate trembling, paralysis, and death.

It is stable to metal and metal ions for 28 days, degrades under ultra-violet light, and is non-phytotoxic when used as directed. It is non-explosive, non-reactive toward monoammonium phosphate, zinc, and water, and reactive toward potassium permanganate. Spinosad is soluble in water, and soluble in common organic solvents such as acetone, acetonitrile, methanol, and toluene. Spinosad is relatively short-lived in the field and photodegrades rapidly. Its half-life* is less than one day.

U.S. EPA determined that spinosad does not leach, bioaccumulate, volatilize, or persist in the environment. Spinosad will degrade photochemically when exposed to light after application, Because spinosad strongly adsorbs to most soils, it does not leach through soil to groundwater. Spinosad demonstrates low mammalian and avian toxicity. It does not pose long-term health problems in mammals. In addition, a low potential for acute toxicity exists due to low oral, dermal, and inhalation toxicity from the use of spinosad.

Spinosad is the winner of both 1999 and 2010 *Designing Greener Chemicals Award*. This Award promotes pollution prevention through partnerships with the chemistry community. Through high level recognition and support, the Award promotes innovative developments in and uses of green chemistry for pollution prevention. U.S. EPA's Office of Pollution Prevention and Toxics is leading this voluntary partnership program with other U.S. EPA offices, other federal agencies, members of the chemical industry, trade associations, scientific organizations, and academia.

Based on the above considerations, this General Permit does not contain a Receiving Water Monitoring Trigger and does not require monitoring for spinosad.

iv. **Light Brown Apple Moth (LBAM) Pheromone Blend and European Grapevine Moth (EGVM) Pheromone Blend**

LBAM and EGVM pheromone blends consist of two synthetic straight chained lepidopteran pheromones (SCLPs). Lepidoptera is a large order of insects that includes moths and butterflies. The SCLPs are pheromones (including identical or substantially similar synthetic compounds) produced by a member in the order Lepidoptera.

The LBAM and EGVM pheromone blends are used to disrupt the mating by a non-toxic mode of action.

According to 40 C.F.R. §158.2050, toxicology and environmental data for SCLP manufacturing products are not required. In addition, 40 C.F.R. §158.2060 states that toxicology and environmental data requirements for end use products are greatly reduced.

U.S. EPA's reviews during the SCLP product registration process confirmed that no risks to human health are expected from the use of SCLPs based on the low toxicity in animal testing and the expected low exposure to humans. Furthermore, adverse effects on non-target organisms are not expected because these pheromones are released in very small quantities in the environment and act on a select group of insects, such as LBAMs. Appropriate precautionary labeling of end use products will further minimize potential exposure and mitigate risk to non-target organisms. Based on the above considerations, this General Permit does not contain a Receiving Water Monitoring Trigger and does not require monitoring for LBAM or EGVM pheromone blend.

b. **Organophosphate (OP) Insecticides**

The receiving water monitoring trigger for each constituent below is based on the Basin Plans' narrative toxicity objective of no toxics in toxic amounts. The trigger is only applicable to spray applications.

Naled

Naled is an OP insecticide that has been registered since 1959 for use in the United States. It is used primarily for controlling adult mosquitoes, but naled is also used on food and feed crops and in greenhouses.

Toxicity data for naled were obtained from the *Ecotoxicity Database* to assess toxicity of naled to freshwater aquatic life. Table D-1 summarizes toxicity data for naled.

Table D-1. Summary of Toxicity Data for Naled (CAS# 300-76-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1971	1200
	96 h	1986	1200
	96 h	1986	4000
	96 h	1986	2200
	96 h	1986	240
Fathead Minnow	96 h	1986	3,300
Mysid	96 hr	1993	8.8
Rainbow Trout	96 h	1969	160

Type of Organism	Study Length	Study Date	LC50 (µg/L)
	96 h	1977	215
	96 h	1986	195
	96 h	1986	345
	96 h	1986	900
	96 h	1986	340
	96 h	1986	130
Scud	48 h	1969	**0.14**
	96 h	1972	14
	96 h	1986	18
Lowest LC50/10 = 0.014			

Ambient Water Quality Criteria are unavailable for naled. Table D-1 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for naled is 0.014 µg/l.

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.014 ug/l based on one-tenth of the lowest LC50 from the *Ecotoxicity Database*.

c. **Pyrethrin**

Pyrethrin is an insecticide that is derived from the extract of chrysanthemum flowers. Pyrethrins have a soil half-life of 12 days. The plant extract called pyrethrum contains pyrethrin I and pyrethrin II; collectively, these are called pyrethrins.

A study from the UC Berkeley (*Aquatic Effects of Aerial Spraying for Mosquito Control over an Urban Area*, Weston, et al., Environ. Sci. Technol. 2006, 40, 5817-5822) on aquatic effects of aerial spraying for adult mosquito control found that a few hours after spraying, 35% of the water samples contained measurable pyrethrin residues (up to 3.8 µg/l), but pyrethrin was not detected in any water sample collected before or 10 to 34 hours after spraying. Water sampling results were similar to that conducted by the local mosquito control district in which none of 14 water samples was detected with pyrethrin prior to spraying. Pyrethrin was not detected in any sediment sample in two creeks before spraying for which pre-spray data were available; however, sediments in these two creeks were found to contain pyrethrin at a maximum concentration of 372 µg/kg immediately following the aerial application (8 days later). This study was conducted to evaluate effects of mosquito control agents on aquatic life within an urban setting due to aerial applications of insecticide containing pyrethrin and the synergist PBO over Sacramento in an effort to combat West Nile virus in 2005.

Toxicity data for pyrethrin were obtained from the *Ecotoxicity Database* to assess toxicity of pyrethrin to freshwater aquatic life. Table D-2 summarizes toxicity data for pyrethrin.

Table D-2. Summary of Toxicity Data for Pyrethrin (CAS#8003-34-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1976	49
	96 h	1986	104
	96 h	1986	41
	96 h	1994	10
Fathead Minnow	96 h	1986	74
Mysid	96 h	1994	1.4
Rainbow Trout	96 h	1976	68
	96 h	1986	20
	96 h	1994	5.1
	96 h	1994	3.2
Scud	96 h	1986	**1.4**
Lowest LC50/10 = 0.14			

Ambient Water Quality Criteria are unavailable for pyrethrin. Table D-2 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for pyrethrin is 0.14 µg/l. Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.14 ug/l based on one-tenth of the lowest LC50 from the *Ecotoxicity Database*.

d. **Cyfluthrin**

Cyfluthrin is a synthetic pyrethroid derivative. Like most pyrethroids, cyfluthrin is highly toxic to fish. Technical-grade cyfluthrin consists of a mixture of four diastereomeric pairs of enantiomers, consisting of two *cis* and two *trans* isomeric pairs. Beta-cyfluthrin consists of two diastereoisomeric pairs, which are the biologically active isomers of cyfluthrin. They are contained in cyfluthrin at a level of about 40 percent.

U.S. EPA first registered cyfluthrin in 1987. Same as pyrethrins and pyrethroid, cyfluthrin act on tiny channels through which sodium is pumped to cause excitation of neurons and eventual death of the insect. Cyfluthrin is used to control chewing and sucking insects such as cutworms, ants, silverfish, cockroaches, termites, grain beetles, mosquitoes, fleas, flies, etc.

Cyfluthrin is highly toxic to marine and freshwater organisms. Cyfluthrin is broken down quickly in surface water. Beacuse it is relatively non-soluble, and less dense than water, it will float on the surface film of natural waters. At the surface, it is subject to breakdown by exposure to sunlight (1 day). With low water solubility and a high Soil Organic Carbon-Water Partitioning Coefficient, cyfluthrin has a strong tendency to absorb to soil and sediments. Although cyfluthrin displays high aquatic toxicity in laboratory studies, the tendency to sorb strongly to suspended sediment and dissolved organic materials in field aquatic systems probably reduces cyfluthrin's bioavailability, hence cyfluthrin's aquatic toxicity. However, the extent to which bioavailability is mitigated and the aquatic toxicity of a hydrophobic pyrethroid is reduced in the water column or in sediments is uncertain.

Toxicity data for cyfluthrin were obtained from the *Ecotoxicity Database* to assess toxicity of cyfluthrin to freshwater aquatic life. Table D-3 summarizes toxicity data for cyfluthrin.

Table D-3. Summary of Toxicity Data for Cyfluthrin
(CAS# 68359-37-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	1983	1.5
	96 hr	1989	0.87
	96 hr	1991	0.28
	96 hr	1994	0.566
	96 hr	1994	0.998
Fathead Minnow	307 day	1990	0.25
Mysid	96 hr	1985	0.00637
	96 hr	1987	0.00242
	96 hr	1994	**0.0022**
	96 hr	1994	0.0023
Rainbow Trout	96 hr	1983	0.68
	96 hr	1988	0.085
	96 hr	1989	0.3
	96 hr	1991	0.068
	96 hr	1994	0.209
	96 hr	1994	0.111
	96 hr	1994	0.302
Lowest LC50/10 = 0.00022			

Ambient Water Quality Criteria are unavailable for cyfluthrin. Table D-3 above shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for cyfluthrin is 0.00022 µg/l0.

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 0.00022 ug/l based on the lowest one-tenth LC50 from the *Ecotoxicity Database*.

e. **Carbaryl**

Carbaryl (1-naphthyl methylcarbamate) is a chemical in the carbamate family used chiefly as an insecticide. Carbarl is the active ingredient for insecticide with the trade name Sevin, which controls over 100 species of insects on citrus, fruit, cotton, forests, lawns, nuts, ornamentals, shade trees, and other crops, as well as on poultry, livestock and pets. It is highly toxic to honey bees and many other beneficial insects and mites.

Degradation of carbaryl in the soil is mostly due to sunlight and bacterial action. Carbaryl bounds with organic matters and can be transported to surface water in soil through runoff. Carbaryl has a half-life of 7 days in aerobic soil and 28 days in anaerobic soil. In pond water, carbaryl is broken down by bacteria through chemical processes. Carbaryl has a half-life of from 1 to 32 days in pond water.

Carbaryl’s mode of action is by disrupting the normal functions of the insect nervous system by adding a carbamyl moiety to the active site of the acetylcholinesterase enzyme, which prevents it from interacting with acetylcholine.

U.S. EPA has a national recommended water quality criterion for fresh water aquatic life protection of instantaneous maximum value of 0.2 µg/L for carbaryl. However, this criterion is from a 1973 U.S. EPA reference, and it does not appear in the current list of recommended criteria published by U.S. EPA. U.S. EPA also has a recommended criterion for fresh water aquatic life protection maximum and continuous of 2.53 µg/L derived by the California Department of Fish and Game.

This General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 2.53 ug/l based on *the* California Department of Fish and Game criterion.

f. **Neonicotinoids**

i. **Acetamiprid**

Acetamiprid is an active ingredient in insecticides for control of sucking-type insects on leafy vegetables, fruiting vegetables, cole crops, citrus fruits, pome fruits, grapes, cotton, and ornamental plants and flowers. It was registered to use in 2002

Acetamiprid belongs to a new class of insecticides called neonicotinoids, which have different effects from other insecticides. Neonicotinoids act as selective agonists at the nicotinic acetylcholine receptors, therefore their toxicity is higher to insect pests than to humans.

Toxicity data for acetamiprid were obtained from the *Ecotoxicity Database* to assess toxicity of acetamiprid to freshwater aquatic life. Table D-4 summarizes toxicity data for acetamiprid.

Table D-4. Summary of Toxicity Data for Acetamiprid (CAS# 135410-20-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	1997	>119,300
Mysid	96 hr	1997	19,000
	96 hr	1998	**66**
Rainbow Trout	96 hr	1997	>100,000
	96 hr	1998	>98,100
Sheepshead Minnow	96 hr	1998	100,000
Lowest LC50/10 = 6.6			

Ambient Water Quality Criteria are unavailable for acetamiprid. Table D-4 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for acetamiprid is 6.6 µg/l

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 6.6 ug/l based on the lowest one tenth of LC50 from the *Ecotoxicity Database*.

ii. **Dinotefuran**

Dinotefuran is the active ingredient of a broad-spectrum insecticide that belongs to neo-nicotinoid insecticide. Dinotefuran is used to control insect pests such as aphids, whiteflies, thrips, and etc. in leafy vegetables, residential and commercial buildings, golf courses, lawn and gardens. This insecticide is applied by soil incorporation, foliar application, bait application, spot treatment. Foliar application can be made aerially or with tractor-mounted sprayers or spreaders, as well as, handheld equipment such as low-pressure handwand sprayers, backpack sprayers, turf guns, ready-to-use trigger sprayers, and hose-end sprayers.

Dinotefuran has high water partition coefficient, which suggests that it is high water soluble, but low potential for fish bioaccumulation. The available studies on dinotefuran are limited. According to U.S. EPA Fact Sheet for dinotefuran, it is practically nontoxic on an acute basis to freshwater and estuarine/marine fish (LC50 > 99.3 ppm), as well as freshwater invertebrates (EC50 > 968.3 ppm). However, since an estuarine/marine chronic study was not submitted for this compound there is an uncertainty regarding chronic risk to estuarine invertebrates. The saltwater toxicity studies in mysids and oysters were all conducted at several concentrations. The study in mysid shrimp, however, reports substantial and concentration-related mortality, and the LC50 with 95% confidence intervals is 0.79 (0.49-1.0) mg/L. Based on this study, U.S. EPA/OPP (2004f, p. 20) classifies dinotefuran as highly toxic to shrimp.

Toxicity data for dinotefuran were obtained from the *Ecotoxicity Database* to assess toxicity of dinotefuran to freshwater aquatic life. Table D-5 summarizes toxicity data for dinotefuran.

Table D-5. Summary of Toxicity Data for Dinotefuran (CAS#165252-70-0)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	2000	>99300
Common Carb	96 hr	2000	>99100
Mysid	96 hr	2003	**790**
Rainbow Trout	96 hr	1999	>99500
Sheephead Mino	96 hr	2001	>99000
Lowest LC50/10 = 79			

Ambient Water Quality Criteria are unavailable for dinotefuran. Table D-5 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for dinotefuran is 79 µg/l.

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 79 ug/l based on the lowest one tenth of LC50 from the *Ecotoxicity Database*

iii. **Imidacloprid**

Imidacloprid is a neonicotinoids, which are a class of insecticides which act on the central nervous system of insects with lower toxicity to mammals. Neonicotinoids are among the most widely used insecticides worldwide. In insects, neonicotinoids cause paralysis which leads to death, often within a few hours. However, they are much less toxic to mammals

Imidacloprid is a systemic, chloro-nicotinyl insecticide for the control of sucking insects including rice hoppers, aphids, thrips, whiteflies, termites, turf insects, soil insects and some beetles. It is most commonly used on rice, cereal, maize, potatoes, vegetables, sugar beets, fruit, cotton, hops and turf, and is especially systemic when used as a seed or soil treatment.

Toxicity data for imidacloprid were obtained from the *Ecotoxicity Database* to assess toxicity of imidacloprid to freshwater aquatic life. Table D-6 summarizes toxicity data for imidacloprid.

Table D-6. Summary of Toxicity Data for Imidacloprid (CAS# 138261-41-3)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	1990	>105,000
Mysid	96 hr	1990	**38**
	96 hr	1992	159
Rainbow Trout	96 hr	1988	229,100
	96 hr	1990	>83,000
Amphipod/Scud	48 hr	1991	115.3
	96 hr	1991	55
Sheepshead Minnow	96 hr	1990	163,000
Lowest LC50/10 = 3.8			

Ambient Water Quality Criteria are unavailable for imidacloprid. Table D-6 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for imidacloprid is 3.8 µg/l.

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 3.8 ug/l based on the lowest one tenth of LC50 from the *Ecotoxicity Database.*

2. **Herbicides**

The receiving water monitoring trigger for each constituent below is based on the Basin Plans' narrative toxicity objective of no toxics in toxic amounts. The trigger is only applicable to spray applications using herbicide products containing the following active ingredients.

a. **Aminopyralid**

Aminopyralid acts as a pyridine carboxylic acid herbicide like clopyralid, which is intended for use in rangeland, permanent grass pastures, non-cropland areas (rights-of-way, roadsides and non-irrigation ditch banks), natural areas, such as wildlife management areas, natural recreation areas, campgrounds, trailheads, trails, and grazed area. Aminopyralid is a growth regulator herbicides which selectively controls broadleaf weeds in grasses.

In aquatic systems, the primary route of degradation is photolysis, where a laboratory experiment yielded a half-life of 0.6 day. Carbon dioxide and oxamic and malonamic acid were identified as major degradates. Aminopyralid was stable to direct hydrolysis and in anaerobic sediment-water systems. In aerobic sediment-water systems, degradation preceded slowly, with observed total system half-lives of 462 to 990 days. Under aerobic conditions, degradation of aminopyralid in five different soils resulted in the production of CO_2 and non-extractable residues. Half-lives ranged from 31.5 to 533.2 days in 5 soils. For risk assessment purposes, EPA used a half-life of 103.5 days.

According to U.S. EPA Pesticide Fact Sheet for aminopyralid, aminopyralid has been shown to be practically non-toxic to birds, fish, honeybees, earthworms, and aquatic invertebrates. Aminopyralid is slightly toxic to eastern oyster, algae and aquatic vascular plants. The log Kow is less than 3 and thus aminopyralid is not expected to bioaccumulate in fish tissue.

There are no acute or chronic risks to non-target endangered or non-endangered fish, birds, wild mammals, terrestrial and aquatic invertebrates, algae or aquatic plants

Toxicity data for aminopyralid were obtained from the *Ecotoxicity Database* to assess toxicity of aminopyralid to freshwater aquatic life. Table D-7 summarizes toxicity data for aminopyralid.

Table D-7. Summary of Toxicity Data for Aminopyralid (CAS#150114-71-9)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	2003	>100,000
Mysid	96 hr	2002	>100,000
Rainbow Trout	96 hr	2001	**>100,000**
Sheepshead Minnow	96 hr	2002	>120,000

Ambient Water Quality Criteria are unavailable for aminopyralid. Table D-7 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for aminopyralid is 10,000 µg/l.

Due to its safe use in the environment, low or no toxicity to aquatic life as indicated in the *Ecotoxicity Database* and reports by U.S. EPA, this General Permit does not have a monitoring trigger for aminopyralid. However, because it is slightly toxic to certain aquatic life and plants, this General Permit requires monitoring when an aminopyralid-containing product is used.

b. **Chlorsulfuron**

Chlorsulfuron is an active ingredient in herbicide products used as a pre- and post-emergent herbicide to control a variety of weeds on cereal grains, pasture and rangeland, industrial sites, and turf grass. Chlorsulfuron was first registered in the United States in 1982 by E.I. du Pont de Nemours and Company.

Chlorsulfuron is likely to be persistent and highly mobile in the environment. It may be transported to non-target areas by runoff and/or spray drift. Degradation by hydrolysis appears to be the most significant mechanism for degradation of chlorsulfuron, but is only significant in acidic environments (23 day half-life at pH = 5); it is stable to hydrolysis at neutral to high pH. Degradation half-lives in soil environments range from 14 to 320 days.

U.S. EPA concluded in the chlorsulfuron Registration Eligibility Decision (RED) that it is practically nontoxic to both freshwater and estuarine/marine fish on an acute exposure basis and is slightly toxic to estuarine/marine invertebrates.

Toxicity data for chlorsulfuron were obtained from the *Ecotoxicity Database* to assess toxicity of imidacloprid to freshwater aquatic life. Table D-8 summarizes toxicity data for imidacloprid.

Table D-8. Summary of Toxicity Data for Chlorsulfuron (CAS#64902-72-3)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1979	>300,000
Fathead Minnow	96 h	1979	>300,000
Mysid	96 h	1991	**89,000**
Rainbow Trout	96 h	1979	>250,000
Sheepshead Minnow	96 h	1991	>980,000
Lowest LC50/10 = 8,900			

Ambient Water Quality Criteria are unavailable for chlorsulfuron. Table D-8 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for chlorsulfuron is 8,900 µg/l.

Due to chlorsulfuron's almost nonexistent toxicity to freshwater and estuarine/marine fish according to U.S. EPA, this General Permit does not have a monitoring trigger for chlorsulfuron. However, due to chlorsulfuron's slight toxicity to estuarine/marine invertebrates, this General Permit requires monitoring when a chlorsulfuron-containing product is used.

c. **Clopyralid**

Clopyralid is active ingredient used in herbicide, such as Transline, recommended for control of selective, post-emergent broad leaf weeds in non-cropland areas including equipment pathways, industrial manufacturing and storage sites, and rights-of-way such as along roadsides, electrical lines, and railroads.

Toxicity data for clopyralid were obtained from the *Ecotoxicity Database* to assess toxicity of clopyralid to freshwater aquatic life. Table D-9 summarizes toxicity data for clopyralid.

Table D-9 Summary of Toxicity Data for Clopyralid (CAS#57754-85-5)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	1978	125,400
	96 hr	1986	4,686,000
Fathead Minnow	96 hr	1986	>2,900,000
Rainbow Trout	96 hr	1978	**103,500**
	96 hr	1986	1,968,000
Lowest LC50/10 = 10,350			
Monitoring trigger after considering both active and the inert ingredients			**2,784**

Ambient Water Quality Criteria are unavailable for clopyralid. Table D-9 shows that the lowest one-tenth of LC50(LC50/10) to protect the most sensitive freshwater aquatic life for clopyralid is 10,350 µg/L.

However, the product Transline Herbicide contains an inert ingredient with an LC50/10 value lower than 10,350 ug/l. To be protective of aquatic life in the receiving water, the monitoring trigger for clopyralid must consider the lowest values of LC50/10 in both the active and inert ingredients and their percentages in the product. Thus, this General Permit contains a calculated value for Instantaneous Maximum Receiving Water Monitoring Trigger of 2,784 ug/l for clopyralid when Transline Herbicide is used.

d. **Glyphosate**

Glyphosate is a broad-spectrum, non-selective systemic herbicide. It is useful on essentially all annual and perennial plants including grasses, sedges, broad-leaved weeds and woody plants. It can be used on non-cropland and among a great variety of crops.

Glyphosate is usually formulated as an isopropylamine salt. Considerable research has shown that glyphosate inhibits an enzyme pathway, prevents plants from synthesizing three aromatic amino acids. These amino acids are essential for growth and survival of most plants.

U.S. EPA has promulgated a primary maximum contaminant level of 700 µg/L for glyphosate for protection of drinking water sources or water bodies with an MUN designation. This number is protective of all beneficial uses in the receiving water. Thus, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 700 ug/l based on U.S. EPA's primary maximum contaminant level.

e. **Imazapyr**

The active ingredient, imazapyr, is marketed in compounds by the trade names, Arsenal, Chopper, and Assault. Upon contact, imazapyr can interfere with DNA synthesis and cell growth of the plants. The target weed species are grasses, broadleaves, vines, brambles, shrubs and trees, riparian and emerged aquatics. The result of exposure is death of new leaves. It was first registered in the United States in 1984.

Imazapyr is a slow-acting amino acid synthesis inhibitor. It has an average water half life of four days with photodegradation as the primary form of degradation in water. Imazapyr acts quicker and is less toxic than other low-volume herbicides. According to the San Francisco Estuary Invasive Spartina Project's May 4, 2005 report titled *Use of Imazapyr Herbicide to Control Invasive Cordgrass (Spartina spp.) in the San Francisco Estuary*, imazapyr in water rapidly degrades via photolysis. The report further states that a number of field studies demonstrated that imazapyr rapidly dissipated from water within several days, no detectable residues of imazapyr were found in either water or sediment within two months; and in estuarine systems, dilution of imazapyr with the incoming tides contributes to its rapid dissipation suggesting that imazapyr is not environmentally persistent in the estuarine environment and does not result in significant impacts to water quality. The report concludes that imazapyr herbicides can be a safe, highly effective treatment for control and eradication of non-native *Spartina* species in the San Francisco Estuary and offers an improved risk scenario over the existing treatment regime with glyphosate herbicides. On August 30, 2005, DPR registered imazapyr for aquatic application in aquatic pesticides.

Toxicity data for imazapyr were obtained from the *Ecotoxicity Database* to assess toxicity of imazapyr to freshwater aquatic life. Table D-10 summarizes toxicity data for clopyralid.

Table D-10. Summary of Toxicity Data for Imazapyr (CAS#81334-34-1)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Water Flea	48 h	1983	N/A
	21 d	1988	N/A
Rainbow Trout	96 h	1983	**>100,000**
	96 h	1995	>110,000
Lowest LC50/10 = 10,000			

Ambient Water Quality Criteria are unavailable for imazapyr. Table D-10 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for imazapyr is 10,000 µg/l.

Due to its safe use in the environment, low toxicity to aquatic life as indicated in the *Ecotoxicity Database* and a report by the San Francisco Estuary Invasive Spartina Project, this General Permit does not have a monitoring trigger for imazapyr. However, this General Permit requires monitoring when an imazapyr-containing product is used.

f. **Triclopyr Butoxyethyl Ester (BEE)**

Triclopyr BEE is an active ingredient in selective foliar- and root-absorbed, translocated herbicide used for control of woody and broadleaf plants along rights-of-way, in forests, on industrial lands, and on grasslands and parklands. On an acute basis, triclopyr BEE is moderately to highly toxic to freshwater fish and highly toxic to estuarine/marine fish. The compound has little if any potential to accumulate in aquatic organisms. However, triclopyr BEE releases the degradation byproduct, 3,5,6-trichloro-2-pyridinol (TCP), which is considered to be persistent in aquatic environments and considered to have slight to moderate acute toxicity to freshwater warm- and cold-water fish species.

Toxicity data for triclopyr BEE were obtained from the *Ecotoxicity Database* to assess toxicity of triclopyr BEE to freshwater aquatic life. Table D-11 summarizes toxicity data for Triclopyr BEE.

Table D-11. Summary of Toxicity Data for Triclopyr BEE (CAS#64700-56-7)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 h	1973	1,460
	24 h	1991	1,300
	96 h	1993	**360**
	96 h	1994	440
Fathead Minnow	24 h	1980	2,400
	24 h	1981	2,310
Rainbow Trout	96 h	1973	1,290
	24 h	1991	<2,700
	96 h	1992	650
	96 h	1994	980
Lowest LC50/10 = 36			

Ambient Water Quality Criteria are unavailable for triclopyr BEE. Table D-11 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for triclopyr BEE is 36 µg/l.

Therefore, this General Permit contains an Instantaneous Maximum Receiving Water Monitoring Trigger of 36 ug/l based on the lowest one tenth of LC50 from the *Ecotoxicity Database*.

g. **Triclopyr Triethylamine Salt (TEA)**

Triclopyr TEA is a systemic herbicide used on rice, rangeland and pasture, rights-of-way, forestry and turf, including home lawns, for control of broadleaf weeds and woody plants. There are currently 24 products containing triclopyr triethylamine salt (TEA). Triclopyr TEA was first registered on May 8, 1979 as an herbicide on non-crop areas and in forestry use for the control of broadleaf weeds and woody plants.

U.S. EPA concluded in its RED documentation that triclopyr TEA is practically non-toxic to freshwater fish and aquatic invertebrates on an acute basis and triclopyr TEA is slightly toxic to practically non-toxic to estuarine/marine fish and invertebrates on an acute basis.

Triclopyr produce the metabolite or degradate 3,5,6-trichloro-2-pyridinol (TCP). TCP Based on its analysis, U.S. EPA concludes that the existing uses of triclopyr are unlikely to result in acute or chronic dietary risks from TCP. Based on limited available data and modeling estimates, with less certainty, the U.S. EPA concluded that existing uses of triclopyr are unlikely to result in acute or chronic drinking water risks from TCP.

Toxicity data for triclopyr TEA were obtained from the *Ecotoxicity Database* to assess toxicity of triclopyr TEA to freshwater aquatic life. Table D-12 summarizes toxicity data for Triclopyr TEA.

Table D-12. Summary of Toxicity Data for Triclopyr Triethylamine Salt (CAS#57213-69-1)

Type of Organism	Study Length	Study Date	LC50 (µg/L)
Bluegill Sunfish	96 hr	1978	891,000
	96 hr	1973	471000
Fathead Minnow	96 hr	1978	947,000
	96 hr	1983	546,000
	96 hr	1983	279,000
Grass Shrimp	14 d	1992	326,000
Pink Shrimp	96 hr	1975	895,000
Rainbow Trout	96 hr	1973	**240,000**
	96 hr	1978	552,000
Lowest LC50/10 = 24,000			

Due to its safe use in the environment, low toxicity to aquatic life as indicated in the *Ecotoxicity Database* and a concluded by U.S. EPA, this General Permit does not have a monitoring trigger and does not require monitoring for tryclopyr TEA.

Summary of Receiving Water Monitoring Triggers

Table D-13 below summarizes the Receiving Water Monitoring Triggers and controlling water quality criteria and standards for all insecticides and herbicides active ingredients.

Table D-13. Summary of Receiving Water Monitoring Triggers

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
Insecticide Active Ingredients			
Acetamiprid	µg/L	6.6	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Carbaryl	µg/L	2.53	California Department Fish and Game Criterion
Pyrethrins	µg/L	0.14	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Dinotefuran	µg/L	79	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Cyfluthrin	µg/L	0.00022	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Imidacloprid	µg/L	3.8	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Naled	µg/L	0.014	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Herbicide Active Ingredients			
Clopyralid	µg/L	2,874	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Glyphosate	µg/L	700	U.S. EPA primary MCL for protection of drinking water quality
Triclopyr Butoxyethyl Ester	µg/L	36	U.S. EPA Office of Pesticides *Ecotoxicity Database*

Acute and Chronic Toxicity

The narrative toxicity objective contained in the Regional Water Boards' Basin Plans states that "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." For compliance with that objective, this General Permit contains a receiving water limitation for toxicity and requires the Discharger to implement BMPs to identify corrective actions to reduce or eliminate any toxicity caused by biological and residual pesticides from spray applications for pest control.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the State and Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment C) for this General Permit establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the requirements contained in the Monitoring and Reporting Program for discharges of biological and residual pesticides from spray applications for pest control.

A. **Effluent Monitoring**

Pursuant to the requirements of 40 C.F.R. § 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and assess the impacts of the discharge on the receiving water and groundwater.

The application of pesticides for pest control is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S. EPA* decision and other applicable case law. The regulated discharge is the discharge of biological and residual pesticides. At what point the pesticide becomes a residue is not precisely known. Therefore, in the application of pesticides, the exact effluent is unknown. Thus, effluent monitoring requirement is not applicable for pesticide spray applications.

B. **Toxicity Testing Requirements**

The State Water Board, pursuant to the Porter-Cologne Act and the federal Clean Water Act, customarily requires the discharger to conduct toxicity monitoring. In fact, both Acts anticipate discharger self-monitoring. For purposes of this General Permit, the State Water Board will require some monitoring by Dischargers, but will initially fund toxicity studies using funds available to the Board. This decision is based on the unique circumstances of these permits; the fact that inactive ingredients are customarily inert; that available data to DPR indicate the inactive ingredients are unlikely to be toxic in toxic amounts; the unique purposes and application of these pesticide discharges; and the public health benefits for the pesticide application. The General Permit will include a reopener in the event subsequent studies indicate the presence of toxicity.

C. **Receiving Water Monitoring**

Receiving water monitoring is necessary to determine the impacts of the discharge on the receiving stream.

All testing for both toxicity and individual chemicals have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty. The intent of this General Permit's sampling program is to select a number that will detect most events of noncompliance without requiring needless or burdensome monitoring.

Table 3-1 of the EPA Region 9 and 10 Toxicity Training Tool provides guidance on the selection of the appropriate sample number. It shows that six is the minimum number of samples where there is about a 50 percent chance of detecting at least one toxic event for the three probabilities of occurrence shown on the table.

Staff also used EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) to determine the appropriate number of samples that would be needed to characterize the impacts of the residual pesticide discharge from pesticide applications. Page 53 of the TSD recommends using a coefficient of variation (CV) 0.6 when the data set contains less than 10 samples. Table 3-1 of the TSD shows that with a CV of 0.6, the multiplying factors used to determine whether a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a State water quality standard begin to stabilize when the sample number is six. Thus, this General Permit requires six samples to characterize the effects of residual pesticide discharge from pesticide applications.

VIII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. § 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. § 122.42, are provided in Attachment B. The Discharger must comply with applicable standard provisions and with those additional conditions that are applicable under 40 C.F.R. § 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the General Permit.

Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. § 123.25, this General Permit omits federal conditions that address enforcement authority specified in 40 C.F.R. § 122.41(j)(5) and (k)(2) because the enforcement authority under the California Water Code is more stringent. In lieu of these conditions, this General Permit incorporates by reference California Water Code section 13387(e).

B. Reopener Provisions

1. The reopener provisions allow the State Water Board to reopen the permit in accordance with 40 C.F.R. § 122.62.
2. Conditions that necessitate a major modification of a permit are described in 40 C.F.R. §122.62, including
    a. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments

thereto, this General Permit may be reopened and modified in accordance with the new or amended standards.

b. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

3. **Acute and Chronic Toxicity.** If the State Water Board revises its toxicity control provisions that would require new implementation procedures including the establishment of numeric chronic toxicity limitations, this General Permit may be reopened to include numeric acute and chronic toxicity receiving water limitations based on the new provisions.

4. **Receiving Water Limitations.** This General Permit may be re-opened to add receiving water limitations if the monitoring result for residual pesticides specified in the Table 4 exceed the associated monitoring trigger.

5. **Endangered Species Act.** If U.S. EPA develops biological opinions regarding pesticides included in this General Permit, this General Permit may be re-opened to add or modify Receiving Water Limitations/Monitoring Triggers for residual pesticides of concern, if necessary.

6. **Pesticide Products.** This General Permit may be re-opened to add additional pesticide products registered by DPR.

7. This General Permit may be reopened and modified to incorporate toxicity monitoring requirements if the State Water Board-funded toxicity study demonstrates probable toxicity for particular pesticide ingredients. The State Water Board will consider any potential reopener, at a board meeting, no later than December 31, 2012. Staff will use “Alternative D” of the toxicity testing requirements from the March 1, 2011 public meeting as a template for toxicity testing requirements in any proposed reopener.

IX. PUBLIC PARTICIPATION

The State Water Board is considering the issuance of WDRs that will serve as a general NPDES permit for pesticide spray applications. As a step in the WDR adoption process, the State Water Board staff has developed tentative WDRs. The State Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The State Water Board has notified interested agencies, parties, and persons of its intent to prescribe general WDRs for pesticide spray applications and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided to interested parties through specific mailings, distribution through publication in major newspapers throughout California.

B. **Written Comments**

Interested persons were invited to submit written comments concerning these tentative WDRs. Comments were due at the State Water Board offices by 12:00 p.m. on December 16, 2010. Ninteen comment letters and 118 form letters (emails with the same comments) were received.

C. **Public Hearing and Meeting**

The State Water Board held a public hearing on the tentative WDRs during its regular Board meeting on November 2, 2010. The State Water Board will consider adoption of the WDRs at a public hearing on the following date, time and location:

Date:	**March 1, 2011**
Time:	9:00 a.m.
Location:	State Water Resources Control Board 1001 I Street Sacramento, CA 95814

Please be aware that dates and venues may change. Our web address is www.waterboards.ca.gov where you can access the current agenda for changes in dates and locations.

D. **Information and Copying**

The tentative effluent limitations, receiving water limitations, and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the State Water Board by calling (916) 379-9152.

E. **Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding this general WDRs and NPDES permit should contact the State Water Board, reference the general WDRs and NPDES permit, and provide a name, address, and phone number.

F. **Additional Information**

Requests for additional information or questions regarding this General Permit should be directed to Jenny Chen at (916) 341-5570 or at hjchen@waterboards.ca.gov.

ATTACHMENT E – LIST OF PESTICIDE PRODUCTS

Product Name/ Trade Name	Active Ingredient	Manufacturer	EPA Number
Insecticides			
DiPel DF Biological Insecticide	Bacillus thuringiensis kurstaki	Valent Biosciences Corp	73049-39
DiPel **Pro** DF Biological Insecticide Dry Flowable	Bacillus thuringiensis kurstaki	Valent Biosciences Corp	73049-39
Entrust	Spinosad Factor A&D	Dow AgroSciences LLC	62719-282
TM Biocontrol	Douglas-fir tussock moth nuclear polyhedrosis virus	Espro, Inc.	27586-1
Fyfanon ULV AG	Malathion	Cheminova, Inc.	67760-35
Dibrom Concentrate	Naled	Chemical Corporation	5481-480 used with SLN CA-860005
GF-120 NF Naturalyte Fruit Fly Bait	Spinosad A and D	Dow AgroSciences LLC	62719-498
Pyganic Crop Protection EC 5.0 II	Pyrethrins	McLaughlin Gormley King Company	1021-1772
Sevin SL Carbaryl Insecticide	Carbaryl	Bayer Environmental Science	432-1227-ZA
Isomate-LBAM Plus	(E)-11-Tetradecen-1-yl acetate and (E,E)-9,11-Tetradecadien-1-yl acetate	ISCA Technologies, Inc.	80286-6AA
Isomate-EGVM	(E.Z)-7,9-Dodecadien-1-yl-Acetate	Pacific Biocontrol Corporation	53575-33
Success	Spinosad A and D	Dow AgroSciences LLC	62719-292
Tristar 30 SG Insecticide	Acetamiprid	Clear Chemical Corporation	8033-94-1001
Safari 20 SG Insecticide	Dinotefuran	Valent USA Corporation	33657-16-59639
Merit 2F	Imidacloprid	Bayer Environmental Science	432-1312
Merit 75 WSP Insecticide	Imidacloprid	Bayer Environmental Science	432-1318
Merit 75 WP	Imidacloprid	Bayer Environmental Science	432-1314
Tempo 20 WP Insecticide	Cyfluthrin	Bayer Healthcare LLC	432-1302
Tempo SC Ultra Insecticide	Cyfluthrin	Bayer Environmental Science	432-1363
Tempo Ultra WP Insecticide	Cyfluthrin	Bayer Environmental Science	432-1304
Herbicides			
Roundup Pro Concentrate Herbicide	Glyphosate, Isopropylamine salt	Monsanto Company	524-529

Product Name/ Trade Name	Active Ingredient	Manufacturer	EPA Number
Arsenal Herbicide Applicators Concentrate	Imazapyr	BASF Corporation	241-299
Milestone	Aminopyralid	Dow AgroSciences LLC	62719-519
Milestone VM	Aminopyralid	Dow Agrochemicals	62719-537
Milestone VM Plus	TIPA salt of aminopyralid and Triclopyr triethylamine salt of 3,5,6-dichloropyridin-2-carboxylic acid	Dow AgroScineces LLC	62719-572
Transline herbicide	Clopyralid	Dow AgroScineces LLC	62719-259
DuPont Telar XP Herbicide	Clorsulfuron	E.I. Du Pont de Nemours and Co., Inc.	352-654
Roundup weather Max Herbicide	Glyphosate, Potassium salt	Monsanto Company	524-537
Telar DF	Chlorsulfuron	E.I. DuPont de Nemours and Co., Inc.	352-522
Garlon 4	Triclopyr Butoxyethyl Ester	Dow AgroScinences LLC	62719-40

ATTACHMENT F – NOTICE OF INTENT

WATER QUALITY ORDER NO. 2011-0004-DWQ
GENERAL PERMIT NO. CAG990007

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM SPRAY APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. ☐New Applicator B. ☐Change of Information: WDID# ______________________
	C. ☐ Change of ownership or responsibility: WDID# ____________________________

II. DISCHARGER INFORMATION

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Contact Person	H. Email address	I. Title	J. Phone

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Email address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Pesticide residues discharge to (check all that apply):

1. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: ______________________________
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name:______________________________
   Name of the conveyance system: ______________________________
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   ☐ Name of water body: ______________________________

B. Regional Water Quality Control Board(s) where application areas are located
(REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region ______________________________
(List all regions where pesticide application is proposed.)

V. PESTICIDE APPLICATION INFORMATION

A. Target Organisms: ____

B. Pesticides Used: List Name and Active ingredients

C. Period of Application: Start Date________________________ End Date________________________

D. Types of Adjuvants Used:

VI. PESTICIDES APPLICATION PLAN

Has a Pesticides Application Plan been prepared and is the applicator familiar with its contents?
☐ Yes ☐ No

If not, when will it be prepared? ____________________

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☐ Yes ☐ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ YES ☐ NO ☐ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: ___________________________________

B. Signature: _____________________________________ **Date:** _____________________________

C. Title: ____

X. FOR STATE WATER BOARD USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received*:** **$**	**Check #:**

INSTRUCTIONS FOR COMPLETING THE NOI

WATER QUALITY ORDER NO. 2011-0004-DWQ
GENERAL PERMIT NO. CAG990007

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM SPRAY APPLICATIONS

These instructions are intended to help you, the Discharger, to complete the Notice of Intent (NOI) form for the Statewide General NPDES permit. **Please type or print clearly when completing the NOI form**. For any field, if more space is needed, submit a supplemental letter with the NOI.

Send the completed and signed form along with the filing fee and supporting documentation to the Division of Water Quality, State Water Resources Control Board. Please also send a copy of the form and supporting documentation to the appropriate Regional Water Quality Control Board (Regional Water Board).

Section I – Notice of Intent Status

Indicate whether this request is for the first time coverage under this General Permit or a change of information for the discharge already covered under this General Permit. For a change of information or ownership, please supply the eleven-digit Waste Discharge Identification (WDID) number for the discharge.

Section II – Discharger Information

A. Enter the name of the Discharger.
B. Enter the street number and street name where correspondence should be sent (P.O. Box is acceptable).
C. Enter the city that applies to the mailing address given.
D. Enter the county that applies to the mailing address given.
E. Enter the state that applies to the mailing address given.
F. Enter the zip code that applies to the mailing address given.
G. Enter the name (first and last) of the contact person.
H. Enter the email address of the contact person.
I. Enter the contact person's title.
J. Enter the daytime telephone number of the contact person.

Section III – Billing Address

Enter the information **only** if it is different from Section II above.

A. Enter the name (first and last) of the person who will be responsible for the billing.
B. Enter the street number and street name where the billing should be sent (P.O. Box is acceptable).
C. Enter the city that applies to the billing address.
D. Enter the county that applies to the billing address.

E. Enter the state that applies to the billing address.
F. Enter the zip code that applies to the billing address.
G. Enter the email address of the person responsible for billing.
H. Enter the title of the person responsible for billing.
I. Enter the daytime telephone number of the person responsible for billing.

Section IV – Receiving Water Information

A. Check all boxes that apply. At least one box must be checked. Please be reminded that this General Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 et. seq) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 et. seq). This General Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

   1. Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from NMFS (www.nmfs.noaa.gov) for anadromous or marine species or FWS (www.fws.gov) for terrestrial or freshwater species. Check this box if the application area is a canal, ditch or other constructed conveyance system. Print the name of the conveyance system.

   2. Check this box if the application area is not a constructed conveyance system (including application to river, lake, creek, stream, bay, ocean) and enter the name of the water body.

   3. Check this box if the application area is not listed in Items 1 and 2 above. Provide a description of the application area and the names of the water body(s) that pesticide residues discharge to.

B. List all Regional Water Board numbers where pesticide application is proposed. Regional Water Board boundaries are defined in section 13200 of the California Water Code. The boundaries can also be found on our website at http://www.waterboards.ca.gov/waterboards_map.shtml
The numbers with corresponding Regional Water Board names are given below:

Regional Water Board Numbers	Regional Water Board Names
1	North Coast
2	San Francisco Bay
3	Central Coast
4	Los Angeles
5	Central Valley (Includes Sacramento, Fresno, Redding Offices)
6	Lahontan (South Lake Tahoe, Victorville offices)
7	Colorado River Basin
8	Santa Ana
9	San Diego

Section V – Pesticide Application Information

A. Check the appropriate target organism(s).
B. List the name and active ingredients of each pesticide to be used.
C. List the start and end date of proposed pesticide application event.
D. List the name(s) and type(s) of adjuvants that will be used.

Discharger must submit a new NOI if any information stated in this section will be changed. If the Discharger plans to use a pesticide product not currently covered under its Notice of Applicability (NOA), and the pesticide product may discharge to water of the US from spray application, the Discharge must receive a revised NOA from the Deputy Director before using that product.

Section VI – Pesticides Application Plan

The Discharger must prepare and complete a Pesticides Application Plan (PAP). The minimum contents of PAP are specified in the permit under item VIII.C of the General Permit. The Discharger must ensure that its applicator is familiar with the PAP contents before pesticide application.

If a PAP is not complete at the time of application, enter the date by which it will be completed.

Section VII – Notification

Have you notified potentially affected governmental agencies, as required under item VIII.B of the General Permit?

Section VIII – Fee

The amount of Annual fee shall be based on Category 3 discharge specified in section 2200(b)(8) of Title 23, California Code of Regulations. Fee information can be found at http://www.waterboards.ca.gov/resources/fees/docs/water_quality_fee.pdf.

Check the YES box if you have included payment of the annual fee. Check the NO box if you have not included this payment.

NOTE: You will be billed annually and payment is required to continue coverage.

Section IX– Certification

A. Print the name of the appropriate official. The person who signs the NOI must meet the signatory and certification requirements stated in Attachment B Standard Provisions item V.B.
B. The person whose name is printed above must sign and date the NOI.
C. Enter the title of the person signing the NOI.

ATTACHMENT G – NOTICE OF TERMINATION

WATER QUALITY ORDER NO. 2011-0004-DWQ
GENERAL PERMIT NO. CAG 990007

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR BIOLOGICAL AND RESIDUAL PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM SPRAY APPLICATIONS

I. WDID

WDID# ______________________

II. DISCHARGER INFORMATION

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Contact Person	H. Email address	I. Title	J. Phone

III. BASIS FOR TERMINATION

IV. CERTIFICATION

"I certify under penalty of law that 1) I am not required to be permitted under this General Permit No.CAG____, and 2) this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I understand that the submittal of this Notice of Termination does not release a pesticide applicator from liability for any violations of the Clean Water Act."

A. Printed Name: ____________________________________

B. Signature: ________________________________ **Date:** __________________

C. Title: ____

V. FOR STATE WATER BOARD USE ONLY

☐ **Approved** for Termination ☐ **Denied** and Returned to the Discharger

A. Printed Name: ______________________________________

B. Signature: ____

C. Date: ____

NOT Effective Date: / /

DRAFT
THE CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE COMPREHENSIVE PESTICIDE APPLICATION PLAN

for

California Department of Water Resources NPDES Permit

Table of Contents

1. Overview

California's agricultural abundance includes more than 400 commodities. The state produces nearly half of United States grown fruits, nuts, and vegetables. The California Department of Food and Agriculture (CDFA) is tasked with protecting this food supply from the devastating impact of exotic pests and protecting the environment and natural resources from direct pest impacts and increased pesticide use. It is imperative that CDFA maintain a rapid response capability to quickly and safely protect California agriculture and the environment. The ability to act quickly in the event of an invasive insect, disease introduction, or weed infestation allows for localized eradication programs with minimal pesticide use.

Invasive pests are biological organisms that are introduced into an area beyond their natural range and become pests in the new environment. Most introductions have been unintentional and accidental. Having evolved in a different ecosystem, these non-native species may have few natural enemies in their new locations, which can often lead to population increases that can overwhelm native species by out-competing them for resources (e.g., food, water, light, space). Many invasive species are likely to cause economic (including agricultural) or environmental harm or harm to human health. Common traits of invasive pests and pathogens include rapid reproduction, fast growth, wide dispersal, altering of growth or form to suit a particular habitat, tolerating a wide range of environmental conditions and the ability to feed on a variety of different foods.

The mission of the CDFA's Division of Plant Health and Pest Prevention Services (PHPPS) is to protect California from the damage caused by the introduction or spread of harmful plant pests. The California Food and Agricultural Code (FAC) provides more detailed authority for this mission in Division 4, Plant Quarantine and Pest Control (e.g., FAC Sections 5301, 5302, 5322, and 5761).

Many of the control and eradication programs that CDFA undertakes are considered emergencies and are triggered by established Federal protocols. The control and eradication programs are developed based upon input from CDFA professional staff and recommendations from experts familiar with the pest species. A technical working group (TWG) may be established for new pests and all options (pesticidal and non-pesticidal) are considered prior to treatment. The options selected are based upon minimal public intrusiveness, cost & biological effectiveness, and minimal impacts to the environment. Control options can include manual fruit and foliage removal, pheromone mating disruption, sterile insect release, lures and trapping, and biological and traditional chemical pesticides.

The Secretary of CDFA may under the authority set forth in the Food and Agricultural Code, Division 1, Section 403; Division 4, Sections 5321, 5322, 5761, 5762 & 5763 thoroughly investigate the existence and the probability of the spread of a pest and to abate the pest from the established eradication area.

For the purposes of this document, some pest species were grouped together into broad or general control and eradication programs. Groupings were made based on pest species morphological similarities, similar life cycles, and/or similar treatments, methods, or control techniques.

2. Beet Curly Top Virus Control Program

Beet Curly Top Virus Control Program (BCTVCP) is an overall strategy for the statewide control of the sugar beet leafhopper (BLH), *Circulifer tenellus* (Baker), the only known vector of beet curly top virus (BCTV). BCTV is a viral disease of sugar beets, tomatoes, melons, peppers, beans, cucumbers, squash, pumpkins, spinach, vine seed and ornamentals. On an annual basis, the BCTVCP surveys for and monitors the development and movement of the BLH from historical breeding grounds on the west side of the San Joaquin Valley, and portions of the Salinas, Cuyama, Imperial and Palo Verde Valleys. Potential survey areas are not denoted by rigid boundaries, but represent generalized zones where the rangeland topography and weather conditions have been conducive to historical BLH development. The BCTVCP surveys rangeland, oilfields, roadsides and cultivated fallow ground for the presence of BLH populations.

Sweep net surveys determine the size and location of BLH populations during the winter, spring and fall. Control is a year-round effort linked to disrupting the continuity of the BLH's life cycle. Aerial treatments are employed to control BLH populations in rangeland habitat, oil fields and large cultivated fallow fields. Ground-rigs are utilized to spot treat BLH populations developing on host plants along roadsides and right-of-ways within intensive agriculture adjacent to BCTV susceptible crops.

A majority of the aerial applications are conducted in the San Joaquin Valley. The BCTVCP usually conducts three aerial campaigns annually which closely coincide with the reproductive biology of BLH. The winter, spring and fall control periods in the San Joaquin Valley are performed on the west side and southern end of the Valley and are generally performed within three separate geographical areas.

2.1 Statement of Purpose and Need

The purpose is to control the sugar beet leafhopper, *Circulifer tenellus* (Baker). Without the control of BLH, the BCTV would threaten well over three billion dollars of susceptible crops and home gardens.

With only a 1% loss from BCTV in California, it is estimated that during the period 1974-1976, California suffered annual losses of $9.75 million in commercial crops alone. A $2.68 million loss in home gardens can be extrapolated from a 1974 value of $268,199,643 using a 1 percent infection rate. Without control where required, BLH is capable of an infection rate of 10-40 percent or more. Infection rates as high as 80 percent were observed near Huron, CA in 1977.

Were it not for the Program's effective control of BLH and the support of the affected industries, the state and nation would have the potential to lose a substantial portion of its tomato, sugar beet, pepper, bean, melon, squash, cucumber, pumpkin, and spinach crops valued in excess of $1.2 billion annually.

In 2007 the BCTVCP experienced extended delays in Section 7 Consultations and the reauthorization of the Programs pesticide use permit. This resulted in the Program's inability to treat any BLH populations in the spring of 2008. The California Tomato

Growers Association estimated 20 million dollars of damages and subsequent losses directly related to beet curly top virus infection in just processing tomatoes. Hardest hit were organic tomato plantings which have fewer pest management options available to growers to control migrating BLH populations.

2.2 Description of Water Body Systems

The water body systems found within or near historical BLH treatment areas include moving water bodies, still water bodies and canals.

2.2.1 Central Valley RWQCB #5F

Moving water bodies: Zapatos Creek, Jacalitos Creek, Warthan Creek, Los Gatos Creek, Salt Creek, Cantua Creek, Big and Little Panoche Creeks, and Ortigalita Creek. These water bodies are fairly small, seasonally ephemeral, streams in western Fresno and Merced Counties. In Kern County near Maricopa, Bitterwater Creek may contain surface water during spring treatments but remains dry most of the time. These water bodies are found within the Program's winter/spring survey and aerial treatment areas and would be the most likely source of potential water sampling sites.

Major Canals: California Aqueduct, Delta Mendota Canal

Still water bodies: Little Panoche Reservoir, Los Banos Reservoir

Ground-rig only survey/treatment area: A ground-rig only area is designated in western San Joaquin, Stanislaus and Merced Counties. Ground-rig spot treatments in this area have not been performed for the past 10 years and only minimal applications were made prior to that. Various water bodies and canals are found within the region. Considering the past treatment record, ground-rig spot treatments in this area would continue to be rare and minimal in scope.

2.2.2 Central Coast RWQCB # 3

Aerial treatments have been performed in Monterey County only twice in 33 years (1977 & 2002). The potential for aerial treatment is very low in any given year. In the recent past, ground-rig spot treatments have been occasional and minimal in scope. In 2006, the BCTVCP requested consultation with NOAA Fisheries for the south-central California coastal steelhead. A one-quarter (¼) mile buffer from the Salinas River and tributaries, including agricultural drains and canals, was adopted through consultation for the potential treatment area in Monterey County.

2.2.3 Los Angeles RWQCB # 4

Ground-rig only treatment area: A ground-rig only treatment area is designated in the Cuyama Valley. The Cuyama River is a potential water body in the area. The River can be described as a major wash or flood channel, and is usually dry during the time of year treatments are performed. Ground-rig spot treatments in the Cuyama Valley have been consistent but minimal in scope. Survey and treatment activities are confined to controlling BLH populations within the region under agricultural cultivation.

2.2.4 Colorado River RWQCB #7

The potential for aerial treatment is not nearly as common as aerial treatments in the San Joaquin Valley. Infrequent rains and hot, dry weather makes host plant development on the desert inconsistent and sporadic. Aerial treatments in Imperial Valley have not been performed since 1998.

Ground-rig spot treatments are the most common mode of control and are performed nearly annually within the region under agricultural cultivation. The Program has treated nine times during the past sixteen years. The scope of work is dependent on the weather and the extent of roadside weed control and development.

Moving water bodies: Colorado River, San Felipe Creek, Alamo River System, New River System and drains flowing directly into the Salton Sea.

Major Canals: Westside & Central Main Canals, East Highline Canal and All American Canal.

Still Water Bodies: The Salton Sea

<u>Ground-rig only</u> treatment area: A ground-rig only treatment area is designated in the Palo Verde Valley. The Colorado River is the most noticeable water body in the area in addition to canals. The frequency of ground-rig only treatments has been rare and minimal in scope. Survey and treatment activities are confined to controlling BLH populations within the region under agricultural cultivation.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. This information will be posted on the CDFA web page and provided electronically to the SWB.

2.3 Description of Target Species

The BLH is a desert insect introduced from the Middle East, probably in the late 1800's. Years with below normal precipitation provide favorable environmental conditions for the growth and reproduction of BLH populations; which in turn, increases the potential for the spread of BCTV and its devastating effects within the agricultural economy. In 1919, BLH and BCTV nearly destroyed the sugar beet industry. From that experience emerged a concerted effort by private, state and federal researchers to design control methods that would minimize BCTV incidence. After extensive research over a period of several years in California, it was found that BLH populations migrated between the valleys and the foothills. At times they concentrated on particular native and introduced non-crop host plants, mostly in rangeland and situations marginal to agricultural lands. It was apparent that once breeding grounds and migration patterns were determined, effective control efforts could be economically performed.

The sugar industry in California originally carried out control until the realization arose that a number of other important crops were susceptible to infection. As the other susceptible crops, such as tomatoes, melons, and beans, increased in acreage, sugar beet growers found control work becoming futile. This was because of the migratory nature of BLH and the fact that the main breeding grounds were in uncultivated foothill areas under the jurisdiction of disinterested parties. Private growers and industry could not pursue the insect into these breeding grounds where control was most effective.

In 1943, the State of California, Department of Food and Agriculture, assumed full responsibility for the control of BLH. The Program is presently 100% funded through individual grower assessments.

The BLH prefers habitats and environmental conditions that produce sparse open vegetation. In years with above normal rainfall, BLH populations are generally limited. Lush rangeland vegetation reduces optimum breeding acreage and concentrates BLH populations into smaller areas. In years with below normal precipitation, sparse rangeland vegetation increases optimum breeding acreage and the potential for developing a large BLH population. In periods of drought (successive years of below normal rainfall) a significant reduction in rangeland vegetation leads to a temporary decline in BLH populations and a reduction in treatment activities.

On an annual basis, the BCTVCP surveys for and monitors the development and movement of the BLH from historical breeding grounds on the west side of the San Joaquin Valley, and portions of the Salinas, Cuyama, Imperial and Palo Verde Valleys. Potential survey areas are not denoted by rigid boundaries, but represent generalized zones where the rangeland topography and weather conditions have been conducive to historical BLH development. The BCTVCP surveys rangeland, oilfields, roadsides and cultivated fallow ground for the presence of BLH populations.

2.4 Description of Pesticide/Treatment

The Program uses Fyfanon ULV AG (67760-35) for both aerial broadcast and ground-rig spot applications. The malathion product is diluted with water at a rate of 7.7 ounces of product per gallon of mix. The dilute mix is applied by aircraft, or ground-rig, to BLH host plants at a rate of one gallon mix per acre. The Program also utilizes a spreader-sticker and a buffering agent. On rare occasions spray oil is also incorporated into the mix. Mix is described below:

		7.70 ounces of 96.5% malathion
	+	120.22 ounces water (water is buffered as needed)
	+	0.08 ounces spreading agent
Total Mix	=	128.00 ounces of mix applied per acre

The active ingredient (a.i.) application rate is 0.595 lbs. (a.i.) malathion/acre; or 54 mg (a.i.) malathion/sq. meter.

Aerial treatments are employed to control BLH populations in rangeland habitat and large fallow fields. Ground-rigs are used to spot treat migrating BLH populations on weed host plants along roadsides or ditch banks. General ground-rig spot treatments target BLH host weeds in agricultural areas where BCTV susceptible crops are grown adjacent to rangeland breeding grounds.

2.4.1 Aerial Treatment

The majority of acreage selected for pesticide application to control BLH populations is treated using fixed winged aircraft on the Westside of the San Joaquin Valley. To aid in the accuracy and efficiency of the pesticide applications, a global positioning system (GPS) is used to pre-identify swath applications and treatment polygons. Additionally, Program personnel are present on the ground in vehicles to mark, direct and validate the aircraft starting and cut off points.

To assist aerial treatment, BCTVCP personnel on the ground visually verify the starting point and can communicate that position using ground-to-air radio. The treatment “polygons” are pre-set into the aircraft GPS flight recording/guidance system. The pilot sets a starting point into the on-board GPS unit. This starting point can be adjusted while flying. A second point is set, establishing an “A-B” line. The on-board GPS unit then generates 100-125 feet parallel interval treatment swaths, from that “A-B” line, to the end of the polygon. If necessary, BCTVCP ground personnel can direct the final swath by position of a vehicle or visual landmark.

In the rare event of GPS failure or GPS cannot be used, flag-persons are placed at each end of the swath and/or at intervals in the swath line. The flaggers keep the aircraft in line by waving a flag or providing the pilot a bright flash of light from either a signal mirror or powerful spotlight.

When fixed-wing aircraft are utilized, the fuel truck and mixing vehicles are located at a landing strip. Extra personnel on the ground are utilized in areas where constant surveillance is necessary to minimize accidental exposure to people, water sources or to assist in flagging sensitive habitat boundaries. Within 72 hours after application is completed, post-treatment checks are made to assure depopulation of the BLH infestation has been achieved.

2.4.2 Ground-rig Spot Treatments

Ground-rigs are used to spot treat migrating BLH populations on weed host plants along roadsides or ditch banks. General ground-rig spot treatments target BLH host weeds in agricultural areas where BCTV susceptible crops are grown adjacent to rangeland breeding grounds. The size and locations of ground-rig treatments in cultivated areas are related to the size and location of BLH populations migrating from adjacent rangeland habitat.

A ground-rig is typically a four-wheel drive pickup truck with an engine-powered blower mounted in the truck bed. Insecticide mix is injected into the air stream of the blower nozzle. The blower nozzle can rotate up and down 180°. The swath width is adjustable to the width of the area containing roadside host plants and averages 20 to 25 feet wide. The vehicle typically operates at a speed of approximately 10 mph. The blower is equipped with drip less nozzles and electric cutoff for precise control of spray. All controls are inside the cab where the operator can:

- start and stop the blower engine
- turn the spray nozzle on and of
- control the direction of the blower

The malathion is mixed and applied at the same rate utilized in aerial applications.

2.5 Alternatives

2.5.1 No Action

Under the No Action alternative, CDFA would not control BLH. Without annual control, BLH populations and the spread of BCTV would increase in susceptible crops. There is a potential for millions of dollars in losses each year due to the infection of BCTV in susceptible crops.

Regional control of BLH populations would be replaced by local control performed by private growers in rangeland adjacent to their property. It is expected that pesticide use would increase in crop lands to control BLH populations migrating from uncontrolled rangeland habitat. The production of BCTV susceptible organic crops would be nearly impossible in croplands close to historical BLH breeding grounds.

2.5.2 Increase Ground-rig/ Reduced Aerial

Control the sugar beet leafhopper, *Circulifer tenellus*, using a combination of mostly ground spray rigs and minimal aircraft, and; or ground-rigs only - no aircraft.

This alternative considers the use of malathion with aircraft, in areas inaccessible by wheeled vehicles and the use of spray-rigs using malathion mounted on wheeled vehicles, in areas where they are able to negotiate the terrain.

Ground-rig treatments would include roadsides, fallow fields and vehicle accessible rangeland. Treatment of rangeland would be performed using the same methods as ground-rig use in fallow fields. Aircraft use would be limited to areas inaccessible by wheeled vehicles, or not used at all.

This would be a very inefficient way to treat the large acreages of BLH breeding grounds. BLH populations would not be controlled in some terrains. The simple act of ground-rigs traversing the terrain would most likely result in an increase in damage to listed species habitat.

There are large tracts of public and state lands with strict restrictions pertaining to the use of cross-country-motorized vehicles. In the desert areas, large tracks of BLM land is designated *Limited and Moderate (L&M)* use in which cross-country travel is prohibited. Within the Carrizo Plain Natural Area and on NPR-#2, motorized vehicle use is limited to designated routes of travel. Lands administered by the State of California including the

Department of Water Resources, Department of Parks and Recreation and the Department of Fish and Game, place restrictions on motorized vehicles use. These types of vehicle restrictions would severely limit ground-rig treatments.

2.5.3 Biological Control

As an alternative to insecticides, the BCTVCP funded research to explore the prospects for utilizing egg parasites to control BLH. From 1989 through 2002, approximately $830,000 of research was contracted by the BCTVCP to develop a classical biological control strategy. Nine species of BLH egg parasites were initially imported from Turkmenistan and Iran, to be cultured. Eight of the nine parasite species were successfully cultured and mass reared in the University of California at Riverside insectary. A total of 109,100 adult parasites have been released since 1996 in BLH overwintering and spring breeding habitats.

Host Exposure and Vegetation Sampling methods were used to assess parasitism in the field as well as providing a measure of the relative effectiveness of each individual introduced parasite species. While imported parasite species were shown to be established, none demonstrated a classical biological control response on BLH populations in the areas where established. BLH populations were not reduced enough to limit BCTV infections below significant levels of damage. The feasibility of using indigenous parasites in augmentative releases was briefly considered as an alternative control strategy. However, the large costs associated with producing large numbers of native parasites in the laboratory makes augmentative releases of native parasites impractical.

Given the release of over 100,000 imported egg parasites, researchers agree there has been a reasonable opportunity for these imported parasite species to demonstrate a classical biological response by impacting BLH populations where they were established. None have done so to date. In November 2001, the Curly Top Virus Control Board recommended the funding of biological control research be suspended.

2.5.4 Eradication of all BLH Rangeland Hosts Plants

The BLH utilizes many species of host plants for food and/or ova-position sites. The elimination of all host plant species would include native and introduced species, and would have a major impact on the rangeland ecosystem and to grazing animals and wildlife that utilize many BLH host plants. A few host plants are rare and threatened species. The distribution and diversity of host plant species would make the eradication of BLH host plants practically impossible, extremely costly, and environmentally devastating.

2.5.5 The Use of Alternative Pesticides

No other pesticide is currently registered for use in California for control of BLH in rangeland on wild host plants.

3. Fruit Fly Control Program Overview

Exotic subtropical and tropical fruit flies are of concern to the agriculture industry in California. The larval (maggot) stage of fruit flies such as Mediterranean fruit fly (Medfly), Mexican fruit fly and oriental fruit fly can damage most of the fruits and vegetables grown in our state. These and other exotic fruit fly species have not become established in California due to (1) strict federal exterior and state interior quarantines, (2) a pest detection program, and (3) aggressive eradication programs when an infestation is discovered. The lone exception is olive fruit fly, *Bactrocera oleae*, which was first discovered in 1998 and has since spread throughout the State. Fortunately, this fly only affects a single crop, namely olives.

Due to California's moderate climate, availability of host plants, agricultural and residential plantings, international trade patterns and culturally diverse population demographics, the risk of introduction and establishment of exotic fruit flies in the State is very high. The California exotic fruit fly detection program is a cooperative effort between the CDFA, the United States Department of Agriculture (USDA) and the California county agricultural commissioners. The detection program is designed to trap new introductions of target flies as they occur and before they become breeding populations. The trapping program provides assurance to California's trading partners that the State is free from these economically damaging pests.

3.1 Statement of Purpose and Need

Subtropical and tropical fruit flies represent a major threat to California's agriculture. The damage caused by larval feeding makes fruit unfit for human consumption. In addition, the presence of an established population would cause a severe economic impact via restrictions/prohibitions on the export of fresh fruit both domestically and internationally. The crops potentially affected in California are many and comprise a significant portion of the total agricultural output for the state. For example, the combined gross value of major crops in California affected by exotic fruit flies was over $13.7 billion in 2008 (USDA NASS 2009a), or approximately 30% of the state's total gross agricultural value of $45.6 billion (USDA NASS 2009b).

In California, a series of federal and state plant quarantine laws and regulations are enforced to restrict the entry and movement of commodities capable of harboring targeted plant pests and to ensure the success of any needed eradication or control efforts. This approach of prohibiting or restricting the movement of plants, plant products, or other commodities capable of harboring exotic plant pests is done in the interest of food security, protection of our natural resource base, and the maintenance of our industry's competitive trade advantage.

The purpose of this program is to suppress and eradicate the targeted fruit flies. In the event of a successful fruit fly introduction, the Secretary of CDFA will adopt regulations establishing an exotic fruit fly eradication area and if needed, will adopt regulations establishing a quarantine area. At that time the CDFA will have certain responsibilities. Generally, CDFA will be responsible for trapping, larval survey, insect identification services, treatment notification, treatment, quarantine enforcement, CDFA administration and public relations. In 2009, there were 84 exotic fruit fly adults representing eight species captured in 10 California counties. These detections triggered delimitation trapping programs and 11 eradication projects.

3.2 Description of Water Body Systems

The CDFA has statewide responsibility for minimizing the impact of invasive insect pests in California. Treatment locations may vary due to the transient nature of insect pests; therefore it is not possible to forecast when and where treatments will occur.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of Environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

Water contact is not anticipated for *Bactrocera* MAT treatments in public right of way street trees and utility poles. Due to the precise application practices, e.g., measured spray gel applications from a vehicle window and made only when the vehicle is at full stop, and the treatment area, e.g. applications made in the urban environment and applications not made to; near or over water, it is highly unlikely that the viscous and heavy material will drift. Material does not form droplets.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

3.3 Description of Target species

The fruit flies (family Tephritidae) of most concern are a group of small (1/5" to 1/3") to medium-sized (3/4") flies, with general body coloration that can be in the red, orange, yellow or black ranges. Their wings generally have brownish streaks and may also display scattered dark spots. There are four life stages: adult; egg; larva; and pupa (puparium).

The eggs of these flies are slender, white and have an elliptical shape, and are typically laid in batches of 3 to 40, under the skin of the host fruit. The larvae (the maggots in the fruit) are cylindrical in shape, approximately ½" long and creamy white in appearance. The contents of their guts are often visible through their skin, and large numbers can colonize the flesh of individual host fruits. Some species will attack flowers and plant stems as well. The puparium (pupa case) can be colored either dull white, dark brown or black. It is just over an inch long and usually found in the soil from 2" to (rarely) 6" deep.

There are thousands of flies in the Tephritidae and many are of agricultural concern. They are small flies and due to their larval feeding habits can be transported into California without detection. The following is a list of several fruit flies that CDFA is monitoring for, however it is not inclusive of any future infestation. CDFA could potentially be engaged in trapping and eradication if any new or previously unknown fruit fly is introduced into California.

3.3.1 Mediterranean Fruit Fly

The Mediterranean fruit fly, *Ceratitis capitata*, (Medfly) is a short, squat fly about 1/4 inch in length (Fig. 1). It has a blackish thorax marked with silver; a tan abdomen with darker stripes extending across the abdomen; and clear wings with two light brown bands across the wing, another along the distal front edge, and gray flecks scattered near the base. The immature stages are superficially similar to those of other exotic fruit flies (Fig. 2). Eggs are white, very small, elongate, and somewhat banana-shaped. Larvae are white, legless, and somewhat carrot-shaped. The pupa is contained inside an elongate oval, shiny brown, hard puparium

The life cycle of the Medfly begins when the adult female pierces the skin of fruits and vegetables and lays from one to ten eggs per fruit. The eggs hatch and develop into maggots, which feed on the fruit pulp. Decaying, infested fruit usually falls to the ground and the maggots leave the fruit and burrow into the ground to pupate. Adult Medflies emerge from the ground and mate, completing the cycle. Adults can live up to two months. The total time from egg to adult can vary from five weeks to five months, depending on temperature

The Medfly has the widest host range of any pest fruit fly and is considered the most important agricultural pest in the world. It has been recorded infesting over 300 fruit, nuts and vegetables, making them unfit for human consumption.

A great number of crops in California are threatened by the introduction of this pest: including apple, apricot, avocado, bell pepper, fig, grape, grapefruit, lemon, lime, melon, nectarine, orange, peach, pear, persimmon, plum, pomegranate, tangerine, tomato and walnut.

Establishment of these flies would cause direct economic losses via damaged fruit, increased pesticide use statewide by commercial and residential growers in efforts to lessen this damage, loss of revenue due to export restrictions on fruit both domestically and internationally, and adverse impacts on native plants through the destruction of their fruit. A permanent infestation would result in estimated annual losses of $1.3 to $1.8 billion.

3.3.2 Oriental Fruit Fly Complex

Adults of species in the oriental fruit fly complex, *Bactrocera dorsalis* complex, are somewhat larger than a housefly, about 8 mm in length. The body color is variable but generally bright yellow with a dark "T" shaped marking on the abdomen. The wings are clear. The female has a pointed slender ovipositor to deposit eggs under the skin of host fruit. Eggs are minute cylinders laid in batches. The maggots (larvae) are creamy-white, legless, and may attain a length of 10 mm inside host fruit.

Females lay eggs in groups of three to 30 under the skin of host fruits; the female can lay more than 1,000 eggs in her lifetime. Time taken for development depends on the ambient temperature. Maggots tunnel through the fruit feeding on the pulp, shed their skins twice, and emerge through exit holes in approximately 10 days. The larvae drop from the fruit and burrow two three cm into the soil to pupate. In 10 to 12 days, adults emerge from these puparia. The newly emerged adult females need eight to 12 days to mature sexually prior to egg laying. Breeding is continuous, with several annual generations. Adults live 90 days on the average and feed on honeydew, decaying fruit, plant nectar, bird dung and other substances. The adult is a strong flyer, recorded to travel 30 miles in search of food and sites to lay eggs. This ability allows the fly to infest new areas very quickly.

Oriental fruit fly has been established in Hawaii since 1946 where it is a major pest of agriculture, particularly on mangoes, avocados and papayas. Maggots have been found in over 125 kinds of fruit and vegetables in Hawaii alone. A great number of crops in California are threatened by the introduction of this pest, including pears, plums, cherries, peaches, apricots, figs, citrus, tomatoes and avocados. It has been estimated that the cost of not eradicating Oriental fruit fly in California would range from $44 to $176 million in crop losses, additional pesticide use, and quarantine requirements. Oriental fruit fly has been introduced into California a number of times through the movement of infested fruits and vegetables into the state. Although infestations have occasionally been found in California, these have all been successfully eradicated.

In excess of 230 fruits and vegetables have been attacked. Fruit that has been attacked may be unfit to eat as larvae tunnel through the flesh as they feed. Decay organisms enter, leaving the interior of the fruit a rotten mass.

3.3.3 Melon Fly

The adult melon fly, *Bactrocera cucurbitae,* is approximately the size of a house fly, about 6 to 8 mm long. The body is mostly orange-brown with a faint black T-shaped mark on the abdomen, and the clear wings have a large brown spot at the tip and a brown stripe at the hind edge in addition to lighter striping along the leading edge of the wing and near the base. The female has a short tube at the end of its body through which the pointed ovipositor can be extruded. The maggots (larvae) are creamy-white, legless and attain a length of 10 mm.

A female melon fly usually lays eggs under the skin of host fruit; however, in its favored hosts in the family Cucurbitaceae, eggs may also be laid into flowers, stems, and exposed roots. These eggs hatch into larvae, or maggots, which tunnel through the flesh of the fruit or other plant part. Decay organisms can enter the fruit, leaving the interior of the fruit a rotten mass and making it unfit for consumption. The developing larvae go through three instars. At maturity, the larvae drop from the plant and burrow two to three cm beneath the soil to pupate. Adults later emerge from these puparia and dig their way out of the soil. Breeding is continuous, with several generations possible annually. Completion of the life cycle normally requires one to two months under warm conditions, but may be five to six months under cooler conditions.

The melon fly is native to Asia, but has spread to other parts of the world including Africa and the Pacific Islands. The melon fly was first found in California in 1956 and has been captured sporadically over the years, but all infestations have been successfully eradicated.

3.3.4 Peach Fruit Fly

The adult peach fly, *Bactrocera zonata,* is approximately 6 mm long and reddish-brown with yellowish thoracic markings. The transparent wings have a small brown spot on each tip. The white eggs are 1.1 mm long and 0.2 mm wide. The larva of the peach fruit fly is a creamy-white, legless maggot which grows to a length of seven to 10 mm within the fruit. The larva doubles over and jumps about when disturbed. The pupa is encased in a dark-brown cylindrical puparium about 5.0 mm long.

Peach flies are strong fliers, capable of dispersing more than 15 miles in its search for host plants. It is active throughout the year when temperatures exceed 50° F. Adults appear in early spring, feeding on nectar, plant sap, and decaying fruit. The preoviposition period (including sexual maturation of eight to 16 days) is 10 to 23 days. The female lays an average of 137 eggs in batches of two to nine under the rind of the host fruit. A female can lay up to 93 eggs in one day, and as many as 564 in its lifetime. Under favorable conditions, the eggs hatch into larvae within two days. The larvae feed in the fruit for four to 21 days depending upon temperature. They burrow one to six inches in the ground to pupate. The pupal period varies from four days in summer to over six weeks in winter. It can apparently survive winters in temperate climates. There are several generations a year if conditions are favorable.

Bactrocera zonata is known in India and Southeast Asia as a serious pest of tropical and subtropical fruits. It is one of the three most destructive flies in India, causing crop losses of 25 to 100 percent in peach, apricot, guava and figs. In recent years, it has increased its host range, especially on fruit.

Bactrocera zonata attacks early fruit such as jujube, loquat, peach, and then moves to cucurbits, mango, citrus, guava, pomegranate and sapodilla for the rest of the year. The larvae will normally destroy the interior of the fruit as they feed on the pulp. Conspicuous, unsightly holes are made when the larvae exit for pupation. Damage to the fruit is similar to that caused by the Mediterranean fruit fly and the Melon fly. It has been reared from 33 fruits, a number of which are important commercial crops. It lowers the yield and quality of such fruits as mango, guava, citrus, eggplant, tomato, apple, peach and loquat.

3.3.5 White Striped Fruit Fly

The general appearance of white striped fruit fly (WSFF), *Bactrocera albistrigata,* resembles an oriental fruit fly, but *B. albistrigata* differs from it by the wing pattern and the coloration pattern on the thorax and abdomen. The wing has a brown mark along the front edge which becomes faint at mid length, and then reappears as a light spot at the tip; there are two brown stripes going across the wing, one at the base and one at mid length. The thorax has a yellow scutellum which may have a dark triangle mark anteriorly. The abdomen has a dark stripe down the middle, flanked by two broader stripes at the sides.

No information is available on developmental parameters. Therefore, it is recommended that life cycle projections be based on the known degree day values for the most closely related species, namely oriental fruit fly, *Bactrocera dorsalis*.

WSFF occurs on Christmas Island (a territory of Australia), the Andaman and Nicobar Islands (India), Indonesia (Java, Lombok, Sulawesi, Sumatra), peninsular Malaysia, southern Thailand, and probably northern and western Irian Jaya (Indonesia) (based on misidentifications as *B. frauenfeldi*).

3.3.6 Guava Fruit Fly

The guava fruit fly*, Bactrocera correcta,* is a brightly-colored brown and yellow fly approximately six millimeters (mm) in length. The wings are clear with a yellow spot. The top of the body of both sexes are entirely yellow and the legs mostly yellow. The ovipositor of the female is red and rather short, measuring approximately 3.0 mm when fully extended. Immature stages of *B. correcta* have not been described in the literature.

There is no developmental information on *B. correcta*, but it is probably similar to *B. zonata*. *Bactrocera correcta* lives in the company of *B. zonata* and *B. tuberculata*, feeding on the same fruits.

This fruit fly is strongly attracted to methyl eugenol and is detected in oriental fruit fly detection traps baited with methyl eugenol. *B. correcta* has the potential to become a major pest of citrus, peach, and several kinds of tropical and subtropical fruit hosts.

B. correcta occurs in India, Pakistan, Nepal, Sri Lanka and Thailand.

3.3.7 Mexican Fruit Fly

The adult Mexican fruit fly, *Anastrepha ludens,* is larger than a housefly, about 1.0 cm (0.38 inch) long. The body color is a pale orange-yellow with two to three whitish stripes along the thorax. The wings are clear except for several yellow and brown stripes. The female is distinguished by a long and slender ovipositor which is used to deposit eggs beneath the skin of the host fruit. The maggots (larvae) are legless, and range in color from white to yellowish-white, and grow to a length of 1.0 cm within the host fruit.

Eggs are laid singly or in groups of up to 18, and a female may lay several thousand eggs in her lifetime. Larvae go through three instars and may require from 11 days to over a month to complete development, depending on temperature. At maturity, the larvae exit the fruit and burrow into the soil to pupate. Adults emerge from 12 to 100 days later depending on temperature. Newly-emerged adults usually require from eight to 34 days to mature prior to egg laying. Breeding is continuous with four to six generations a year under optimum conditions.

The Mexican fruit fly was first described in 1863 Central Mexico. In 1927, the Mexican fruit fly was first discovered infesting the Rio Grande Valley of Texas, and by the early 1950s, flies were found along the California-Mexico border. The Mexican fruit fly is an important agricultural pest in Mexico and parts of Central America where it readily attacks citrus, mango, avocado and a wide variety of other fruits. A large number of commercially grown crops in California would be threatened by the introduction of this pest, including peach, avocado, orange, grapefruit and pear. Mexican fruit fly adults have been trapped a number of times in California and several infestations have been eradicated from the state.

3.3.8 Caribbean Fruit Fly

The Caribbean fruit fly, *Anastrepha suspensa,* is about 1/3 inch long. It has a yellow tan body with a black spot on the top of the thorax at the scutellum, and clear wings with a typical brown Anastrepha-type wing pattern with an "S" across the wing (Fig. 1). The female ovipositor is about as long as the abdomen. The immature stages are superficially similar to those of other exotic fruit flies. Eggs are white, very small, elongate, and somewhat banana-shaped. Larvae are white, legless, and somewhat carrot-shaped. The pupa is contained inside an elongate oval, shiny brown, hard puparium.

Females lay eggs singly under the skin of mature to overripe host fruits. Time taken for development depends on the ambient temperature. Maggots tunnel through the fruit feeding on the pulp, shed their skins twice, and emerge through exit holes in 10-14 days. The larvae drop from the fruit and burrow into the soil to pupate. In 10 to 14 days, adults emerge from these puparia. Breeding is continuous, with several generations possible each year.

The Caribbean fruit fly is widespread throughout the West Indies, being reported from the Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, and Puerto Rico. It was present in Florida during the 1930's, but apparently died out. It was rediscovered in south Florida in 1965, and quickly spread throughout much of the state. Its present United States distribution is restricted to central and southern Florida. Adults have been trapped in California six times since 1983.

The Caribbean fruit fly has been recorded infesting a number of cultivated and wild fruit including apple, avocado, bell pepper, carambola, citrus, date palm, guava, kumquat, loquat, mango, papaya, peach, pear, pomegranate, and tropical almond. In California, the combined 2005 gross value of the above hosts was over $2.7 billion (USDA NASS 2006).

3.4 Description of Pesticide Treatment

Responding to a new pest or disease is similar to responding to a fire in that if the response is immediate, it is more effective, less damaging and substantially less costly. This treatment program has been reviewed by CDFA and by the USDA. Both studies determined that the treatment program does not cause any adverse environmental or health risks.

3.4.1 Triggers

The CDFA begins treatment when it determines that an exotic fruit fly infestation exists within the state. For the purposes of this Pesticide Action Plan, an infestation is defined as the discovery of an exotic pest in sufficient numbers such that a breeding population could become established within the state. The criteria below meet this definition. The CDFA may take up to 10 days after a criterion is met to further investigate the presence and location of the infestation in order to more accurately formulate and target response activities. The following are the triggers for all fly species.

1) Two flies within three miles (4.8 km) of each other and within a time period equal to one life cycle of the fly.
2) One mated female (known or suspected to have been mated to a wild male). A single mated female captured during and within an existing preventive release program, in the absence of evidence to the contrary, is treated as if it has mated with a sterile male, and therefore is not an eradication trigger in and of itself.
3) One or multiple eggs, larvae or pupae. Attempts should be made to determine the viability of eggs found within a preventive release area, such as looking for evidence of hatching.

3.4.2 Life Cycle Projections

PD/EP uses computerized weather stations to calculate life cycle projections. These stations may be preexisting ones maintained by another entity (e.g., University of California) or they may be placed by the CDFA for a specific project. These projections are used to time the length of delimitations, eradication treatments, and quarantines. Daily high and low temperatures are taken from the soil and air in the area of interest using a thermograph (data pod) housed in a weather shelter. These data are collected and analyzed on a biweekly basis. The collected temperatures and historical data from several years are entered into a formula to calculate the length of each life cycle based on threshold temperatures and degree day values developed for each species. In the absence of values for a particular species, values for the most closely related species are used. Data pods are often located at the initial fly find site and each additional wild fly site that represents a significantly different environment or core area.

3.4.3 Male Attractant Technique (MAT)

The eradication treatment known as the male attractant technique (MAT) is conducted in an area defined by a 1.5 mile radius from each fly find site, for a minimum of 9 square miles. For methyl eugenol responding flies, approximately 600 small gel-like “bait stations” per square mile are applied to the sides of individual utility poles and street trees on public right-of-ways. These bait stations contain a small amount of a male fruit fly attractant (methyl eugenol), a pesticide, Dibrom® Concentrate Insecticide, and a thickening agent (powdered clay), to lure the sexually mature male flies in the population to bait stations. The bait station will attract and kill male fruit flies before they can breed. In the absence of males, the females go unmated and no offspring are produced, effectively causing the extinction of the population within two life cycles. The attractant is very specific for this group of flies, so much so that other insects such as bees or butterflies will not be harmed because they are not attracted to the lure.

The following treatment specific best management practices are used during MAT applications to mitigate environmental and human health hazards:

1. Crews are equipped with meter-jet guns, these are calibrated prior to use to apply a consistent amount of material.
2. Tally counters are used by applicators to ensure required number of bait stations applied does not exceed 600 per square mile.

3. Products are applied from a closed system.
4. Assignment maps are clearly marked to show buffer areas and water bodies.
5. Applications are made to front yard street trees/utility poles.
6. Crews are supervised for quality control during applications.

The Dibrom® Concentrate is mixed with an approved attractant, methyl eugenol, and after dilution a sufficient amount of Min-u-gel is added to render the mixture adequately viscous to minimize running or dripping when applied.

Bait mixture = 19 oz. Of Dibrom® Concentrate (87.4% A.I. Naled), 1 gallon of Methyl Eugenol and 2 to 3 pounds of Min-u-gel® 400). The finished product is applied by fixed dosage spray gun to allow 5 ml of material at each bait station.

For cuelure responding flies, traps baited with cotton wicks containing cuelure and Dibrom are placed at a rate of 1000 per square mile.

3.4.4 Foliar Treatment – Ground Bait Sprays

Ground bait sprays target the adult flies, in particular females and sexually immature males. The foliage of all shrubs and trees within a 200 meter (656 foot) radius of each infested property is treated with insecticide/bait sprays. Insecticide/bait sprays will be applied at intervals in accordance with efficacy data for the particular chemical used.

The insecticide/bait formulation currently used is: GF-120®NF Naturalyte Fruit Fly Bait, active ingredient spinosad (a mixture of spinosyn A and spinosyn D) 0.02%.

The bait should be applied every 7-10 days. Ground bait sprays are normally conducted so as to result in a minimum of six weeks of active material in the field. Sprays may continue for up to two life cycles at the discretion of project management. Significant rainfall (0.1 inch or more) will justify re-treatment at a shorter interval. Following treatment, completion notices are left with the homeowners detailing precautions to take and post-harvest intervals applicable to any fruit on the property.

3.4.5 Host Removal

If larvae are found, host removal (fruit stripping) may be used in conjunction with other elements of this program. All host fruit from the infested and adjacent properties will be removed and taken to a landfill for burial. If surveys warrant it necessary, fruit removal may be extended up to a 200-meter radius around the infested properties. Affected properties will be notified in writing at least 24 hours prior to removal of the fruit.

3.4.6 Sterile Insect Technique

The purpose of the Mediterranean Fruit Fly Exclusion Program is to prevent the establishment of Medfly colonization by the continuous release of sterile Medflies into the environment. The Mediterranean Fruit Fly Exclusion Program covers a 2,500 square mile area that includes the Los Angeles basin, and portions of Riverside, San Bernardino, and Orange counties. The number of square miles covered in each county is as follows: Los Angeles (1,188), Orange (642), Riverside (270), and San Bernardino (400).

The Mediterranean Fruit Fly Exclusion Program consists of five major components that operate year round: the sterile release of Medflies at the rate of 62,500 flies per square mile over the 2,500 square miles, trapping for detection of wild Medflies at the rate of five Jackson traps and five McPhail traps per square mile with inspections at weekly intervals, larval survey of Medfly host fruits, fly identification by a trained biosystematist, and data management and review to monitor the quality and effectiveness of the Program. The Mediterranean Fruit Fly Exclusion Program is a proactive approach to the control and eradication of Medflies in the United States.

Sterile Medflies for the Mediterranean Fruit Fly Exclusion Program are supplied by the CDFA Medfly rearing facility located in Hawaii and from a USDA rearing facility located in Guatemala. The Mediterranean Fruit Fly Exclusion Program incubates and emerges over 450 million sterile Medfly pupae per week for aerial release. The density of release is no less than 62,500 sterile Medflies per square mile per week, using twice weekly releases of a minimum of 31,250 sterile flies per square mile. The sterile Medflies are released seven days a week by private aircraft and pilots under contract to the USDA. Releases are made along predetermined flight lines using the Global Positioning System (GPS), a satellite navigation guidance and recording system.

The Mediterranean Fruit Fly Exclusion Program efficaciousness is reviewed annually by the Mediterranean Fruit Fly Science Advisory Panel (MedSAP), which is an international group of scientists with extensive knowledge in Medfly exclusion, detection and eradication methods.

3.5 Alternatives

3.5.1 No Action

Under the No Action alternative CDFA would not control fruit flies. Without control, fruit flies would spread to all areas of the state capable of supporting a population. Tropical fruit flies represent a major threat to California's agriculture. They infest a large variety of plants and breed and spread rapidly. Establishment of these flies would cause direct economic losses via damaged fruit, increased pesticide use statewide by commercial and residential growers in efforts to lessen this damage, loss of revenue due to export restrictions on fruit both domestically and internationally and adverse impacts on native plants through the destruction of their fruit. Because of these traits, a rapid response is critical to containing an infestation.

3.5.2 Biological control

Biological control is not effective in Eradication programs. No effective bio-control option is available for this pest that can control the infestation on its own. Biological control, when used in an integrated pest management program can successfully hold pest populations down below economically damaging numbers. In the case of pests that are unacceptable at any level, state or federal agencies must use eradication programs.

3.5.3 Mechanical and Cultural Control

An important way to control pests is by excluding, altering pest life cycles or changing the environment so that it is not suitable for pest survival. CDFA will use these measures when available or justified such as sterile insects, host removal (fruit, flower, foliage) and quarantine.

Initiation of state pest quarantines will limit the un-natural spread of pests, but will not eradicate pests.

Sterile insect release will augment an eradication program, however, colonies for each pest would need to be maintained and made available on short notice to be effective. The *Bactrocera* fruit flies would require years of development and millions of dollars to produce a viable sterile release option for each individual species. There are over 60 species in the oriental fruit fly complex alone.

3.5.4 The Use of Alternative Pesticides

At this time, the pesticides listed above are the only ones registered to control fruit flies. Should additional insecticides become available which meet the program's needs, these will be used in a manner that results in the least amount of material being applied while still achieving the goal of control and containment.

4. Moth Control Program Overview

The Moth Eradication Program is an Emergency Program to eradicate invasive lepidopteran moths. Eradication is based on the realistic evaluation that it may be possible to eliminate the pest threat while populations are still low enough.

CDFA's moth control and eradication programs may use foliar and mating disruption treatment methods. For foliar treatment, it uses spinosad products such as Naturalyte® or Entrust for control or suppression of many foliage feeding pests. *Bacillus thuringiensis kurstaki* (Btk) products such as DiPel®Pro DF and DiPel® DF are used specifically for control of larvae of many species of moths. They do not have significant risk to healthy humans, wildlife, and the environment. Ground sprays will be applied to all host foliage on all infected properties using hydraulic spray or hand spray equipment. Host plant fruit, flower, and foliage removal is also a method considered for moth control and eradication.

Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the homeowners detailing precautions to take and preharvest intervals applicable to any fruit or vegetables on the property.

4.1 Statement of Purpose and Need

The purpose of this program is to control and eradicate damaging, invasive moths. The moths involved in this program are known to cause significant damage to many agricultural commodities and the native environment. Backyard fruit and landscape plantings are at risk and may be used as a reservoir for incipient populations, thereby re-infesting commercial crop producing and/or native forest areas. Eradication, not control, is the overall strategy. Control of populations below the economic threshold will result in outbreaks, and an overall increased use of pesticides in home, commercial crop producing, forested areas. Additionally, fresh fruit will likely face restrictions imposed by some trading partners if eradication protocols are not strictly adhered to.

Invasive moths pose a substantial threat to many California crops. Several of the moths that CDFA is currently monitoring for or actively controlling are among the most devastating invasive moths known and can potentially cause over a billion dollars in cumulative damage

The European grapevine moth (EGVM) is a serious pest in warm vine-growing countries. Grapes are ranked second among agricultural commodities in California. Establishment of this pest can be catastrophic to our vineyards. California’s 844,000 acres of grapes (526,000 acres of wine grape, 93,000 acres of table grape and 225,000 acres of raisin-type grapes) leads the nation in grape production with 89 percent of the total. Losses in Israel due to the EGVM sometimes reach 40 to 50 percent among table grapes and up to 80 percent for wine grapes. Further loss may be caused by the time and labor spent in cleaning the grape bunches.

The light brown apple moth (LBAM) could significantly impact production costs for host plants, by over $100 million. It was estimated for Australia that LBAM causes AU$21.1 million annually in lost production and control costs, or about 1.3% of gross fruit value: for apples, pears, oranges and grapes. Applying this percentage to the 2005 gross value of these same crops in California of $5.4 billion, the estimated annual production costs would be $70.2 million. This estimate does not include economic costs to the nursery industry nor to other significant host crops in California, such as apricots, avocados, kiwifruit, peaches and strawberries. If the same level of costs were incurred by these as for the previous four crops, the additional costs would be $63.1 million, based on their 2005 gross value of $4.8 billion. Therefore, the total lost production and control costs in California could be $133 million for all of the crops mentioned above.

Gypsy moths represent a major threat to California’s agriculture and environment. The larvae are capable of completely defoliating trees when populations are high. This defoliation not only kills and weakens trees, but also alters forest composition and destroys habitat for other animals. Gypsy moth infestations affect recreational use of forests, parks, and backyards. Swarms of caterpillars discourage tourism and many other outdoor activities. In urban areas, the economic impact includes clean-up costs, tree replacement costs and loss of property values. The combined gross value of timber and other forestry products in California was over $350 million in 2008 (USDA NASS 2009a, 2009b).

The false codling moth (FCM), if established in California would result in significant economic losses. FCM would likely be a significant production and quarantine issue for numerous agricultural commodities. In California alone, the annual combined gross value of the top ten agricultural commodities which would be directly impacted by this pest is over $7.1 billion, which amounts to 22 percent of the total agricultural value for the State (USDA NASS 2007).

4.2 Description of Surface Waters

The CDFA has statewide responsibility for minimizing the impact of invasive insect pests in California. Treatment locations may vary due to the transient nature of insect pests; therefore it is not possible to forecast when and where treatments will occur.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of Environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

4.3 Description of Target Species

The order Lepidoptera is comprised of the butterflies, skippers, and moths; adults are characterized by two pairs of scaly membranous wings and sucking mouthparts. Larval stages have chewing moth parts and can cause significant crop damage.

The following is a list of several moth species that CDFA is currently monitoring for, however it is not inclusive of any future infestation. CDFA could potentially be engaged in trapping and eradication if any new or previously unknown moth is introduced into California.

4.3.1 European Grapevine Moth (EGVM)

The EGVM, *Lobesia botrana,* is a serious pest of grapes, causing significant damage to the flowers and berries of grapevines. It will also occasionally feed on the flowers and/or fruit of other crops such as blackberry, cherry, currant, gooseberry, kiwi, olive, nectarine, persimmon, plum, and pomegranate. Additionally, EGVM is known to feed on close relatives of plants listed as threatened or endangered in the united States and presents a potential threat to perhaps 24 species, some of which are known to occur only in California.

The EGVM was recently discovered in the Napa Valley region of California, the first ever recorded detection in the United States. The EVGM larvae, not the adult moths, are responsible for the damage to grapes. Larvae that emerge early in the spring feed on grape bud clusters or flowers and spin webbing around them before pupating inside the web or inside a rolled leaf. If heavy flower damage occurs during this first generation, the affected flowers will fail to develop and yield will be reduced. Second-generation larvae feed on developing grapes, and may penetrate the berry and hollow them out, leaving the skin and seeds. Larvae of the third generation — the most damaging — feed on multiple ripening grapes and expose them to further damage from a number of fungal rots, most prominently *Botrytis cinerea*. These infections cause the berries to turn brown and rot, and can cause the loss of the entire grape cluster.

4.3.2 Light Brown Apple Moth (LBAM)

Adult light brown apple moths, *Epiphyas postvittana,* are light brown, yellowish moths with varying amounts of darker brown, with a wingspan of 16–25 mm. Females are larger than males, and usually have less distinct markings, but often have a distinct spot in the middle when the wings are closed. Eggs are pale white and deposited slightly overlapping each other in groups of 20–50. Larvae are green, about 18 mm long at maturity. They are superficially similar to other native tortricid larvae and DNA analysis is necessary to confirm their identity. Pupae are brown, about 11 mm long.

Development is continuous, with no true dormancy. In Australia, this moth typically has three generations per year and over–winters as a larva. Life cycle projections for the areas of California where it has been found indicate that four to five generations are possible. Females deposit egg masses containing 20–50 eggs on the upper leaf surface or on fruit. Fecundity varies considerably and females are capable of laying up to 1496 eggs in their lifetime, but the average has been recorded variously as 118 to 462. Larvae disperse and construct silken shelters on the underside of leaves, usually near a midrib or large vein. Older larvae roll together leaves and buds or fruit with webbing. Damage to fruit occurs as surface feeding by the larvae. Larvae will occasionally enter the fruit to feed. Pupation takes place within the larval nests.

LBAM has been associated with many plants representing 290 genera. These genera contain over 2000 species and many of these species that are not already known to be hosts could prove to be hosts as LBAM becomes exposed to them. Some notable trees recorded as hosts are apple, pear, peach, apricot, nectarine, citrus, persimmon, cherry, almond, avocado, oak, willow, walnut, poplar, cottonwood, Monterey pine and eucalyptus. Some common shrub and herbaceous hosts are grape, kiwifruit, strawberry, berries (blackberry, blueberry, boysenberry, and raspberry), corn, pepper, tomato, pumpkin, beans, cabbage, carrot, alfalfa, rose, camellia, pittosporum, jasmine, chrysanthemum, clover, lupine and plantain.

4.3.3 Gypsy Moth

The adult, female gypsy moth, *Lymantria dispar*, is a large, white, flightless moth with a two inch wing span and dark saw-toothed patterns on the wings. The male is smaller (one and a half inch wingspan), has smaller markings on brown wings and is a strong flier. The larva stage is the most destructive. Later stages of the larvae develop a distinctive color pattern of five pairs of blue dots followed by six pairs of red dots along their backs. The eggs are laid in masses of 100 to 1,000 and are covered with hair, forming a soft tan patch about the size of a quarter. The Asian gypsy moth is the same species as that from Europe, but differs in some key biological aspects; namely: 1) female Asian gypsy moths can fly up to 20 miles and 2) the larvae do well on conifers.

Adults emerge between June and August. The female emits a sex attractant that allows the male to find her. After mating, the female lays a single egg mass on any available surface including trees, rocks, fences and other manmade outdoor articles. Adults do not feed and die shortly after mating and egg-laying. Gypsy moth spends the winter in the egg stage. Eggs hatch in late February through April. Emerging larvae move to the tops of trees and are carried many miles on wind currents; wind-aided dispersal is the primary dispersal mechanism for the gypsy moth.

Gypsy moth first became established in the United States in 1869, in Massachusetts. It spread rapidly throughout the Northeast and has become the destructive pest of hardwood forest and shade trees in the United States. When populations are high, the gypsy moth defoliates millions of acres of forest and urban trees. This defoliation not only kills and weakens trees, but also alters forest composition and destroys habitat for mammals and birds. Gypsy moth infestations affect recreational use of forests, parks and backyards. Swarms of caterpillars discourage tourism and many other outdoor activities. In urban areas, the economic impact includes clean-up costs, tree replacement costs and loss of property values.

Gypsy moth is a native to Europe, southern Asia and northern Africa. The current distribution in the United States includes the northeast states (i.e., Pennsylvania, New Jersey, New York, Delaware, etc.) expanding southward into West Virginia, North Carolina and Tennessee, and westward into Michigan, Ohio and Illinois. Isolated

Gypsy moth has over 150 primary hosts, but can feed on over 500 plants. Both hardwoods and conifers are defoliated. Young larvae feed primarily on oaks, aspen, birch, willows and alder. Older larvae feed on a broader range of trees including cedar, pine, spruce and fir. Recent tests on western plants have shown that native and common California species such as manzanita, western hemlock, Douglas fir and live oaks are also good hosts.

4.3.4 False Codling Moth (FCM)

The false codling moth, *Thaumatotibia leucotreta,* is originally from sub-Saharan Africa, and has become established on nearby islands and in Israel. FCM is known to occur in the following countries: Angola, Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo Democratic Republic, Cote d'Ivoire, Eritrea, Ethiopia, Gambia, Ghana, Israel, Kenya, Madagascar, Malawi, Mali, Mauritius, Mozambique, Niger, Nigeria, Réunion, Rwanda, Saint Helena, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. Increased international trade and tourism between the United States and many African countries in recent years has increased the risk of introduction of this pest. Since 1984, FCM has been intercepted over 1500 times on 99 plant taxa at 34 U.S. ports of entry. In June 2005, live FCM caterpillars were found at California's border stations inside previously cold treated Clementine citrus from South Africa. A single male FCM was trapped in Ventura County in 2008; its discovery in California is a new record for the Americas.

This moth is multivoltine with up to six generations a year in South Africa. Its generation time is 45-100 days, and the larvae are internal feeders. Females lay 100-250 individual eggs during their lifetime on fruit or foliage. Eggs are usually laid singly on the surface of fruit. Newly emerged caterpillars may wander on the surface of the fruit before entering. Caterpillars bore into fruit, thereby rendering it undesirable for consumption and allowing for the introduction and growth of bacteria and other microorganisms. Infested fruit generally drops before harvest; however, infestations that occur near fruit harvest may not be detected and infested fruit may be subsequently packaged for export. When emerging on cotton bolls, caterpillars first mine the walls and later move into the cavity and feed on seeds. Mature caterpillars leave the fruit and spin cocoons in the soil or in bark crevasses.

Adults are small, brownish-gray, nocturnal moths with an average wingspan of 16 mm (2/3“). Eggs are whitish, flat and oval in outline. Young caterpillars are whitish and spotted, while mature ones are pinkish with red above and 15 mm in length. Pupation occurs in the soil or in bark crevasses within a cocoon made of silk and debris particles.

Many fruit trees, field crops, and other plants have been reported as hosts for FCM. In Africa, it is a major pest of citrus and cotton. Other commonly grown agricultural hosts in California include grapes, peach, plum, cherry, beans, tomato, pepper, persimmon, apricot, olive, pomegranate, English walnut, and corn. It has been reported to damage avocados, but apparently can not complete development within the fruit. Other hosts include Surinam cherry, mangosteen, cacao, guava, okra, sorghum, cowpea, mango, litchi, oak, wild fig, banana, pineapple, macadamia nuts, carambola, tea, coffee, cola nuts, sodom apple, sour sop, custard apple, and many indigenous African plants.

4.4 Description of Pesticide Treatment

Moth eradication options are dependent upon the size of the infestation, its location(s) and which materials may be registered for use and have adequate efficacy. Generally, the treatment area is within 500 meters of detection sites in an infested County. Treatments take place primarily in rural/urban residential yard settings.

In order for the greatest chance of success, a suite of options are available. Homeowners may select host fruit, flower and foliage removal or a foliar application of a biological insecticide. Mating disruption may be used in areas that are unsuitable for the above options, such as difficult to access host plants growing in riparian areas.

4.4.1 Foliar Treatment Options

Some residents do not wish to lose their present season crop with fruit removal, therefore, *Bacillus thuringiensis* (Bt) applications are offered as a means of maintaining the lepidopteron moth eradication. Several naturally-occurring varieties of Bt have been isolated and characterized. The variety that is currently registered for use against in California is *Bacillus thuringiensis* variety *Kurstaki*, strain ABTS-351. This variety was selected because of its high virulence to target Lepidoptera.

DiPel® DF, (*Bacillus thuringiensis*, subsp., *kurstaki)* may be applied to all host plants on the selected property. DiPel® DF is safe to beneficial insects and compatible with monitoring and disruption pheromones and other integrated pest management (IPM) practices. Treatment commences about 10 days after peak moth flight or at the black head stage. Treatments will be applied three times per generation. In order for Bt to become active, larvae must ingest the spores and crystals by feeding on leaves treated with Bt.

Following ingestion the crystals dissolve in the gut, releasing the toxic protein. This protein breaks down the epithelial lining of the stomach which causes a cessation of feeding activity. Following destruction of the stomach lining, the bacterium invades the internal tissues and reproduces vegetatively causing organ disintegration. Death usually occurs seven to 10 days following ingestion and results from a combination of infection and starvation.

Treatment continues for at least two life cycles, based upon trap catch and degree day models.

Another insecticide which may be used is: Entrust, active ingredient spinosad (a mixture of spinosyn A and spinosyn D) for the control of foliage feeding pests.

4.4.2 Mating Disruption

Mating disruption (pheromone dispensers) is used statewide as needed. Placement occurs once per season based upon pest population detections. Selection of mating disruption will occur for; isolated areas, areas with low populations and location that are further than 5 miles from an infested area. Additionally, mating disruption cannot be used in areas where commercial growers intend to export crops out of state or internationally. Mating disruption interferes with required detection trapping protocols for commercial growers.

Pheromones are used in a double tube dispenser composed of a plastic tube filled with the pheromone solution parallel to a plastic tube filled with an aluminum wire. The dispenser is applied by hand directly on the plant or trellis wires. A mechanical device does not randomly distribute this product nor is it sprayed into the air.

The pheromone dispenser is similar in size and appearance to a common pipe cleaner. The pheromone solution is within the hollow tube of the dispenser and is not directly put on the crop. Each dispenser slowly releases tiny amounts of pheromone into the atmosphere. The pheromone migrates slowly by diffusion from the inside of the tube to the surface where it volatilizes in microgram amounts.

Rate of application is 200 to 240 dispensers per acre, treatment area is usually 200 to 500 meters around detection site and dispensers are applied to front/back yard plants, fences or grapevines.

Treatment continues for at least two life cycles, based upon trap catch and degree day models.

4.4.3 Host Fruit and Flower Removal

A non-pesticidal treatment option is removal of flowers, fruit and/or foliage depending on the target moth to deny the pest hosts reproduction sites. Host (fruit) removal can eliminate reproductive harborage of the pest but may disperse adults causing further spread. Flowers/fruit are hand-picked using pruning/clippers. Fruit is double bagged and transported to a facility offsite where they are subject to a deep burial within 24 hrs. Flower, fruit and foliage are transported under special permit.

4.5 Alternatives

4.5.1 No Action

Under the No Action alternative CDFA would not eradicate invasive moths. Initiation of a State Quarantine may limit spread of pest, however, does not eradicate it. Homeowners may also utilize chemicals readily available at retail outlets and increase the use of pesticides in heavily infested areas. Domestic and foreign trade restrictions may increase with the “No Action” alternative.

4.5.2 Biological Control

No effective bio-control option is available for this pest that can eradicate the infestation on its own. Biological control, when used in an IPM program can successfully hold pest populations down below economically damaging numbers. No effective predator or parasite is available at this time.

4.5.3 Mechanical and Cultural Control

An important way to control pests is by excluding, altering pest life cycles or changing the environment so that it is not suitable for pest survival. CDFA will use these measures when available or justified such as sterile insects, host removal (fruit, flower, foliage) and quarantine.

4.5.4 The Use of Alternative Pesticides

At this time, the pesticides listed above are the ones registered for moth control. Should additional insecticides become available which meet the program’s needs, these will be used in a manner that results in the least amount of material being applied while still achieving the goal of eradication.

5. Leaf and Shoot Piercing/Sucking Insect Control Program Overview

The Leaf and Shoot Piercing/Sucking Insect Control Program is an Emergency Program to control and eradicate the insects that feed on plants by piercing the tissue and feeding on the liquid nutrients. In sufficient numbers, piercing/sucking insects can starve a plant by depleting it of the carbohydrates produced from photosynthesis. If infestations last for prolonged periods, plant death can result. In addition, many piercing/sucking insects carry pathogens that can also cause plant death or decline.

Detection of these insects can be difficult as many are too small to be observed directly; or they may be overlooked because of their sedentary nature and the lack of obvious physical damage to plant tissues. The use of a magnifying lens will often reveal the presence of piercing/sucking insects. The overall decline in plant health; or abnormal coloring or thinning foliage maybe signs of insect presence.

This control program includes both foliar and systemic insecticides. It is imperative that pest populations are controlled or eradicated based on the realistic evaluation that it may be possible to eliminate the pest threat while populations are still low enough.

Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the homeowners detailing precautions to take and preharvest intervals applicable to any fruit or vegetables on the property.

5.1 Statement of Purpose and Need

The purpose of this program is to suppress and contain invasive piercing/sucking insects which can direct damage to host plant species and can vector plant diseases that will also kill host plants. With the containment, there would be a reduced direct threat of spreading damage and disease. Based on survey data, many of these pests have a continuous life cycle with no true dormancy. Without control, spread of the disease and severe economic losses would be imminent.

Several of the piercing/sucking pests that CDFA is currently monitoring are the Asian citrus psyllid and the glassy-winged sharpshooter. These insects pose a significant threat to California’s agricultural industry, both by direct insect damage and by vectoring plant diseases that can devastate the citrus and grape industries.

For example, Establishment of the Asian citrus psyllid and the disease it vectors, Huanglongbing would cause economic losses to California’s a $1.88 billion citrus industry. California’s citrus industry ranks first in the U.S. in terms of value and second (after Florida) in terms of production. California’s total citrus production has averaged 3.2 million tons per season over the past three seasons, about 24 percent of the nation’s total. California is the nation’s main source of fresh market oranges and also supplies 87 percent of the nation’s lemons (source: USDA Economic Research Service).

If the Asian citrus psyllid begins to transmit the disease, the entire industry could be at risk. In one recent study in Florida, the presence of this disease increased citrus production costs by 40 percent.

The establishment of the glassy-winged sharpshooter and the Pierce’s Disease which it vectors, has the potential to destroy California’s billion dollar grape industry. The exponential spread of Pierce's Disease since 1997 indicates the glassy-winged sharpshooter is a serious threat, having upset the tight control over spread of the disease by other native vectors and caused $12-14 million of damage between the years of 1997 and 2002 in grapevines in Temecula alone. This pest remains a significant threat to the wine, raisin, and table grape region in central California. There is historical precedence that this disease can wipe out entire agricultural industries. The California grape industry was decimated in the 1940s, with acres of cropland remaining unplantable today due to presence of the bacteria.

5.2 Description of Surface Waters

The CDFA has statewide responsibility for minimizing the impact of invasive insect pests in California. Treatment locations may vary due to the transient nature of insect pests; therefore it is not possible to forecast when and where treatments will occur.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of Environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

5.3 Description of Target Species

The mouth parts of sucking insects are modified to allow for easy piercing of plant tissue, much like a hypodermic needle, and the drawing out or sucking of plant liquid nutrients. Often these insects are soft body and some may secrete waxy strands of material to conceal and protect themselves from desiccation or predators. Injury caused by sucking insects usually appears as a stippling of leaf tissue and loss of green color. Another symptom of presence of piercing and sucking insects is the appearance of honeydew, a sugary substance often excreted by the insects. Leaf surfaces may often be blackened as a dark sooty mold grows in the honeydew. Well-known insects with piercing-sucking mouthparts include aphids, scales, leafhoppers, squash bugs and plant bugs

Plants infested by piercing and sucking insects suffer damage no only by direct injury to plant tissue but many of these insects are vectors for plant diseases.

The following is a list of several piercing/sucking insects that CDFA is currently monitoring; however it is not inclusive of any future infestation. CDFA could potentially be engaged in trapping and eradication if any new or previously unknown insect pest is introduced into California.

5.3.1 Asian Citrus Psyllid

The Asian citrus psyllid, *Diaphorina citri,* is 3 to 4 mm long with a brown mottled body. The head is light brown. The wings are broadest in the apical half, mottled and with a dark brown band extending around the periphery of the outer half of the wing. The insect is covered with a whitish waxy secretion, making it appear dusty. Nymphs are generally yellowish orange in color, with large filaments confined to an apical plate of the abdomen. The eggs are approximately 0.3 mm long, elongate and almond-shaped. Fresh eggs are pale in color, but then turn yellow and finally orange at the time of hatching. Eggs are placed on plant tissue with the long axis vertical to the surface of the plant.

Eggs are laid on tips of growing shoots on and between unfurling leaves. Females lay 300 to 800 eggs during their lifetime. Nymphs pass through five instars. The total life cycle requires from 15 to 47 days, depending on environmental factors such as temperature and season. The adults may live for more than a month. There is no diapause, but populations are typically low in the winter or during dry periods. There are nine to 10 generations a year, with up to 16 observed under observation in field cages.

Asian citrus psyllid was first found in the United States in Palm Beach County, Florida, in June 1998, in backyard plantings of orange jasmine. By 2001, it had spread to 31 counties in Florida, with much of the spread due to movement of infested nursery plants. In the spring of 2001, ACP was accidentally introduced into the Rio Grande Valley on potted nursery stock from Florida. It was subsequently found in Hawaii in 2006 and in Alabama, Georgia, Louisiana, Mississippi and South Carolina in 2008. It was first found in California on August 27, 2008, in San Diego County. Subsequently, it was found on October 13, 2008, in Imperial County; on August 18, 2009, in Orange County; on August 25, 2009, in Los Angeles County; and on October 15, 2010, in San Bernardino County. Control and quarantine activities are underway in those counties.

The Asian citrus psyllid is found in tropical and subtropical Asia, Afghanistan, Saudi Arabia, Reunion, Mauritius, parts of South and Central America, Mexico, the Caribbean and the United States (Alabama, Florida, Georgia, Hawaii, Louisiana, Mississippi, South Carolina, and Texas). In California, it is present in Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties, where it is under official control and quarantine actions.

The Asian citrus psyllid feeds mainly on *Citrus spp.*, at least two species of *Murraya* and several other genera all in the family of Rutaceae. Direct injury caused by ACP results from the withdrawal of large amounts of sap from the plant as they feed and produce copious amounts of honeydew. The honeydew coats the leaves of the tree, encouraging sooty mold to grow. However, the most serious damage caused by ACP is due to its ability to effectively vector the phloem-inhabiting bacterium *Candidatus* Liberibacter asiaticus that causes Huanglongbing (HLB) disease. HLB is the most devastating disease of citrus in the world. Symptoms of HLB include yellow shoots, with mottling and chlorosis of the leaves. The juice of the infected fruit has a bitter taste and the fruit's skin may retain some green coloration even though it is ripe. Infected trees eventually die of the disease. The once flourishing citrus industry in India is slowly being wiped out by dieback. This dieback has multiple causes, but the major cause is due to HLB disease.

5.3.2 Glassy-winged Sharpshooter

The glassy-winged sharpshooter (GWSS), *Homalodisca vitripennis,* is a large insect compared to other leafhoppers. Adults are about 1⁄2 inch long and are generally dark brown to black when viewed from the top or side. Wings are clear with red venation, but appear dark brown due to the body coloration beneath them. Before laying eggs, the female secretes a chalky white substance that she transfers to the upper wings forming white spots. After laying the eggs, she covers them with this chalky material by transferring it from the wings. Thus, the white spots on the wings are only visible on females shortly before laying a batch of eggs and are not present on males. The abdomen is whitish or yellow. The head is brown to black and covered with numerous ivory to yellowish spots. In profile, the immature stages (nymphs) of the glassy-winged sharpshooter look similar to that of the adult, except they are smaller, wingless, uniform olive-gray in color, and have prominent bulging eyes.

Females lay their eggs in masses of about 10 to 12 under the lower leaf surface of young, fully developed leaves. The eggs lay side-by-side in a single layer. When it is first laid, each individual egg appears as a greenish blister beneath the epidermis of the leaf. The female covers the egg mass with the white chalky material making it more visible. Shortly after the eggs hatch, the leaf tissue begins to turn brown. The dead leaf tissue remains as a permanent brown scar.

The GWSS ranges over many habitats, including agricultural crops, urban landscapes, native woodlands, and riparian vegetation. It is reported to feed on hundreds of plant species. Hosts for the glassy-winged sharpshooter vary widely and include woody plants and annual and perennial herbaceous plants. It occurs in unusually high numbers on citrus. Common landscape and garden host plants include bird of paradise, eucalyptus, euonymus, citrus, crepe myrtle, pittosporum, sunflower, hibiscus, xylosma, and cottonwood, among many others. Host preference changes according to availability and nutritional value of the host plant at any given time. Well-irrigated and well-fertilized plants may become a host when in other situations they would not.

The GWSS is an aggressive, exotic insect that was accidentally introduced into southern California in the late 1980s and has since spread to 11 California counties, mostly in the southern part of the state. GWSS presents a severe threat to grapevines and other important agricultural crops because of its ability to spread the bacterium which causes Pierce’s disease and other related damaging plant diseases. Ornamental and native plants are also vulnerable to diseases spread by GWSS.

California’s first indication of the severe threat posed by this new disease and vector combination occurred in Temecula, Riverside County, in August of 1999, when over 300 acres of grapevines infested with the GWSS were destroyed by Pierce’s disease. Losses continued to mount in Temecula and other infested areas in following years, eventually exceeding 1,100 acres statewide by 2002.

The GWSS clearly has the potential to increase both the incidence and severity of Pierce’s disease in California. As observed in the Temecula infestation, the sharpshooter builds to high populations that substantially increase the number of insects vectoring the destructive *Xylella fastidiosa* bacteria to crops; and transmits the bacteria from vine to vine, resulting in an exponential increase in disease incidence in vineyards.

5.4 Description of Pesticide Treatment

Treatment is warranted on the detection of one or more insect, depending on species. At a minimum, treatment will occur on all properties with detections and the immediately adjacent properties. In most cases, treatment will be extended to all properties within a determined radius of a detection property. If additional life stages are detected in the survey area, the treatment area may expand to include additional properties.

Both foliar and systemic insecticides will be applied. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while systemic insecticides are necessary to kill the sedentary nymphs. The frequency of the treatments is dependent on the insecticide applied and severity of the infestation. Residents of affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to any fruit on the property.

5.4.1 Foliar Treatment Options

PyGanic®, an organic formulation of a pyrethrin, may be applied to all host plants using hydraulic spray or hand spray equipment. Treatments are repeated weekly. This option is only used in special situations where an organic material is needed.

Tempo® SC Ultra, a synthetic pyrethroid insecticide containing cyfluthrin, may be applied a minimum of one time to the foliage of host plants at designated residential properties. Tempo® may be applied to all host plants using hydraulic spray or hand spray equipment.

Sevin® SL, a carbamate insecticide containing carbaryl, may be applied to all host plants using hydraulic spray or hand spray equipment. Treatments are repeated every 10 to 14 days. This option would be used under special conditions such as detection of additional ACP after the maximum use rate for Tempo had been applied to the target.

Tristar® 30 SG, a neonicotinoid containing acetamiprid, may be applied to the foliage of host plants. Materials would be applied by ground to the host plants of GWSS using truck-mounted or handheld equipment. Properties often need to be treated only once to achieve eradication.

Merit® 2F, Merit® 75 WP, and Merit® 75WSP, neonicotinoid insecticides containing imidacloprid, may be applied to the foliage of host plants. Materials would be applied by ground to the host plants of GWSS using truck-mounted or handheld equipment.

5.4.2 Soil Treatment Options

Merit® 2F, Merit® 75 WP, and Merit® 75WSP, neonicotinoid insecticides containing imidacloprid, may be applied to all host plants using hydraulic spray or hand spray equipment. The material is applied to soil beneath the drip line of host plants to kill developing nymphs and adult insects. This material will be applied a minimum of one time to the soil of host plants at designated residential properties.

5.4.3 Treatment Length

Treatments will be applied as per label instructions, generally as a one-time application. If additional insects are detected in the survey area, the treatment may be repeated.

5.5 Alternatives

5.5.1 No Action

Under the No Action alternative CDFA would not control invasive piercing/sucking insects. Without control, insects will spread throughout the state, resulting in large quantities of conventional pesticides being used to produce crops statewide. The insect threat would become imminent because several of these insects are disease vectors and provide pathways for the spread of disease.

5.5.2 Biological control

No effective bio-control option is available for these pests that can control an infestation on its own. Biological control, when used in an integrated pest management program can successfully hold pest populations down below economically damaging numbers. With the potential ability to vector pathogens, even low pest numbers are considered economically damaging.

5.5.3 Mechanical and Cultural Control

An important way to control pests is by excluding, altering pest life cycles or changing the environment so that it is not suitable for pest survival. CDFA will use these measures when available or justified such as sterile insects, host removal (fruit, flower) and quarantine.

5.5.4 The Use of Alternative Pesticides

At this time, the pesticides listed above are the ones registered to control these pests. Should additional insecticides become available which meet the program's needs, these will be used in a manner that results in the least amount of material being applied while still achieving the goal of control and containment.

6. Foliage and Root Chewing Insect Control Program Overview

The purpose of the Foliage and Root Chewing Insect Control Program is to detect and eradicate non-moth insects that feed on plants by chewing on roots and/or foliage. In sufficient numbers, these insects can defoliate a plant or severely damage its roots, potentially resulting in plant death. This control program includes both foliar and systemic insecticides.

Affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the homeowners detailing precautions to take and preharvest intervals applicable to any fruit or vegetables on the property.

6.1 Statement of Purpose and Need

The purpose of this program is to suppress and contain invasive root and/or foliage chewing insects which can direct damage to host plant species. With the containment, there would be a reduced direct threat of spreading damage. Without control, spread of the disease and severe economic losses would be imminent.

6.2 Description of Surface Waters

The CDFA has statewide responsibility for minimizing the impact of invasive insect pests in California. Treatment locations may vary due to the transient nature of insect pests; therefore it is not possible to forecast when and where treatments will occur.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of Environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

6.3 Description of Target Species

The mouth parts of chewing insects are designed to tear off and chew plant tissue. Well-known insects (other than Lepidoptera) with chewing mouthparts include beetles, grasshoppers, etc. The following is the only chewing insect that CDFA is currently conducting a detection program.

6.3.1 Japanese Beetle

The Japanese beetle, *Popillia japonica,* is native to the main island of Japan. It was first found in the United States in 1916 in a nursery near Riverton, New Jersey. The beetle is currently found in coastal and adjacent states from eastern Canada to Alabama, with small infestations westward to beyond the Mississippi River.

The adult beetle is a broadly oval insect about 1/2 inch long (14 mm) and about ¼ inch wide (7 mm). The body is a bright metallic green, the legs are a darker green, and the wing covers are a coppery brown and do not quite extend to the end of the abdomen. There are two small tufts of white hairs just behind the wing covers and five patches along each side. The small white oval eggs are laid in the soil. The larva is C-shaped with three pairs of legs, white, and grows to 1 ¼ inch in length (32 mm). Pupae are light reddish-brown and ½ inch long (14 mm). There is usually one generation per year, although larvae can take up to two years to develop in wet, damp soils. The adults emerge from mid-May to September.

A wide range of plants are attacked by the adult beetles. Hosts include small fruits, tree fruits, truck and garden crops, ornamental shrubs, vines, and trees. Feeding studies show a host range in excess of 300 plants, although only about 50 are preferred. Preferred plants are grape, early apples, cherry, peach, plum, raspberry, rose, zinnia, linden, and corn. They injure corn seriously by eating the silk which interferes with formation of kernels. Soft fruits such as grapes, berries, and stone fruits may be completely consumed. Larvae feed on the roots of a number of plants, but grasses are particularly favored. Medium to high densities of larvae will cause grass to die off. In California, the combined 2005 gross value of nurseries and the above crops was over $8.65 billion.

6.4 Description of Pesticide Treatment

Treatment is warranted on the detection of one or more than one insect, depending on species. At a minimum, treatment will occur on all properties with detections and the immediately adjacent properties. In most cases, treatment will be extended to all properties within a determined radius of a detection property. If additional life stages are detected in the survey area, the treatment area may expand to include additional properties.

Both foliar and soil insecticides may be applied. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while soil insecticides are necessary to kill the immature stages in the soil. The frequency of the treatments is dependent on the insecticide applied and severity of the infestation. Residents of affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to any fruit on the property.

6.4.1 Foliar Treatment Options

Tempo® SC Ultra, a synthetic pyrethroid insecticide containing cyfluthrin, may be applied a minimum of one time to the foliage of host plants at designated residential properties. Tempo® may be applied to all host plants using hydraulic spray or hand spray equipment.

Sevin ® SL, a carbamate insecticide containing carbaryl, may be applied to all host plants using hydraulic spray or hand spray equipment. Treatments are repeated every 10 to 14 days.

6.4.2 Soil Treatment Options

Merit® 2F, a neonicotinoid insecticide containing imidacloprid, may be applied to all host plants using hydraulic spray or hand spray equipment. The material is applied to soil beneath the drip line of host plants to kill developing nymphs and adult insects. This material will be applied a minimum of one time to the soil of host plants at designated residential properties.

Merit® 0.5G, a neonicotinoid insecticide containing imidacloprid, may be applied to the soil of all host plants by spreading. The material is applied to soil beneath the drip line of host plants to kill developing larvae. This material will be applied a minimum of one time to the soil of host plants at designated residential properties.

6.4.3 Treatment Length

Treatments will be applied as per label instructions, generally as a one-time application. If additional insects are detected in the survey area, the treatment may be repeated.

6.5 Alternatives

6.5.1 No Action

Under the No Action alternative CDFA would not control invasive chewing insects. Without control, insects will spread throughout the state, resulting in large quantities of conventional pesticides being used to produce crops statewide.

6.5.2 Biological control

No effective bio-control option is available for these pests that can control an infestation on its own. Biological control, when used in an integrated pest management program can successfully hold pest populations down below economically damaging numbers.

6.5.3 Mechanical and Cultural Control

An important way to control pests is by excluding, altering pest life cycles or changing the environment so that it is not suitable for pest survival. CDFA will use these measures when available or justified such as sterile insects, host removal (fruit, flower) and quarantine.

6.5.4 The Use of Alternative Pesticides

At this time, the pesticides listed above are the ones registered to control these pests. Should additional insecticides become available which meet the program’s needs, these will be used in a manner that results in the least amount of material being applied while still achieving the goal of control and containment.

7. Trunk and Stem Boring Insect Control Program Overview

The purpose of the Trunk and Stem Borer Eradication Program is to detect and eradicate invasive boring insects. The primary eradication tools include both foliar and systemic insecticides. Eradication is based on the realistic evaluation that it may be possible to eliminate the pest threat while populations are still low enough.

Borers are insects that bore into the tissues of plants to feed or reproduce. These insects harm plants by destroying the tissues beneath the surface that transports carbohydrates and nutrients throughout the tree.

Trees that become weakened by severe borer infestations may fall and cause material damage to residential and commercial properties and also poses a significant threat to human health and safety.

7.1 Statement of Purpose and Need

Borers are among the most damaging pests in our forests, agricultural lands, and urban landscapes; they bore into plant tissues and lay their eggs. When the eggs hatch, larvae feed on the nutrient rich phloem tissue before molting into adults and emerging to attack more plants. Healthy plants are normally capable of preventing borers from entering the tissues. However, populations can become so large in 'outbreak' years that even healthy plants succumb to attack. Once borers overcome plant defenses and bore into the tissues to lay eggs, there is little hope a plant will survive. Several of the boring insects can be substantial forest pests, for instance the Asian longhorned beetle has the potential to cause severe damage.

In 1986, timber was the most important agricultural crop in the U.S. in terms of dollar value of production, surpassing soybean, corn and hay. The delivered value of 1986 U.S. timber output was $17.1 billion (in 1996 dollars). Total shipments of wood manufactured products were valued at $252 billion. If left unchecked the USDA estimated that the Asian longhorned beetle and other boring insects could cause up to $138 billion dollars to the U.S. economy. The treat to California is equally substantial as the risk would extend not only to timber production, but fruit and nut trees as well.

The purpose of this program is to suppress and contain invasive boring insects which can direct damage to host plant species. With the eradication of localized infestations, there would be a reduced direct threat of spreading damage and disease. Based on survey data, many of these pests have a continuous life cycle with no true dormancy. Without control, severe economic losses would be imminent.

The potential exists for many boring insects to damage crops throughout the State. An infestation would potentially lead to millions of dollars in losses to California's agriculture.

7.2 Description of Surface Waters

The CDFA has statewide responsibility for minimizing the impact of invasive insect pests in California. Treatment locations may vary due to the transient nature of insect pests; therefore it is not possible to forecast when and where treatments will occur.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of Environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

7.3 Description of Target Species

Typically, borers must be controlled with preventative insecticide treatments, because, once the insects are within the plant tissue, they are difficult to control. Particular attention should be taken to plants showing signs of stress such as wilting, disease infection or injury. Borers of one species or another will successfully attack such plants usually during the summer months

The following is a list of several boring insect species that CDFA is currently monitoring; however it is not inclusive of any future infestation. CDFA could potentially be engaged in trapping and eradication if any new or previously unknown borer is introduced into California.

7.3.1 Asian Longhorned Beetle

Adult Asian longhorn beetles (ALB), *Anoplophora glabripennis,* are 20-35 mm in length and 7-12 mm in width. Their color is jet-black with a luster. The antennae have 11 segments. The base of the antennae is whitish with a blue-black color. The antennae of the males are 2.5 times their body length; the antennae of the females are 1.3 times their body length. The base of the elytra does not have a granular structure. Each elytron has about 20 white dots.

A typical life cycle for this pest is:

- Egg stage: The off-white, oblong eggs are 5-7 mm in length. Both ends of the eggs are slightly concave.
- Larval Stage: Mature larvae are 50 mm in length. The prothorax has a brown mark. The front of the mark does not have a brown margin.
- Pupal Stage: The off-white pupae are 30-33 mm in length, width of 11 mm. The eighth segment of the abdomen has a protruding structure.
- Adult Stage: Adults are 20-35 mm in length and 7-12 mm in width. Their color is jet-black with a luster.

The ALB attacks maple, horse chestnut, poplar, and other hardwood trees. Timber, nursery stock, shade tree and maple syrup production are all at risk. According to the

Empire State Forest Products Association, these industries employ more than 60,000 people. As an exotic, the beetle is expected to encounter few natural enemies. This factor will influence a rapid expansion of populations by natural means.

The ALB is a native of Northeast Asia. The ALB alters the appearance of hardwood trees, especially maple and horse chestnut. Infested trees become unsightly, drop dead branches, and eventually die.

7.3.2 Palm Weevils

Members of the giant palm weevil genus, *Rhynchophorus*, are major pest of palm trees, many of which are highly valued as landscaping plants, generating approximately $70 million in nursery plant sales in California annually. Palm trees are also used for producing crops and marketable agricultural commodities including coconuts, dates and oils. In California, date palm growers harvest an annual crop worth approximately $30 million. The vast majority of these farms are in the Coachella Valley region.

Female palm weevils bore into a palm tree to form a hole into which they lay eggs. Each female may lay an average of 250 eggs, which take about three days to hatch. Larvae emerge and tunnel toward the interior of the tree, inhibiting the tree's ability to transport water and nutrients upward to the crown. After about two months of feeding, larvae pupate inside the tree for an average of three weeks before the adults emerge. Adults live for two to three months, during which time they feed on palms, mate multiple times and lay eggs.

Adult weevils are considered strong fliers, venturing more than a half-mile in search of host trees. With repeated flights over three to five days, weevils are reportedly capable of traveling nearly four-and-a-half miles from their hatch site. They are attracted to dying or damaged palms, but can also attack undamaged host trees. Symptoms of the weevil and the larval entry holes are often difficult to detect because the entry sites can be covered with offshoots and tree fibers. Careful inspection of infested palms may show holes in the crown or trunk, possibly along with oozing brown liquid and chewed fibers. In heavily infested trees, fallen pupal cases and dead adult weevils may be found around the base of the tree.

7.4 Description of Pesticide Treatment

Treatment is warranted on the detection of one or more insect, depending on the species. At a minimum, treatment will occur on all properties with detections and the immediately adjacent properties.

Both foliar and systemic insecticides may be applied. Foliar insecticides are useful for immediate reduction of the adult population in order to eliminate dispersal, while systemic insecticides are necessary to kill the larvae. The frequency of the treatments is dependent on the insecticide applied and severity of the infestation. Residents of affected properties will be notified in writing at least 24 hours prior to treatment. Following treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to any fruit on the property.

7.4.1 Foliar Treatment Options

Sevin ® SL, a carbamate insecticide containing carbaryl, may be applied to all host plants using hydraulic spray or hand spray equipment. Treatments are repeated every 10 to 14 days. This option would be used under special conditions as a drench if emerging adult borers are detected.

7.4.2 Soil Treatment Options

Merit® 2F, a neonicotinoid insecticide containing imidacloprid, may be applied to all host plants using hydraulic spray or hand spray equipment. The material is applied to soil beneath the drip line of host plants to kill developing nymphs and adult insects. This material will be applied a minimum of one time to the soil of host plants at designated residential properties.

Safari® 20SG, a systemic insecticide containing dinotefuran, may be applied as a trunk spray to palm trees to control larval stages of the palm weevil. The active ingredient will be absorbed through the trunk into the tree's vascular system which will distribute the toxicant throughout the tree. Borers feeding internally will be controlled by this insecticide.

7.4.3 Host Plant Removal

If larvae are found, host plant removal may be used in conjunction with other elements of this program. All host plants removed from the infested properties will be removed, placed in a chipper and taken to a landfill for burial. If surveys warrant it necessary, plant removal may be extended to adjacent properties. Affected properties will be notified in writing at least 24 hours prior to removal of an infested plant.

7.4.4 Treatment Length

Treatments will be applied as per label instructions, generally as a one-time application. If additional insects are detected in the survey area, the treatment may be repeated.

7.5 Alternatives

7.5.1 No Action

Under the No Action alternative CDFA would not control invasive boring insects. Without control, insects will spread throughout the state, resulting in large quantities of conventional pesticides being used to produce crops statewide.

7.5.2 Biological control

No effective bio-control option is available for these pests that can control the infestation on its own. Biological control, when used in an integrated pest management program can successfully hold pest populations down below economically damaging numbers.

7.5.3 Mechanical and Cultural Control

An important way to control pests is by excluding, altering pest life cycles or changing the environment so that it is not suitable for pest survival. CDFA will use these measures when available or justified such as sterile insects, host removal (fruit, flower, foliage) and quarantine.

7.5.4 The Use of Alternative Pesticides

At this time, the pesticides listed above are the ones registered to control these pests. Should additional insecticides become available which meet the program's needs, these will be used in a manner that results in the least amount of material being applied while still achieving the goal of control and containment.

8. Terrestrial Weed Control Program Overview

The Terrestrial Plant Eradication Program (Program) was established within the California Department of Food and Agriculture (Department) for the statewide control of invasive and noxious plants (weeds). Noxious plants are defined by inclusion in the California Department of Food and Agriculture's noxious weed list in the California Code of Regulations Section 4500. An invasive weed is generally thought to be a species that 1) Was introduced into an environment that they are not natural to; 2) Cause significant economic or ecological damage and, 3) Lack natural enemies which may limit their spread. Many weeds are considered both noxious and invasive.

Each year and throughout the year, Program staff monitors primary and secondary public roadways statewide, and other locations in the state which historically have shown a propensity for supporting the development of weeds. Survey areas are not denoted by rigid boundaries, but represent points of entrance into the state that are likely to be conducive to the establishment of weeds. When high priority weeds are located field staff has the option of either spraying with a labeled pesticide, removal with a shovel or hand pulling.

Surveys determine the size, extent and location of populations during the spring, summer and fall. Control activities normally occur when weed populations are initially detected, occur throughout the growing season and, are long-term commitments due to the presence of a viable seed bank.

8.1 Statement of Purpose and Need

The purpose of this program is to control invasive and noxious plants statewide. Without this program the spread of weeds threaten susceptible agricultural, horticultural and high value resources such as parks, riparian areas, and other natural areas.

A 2004 estimate placed nationwide environmental and damage losses due to invasive terrestrial weeds at $120 billion annually. In California the estimate for managing just the yellow starthistle (YST) which has infested approximately 15 million acres in the state is approaching $12 million. It is estimated that over 3,000 invasive/noxious plant species have been introduced into California.

The California Department of Food and Agriculture is designated the state's lead agency in noxious and invasive weed control. CDFA has several roles—the department (1) maintains a list of officially designated noxious weeds, and regulates the movement and commerce for these weeds, (2) implements the "Pest Prevention System," (3) coordinates eradication efforts for high priority noxious weeds, and (4) provides funding, oversight and guidance to county-based weed management programs.

For weeds that are not designated noxious, there is no clear lead agency or entity. California is rich in coordination groups, which provide leadership, education and advocacy on many different facets of weed control in California.

8.2 Description of Water Body Systems

There is an infinite quantity of water body systems found within the state which may or may not be in close proximity to program treatment activities. In most if not all instances where treatment activities occur spraying does not occur near moving water bodies, still water bodies, ditches or irrigation canals. The majority of the treatment occurs along primary and secondary highways, and other corridors that lead into the state. It is this method by which weeds are often introduced into the state and which is the focus of the program.

Aerial treatment for weeds occurs rarely in the state and only in the county of Modoc. In 2009 Modoc County surveyed 50,000 acres by air and treated 0.004 percent or two hundred acres. None of the treated acreage was remotely near any body of water. The potential for aerial treatment is an extremely rare event in any year and in most cases, is not the preferred method of treatment.

When a location has been determined, program staff will follow all appropriate best management practices to prevent the application of material directly into water. Staff will maintain a minimum distance of 30 meters from surface water and will adhere to label direction, State and Federal laws and comply with recommendations of environmental staff. Each program area is examined and evaluated prior to treatment by environmental compliance staff and mitigation measures are implemented as needed.

In the event that treatment is triggered in close proximity to a body of water, where application may result in a direct discharge of pesticides to the body of water, CDFA will identify and describe the waters, application and treatment areas, and any representative monitoring location. In addition, CDFA will describe any site specific BMP's for the environmental setting. As soon as the information becomes available it will be posted on the CDFA web page and provided electronically to the SWB.

8.3 Description of Target Species

The Department is designated the state's lead agency in noxious weed control and has several roles: (1) maintains the list of officially designated noxious weeds, and regulates the movement and commerce for these weeds, (2) implements the "Pest Prevention

System," (3) coordinates eradication efforts for high priority noxious weeds, and (4) provides funding, oversight and guidance to county-based weed management areas.

Staff is deployed statewide and survey major road ways for the presence/absence of high priority weeds. When these high priority weeds are located treatment normally occurs at that instant by either hand pulling or treating with an appropriate herbicide. As such all water bodies within the state could be listed as being impacted – this is however extremely remote particularly when one considers the location of targeted weeds along roadsides, etc.

8.4 Description of Pesticide/Treatment

The Program uses various 'Caution' labeled herbicides (Roundup Pro Concentrate Herbicide, containing the Isopropylamine salt of Glyphosate; Roundup Weathermax Herbicide, containing the Potassium salt of Glyphosate; Arsenal Herbicide, containing Imazapyr; Milestone and Milestone VM, containing aminopyralid; Milestone VM Plus, containing the TIPA salt of aminopyralid and Triclopyr triethylamine salt of 3,5,6-dichloropyridin-2-carboxylic acid; Transline Herbicide, containing clopyralid; Dupont Telar XP and Telar DF, containing chlorsulfuron; and Garlon 4 containing triclopyr butoxyethyl ester). These products are diluted with water at a rate consistent with the product label. The dilute mix is applied by low pressure back-pack sprayer, truck mounted equipment, ATV or in rare instances by air.

The application method and use sites will vary depending on the weed species being treated, the size of the infestation and the accessibility. Only labels registered for use on the target weed species and the application sites will be used as it is imperative that CDFA only use registered pesticides.

8.4.1 Aerial Treatment

The majority of acreage selected for pesticide application to control weed populations is treated using ground application equipment. However there are rare circumstances that application by air in remote areas of the state is more practical. To assist in the accuracy and efficiency of the pesticide application, a global positioning system (GPS) is used to identify treatment sites. In the extremely rare occasion when aerial treatment occurs, Program personnel are present on the ground in vehicles to mark, direct and validate the aircraft starting and cut off points.

To assist aerial treatment, personnel on the ground visually verify the starting point and can communicate that position using ground-to-air radio. The treatment "polygons" are pre-set into the aircraft GPS flight recording/guidance system. The pilot sets a starting point into the on-board GPS unit. This starting point can be adjusted while flying. A second point is set, establishing an "A-B" line. The on-board GPS unit then generates 100-125 feet parallel interval treatment swaths, from that "A-B" line, to the end of the polygon. If necessary, ground personnel can direct the final swath by position of a vehicle or visual landmark.

In the rare event of GPS failure or GPS cannot be used, flag-persons are placed at each end of the swath and/or at intervals in the swath line. The flaggers keep the aircraft in line by waving a flag or providing the pilot a bright flash of light from either a signal mirror or powerful spotlight.

Extra personnel on the ground are utilized in areas where constant surveillance is necessary to minimize accidental exposure to people, water sources or to assist in flagging sensitive habitat boundaries. Within 72 hours after application is completed, post-treatment checks are made to assure treated areas received the herbicide.

8.4.2 Ground-rig Spot Treatments

Ground-rigs are infrequently used to spot treat ‘escapes’ or ‘skips’ in a high-acreage location or as an initial treatment regime. A ground-rig is typically a four-wheel drive pickup truck with a gas powered 50 gallon or larger spray equipment mounted in the truck bed or an all-terrain-vehicle (ATV) which has a 20-gallon spray tank mounted to the vehicle frame. The ATV configuration is normally a short width thirty-six inch boom or hand held wand for making the application. Either vehicle typically operates at a speed of approximately 3-5 miles per hour depending on terrain. The control for starting and stopping the flow of pesticide is in the hand of the applicator.

8.4.3 Low Pressure Backpack Treatments

Application of herbicides by backpack sprayer is the preferred and most used method for applying herbicides to small localized weed infestations. Choice of application equipment depends on the product formulation, the location and the size of areas to be treated. In greenhouses, roadsides, wildland settings or small farm operations, a backpack hand-pump sprayer may be effective. Most backpack low volume sprayers operate with a hand operated piston-pump capable of generating a working pressure up to ninety (90) pounds per square inch and are equipped with a shut-off valve, a four (4) foot spray wand, and a short length high-pressure hose. Most types are supplied with an adjustable hollow cone, flat fan or net-stream spray nozzle which provides for making most types of spray applications. Padded adjustable shoulder straps with pull tabs allow for quick adjustments. Sprayers of this type have a capacity of up to five (5) gallons but the more preferred quantity is 2-3 gallons. A built-in and removable strainer keeps debris from entering the spray nozzle and some units are provided with an adjustable pressure gauge.

8.5 Alternatives

8.5.1 No Action:

Under the No Action alternative, CDFA would not control weeds. Without annual control, weed populations would increase statewide Almost one-half of all the alien species included on the US endangered species list are the result of the introduction of the introduction of invasive plants, animals and other organisms.

Statewide control efforts of weed populations would be replaced by local control performed by private individuals or groups to sites adjacent to public property with an expected increase in pesticide use.

8.5.2 Increase Ground-rig/ Reduced aerial

Control high priority weeds, using a combination of mostly ground spray rigs and minimal aircraft, and; or ground-rigs only - no aircraft.

This alternative considers the use of labeled herbicides with aircraft, in areas inaccessible by wheeled vehicles or over rangeland in the northeastern portion of the state, and the use of spray-rigs mounted on wheeled vehicles/ATV's, in areas where they are able to negotiate the terrain.

Ground-rig/backpack/ATV treatments would include roadsides and vehicle accessible rangeland. Treatment of rangeland would be performed using the same methods as ground-rig use. Aircraft use would be limited to areas inaccessible by wheeled vehicles, or not used at all.

There are large tracts of federal and state lands with strict restrictions pertaining to the use of motorized vehicles. In the desert areas, large tracks of BLM land is designated *Limited and Moderate (L&M)* use in which vehicle travel is prohibited. Within the Carrizo Plain Natural Area motorized vehicle use is limited to designated routes of travel. Lands administered by the State of California including the Department of Water Resources, Department of Parks and Recreation and the Department of Fish and Game, place restrictions on motorized vehicle use. The national Park Service also restricts or prohibits the use of wheeled vehicles on some of their lands due to the presence of threatened or endangered organisms. These types of vehicle restrictions would severely limit ground-rig treatments or ATV application.

8.5.3 Biological Control

As an alternative to herbicides, the Terrestrial Plant Eradication Program and the Biological Control Program within CDFA fund research to explore the prospects of using biological agents to control several weed species (thistles, knapweeds, and others). The successful agents (target weeds) are as follows: hairy weevil, peacock fly and rust (YST); seed head and gall flies (YST); leaf beetle (purple loosestrife); crown weevil (Mediterranean sage) and seed weevil (spotted knapweed). As required by USDA-APHIS (United States Department of Agriculture, Animal and Plant Health Inspection Service) protocols each of the bioagents undergo host-specificity tests to determine their safety for introduction into the United States. All bioagents that show potential damage to non-target organisms are rejected. For YST the examination of potential bioagents began in the 1960's and is ongoing. Bioagents are screened, cultured and released in various regions of the state. The most successful bioagents for YST are the false peacock fly and hairy weevil.

8.5.4 Eradication of Weeds in Rangeland Habitat

Many species of weeds exist statewide, some of which are historically planted as ornamental plants that can be purchased either online or at a local nursery. The eradication of all weeds is unlikely to occur due to increased worldwide travel and the potential to re-introduce other non-desirable plants. Also, most weeds have a seed bank which can persist several years which will result in continuing treatments.

8.5.5 The Use of Alternative Pesticides

Other pesticides are currently registered for use in California and others are in the development stage for weed control but they each may have an assigned ‘Signal Word’, (e.g. Warning, Danger) on the label and by definition, are more harmful to people and the environment. Each of the products used in the weed program have a U.S. Environmental Protection Agency signal word ‘Caution’ on the label. The “Caution” signal word verifies that the product has minimal toxicity to humans and the environment.

9. Sampling and Monitoring Procedures

Considering the precise application practices of ground-rig spot treatments and backpack application equipment, the limited treatment areas and the ability to avoid water bodies, the California Department of Food and Agriculture (CDFA) does not anticipate drift into water bodies. The CDFA does not plan on monitoring ground-rig spot treatments or treatments made with backpack application equipment, unless there is a required treatment with an unavoidably close proximity to a water body or an unintentional drift incident.

The CDFA rarely uses aerial applications; the two main exceptions would be the Beet Curly Top Virus Control Program (BCTVCP) and the terrestrial plant eradication program. Due to the quantity of acres treated and the nature of aerial applications, the CDFA will monitor water bodies during aerial applications. Water bodies will be monitored when aerial applications are performed within a quarter (¼) mile of a water body. Representative sample sites will be chosen according to the number of water bodies encountered during the season.

For the BCTVCP, most of the water bodies, likely to be exposed to treatments when water is present are located in the winter/spring treatment areas, on the west side of the San Joaquin Valley. Sampling of approximately 1-3 representative sites per year may be possible in the winter/spring treatment period. One sampling site per year during the fall aerial treatments may also be chosen.

Aerial applications to control the Beet Leaf Hopper (BLH) populations are directed by the results of BLH population surveys as determined with sweep net methods. The proximity of BLH development to water bodies can not be pre-determined in advance of population surveys. BLH population development is weather dependent and varies in extent and density from year to year. The variations in temperature, quantity and timing of rainfall influence the development of host plants and BLH populations. In any given year, rangeland habitat chosen for treatment may or may not be in close proximity to water bodies. The ephemeral nature of the streams on the west side of the San Joaquin Valley also dictates the quantity and location of appropriate sampling sites in a given year. Sampling sites will be chosen when water is present and there is a maximal likelihood that the pesticide could drift to the water.

For the terrestrial plant eradication program an extremely small quantity of acres are treated by aerial applications in Modoc County only. The Program will not monitor water bodies farther than one quarter (¼) mile of water bodies. Aerial applications to control weed populations are directed by the results of visual flight surveys. The proximity of weed sites to water bodies cannot be pre-determined in advance of visual surveys. Weed populations are weather dependent and vary in extent and density from year to year. Variations in temperature and the quantity and timing of rainfall influence weed development. In any given year, rangeland chosen for treatment will not be in close proximity to water bodies. The ephemeral nature of the drainage sites county-wide also dictates the quantity and location of appropriate sampling sites in a given year. Sampling sites will be chosen when water is present and there is a maximal likelihood that the pesticide could drift to the water.

9.1 Visual Observations of Sampling Site

Visual observations of the water body will be noted on a sampling field data sheet log for each water sampling site chosen. Observations will include:

- Water Body Description-(pond, lake, channel, creek, stream, etc.)
- Appearance of water way-(sheen, color, clarity, etc.)
- Weather Conditions-(rain, wind, fog, etc.)
- Note Flow Conditions

Attention will be given and noted to the presence of:

- Floating or suspended matter
- Discoloration
- Bottom deposits
- Aquatic life
- Visible films, sheens, or coatings
- Fungi, algal slimes or objectionable growths
- Potential nuisance conditions

9.2 Water Quality/Physical Measurements of Sampling Site

Physical measurements will be made during the surface water sampling to provide additional data for characterizing water quality. Measurements will be recorded on a sampling field data sheet. An YSI-650 MDS meter or equivalent will be used to measure pH, conductivity, temperature, turbidity, and dissolved oxygen. The meter will be calibrated prior to use. Physical readings will be made “in-stream” by inserting the probe directly within the flowing water, just down stream from the point where a water sample will be extracted.

9.3 Surface Water Sampling

A total of 3 water samples will be taken at each sampling site for active ingredient analysis. The following table summaries quantity of samples proposed.

Numbers of Samples Per Sample Site		
Type of Sample	**Active Ingredient**	**Toxicity Study***

Background Sample (within 24 hours)	1	0
Event Sample (not exceed 24-hours)	1	0
Post- Event Sample (within one week after)	1	0

*At the time of this writing, the State Water Board has decided to fund a toxicity study of the pesticide products included in the permit and will not require CDFA to conduct toxicity testing until the results of their study become available (not later than 12/31/2012). In the interim CDFA will be required to conduct visual and chemical water monitoring only.

- **Background Monitoring**- Samples will be collected at the application area just prior (up to 24-hours in advance of application) to the application event.

- **Event Monitoring**- Samples will be collected within the application area immediately after the application event but shall not exceed 24-hours after the application event.

- **Post-Event Monitoring**-Samples will be collected within the application area within one week after the application event. *The Discharger is responsible for calculating the distance from the path (or point) of application in which off-target spray drift may occur. Post-Event monitoring shall be conducted accordingly.*

Each water sample will be collected at the surface of the water body using a new, liter size, amber glass bottle. Each bottle will be labeled with the collector's name, date, location, time, monitoring type, (Background/Event/Post-event) and analyses required (active ingredient analysis or toxicity study). All samples will be refrigerated in the field using a mobile 12v refrigeration unit placed in a vehicle, or kept on ice in a cooler. Samples will remain refrigerated while being transported to an indoor refrigeration unit.

Coolers used to transport the samples to the laboratory will be prepared as follows:

- Previous labels will be removed from cooler.
- Drain plugs will be sealed with tape inside and out.
- All ice will be double bagged in resealable plastic bags.

A Chain-of-Custody form will accompany samples and coolers to the laboratory. The coolers will then be delivered to the appropriate laboratory. Upon receipt by the laboratory, the sample custodian will inspect and certify the condition and presence of all samples.

9.4 Field Data Collecting

A water sampling field data sheet will be used to record water sample data, visual observations, and water quality measurements.

9.5 Water Sample Chain-of-Custody

Water sample chain-of-custody procedures ensure the custody and integrity of the samples through transport, delivery to lab, data gathering, and reporting. The following will be documented on the chain of custody form:

1. Quantity and identification by name of samples transported
2. Name and signature of person transporting samples, date, time and purpose
3. Name and signature any subsequent person transporting samples, date, time and purpose
4. Name and address of laboratory performing analysis or toxicity study
5. Name of persons at laboratory receiving samples and Lab receipt date
6. Condition of samples when received at Lab

9.6 Laboratory Facilities

Analysis of active ingredient will be conducted by the:

California Department of Food and Agriculture
Center for Analytical Chemistry
Environmental Science Section
3292 Meadowview Road
Sacramento, CA 95832

10. Applicable Water Quality BMP'S

The Program's Best Management Practices (BMP) have been developed through label requirements, consultation of Federal and State laws and regulations, multiple Section 7 Consultations with U. S. Fish and Wildlife Service (USFWS), consultation with NOAA Fisheries and informal consultations with the California Department of Fish and Game (CDFG).

10.1 General BMP's

The following general Best Management Practices (BMP) guidelines have been developed by CDFA for spray applications. They will facilitate an optimal pesticide application and protect the natural environment by preventing off-site movement. These BMP's will prevent unintentional discharge to waters of the United States.

1. Conduct a site assessment.
    a. Identify the pest species to be treated. CDFA has compiled EIR's for many pests of concern.
    b. Take note of site conditions, such as soil texture, slope, irrigation or storm drains.

c. Identify and avoid streamside management areas and surface water to prevent chemicals not labeled for aquatic use from drifting over open water, or from accidentally being applied directly on the water.
d. Choose integrated pest management methods designed to minimize the scale and number of pesticide applications: Integrating multiple measures such as quarantines, sterile release, host removal, bait stations or mass trapping. Programs use small quantities of materials
e. Choose the least persistent and lowest toxicity pesticide that will efficaciously treat the target pest.

2. All equipment must be properly cleaned and calibrated to apply chemicals uniformly and in the correct quantities.

a. Calibrate spray equipment per manufactures specifications.
b. Equipment screening tests and tank sampling.
c. Dedicate specific equipment for specific products.
d. Clean equipment regularly following the manufactures specifications and the pesticide label directions.
e. Select the appropriate nozzle to ensure proper coverage.
f. Maintain and equipment log to track calibration, cleaning and repairs.
g. Conduct visual inspection of equipment prior to use. Check all equipment for leaking hoses, connections and nozzles.
h. Monitor the operation of the nozzles during the application.
i. Request CAC PUE inspections of all programs.
j. **DO NOT** use any equipment that appears to be damaged.
k. Discontinue use immediately in the event of an equipment malfunction.
l. Staff are trained to clean up spills

3. Follow pesticide label directions, regulations, or internal procedures which ever is the most conservative.

a. Read pesticide label.
b. Staff is trained to properly apply pesticide.
c. Be aware of any regulations or internal procedures prior to application.
d. Ensure that treatment is consistent with Integrated Pest Management for the pest and crop/location.
e. Use appropriate application methods and rates to minimize over application.
f. Mix and load chemicals out of streamside areas, mix and load in areas where spills can be contained.
g. Annual safety & endangered species training for all personnel mixing or applying pesticides.
h. Annual search for MSDS and Label updates or revisions for materials used.

4. Apply chemicals only under favorable weather conditions.

a. **DO NOT** make spray applications if wind speeds are less that 3 mile per hour or over 10 miles per hour (limited to 5 miles per hour for CTV program).
b. Avoid spraying during stable (inversion) conditions (early morning and early evening) when there is little or no vertical mixing of the air (aerial CTV). These conditions generate concentrated drift clouds and increase the chance of drift fallout.

c. Check weather service prior to application and **DO NOT** make application if rain (40% chance or higher) is forecast 48 hours prior to planned application.
d. Monitor wind direction and do not spray when there are sensitive crops/areas immediately downwind.
e. Keep records of air temperature, wind speed, and wind direction for aerial applications.

5. Follow integrated pest management and drift reduction techniques.
    a. Use buffer zones to protect sensitive areas, such as bodies of water, T & E “critical habitat” (as prescribed through Section 7 Consultations), and any other sensitive area.
    b. Use of spotters to avoid accidents and to aide in identifying buffer zones.
    c. Use low pressure application equipment.
    d. Use “bait station” application methods when possible over full coverage spray applications to avoid run off and or effects to non-target species.
    e. Conduct spot treatment when applicable.
    f. Host plant manual removal.
    g. Solarization.
    h. Hold notices (quarantine).

6. Clean equipment and dispose of rinse water per label directions.
    a. Rinse equipment according to manufacturer’s label instructions.
    b. Discharge rinse water only in areas that are part of the application site o at a certified waste treatment facility.
    c. Dispose of surplus chemical and containers according to label instructions.

7. Product Storage
    a. All pesticides are stored at CDFA facilities in original containers.
    b. All pesticides removed from original container for use are sealed within a service container
    c. All service containers are sealed within a tool box inside the bed of a modified truck.
    d. Tool boxes are supervised when not locked.

10.2 Aerial Treatment BMP’s

A standard 200 meter buffer zone (656 feet) for aerial treatments around water bodies has been established to greatly reduce the potential for contamination due to drift. Drift models are used to calculate the percent reduction in deposition at various distances from the edge of the treatment swath.

Table 1, extracted from a drift model, shows a reduction between 95.2 percent and 99.3 percent in deposition at 656 feet (200 meters) under treatment parameters utilized by the BCTVCP.

Table 1 from Attachment E- BCTVCP Aerial Drift & Terrestrial Residue Estimates

Chemical	Buffer zone (ft)	Initial Average Deposition (mg/cm^2)	Percent Reduction in Deposition
Malathion	0	0.0042	-
	108.3	0.0007	83.3
	328.1	0.0002	95.2
	984.2	0.00003	99.3
	2600.0	0.000002	99.9

1. The prohibiting of direct application to bodies of water.
2. Utilization of drip less nozzles.
3. The BCTVCP utilizes an aerial contractor to perform aerial applications.
4. The BCTVCP verifies the calibration of the contractor's spray equipment prior to the start of each treatment campaign.
5. The on-board flow control equipment is set to deliver 1 gallon mix per acre regardless of aircraft speed. To assure proper calibration, the size of each field treated is routinely compared to the gallons of mix applied to that field.
6. Aircraft pilot is in constant radio communication with Program personnel on the ground to verify wind speed and direction and location of non-target sites including water bodies, people, vehicles, buildings, etc.
7. Wind speed and direction is constantly monitored. Treatments are halted when average wind speed exceeds 5 mph.
8. Mixing and loading of aircraft is supervised by Program staff.
9. Applications halted with forecast of rain.

10.3 Ground-rig Foliar Treatment BMP's

1. The prohibiting of direct application to bodies of water.
2. A minimum30 foot buffer is established for water bodies.
3. Utilization of drip less nozzles or fan type nozzles at low psi.
4. The blower boom is directed to the precise angle needed to treat host plants.

5. The spray boom is equipped with electric on/off switch to treat precise target areas where host plants have developed.
6. Wind speed and direction is constantly monitored. Treatments are halted when average wind speed exceeds 5 mph. Spot treatments are made down wind from water bodies.
7. Ground-rig foliar treatments are operated at a low pressure, reducing the quantity of fine droplet particles.
8. Ground-rig spot treatments are performed by staff or private entities under contract
9. Applications are delayed in the event of rain.

10.4 Low Pressure Backpack Treatment BMP's

1. The prohibiting of direct application to bodies of water.
2. A 30 foot buffer is established for water bodies.
3. Utilization of dripless nozzles.
4. The nozzle is directed at the target to minimize drift
5. Wind speed and direction is constantly monitored. Treatments are halted when average wind speed exceeds 5 mph. Spot treatments are made down wind from water bodies.
6. Backpack sprayers are operated at a low pressure, reducing the quantity of fine droplet particles.
7. Backpack spot treatments are performed by trained staff.
8. Applications halted with forecast of rain.

10.5 Pesticide Training

Personnel are trained in the safe and proper mixing, loading and application of pesticides in compliance with both federal and state pesticide regulations and the product label. Each employee that handles pesticides must be trained to safely handle, transport, store, apply and dispose of the pesticide according to California Code of Regulations Title 3. Each employee attends a documented pesticide training session annually or prior to working with pesticides. In addition, employees that supervise the handling and application of pesticides must maintain a Qualified Applicator Certificate, issued by the California Department of Pesticide Regulation. To maintain a certificate, 20 hours of continuing education courses must be completed every two years.

10.6 Avoidance of Non-target Sites

Program personnel, through extensive field training and experience, become intimately acquainted with all physical characteristics of the terrain within their assigned districts.

This includes familiarity with non-target sites and situations such as human activity, livestock, water sources, endangered species locations and riparian zones.

The close familiarity with treatment areas and delimitation surveys performed during the period prior to the commencement of applications enables Program personnel to predict where non-target sites and situations are likely to occur. Maps provided by private parties, the BLM, National Resource Conservation Service and the U.S. Geological Survey are utilized to record the locations of target pest populations and the position of non-target sites. In addition, computerized field maps, created by the Program using GPS devices, aid field personnel and aerial applicators in identifying non-target areas within or adjacent to delimited treatment areas.

Prior to the treatment of each area, the aerial applicator is briefed and provided a map of non-target sites, treatment restrictions and potential hazards within areas to be treated. Program personnel performing applications, leave buffers around non-target sites within the treatment area.

10.7 Runoff and Drift Prevention

A great deal of time and money is invested in the survey, delimitation and treatments. Treatments are themselves expensive, and it is essential to maximize their effectiveness. Weather conditions within potential treatment areas are important factors in determining the effectiveness of control applications, and therefore weather conditions are carefully monitored and evaluated immediately before deciding whether to proceed with a treatment, and during the course of a treatment.

To reduce the potential for drift and runoff from the influences of weather the Program established the following procedures:

1. Prior to and during treatment activities, the local weather forecasts are consulted on a daily basis to ascertain the likelihood of rain and wind. During control operations, on site wind speed and direction is constantly monitored in the target area to eliminate drift into non-target areas. Aerial and ground-rig applications are curtailed when average wind speeds exceed 5 mph. Constant communication is maintained with aircraft to alert the pilot should weather conditions change. When necessary, buffer zones are enlarged to compensate for wind direction.

2. When plant cover is moist due to recent rain, dew, or frost, the program delays the application of pesticides until the plant cover is nearly dry.

3. When there is a high probability (80%) of local moderate rain, 0.25 inch or less within 24 hours, the Program staff closely monitor any possibility of precipitation within the treatment area with the goal to ensure applied materials sufficient time to dry (at least four hours) before any anticipated rainfall. Light showers of 0.10 inches or less appear to have little effect on the applied insecticide once it has dried on the plant surface.

4. If rainfall of more than a moderate amount (0.25 inch or more) is predicted locally within 48 hours, the Program will discontinue applications until predicted local conditions improve.

10.8 BMP's for T & E Species Habitat

1. California Red-legged Frog (CRLF), California Tiger Salamander (CTS)
   a. An aerial buffer of at least a quarter (1/4) mile radius will be maintained around occupied CRLF or CTS habitat.
   b. An aerial buffer of at least 200 meters will remain untreated near aquatic or riparian areas suitable as potential habitat for the CRLF and CTS.

2. Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp
   a. The program, with the assistance of federal and state resource agencies, will identify and inventory vernal pools known to be habitat for listed fairy shrimp within potential survey areas.
   b. A treatment buffer of a ½ mile will be maintained around vernal pools.
   c. A treatment buffer of 200 meters will be maintained around suspected vernal pools.

3. Giant Garter Snake (GGS)
   a. An aerial or ground-rig buffer of at least 200 meters will remain untreated near aquatic or riparian areas suitable as potential habitat for the giant garter snake.

4. Valley Elderberry Longhorn Beetle
   a. An aerial or ground-rig buffer of at least 200 meters will remain untreated near riparian areas suitable as potential habitat for elderberry.
   b. During the time when adult beetles are active (March 15th through June 15th), a buffer of at least 1/4-mile radius will remain untreated near known occurrence of valley elderberry longhorn beetle as defined by the National Diversity Data Base or other available data base sources.
   c. Personnel will be trained to recognize elderberry shrubs and potential beetle exit holes.

5. South-central California Coastal Steelhead
   a. An aerial and ground-rig buffer of at least ¼ mile will remain untreated adjacent to Critical Habitat designated in the Salinas river and tributaries including agricultural drains and canals.

6. Yuma Clapper Rail (YCR) California Black Rail (CBR)
   a. No aerial applications will be made within 300 yards of potential YCR or CBR habitat. Potential rail habitat is defined as any wetland, including agricultural drains with suitable vegetative cover.
   b. Areas containing host material that are between 200 meters and 300 meters from potential YCR or CBR habitat will be treated with ground equipment only.
   c. Areas containing host material that are less than 200 meters from potential YCR or CBR habitat may be treated only with equipment that can deliver the

pesticide specifically to the target plants.
d. Pesticides will not be applied within 5 miles of occupied YCR or CBR habitat if rain is expected within 72 hours of treatment.

7. Desert Pupfish
   a. Applications will not be carried out within a ½ mile of occupied desert pupfish habitat.
   b. Application within one mile of occupied or designated critical habitat boundaries will not take place when sustained wind velocities exceed 5 mph.
   c. Application within five miles of designated critical habitat will be curtailed if weather conditions indicate a moderate to high possibility for precipitation within 72 hours of planned treatment.

10.9 Spill Contingency Plan

The objective of the plan is to:

- Minimize the risk of further pesticide exposure to people, animals, and the environment.
- Provide a list for notifying federal, state, and local government officials of the size and details of the spills.
- Provide clean up of small spills (50 gallons or less) and proper disposal of residual materials.

10.9.1 Emergency Procedures

Use common sense in determining the appropriate action in the event of an accidental crash of a spray rig, tanker, or aircraft.

Spill Involving Injury: If a spill involves personal injury, call an ambulance. The health and well being of persons in and around the area is the most immediate concern. If someone was exposed to pesticides remove them to a safe location. Remove clothing and wash contaminated skin with soap and water. Do not move a seriously injured person unless it is absolutely essential due to risk of further injury. Do not leave injured or incapacitated persons until proper medical assistance arrives. A pesticide label and/or safety data sheet should accompany exposed people to the hospital.

Spill Involving Fire: If a fire hazard exists, call the fire department and notify them of the presence of pesticides. Eliminate all sources of ignition (electric motors, gasoline engines or smoking) to prevent the threat of fire or explosion.

Spill on Highway: If the spill occurs on the highway, contact the California Highway Patrol through (911).

Spill Off-road: If the spill occurs off-road, call local police or county sheriff.

Punctured Tank: If a tank has a puncture, stop the leak and contain the spill.

10.9.2 Minor Spills, 50 Gallons or Less

1. Wear rubber boots, coveralls, rubber gloves and eye protection.
2. Confine the leak or spill to the smallest area possible by using natural terrain, soil or absorbent material.
3. Shovel contaminated material into a leak proof container.
4. Do not hose down area.
5. Work carefully and safely; do not hurry.
6. Dispose of contaminated material the same manner as with excess pesticides or hazardous wastes.

10.9.3 Major Spills (50 Gallons or More)

1. Follow steps listed under minor spills.
2. If the spill is too big, or uncertainty exists as to the appropriate action notify, the Chemical Transportation Emergency Center at 1-800-424-9300.
3. If the spill occurs on the highway, call the California Highway Patrol through (911).
4. If the spill occurs off-road, call local police or county sheriff.

10.9.4 Notification List

Depending of circumstances, it may be necessary to notify and seek assistance from various agencies.

1. The California Department of Food and Agriculture, Division of Plant Health and Pest Prevention.
2. California Highway Patrol, if accident is on the highway. Contact local police or county sheriff if the accident is not on a State Highway.
3. County Agricultural Commissioner's office.
4. California Emergency Management Agency 1-800-852-7550 or public number (916) 845-8911.
5. State Department of Water Resources and the California Department of Fish and Game; if the spill threatens or contaminates water.
6. The Bureau of Land Management, local resource office, if the spill occurs on BLM administered lands.

7. The Federal Aviation Administration, if the spill involves an aircraft crash.

8. Local county environmental health office.

10.9.5 Safety and Cleanup Materials

The following is a checklist of safety and cleanup materials that accompany mixing-loading vehicles during treatment activities.

1. <u>Safety</u>

   First aid kit
   Fire extinguisher-516, type A-B-C
   Goggles

2. <u>Clean Up</u>

   One shovel
   Large heavy-duty plastic bags
   Rubber boots
   Disposable coveralls
   Water
   Rubber gloves
   Broom and dust pan
   Liquid detergent
   Several bags of "kitty litter" or other absorbent materials.

10.9.6 Decontamination

Surfaces such as paved surfaces should be decontaminated. Contaminated material must be shoveled into a leak-proof metal drum for final disposal.

10.9.7 Disposal

All materials that have been contaminated by spillage, or exposed to large volumes of pesticides including cloth, soil and wood cannot be decontaminated and must be disposed of in the same manner as with excess pesticides. Contaminated absorbent material and materials that cannot be decontaminated will be stored in a leak-proof container and disposed in a Class I dump.

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Appendix F

Pest Profiles

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Introduction

This Appendix presents information regarding the various pests that currently are managed under CDFA's Statewide Program, supplementing the pest-specific management information provided in Section 3.4, Current Pest Management Program of the Final PEIR. Each pest, its occurrence and distribution in California, and its target plant(s) are introduced. This is followed by a brief summary of the pest's life history and an overview of its environmental and economic effects. For a discussion of proposed management activities for these pests, refer to Section 3.4.

All terms and acronyms used in this Appendix can be found in Section 9, Glossary and Acronyms of the Final PEIR.

Asian Citrus Psyllid

The Asian citrus psyllid (ACP) (*Diaphorina* citri) is an insect that is a vector for the bacterium that causes the citrus disease Huanglongbing (HLB), or "citrus greening." Established in many parts of the world, ACP was first found in California in August 2008, in San Diego County. Subsequent to this initial find, ACP has been detected in Fresno, Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, Tulare, and Ventura counties. (CDFA 2013a)

Life History

Female ACPs lay their eggs on the tips of growing shoots, on and between unfurling leaves. Each female can lay 300 to 800 eggs during her lifetime. Once they hatch, ACP nymphs pass through five instars (life stages). Depending on temperature and season, this total life cycle typically takes from 15 to 47 days. Adults may live for more than a month. No diapause (period of suspended development) occurs, but populations typically are low in the winter or during dry periods. Approximately nine to 10 generations occur in a year, with up to 16 having been observed in field cages (CDFA 2013a).

Environmental and Economic Effects

ACP transmits several phloem-inhabiting bacteria in the genus *Candidatus liberibacter*, the causal agents of huanglongbing (HLB), or "citrus greening." HLB is one of the most devastating diseases for citrus trees in the world. Symptoms of HLB include yellow shoots, with mottling and chlorosis of the leaves as well as bitter tasting juice and fruit. Once infected, trees cannot be cured and can die within 10 years. (CDFA 2013a) ACP also causes damage directly through feeding. ACP feeds mainly on citrus species but also feeds on other related species. When it feeds, ACP draws out large amounts of sap from the plant and produces copious amounts of honeydew. The honeydew coats the leaves of the tree, encouraging sooty mold to grow and thereby blocking out sunlight to the leaves.

In Florida between 2007 and 2012, HLB resulted in the loss of 6,600 jobs and lost revenues of over $7 billion. In California, ACP threatens the state's citrus industry, which includes the following crops: grapefruits (valued at $49 million), oranges ($656 million), lemons ($352 million), nectarines ($130 million), and tangerines, mandarins, tangelos, and tangors ($183 million). All values are based on the value of the quantity of harvested crops in 2011 (CDFA 2013b).

Asian Long-Horned Beetle

The Asian longhorned beetle (ALB) (*Anoplophora glabrepennis*) is a wood-boring insect pest of maple and other hardwood trees. ALB was first discovered in New York, in 1996. It subsequently has been detected in Illinois, New Jersey, Massachusetts, and Ohio. (Paine and Hoddle 2013) As of December 2013, ALB was not known to be present in California.

Life History

Female ALB lay eggs in the bark of trees. The larvae then hatch and feed on the tree tissues in their immediate vicinity. Later, as they increase in size, the larvae burrow their way into the heartwood of trees and overwinter there. Pupation takes about 20 days, and adult beetles emerge between late June and early July. Adult beetles are reproductively active from the time they emerge until the first hard frost. A single female will lay eggs at multiple sites and is capable of laying up to 90 eggs. (Connecticut Department of Energy and Environmental Protection 2013)

Environmental and Economic Effects

Establishment of ALB in California could result in the destruction of millions of acres of hardwoods, such as those in parks and backyards. Many host trees of ALB are important components of landscapes, watersheds, and ecosystems. Establishment of ALB could have substantial negative effects on urban landscapes and natural diversity (USDA n.d.). If ALB infestations occur in urban or residential areas, street trees often have to be removed. Removal, treatment to destroy all life stages (e.g., chipping), and replacement of street trees can cost hundreds to thousands of dollars per infestation. (Paine and Hoddle 2013)

Boll Weevil

The boll weevil (*Anthonomus grandis*) is an insect that damages cotton crops. It was first introduced into the U.S. from Mexico at some point before 1894 (North Carolina State University n.d.a). It now occurs in cotton-growing areas east of the Texas high plains as well as in parts of Arizona.

Life History

Boll weevils overwinter as diapausing adults, taking shelter under leaf litter and in weeds along fence rows and ditch banks surrounding cotton fields. Adults begin to emerge as early as February in southerly areas and continue to emerge through early July. Peak emergence occurs during late May and early June. Egg-laying does not occur in spring until cotton squares are present. When squares appear, females make small cavities in the squares and deposit single eggs. Depending on the temperature, eggs hatch within 2 to 4 days. Hatched larvae feed on plant tissue, causing squares to yellow and drop from the plant, and then they transform into pupae within the squares. Newly formed adults chew their way out of the squares. (North Carolina State University n.d.a)

Environmental and Economic Effects

Both adults and larvae cause damage to plants through egg-laying (egg punctures become small protuberances in the buds) and feeding. Larval feeding within the squares ultimately causes the plant to shed the infested squares. Although feeding on the squares and bolls usually does not result in shedding, it sometimes can ruin the cotton fiber. In addition to direct damage, feeding and egg-laying activities can allow boll-rotting fungi to enter the plant. In North Carolina, economic losses attributed to boll weevils have reached $7.5 million annually. (North Carolina State University n.d.a) Cotton seed and cotton lint production in California is valued at nearly $1.1 billion, based on the value of the quantity of harvested crops in 2011 (CDFA 2013b).

Brown Marmorated Stink Bug

Brown marmorated stink bug (BMSB) can seriously damage the following California crops: apple, grape, peach, pear, pepper, tomato, and citrus (i.e., grapefruits, mandarins, oranges, lemons, nectarines, tangelos, tangerines, and tangors). CDFA has confirmed established populations of the brown marmorated stink bug (BMSB) (*Halyomorpha halys*) in five California counties: Los Angeles (2006), Sacramento (2013), San Bernardino (2013), Sutter (2013) and Butte (2013). Additionally, incursions of BMSB that may or may not have established have been found in the environment of five other counties: San Joaquin (2012), Yolo (2012), Glenn (2013), Placer (2013) and Siskiyou (2013). BMSB has also been identified from specimens associated with people, vehicles, or parcels that originated from infested areas. These interceptions have occurred in 16 counties since 2002: Alameda, Contra Costa, Lassen, Monterey, Orange, Riverside, San Diego, San Francisco, San Luis Obispo, San Mateo, Napa, Santa Barbara, Santa Clara, Santa Cruz, Sierra and Solano. All of the detections were associated with people, vehicles, or parcels that originated from infested areas in the eastern U.S.

Life History

BMSB is native to East Asia and is highly polyphagous, feeding on possibly over 60 species of vegetables, fruit trees, and ornamentals. It has established itself throughout the Mid-Atlantic region of the U.S. and now is found in the Western U.S., including California. BMSB typically has two generations per year. Adults lay eggs on the undersides of leaves, and the nymphs emerge and begin eating the leaf and fruit tissue of host plants, a phenomenon which continues through adulthood. The stink bug gets its name from the strong, unpleasant odor it can release when disturbed. (UC Riverside Center for Invasive Species Research, n.d.)

Environmental and Economic Effects

BMSB feeds by piercing and sucking, during which time it injects digestive enzymes into host leaves and fruits to facilitate nutrient extraction. This process results in localized necrotic spots on leaves and fruits. Damage is particularly problematic for direct feeding on developing fruit because it can lead to severe distortion and in some cases fruit drop. In addition, stink bugs can act as contaminants, such as in grapevine clusters, which fouls juice once infested clusters are pressed and the bugs are crushed. BMSB has caused substantial losses in affected areas in the eastern U.S. (UC Riverside Center for Invasive Species Research, n.d.). In California, the most important crop plants at risk are tomato (quantity produced in California in 2011 valued at nearly $1.3 billion), pepper ($338 million), grapevines (2011 grape production valued at nearly $3.9 billion), apple (nearly $58 million), peach ($289 million), pear (nearly $98 million), and citrus crops: grapefruits (valued at $49 million), oranges ($656 million), lemons ($352 million), nectarines ($130 million), and tangerines, mandarins, tangelos and tangors ($183 million, taken cumulatively) (CDFA 2013b). (UC Riverside Center for Invasive Species Research, n.d.)

Burrowing and Reniform Nematodes

Burrowing and reniform nematodes cause damage to the roots of a variety of commercial crops. The burrowing nematode is native to Australasia but is found worldwide in tropical and subtropical regions of Africa, Asia, Australia, North and South America, and many island regions (Sekora and Crow 2012). The reniform nematode is found in South America, North America, the Caribbean Basin, Africa, southern Europe, the Middle East, Asia, Australia, and the Pacific. It was first found in the U.S. in Hawaii. Today, it is found throughout the southern U.S. (Wang 2001)

Life History

Burrowing Nematode

Burrowing nematodes are migratory endoparasites of plant roots and complete their entire life cycle within root tissue. They also can be found in rhizosphere soils of host plants. The nematode species completes its life cycle in 18 to 20 days at 24 to 27 degrees Centigrade (°C) (Orton Williams and Siddiqi 1973). All juvenile stages and females are infective, and can enter root tissue at any point along the length of a root. As mature females migrate through the root tissue, they lay eggs that are produced either through sexual reproduction with males or parthenogenetically. After the eggs hatch, juveniles stay within the root tissue and complete their life cycle or leave the root tissue in search of a healthy host root. (Sekora and Crow 2012)

Reniform Nematode

The adult female reniform nematode is an obligate, sedentary, semi-parasite of roots although the male is not parasitic. The nematode species completes its life cycle in 24 to 29 days (17 to 23 days in cotton) (Siddiqi 1972). Reniform nematode eggs hatch 1 to 2 weeks after being laid by mature females. Juveniles develop through three molts to the preadult stage without feeding, and all juvenile stages and males are found in the soil. The preadult, immature female is the infective stage that penetrates host roots partially so that only the anterior end of the nematode is embedded in root tissue while the remaining body remains outside the roots and swells in size. One to two additional weeks are required for females to reach maturity. The reniform nematode reproduces sexually, and occasionally through parthenogenesis. Eggs are laid within a gelatinous sac, produced through the externally exposed nematode body. Nematodes can survive for 2 years in the absence of a host in dry soil, through a survival mechanism called anhydrobiosis. (Wang 2001)

Environmental and Economic Effects

Burrowing Nematode

Burrowing nematodes have been observed infecting more than 300 plant species, including banana, citrus, coffee, coconut, ginger, pepper, sugarcane, tea, and several ornamentals. In Florida, burrowing nematodes have infected citrus plants (although only in deep and coarse sandy soil in central Florida), resulting in yield losses of 40 to 80 percent. The offspring of a single individual nematode have been observed to cause localized areas of heavy damage that often lead to the death of the infected root. (Sekora and Crow 2012)

Notable host crops in California include the citrus varieties: grapefruits (valued at $49 million), oranges ($656 million), lemons ($352 million), nectarines ($130 million), and tangerines, mandarins, tangelos and tangors ($183 million), as well as peppers (bell and chili), which together are valued at $556 million. All numbers are based on the value of the quantity of harvested crops in 2011 (CDFA 2013b).

Reniform Nematode

The reniform nematode infects over 140 plant species in 115 genera, representing 46 families (Jatala 1991). In addition to direct damage to roots, reniform nematodes indirectly facilitate infection of cotton with *Fusarium* and *Verticillium* wilt diseases, as they cause *Fusarium* wilt-resistant varieties of cotton to become susceptible to the disease. In south Florida, reniform nematodes have reduced snap bean yield by 10 percent. (Wang 2001)

Some of the economically affected hosts include cotton, citrus ($49 million), grapefruits (California production in 2011 valued at oranges ($656 million), lemons ($352 million), nectarines ($130 million), and tangerines, mandarins, tangelos and tangors ($183 million)), pineapple, tomato (nearly $1.3 billion), eggplant (quantity produced in 2001 valued at $8 million), okra, squash (nearly $35 million), cabbage ($65 million), and lettuce ($1.5 billion). Cotton is a crop of concern in California because of its susceptibility to the reniform nematode; cotton seed and cotton lint production in California is valued at nearly $1.1 billion, based on the value of the quantity of harvested crops in 2011 (CDFA 2013b).

Cedar Apple Rust

Cedar-apple rust (CAR) is a fungal disease of apple. It can defoliate trees and blemish fruit making them unmarketable. It is found in the U.S., east of the Rocky Mountains. (Pearson et al. 1981)

Life History

The CAR fungus requires two hosts, apple and red cedar, to complete its life cycle. The fungus overwinters in spherical galls on cedar trees. Spring rains cause horn-like structures called telia to extrude from galls. These galls swell on absorbing water to become jelly-like. They dry between rainfalls and become dark brown threads. Subsequently, swelling and drying occurs during the season, and each time, more teliospores are exposed. During rains and at temperatures ranging between 8 and 24°C, teliospores generate to produce basidiospores that are forcibly discharged into the air immediately after being formed. Basidiospores land on young apple tissue and germinate if conditions are favorable (i.e., a film of water is present). Basidiospores can be carried long distances by the wind (Pearson et al. 1981). One to two weeks after infection, orange pustules called pycnia are formed on the upper side of leaves or on fruit. These pycnia produce spores called pycniospores. Four to eight weeks later, other structures called aecia, containing aeciospores, are produced on the underside of leaves or fruit. Aeciospores are dispersed in dry conditions during late summer and may land on cedar leaves, thereafter continuing the disease cycle.

Environmental and Economic Effects

CAR causes premature defoliation in apple trees, and causes fruit to be smaller and deformed compared to normal apples. If severe infections continue for several seasons, they can cause apple trees to die. Although CAR is not known to be extremely harmful to native red cedar or ornamental cedar, ornamental cedar trees can become so covered with galls that they become unattractive (von Broembsen 2009). CAR threatens a $58 million apple industry in California (based on value of crop quantity in 2011) (CDFA 2013b).

Cereal Leaf Beetle

The cereal leaf beetle (CLB) (*Oulema melanopus*) is an insect native to Europe and Asia. It is a notable pest of wheat and other grain crops. CLB was first discovered in the U.S. in 1969, and then subsequently spread to most wheat-growing regions of the eastern U.S. (Tooker 2009).

Life History

CLB has one generation per year. Adult beetles lay eggs on a grass host in March and April. Larvae later emerge and begin to feed. The larval stage typically takes about 2 weeks, but the duration can vary, based on temperature. After the larvae reach maturity, they burrow into the ground to pupate. About 2 weeks later, adults emerge and feed in small grain and corn fields for a short time before becoming inactive for the majority of the summer (Tooker 2009), and then re-emerge in the fall. CLB feed on a wide range of grasses but prefers spring-seeded small grains, especially barley, oats, and wheat.

Environmental and Economic Effects

CLB can cause substantial damage to wheat and other grain crops. Larvae damage crops by stripping off green tissue between leaf veins. Large populations of CLB can cause fields to turn white (Tooker 2009). Field and seed crops in California account for a substantial part of California agriculture. Based on values of crop quantities produced in 2011, CLB host crops that are grown in California include barley ($27 million), oats ($6 million), and wheat ($359 million) (CDFA 2013b).

Chestnut Bark and Oak Wilt Diseases

Chestnut bark disease is caused by the fungus, *Cryphonectria parasitica*. It has been established in the U.S. for over a century, possibly first introduced via Japanese chestnut trees, imported into the U.S. since 1876. Since its introduction, chestnut bark disease has spread throughout the entire native range of the American chestnut in the eastern U.S., from Mississippi to Maine (Rellou 2002) Oak wilt disease is caused by the fungus, *Ceratocystis fagacearum.* This fungus has long been established in the U.S. (Wisconsin Department of Natural Resources 2013).

Life History

Chestnut Bark Disease

The fungus that causes chestnut bark disease in American chestnut trees, *Cryphonectria parasitica,* has the appearance of a large canker and typically is found on the tree trunk or other part of the tree surface. Fungal ascospores are produced in abundance on blight susceptible chestnut trees and are expelled forcibly into air currents. These spores enter tree wounds and cracks, and grow in and under the bark. The first evidence of infection on chestnut trees are the formation of small, flat, orange-brown lesions that develop into swollen or sunken cankers. The bark of the cankers is reddish-orange to yellow-green and is covered by pimple-like spore-bearing structures known as pycnidia and perithecia. Long, yellow or orange curls of spores exude from pycnidia and are spread by birds, insects, or splashing rain. Initially, the tree dies only above the original canker while sprouts are produced below it. Eventually, cankers spread throughout the tree surface and the entire tree dies. (Agrios 2005; Rellou 2002)

Oak Wilt Disease

Oak wilt disease is caused by the fungus, *Ceratocystis fagacearum*. The fungus invades areas inside the tree that transport water and forms balloon-like bumps (tyloses) that clog the water's path through the tree. This reduction in water flow causes the trees leaves to wilt and drop. Oak wilt typically moves from diseased trees to healthy trees through wilted roots that become interconnected. However, oak wilt also can spread aboveground through sap-feeding beetles moving from diseased to healthy trees (Wisconsin Department of Natural Resources 2013). The fungus survives through winter in living infested trees or on dead trees.

Environmental and Economic Effects

Chestnut Bark Disease

Chestnut bark disease is one of the most destructive plant diseases ever recorded. In less than 50 years, the fungus that causes chestnut bark disease killed 3.5 billion chestnut trees. In the eastern U.S., the introduction of chestnut bark disease resulted in a marked change in the structure of forest ecosystems and affected numerous wildlife species. The disease effectively removed 25 percent of the area's forest cover. Wildlife species that fed on chestnuts, such as black bear, turkeys, squirrels, and deer, were severely affected because a large and reliable supply of food was removed. (Duke University 2014)

Oak Wilt Disease

Oak wilt disease is often fatal to oak trees. Because oak wilt typically is spread through interconnected roots, an ever-widening pocket of dead oaks tends to form in forested areas where oak is common and root grafting is widespread. Pockets of dead oak also are sometimes formed by sap-feeding beetles that transmit the disease aboveground. (Wisconsin Department of Natural Resources 2013)

Citrus Tristeza Virus

Citrus tristeza virus (CTV) is a virus that causes several economically-damaging diseases in citrus: tristeza, stem pitting, and seedling yellows. Tristeza, also known as "quick decline," ultimately causes trees to defoliate and die. This decline can occur over a period of several years or several months. Stem pitting cause trees to appear stunted, with brittle twigs and small branches, and a lesser fruit yield of reduced size and quality. Seedling yellows disease causes seedling citrus trees to become stunted and have small leaves. (Nelson et al. 2011) In 2013, CTV is present in parts of Fresno, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, Tulare, and Ventura counties.

Life History

CTV is spread primarily through propagation of infected budwood and by several species of aphids. Aphids must feed from an infected tree for at least 5 minutes and up to several hours to acquire the virus. Although several aphid species can transmit the virus, the brown citrus aphid, *T. citricada,* is the most efficient vector. (Yokomi 2009)

Environmental and Economic Effects

Millions of citrus trees have been killed by CTV quick decline epidemics in Argentina, Brazil, Venezuela, Peru, Israel, Spain, Florida, California, and other locations. CTV-caused stem pitting is very damaging because it weakens trees and eventually reduces fruit size, quality, and quantity. Grapefruit and limes are very sensitive to stem pitting (Yokomi 2009). Host crops grown in California include the citrus varieties: grapefruits (valued at $49 million), oranges ($656 million), lemons ($352 million), nectarines ($130 million), and tangerines, mandarins, tangelos and tangors ($183 million) (CDFA 2013b).

Colorado Potato Beetle

The Colorado potato beetle (*Leptinotarsa decemlineata*) is a pest of potatoes throughout North America. It was first recognized as a potato pest in 1859 in Colorado, when it switched from its native host, buffalo bur, to cultivated potatoes. (Ragsdale et al. 2007)

Life History

Colorado potato beetles overwinter in the soil as adults. As temperatures rise in the spring, they become active and begin to feed on early planted potatoes. Female beetles lay eggs on the underside of leaves. Eggs hatch 4 to 9 days later, and the newly-hatched larvae begin to feed on potato foliage. After larvae reach maturity, they burrow into the soil to pupate. About 5 to 10 days later, adult beetles emerge. Newly emerged females feed for several days before they begin laying eggs. Two full and occasionally a partial third generation occur each year. (Bessin 2003)

Environmental and Economic Effects

Adult and larval stage Colorado potato beetles damage potato crops by feeding on foliage and stems. Large numbers of beetles can completely defoliate potato plants throughout large portions of a field. This feeding can reduce yield if it occurs at any time during the season, but it can be particularly detrimental if it occurs when a crop is in bloom. In general, reduced leaf surface area decreases a plant's ability to produce nutrients for storage in tubers (New Brunswick Department of Agriculture 2013). The Colorado potato beetle affects crops including the potato (quantity produced in 2011 valued at $219 million), eggplant (quantity produced in 2011 valued at $8 million) and tomato (quantity produced in 2011 valued at nearly $1.3 billion) (CDFA 2013b).

Cornstalk and Sugarcane Borers

Cornstalk and sugarcane borers include the southern cornstalk borer (*Diatraea crambidoides*), the southwestern corn borer (*Diatraea grandiosella*), and the sugarcane borer (*Diatraea saccharalis*). The southern cornstalk borer occurs from Alabama and northern Florida to Ohio and Maryland (North Carolina State University n.d.b). The southwestern corn borer, originally from Mexico, is found in corn-producing areas of the southern U.S. (University of Minnesota 2013). The sugarcane borer, first introduced into Louisiana in 1855, is now found throughout the Gulf Coast states (Capinera 2009a).

Life History

Cornstalk and sugarcane borers typically overwinter in the larval stage and pupate in the spring. After pupation, adult moths emerge and lay eggs. The eggs hatch and larvae emerge and feed on corn or sugarcane plants, eventually tunneling into the stalks of the plants. (Capinera 2009a)

Environmental and Economic Effects

Cornstalk and sugarcane borers can cause serious environmental and economic effects. Tunneling into stalks by larvae can cause mature plant tops to weaken or die and can make plants susceptible to fungal infection (Capinera 2009a). Feeding by first-generation larvae has been observed to reduce plant height by roughly 6 inches; grain yield losses in corn attributable to cornstalk borers have been observed as high as 29 percent (Scott and Davis 1974, in University of Minnesota 2013.). When sugarcane borers are present, the amount and purity of juice that can be extracted from cane is reduced; sucrose yield may be reduced by 10 to 20 percent (Capinera 2009a). The quantity of corn grown in California for grain and for fresh market sweet corn in 2011 was valued at nearly $280 million dollars (CDFA 2013b).

Date Palm Disease

Date palm disease, or Fusarium wilt, is caused by the fungus *Fusarium oxysporum* (Elliot 2013). Different forms of this fungus exist, and the form known as forma specialis (f. sp.) canariensis causes a lethal vascular disease on Canary Island date palms. In 2013, date palm disease was present in California.

Life History

The *F. oxysporum* fungus produces short-lived spores as well as spores that live in the soil and plant tissue for long periods of time (at least 25 years in soil). Ultimately, the fungus causes desiccation and death to the palm tree by obstructing xylem (water-conducting tissue). As much of the root system is left intact when the tree dies, root masses can act as a reservoir for the fungus for long periods. Transmission of the Fusarium wilt fungus from palm to palm occurs primarily through contaminated pruning tools. No cure exists for Fusarium wilt; fungicides have been ineffective against the fungus (Elliot 2013). Fusarium wilt can spread when humans use mulch made from disposed diseased palms or their seed.

Environmental and Economic Effects

Fusarium wilt is one of the most destructive diseases in California landscapes. The disease is incurable; it is easily spread by common pruning practices and results in the death of Canary Island date palm trees. Canary Island date palms are highly valued, selling for over $10,000 each in 2003, and because they are large and often require a crane to install, the cost of removing and replacing them can be high (Downer 2003). In addition, damage to the date palm industry, which in 2011 produced over $45 million worth of date products, can occur (CDFA 2013b).

European Corn Borer

The European corn borer (*Ostrinia nubilalis*) is an insect that causes damage to sweet corn and grain corn. It was first detected in North America in 1917, near Boston, Massachusetts. Since that time, it has spread throughout most of the U.S. (Capinera 2000)

Life History

The European corn borer overwinters in the larval stage. It pupates and emerges as an adult in early spring. The number of generations per year varies from one to four, depending on temperature. Moth flights and oviposition typically occur from June to July and from August to September, depending on temperature. In warmer areas where four generations of corn borer occur annually, adults are active in April and from June through September. (Capinera 2000)

Environmental and Economic Effects

The European corn borer is a pest for both sweet corn and grain corn. Before the advent of modern pesticides, European corn borers caused substantial reductions in corn production. Although feeding by older larvae usually is considered to be the most damaging (as they tend to burrow into the stalk or ear cob and kernels), feeding by young larvae can result in broken tassels and other damage. In addition, the presence of any larvae within the ear of sweet corn reduces its marketability. Furthermore, boring corn borers can allow several fungi to affect corn plants (Capinera 2000). The quantity of corn grown in California as either grain or fresh market sweet corn in 2011 was valued at nearly $280 million dollars (CDFA 2013b).

European Grapevine Moth

European Grapevine Moth (*Lobesia botrana*) (EGVM) is an insect native to Europe, northern and western Africa, the Middle East, southern Russia, and Japan. It is a pest of grapes. EGVM was first detected in California in fall 2009. (CDFA 2010a)

Life History

In Europe, EGVM typically undergoes three generations per year. EGVM adults emerge in the spring and lay eggs primarily near host flowers. First-generation larvae occur in May and June, and feed on flower clusters. Second-generation larvae occur in July and August, and feed on green berries. Young larvae penetrate the berry and hollow them out, leaving the skin and seeds. Third-generation larvae occur in August and September, and cause the greatest damage by webbing and feeding inside berries and within bunches, which become contaminated with frass (excreta). Feeding damage to berries also exposes them to infection by Botrytis and other secondary fungi. Pupation during the spring and summer occurs inside a thin cocoon, usually within a rolled up leaf, whereas larvae from the last generation of the year pupate in more protected places, such as under bark, in soil crevices, or in leaf litter. EGVM overwinters as a diapausing pupa. (CDFA 2010a)

Environmental and Economic Effects

EGVM is primarily a pest of economic importance to grapes, which is the number one agricultural plant commodity grown in California, with an annual gross production value of $3.86 billion (CDFA 2010a). Based on its status as an important grape pest in other parts of the world, permanent establishment of EGVM in California will result in substantial production and export issues for grapes. According to the USDA, crop damage to vineyards from EGVM can be up to 80 to 90 percent in some circumstances, if control measures are not implemented (USDA 2010). Establishment also can result in a lesser export issue for some of EGVM's other fresh market agricultural and nursery host plants. (CDFA 2010a) The quantity of grapes produced in California in 2011 was valued at nearly $3.9 billion dollars. EGVM also uses olives as a host crop, which in 2011 accounted for $54 million (CDFA 2013b).

European Pine Shoot Moth

The European pine shoot moth (EPSM) (*Rhyacionia buoliana*) is an insect pest for ornamental pine plantings, pines in production nurseries, and Christmas trees. It was first recorded in North America in New York in 1914, and since that time has spread throughout the northeastern U.S. and southern Canada. It also has been reported in the Pacific Northwest. (Hoover 2004)

Life History

EPSM overwinters in the larval stage in silk-lined tunnels inside host plant buds. Immature larvae typically leave their overwintering sites in April and bore into buds and new young shoots. When sufficient plant tissue is present, larvae complete their development inside the mined buds. If insufficient tissue is in the bud, larvae move to another bud and resume feeding. Larvae generally reach maturity in May. After reaching maturity, larvae form pupal cells within the tunneled shoot. Adults emerge 2 to 3 weeks later and begin laying eggs in early to mid-June. Eggs typically are laid on the surface of needles or on the bark of new and old shoots (Hoover 2004).

Environmental and Economic Effects

Larval tunneling by the European pine shoot moth can cause shoots to weaken and fall over, but they continue growing, resulting in the formation of crooked trunks and branches. Tunneling also can destroy terminal and lateral buds, resulting in dead, spiked tops (Hoover 2004). Pine species are a part of California's timber industry, which in 2011 was valued at $273 million (CDFA 2013b).

Exotic Fruit Flies

Exotic fruit flies include Mediterranean fruit fly (Medfly), Mexican fruit fly, oriental fruit fly complex species, Caribbean fruit fly, melon fly, cherry fruit fly, olive fruit fly, peach fruit fly, guava fruit fly, sapote fruit fly, South American fruit fly and white-striped fruit fly. This list is not all-inclusive. Exotic fruit flies are insects, and pests of various types of fruit and vegetables are found throughout the world. (CDFA 2008a, 2012a, 2013b)

Life History

Female fruit flies lay their eggs underneath the skin of fruits and vegetables. The eggs then hatch and develop into maggots. These maggots tunnel through the fruit, feeding on the pulp. Larvae then fall to the ground and burrow into the soil to pupate. After pupation, adult fruit flies emerge from the ground and mate, completing the cycle. (CDFA 2012a; CDFA 2008a; CDFA 2008b) In general, the duration and timing of different life stages is dependent on temperature. For example, female Medfly will not lay eggs when temperatures drop below 61 degrees Fahrenheit (°F), and Medfly development during egg, larval, and pupal stages stops when temperatures drop below 50°F (Thomas et al. 2010). For all fruit flies, breeding generally is continuous, and multiple generations can occur each year. (CDFA 2012b; CDFA 2008a; CDFA 2008b)

Peach fruit flies and the oriental fruit fly complex species in particular are strong flyers. Oriental fruit fly complex species have been recorded traveling up to 30 miles in search of food and sites to lay eggs, and the peach fruit fly is capable of dispersing more than 15 miles in search of host plants. This flying ability allows them to infest new areas quickly. (CDFA 2008a; CDFA 2013c) The oriental fruit fly complex species, guava fruit fly, and peach fruit fly respond to the substance methyl eugenol (CDFA 2013d). Methyl eugenol is a naturally occurring constituent of many plants and fruits that are consumed by humans and animals (e.g., bananas, walnuts, citrus) (EPA 2006). The melon fly is attracted to the parapheromone cue-lure (Vargas et al. 2000). Exotic fruit flies are considered to be capable of invading all areas of California below 1,500 feet elevation.

Environmental and Economic Effects

Exotic fruit flies are some of the most destructive fruit pests in the world. Feeding during the larval stage can make fruit unfit for consumption, and infestations can initiate prohibitions and restrictions on domestic and international exports of fruits and vegetables. In addition, fruit fly infestations can result in increased pesticide use by commercial and residential growers in efforts to control the damage and can affect native plants through the destruction of their fruit. All these factors can contribute to substantial economic effects. For example, a permanent infestation of the Medfly in California is estimated to result in annual losses of $1.3 to $1.8 billion (CDFA 2008c). Collectively, fruit flies threaten the following crops: grapes (value of California production in 2011 $3.86 billion), peaches ($289 million), peppers ($338 million), oranges ($656 million), tomatoes (nearly $1.3 billion), and walnuts ($1.3 billion) (CDFA 2013b).

False Codling Moth

The false codling moth (FCM) (*Thaumatotibia leucotreta*) is an insect native to Sub-Saharan Africa. It is a pest of fruit in Africa and in other countries where it has become established. Since 1984, FCM has been intercepted over 1,500 times on 99 plant taxa at 34 U.S. ports of entry. In June 2005, live FCM caterpillars were found at one of California's border stations inside previously cold-treated Clementine citrus fruit from South Africa (CDFA 2008d). As of December 2013, FCM had not been introduced or become established in California or the U.S.

Life History

FCM has up to six generations a year in South Africa. Females lay eggs on fruit or foliage, usually on the surface of fruit. Newly emerged caterpillars ultimately bore into fruit and feed. If they emerge on cotton bolls, caterpillars first mine the walls and then feed on seeds in the boll cavity. Mature caterpillars leave the fruit and spin cocoons in the soil or in bark crevasses. (CDFA 2008d)

Environmental and Economic Effects

Feeding by larvae generally renders fruit undesirable for consumption and also allows for the introduction and growth of bacteria and other microorganisms. Infested fruit usually drops before harvest, but not always. Infestations that occur near fruit harvest may not be detected, and infested fruit may be packaged subsequently for export. In California alone, the annual combined gross value of the top 10 agricultural commodities that would be directly affected by this pest is over $7.1 billion, amounting to 22 percent of the total agricultural value, because of the huge variety of crops that can be killed or damaged by FCM (e.g., apricots, avocados, beans, cherries, citrus crops, corn, cotton, English walnuts, grapes, olives, peaches, peppers, persimmons, plums, and pomegranates) (USDA 2007, in CDFA 2008d).

Glassy-Winged Sharpshooter

The glassy-winged sharpshooter (GWSS) (*Homalodisca vitripennis*) is an insect native to the southeastern U.S. and northern Mexico. The species was first reported in California in 1994, but probably arrived in the late 1980s. GWSS transmits the devastating plant disease known as Pierce's disease. (CDFA 2012b, 2012c) In 2013, San Bernardino, San Diego, Los Angeles, Riverside, Orange, and Ventura counties were considered to be infested with GWSS. Portions of Kern, Santa Barbara, Tulare, Imperial, Fresno, Madera and Santa Clara counties also were considered to be infested with GWSS.

Life History

Female GWSS lay eggs on the underside of leaves. In southern California and the San Joaquin Valley, two generations of GWSS occur per year. GWSS overwinter as adults, feeding on citrus and other non-deciduous plants. Overwintering adults begin laying eggs in February but lay most of their eggs in late March and April. Nymphs typically hatch in 10 to 14 days and feed on leaf petioles or young leaf stems while they progress through five immature stages. In summer, first-generation adults begin to appear in May through July, and eggs are laid for the second generation between mid-June and October. The second-generation nymphs that hatch from these eggs develop into overwintering adults. (Varela et al. 2007)

Environmental and Economic Effects

GWSS causes direct damage to plants by feeding and excreting copious amounts of liquid excrement, which makes the leaves and fruit appear whitewashed when dry. However, they do the most serious damage indirectly by transmitting the bacterium *Xylella fastidiosa,* the causal agent of Pierce's disease, among other plant diseases. GWSS acquires *Xylella fastidiosa* when feeding on infected plants and then transmits the bacteria to other plants when feeding again. (Varela et al. 2007)

Pierce's disease has the greatest effect on grapes. According to studies done by the University of California, the disease destroyed over 1,000 acres of grapevines in northern California between 1994 and 2000, causing $30 million in damages. In 2012, the production value of grapes affected by GWSS and Pierce's disease was $3.86 billion. Almonds (nearly $3.9 billion, 2011 value of quantity produced in California), some species of citrus fruit, stone fruits, and ornamental shade trees also are at risk from Pierce's disease. (CDFA 2012c)

Gypsy Moth

Two subspecies of gypsy moth exist: the European gypsy moth (*Lymantria dispar dispar*) and the Asian gypsy moth (*Lymantria dispar asiatica*). Both subspecies cause damage to a wide variety of hardwood trees and conifers.

The European gypsy moth is established throughout much of the U.S. European gypsy moth was first introduced in Massachusetts in 1869. The current range encompasses Pennsylvania, New Jersey, New York, Delaware, and other northeastern states, and it is expanding southward into West Virginia, North Carolina, Tennessee, and westward into Michigan, Ohio, and Illinois. Isolated infestations have been treated in California, Washington, Idaho, Colorado, Utah, and Oregon. (CDFA 2013e)

As of 2013, the Asian gypsy moth had not become established in North America. However, numerous instances have occurred where monitoring and trapping programs have identified introductions. Since 1991, 20 introductions of Asian gypsy moth have occurred in Washington, Oregon, California, Idaho, Texas, and North Carolina, all of which were detected and eradicated before the pest could become established. (USDA 2003)

Life History

Adult gypsy moths typically emerge between June and August. The female emits a sex attractant that allows the male to find her. After mating, the female lays a single egg mass on any available surface, including trees, rocks, fences, and other human-made outdoor articles. Adults do not feed and die shortly after mating and egg-laying. Gypsy moths spend the winter in the egg stage. Eggs hatch in late February through April. Emerging larvae move to the tops of trees and are carried many miles on wind currents; wind-aided dispersal is the primary dispersal mechanism for the gypsy moth over short distances. (CDFA 2013e)

Although European gypsy moths and Asian gypsy moths are very similar, one important difference is that female Asian gypsy moths are active flyers, capable of flying up to 25 miles. Female European gypsy moths cannot fly. This flying ability allows Asian gypsy moths to spread rapidly into and through uninfested areas (CDFA 2013e). Another difference is that Asian gypsy moths have more hosts than European gypsy moths, including larch, oak, poplar, alder, willow, and some evergreens (USDA 2003).

Environmental and Economic Effects

The gypsy moth has over 150 primary hosts but can feed on over 500 plants. Both hardwoods and conifers can be defoliated by gypsy moths. Young larvae primarily feed on oaks, aspen, birch, willows, and alder. Older larvae feed on a broader range of trees, including cedar, pine, spruce, and fir. Recent tests on western plants have shown that native and common California species, such as manzanita, western hemlock, douglas fir, and live oaks, also are good hosts (CDFA 2013e). Potential host species for the gypsy moth are important to California's timber industry, which in 2011 was valued at $273 million (CDFA 2013b).

Japanese Beetle

The Japanese beetle (*Popillia japonica*) is native to Honshu, the main island of Japan. It was first found in the U.S. in 1916, at a nursery near Riverton, New Jersey. The Japanese beetle can damage a wide range of fruits and other commodities, including fruits and ornamental shrubs, and tends to occur in urban areas. The Japanese beetle currently is found from Maine to Alabama, and westward to the Mississippi River. Smaller infestations have occurred west of the Mississippi River. Three Japanese beetle infestations have been eradicated from California. (CDFA 2012d)

Life History

One generation of Japanese beetle usually occurs per year; however, larvae can take up to 2 years to develop in wet, damp soils. Large, grassy areas are particularly favorable for Japanese beetle reproduction and development. Adults emerge from May to September and feed on foliage, flowers, and fruit. The exact timing of emergence depends on geographical location and weather. (CDFA 2012d)

Environmental and Economic Effects

The Japanese beetle has a wide range of potential hosts, including small fruits, tree fruits, truck and garden crops, ornamental shrubs, vines, and trees. Feeding studies have shown a host range in excess of 300 plants in 79 plant families. However, the Japanese beetle has a preference for grapes (value of 2011 grape quantity produced in California was nearly $3.9 billion), early apples ($58 million, for all apples), cherries ($197 million), peaches ($289 million), plums ($228 million), raspberries ($223 million), and roses, zinnias, linden, and corn (nearly $280 million). Japanese beetles damage corn by eating the silk, which interferes with the formation of kernels. They may completely consume soft fruit such as grapes, berries, and stone fruits. The larvae eat the roots of a number of plants; grasses are particularly favored. Medium to high densities of larvae will cause patches of dead grass under which larvae can be found. Important California crops that have been attacked include alfalfa ($1.7 billion, which includes other types of hay), pome fruits, turf, strawberries ($1.9 billion), and numerous ornamental plants. This beetle can cause a loss of export markets and can damage crops, nursery stock, ornamental plantings, and the environment. (CDFA 2012d, 2013b)

Karnal Bunt

Karnal bunt is a fungal disease of wheat, caused by the fungus *Tilletia indica*. Karnal bunt was first reported in 1931, near the city of Karnal in the Indian state of Haryana. Since then, Karnal bunt has been found in Afghanistan, Iraq, Iran, Nepal, Pakistan, South Africa, Mexico, Brazil, and the U.S. Karnal bunt is thought to have been introduced into the U.S. several decades ago through infested seed (Forster and Goates 1997). As of 2013, the only U.S. state infested with Karnal bunt was Arizona.

Life History

The Karnal bunt fungus survives in the soil. Spores (teliospores) germinate at or near the soil surface under suitable temperatures (20 to 25°C) and moisture conditions, and give rise to further spores (primary and secondary sporidia). These spores are forcibly dispersed by wind or rainsplash to wheat ears. After the spores germinate, the fungus infects the spike and seed. Sporidia also develop on leaves and other plant parts, and are washed or blown to infect the spike. Fungal spores are spread through bunted grain or when carried on soil, seeds, plant parts, farm equipment, tools, vehicles, or by wind. Also, spores can pass undamaged through the digestive tracts of grazing animals and eventually are distributed with farm manure. Spores can survive in soil and stored grain for several years. Each diseased kernel can produce thousands to millions of spores. (Forster and Goates 1997)

Environmental and Economic Effects

Although Karnal bunt has relatively minor effects on crop yield, it can have substantial effects on grain quality and economic value. Karnal bunt replaces all or part of the wheat seed with a black powder that contains thousands of spores and causes the grain to smell foul (like rotting fish). Grain containing more than 3 percent bunted grain is considered unfit for consumption and is downgraded to animal feed (Murray and Brennan 1998). In California, the value of wheat produced in 2011 was $359 million (CDFA 2013b).

Khapra Beetle

The khapra beetle is an insect native to India, Ceylon, and Malaysia. It is a major pest of stored grains, spread by commerce and trade of infested goods and containers (CDFA 2004). Now found worldwide, the khapra beetle was first found in California in 1953, which initiated a massive, and ultimately successful, control and eradication effort that lasted until 1966. Isolated infestations have been found in several other states throughout the U.S., including Maryland, Michigan, New Jersey, New York, Pennsylvania, and Texas (Ellis and Hodges 2007). In 2013, the Khapra beetle was not considered to be present in California.

Life History

Khapra beetles mate about 5 days after emerging as adults. Egg laying is temperature dependent; laying occurs immediately at 40°C, is delayed several days at cooler temperatures, and does not occur at all at 20°C. Females lay their eggs loosely scattered in host material. Eggs hatch in 3 to 14 days, while complete development from egg to adult varies from 26 to 220 days, dependent on temperature. The optimum temperature for development is 35°C. However, larvae can survive temperatures below -8°C. If temperatures fall below 25°C, larvae may enter diapause. Larvae can remain in diapause for several years (Ellis and Hodges 2007). The Khapra beetle is tolerant of low moisture and some insecticides, and builds up in huge numbers when uncontrolled (CDFA 2004).

Environmental and Economic Effects

The Khapra beetle is considered to be one of the world's most destructive pests of grain products and seeds. If left undisturbed in stored grain, the Khapra beetle can cause substantial grain weight loss and/or reduce seed viability. Weight loss can range from 5 to 30 percent, and in some cases can reach as high as 70 percent. In addition, severe infestation can cause unfavorable changes in grain chemical composition. (Purdue University 2013)

Hosts for the Khapra beetle include all grain and grain products. In the U.S., Khapra beetle has been found infesting unprocessed stored materials, such as wheat (2011 total value in California: $359 million), oats ($6 million), rye, barley ($27 million), flaxseed, pinto beans (total value of dry beans produced in 2011: $58 million), black-eyed peas, sorghum, alfalfa seed (gross value of production in 2011: nearly $46 million), cottonseed (2011 total value in California: $186 million), and castor beans. Preferred processed materials include corn meal, flour, bread, cottonseed meal, cottonseed cake, oats, breakfast cereals, crackers, dog food, powdered milk, raisins, and nutmeats. (CDFA 2010b)

Lethal Yellowing of Palm

Lethal yellowing of palm is a disease of palm trees caused by a phytoplasma, type of bacteria which is non-cultivable and which lacks a cell wall. Outbreaks of lethal yellowing of palm over the last 40 years have killed most of the once prevalent, tall-type coconut cultivars in both Jamaica and Florida. (Harrison and Elliot 2008)

Life History

Experimental evidence indicates that the planthopper, *Haplaxius crudus,* is a vector of the lethal yellowing phytoplasma. *Haplaxius* (syn. *Myndus*) *crudus* is an insect with piercing and sucking mouth parts that feeds on the contents of the plant host vascular system. The insect spreads the phytoplasma by feeding on non-infected palms. (Harrison and Elliot 2008)

Environmental and Economic Effects

Outbreaks of lethal yellowing of palm have killed most of the once prevalent, tall-type coconut cultivars in both Jamaica and Florida over the last four decades (Harrison and Elliot 2008).

Light Brown Apple Moth

The light brown apple moth (*Epiphyas postvittana*) (LBAM) is an insect originally from Australia. LBAM is a major pest for apples, pears, oranges, and grapes. It was first detected in California in March 2007, in Alameda County, and has subsequently spread throughout the state. (CDFA 2011a)

Life History

In Australia, LBAM typically has three generations per year, but life cycle projections for the areas of California where it has been found indicate that four to five generations are possible. Females deposit egg masses containing 20 to 50 eggs on the upper leaf surface or on fruit. Hatched larvae disperse and construct silken shelters on the underside of leaves, usually near a midrib or large vein. Older larvae roll leaves and buds or fruit together with webbing. Larvae typically feed on the surface of fruit but occasionally will enter the fruit to feed. Pupation takes place within the larval nests. (CDFA 2011a)

Environmental and Economic Effects

The effect on production costs for LBAM hosts could top $100 million. For Australia, LBAM has been estimated to cause AU$21.1 million annually in lost production and control costs, or about 1.3 percent of gross fruit value, for apples, pears, oranges, and grapes (Sutherst 2000). Applying this percentage to the 2005 gross value of these same crops in California of $5.4 billion (USDA 2006), the estimated annual production costs would be $70.2 million. This estimate does not include economic costs to the nursery industry or to other important host crops in California, such as apricots, avocados, kiwifruit, peaches, and strawberries. If the same level of costs were incurred by these crops as for the previous four crops, the additional costs would be $63.1 million, based on their 2005 gross value of $4.8 billion. Therefore, the total lost production and control costs in California could be $133 million for all of the crops mentioned above (CDFA 2011a).

Some countries have specific regulations against LBAM, and many others consider it to be a regulated pest that is not knowingly allowed to enter. Additional measures, such as preharvest treatments and postharvest disinfestation, have to be taken so that shipments to these countries are free from LBAM. In addition, LBAM is an exotic pest (i.e., it is not established in the continental U.S.), and, therefore other states in the U.S. would be likely to impose restrictions on the movement of potentially infested fruits, vegetables, and nursery stock. These restrictions could have a severe effect on domestic marketing of California agricultural products. (CDFA 2011a)

Nun Moth

The nun moth *(Lymantria monacha*) was described by the USDA as a potential new pest after its detection in the northeastern U.S. (USDA 2014). It is a Eurasian pest that feeds on the foliage of tree hosts, several of which are of particular importance to California agriculture (both timber and nut industries) (Michigan State University 2010, U.S. Forest Service n.d.).

Life History

Nun moths fly from mid-July to the beginning of September, and are most active after midnight. Although females can fly, they usually remain on tree trunks and attract males. Once mated, females lay one or more clusters of approximately 40 eggs in bark crevices or under lichens on the bark. They may fly to a new location before depositing additional clusters of eggs. The nun moth embryo completes its development 2 to 6 weeks after the egg is laid, at which point it enters diapause. Larvae usually hatch in early May and go through five to seven instars over the next two and a half months. The first and second instars are capable of being dispersed by the wind for considerable distances (U.S. Forest Service n.d.). Nun moths feed on a variety of coniferous and deciduous trees, including species of the genera *Malus*, *Picea*, *Pinus*, *Prunus*, *Pseudotsuga*, and *Quercus* (Michigan State University 2010).

Environmental and Economic Effects

The nun moth feeds on tree types that are valuable to California's timber industry, whose quantity produced in 2011 was valued at $273 million. In addition, the nun moth feeds on trees that produce other crops, such as the almond (2011 total value of quantity produced in California in 2011 was nearly $3.9 billion), apple (2011 value: nearly $59 million), apricot ($53 million), cherry ($197 million), nectarine ($129.8 million), peach ($289 million), and plum ($228.7 million). (CDFA 2013b)

Olive Psyllid

The olive psyllid (*Euphyllura olivina*) is an insect that damages olive trees. It was discovered in California in July 2007, in San Diego and Orange counties. On one occasion in 2010, it was found infesting trees at a private residence in Monterey County. Beyond these discoveries, its distribution in California is unknown. (Johnson 2009)

Life History

The total life cycle of the olive psyllid takes about 3 months, depending on temperature. The optimal conditions for growth of olive psyllids are between 68 and 77°F. Females start to lay eggs at the time of year when new shoots appear on olive trees. They deposit their eggs on the tops of twigs or among the leaves of minor shoots. The olive psyllid typically has three generations per year. (Johnson 2009)

Environmental and Economic Effects

The olive psyllid has reduced olive yields by as much as 40 to 60 percent in places outside the U.S. Population densities of just 20 nymphs or greater can cause such losses (Johnson 2009). The total value of California olive production in 2011 was nearly $54 million (CDFA 2013b).

Ozonium Root Rot

Ozonium root rot, also known as cotton root rot or Texas root rot, is a plant disease caused by the soil-borne fungus, *Phymatotrichopsis omnivora.* Ozonium root rot typically causes rapid wilt and death in cotton and other host plants. (Olsen 2000)

Life History

Phymatotrichopsis omnivora is found deep in soils. It produces hyphal strands that colonize the roots and cause rot of the entire root system. After the fungus has penetrated the root of a host plant and caused decay, a dense web of hyphae covers the root. These strands then grow through the soil and infect healthy roots nearby. *Phymatotrichopsis omnivora* is capable of surviving in soil for long periods of time. It produces no airborne spores or other reproductive structures, so it spreads by growth of the strands in soil and through the spread of the strands or sclerotia by farm equipment, transplanting, and other means capable of transporting infested soil. It has an extremely wide host range, having been reported as a pathogen of over 2,000 dicotyledonous plants. (Olsen 2000)

Environmental and Economic Effects

In Texas, ozonium root rot reduces yield, fiber quality, and harvest efficiency on an estimated 1.5 million acres annually. Economic losses from the disease in Texas are estimated to be $29 million annually. (Texas A&M University 2013)

Peach Mosaic Disease

Peach mosaic disease is caused by peach mosaic closterovirus. Peach mosaic closterovirus, was first observed in Texas, in 1931. Shortly thereafter, it was discovered in Colorado and southern California, as well as Arizona, Arkansas, New Mexico, Oklahoma, and Utah. (EPPO n.d.)

Life History

Peach mosaic disease is spread by the peach bud mite, *Eriophyes insidiosus*. A single infectious mite can transmit the disease to a healthy tree. The mite feeds and reproduces on leaf primordial within the bud. Infested peach buds are swollen and reddened, and may eventually die (EPPO n.d.). The virus also is graft transmissible to healthy peach trees. The main means of long-distance movement are through infected host plant propagation material.

Environmental and Economic Effects

Peach mosaic disease can cause substantial economic effects. Fruit from affected trees, especially peaches and nectarines, generally is unmarketable (EPPO n.d.). In Colorado, over 143,000 trees had to be destroyed because of the disease between 1931 (when it first appeared) and 1992 (Swift 2012). In California, the total value of peaches produced in 2011 was valued at $289 million (CDFA 2013b).

Persimmon Root Borer

The persimmon root borer (*Sannina uroceriformis*) is an insect and pest of persimmon plants. It is widely distributed throughout the U.S.

Life History

In the Gulf Coast region, persimmon root borer moths emerge and are active from March to July. In more northern regions, the moths emerge generally in June and July. Female moths typically deposit eggs on the bark of the lower trunks of host trees. They also sometimes drop their eggs on the ground around the base of trees. After hatching, larvae find suitable sites to bore into the bark, usually near the root collar. Young larvae begin feeding and mine downward into the cambium. The total life cycle of the persimmon root borer requires 2 to 3 years. (Mizell 2006)

Environmental and Economic Effects

Feeding and tunneling by persimmon root borer larvae weakens and sometimes kills host plant roots. This causes seedlings and young saplings to wilt and break. Although full-grown trees usually are less affected by root borers, large populations of root borers still can cause weakening (Mizell 2006). In 2008, the total value of persimmons produced in California was roughly $27.5 million (USDA 2009).

Pink Bollworm

The pink bollworm (*Pectinophora gossypiella*) is an insect and a major pest of cotton. CDFA's Pink Bollworm Program, which began in 1967, has been effective in preventing establishment in the cotton growing areas.

Life History

The pink bollworm has four life stages: egg, larva, pupa, and adult. The total time required for development of the egg into an adult varies because of temperature and other environmental conditions, but is generally about 1 month. Eggs are laid singly or in small groups on vegetative cotton plants near cotton squares or under the calyx of bolls. Larvae immediately begin to bore into squares or bolls after hatching and feed within one to five seeds before exiting the cotton plant and dropping to the soil to pupate. Pupation typically occurs in the top layer of soil beneath cotton plants. Adults emerge from pupae and feed primarily on nectarines that are located on the bottom of cotton leaves. Pink bollworm moths overwinter as fully developed larvae. (Ellsworth et al. n.d.)

Environmental and Economic Effects

Pink bollworms damage both cotton squares and bolls, but the damage to the cotton bolls is the most serious. Larvae damage bolls through feeding, cutting, and staining the lint. In dry conditions, yield and quality losses are directly related to the percentage of bolls infested and the numbers of larvae per boll. However, in high humidity conditions, only one or two larvae are necessary to destroy an entire boll because damaged bolls are vulnerable to infection by boll rot fungi. Establishment of the pink bollworm in the San Joaquin Valley can increase cotton growers' pest control costs by $100 to $150 per acre (UC IPM 2013). The total value of cotton seed and cotton lint produced in California in 2011 was valued at nearly $1.1 billion (CDFA 2013b).

Plum Curculio and Blueberry Maggot

The plum curculio (*Conotrachelus nenuphar*) and blueberry maggot (*Rhagoletis mendax*) are insect pests. The plum curculio (a beetle) is native to North America and is a major pest of stone and pome fruits east of the 100th meridian in the U.S. and Canada. The blueberry maggot (a fly) was first reported in the U.S. in Maine and New Hampshire in 1914, and since has damaged blueberry crops in the northeastern and north central U.S. and Canada. (Lienk n.d., Steck 1998)

Life History

Plum Curculio

Adult plum curculio overwinter in ground litter or in the soil and become active in the spring when temperatures rise above roughly 60°F. After emerging in the spring, plum curculio fly to trees and feed on buds, flowers, and newly set fruit. Females lay eggs in cavities created under the skin of the fruit. Newly hatched larvae then bore into the fruit and feed. Larvae complete their development in dropped fruit. (Lienk n.d.)

Blueberry Maggot

Blueberry maggots overwinter as pupae in the soil. In Florida and Georgia, adult flies appear around late May and persist until late July. Females lay their eggs within the blueberry; 3 to 10 days later, the eggs hatch and larvae emerge. Larvae feed on fruit pulp for a period of 17 to 22 days, before dropping to the ground and entering the soil to pupate. In the northern U.S., pupae generally overwinter only until the following season, but in some locations, pupae may remain in the soil for up to 5 years before developing into adults. (Steck 1998)

Environmental and Economic Effects

Plum Curculio

Plum curculio can cause damage to fruit in a number of ways: (1) surface feeding and egg-laying (puncturing fruit) scar and deform fruit before harvest; (2) burrowing larvae cause internal injury to the fruit; and (3) general activities cause fruit to drop prematurely (Lienk n.d.). In California, the total value of plums produced in 2011 (including dried plums) was valued at $228.7 million (CDFA 2013b).

Blueberry Maggot

Blueberry maggots can be particularly troublesome for growers because it is very difficult to separate infested and non-infested fruit. Infested berries may be unknowingly harvested and packaged with unaffected berries. Larvae then will continue to mature within infested berries and may emerge for pupation at the point of sale. In terms of damage, blueberry maggots cause the pulp of infested berries to become extremely watery and soft, but growers are unlikely to notice this symptom before harvest (North Carolina State University 1997). In California, the total value of blueberries produced in 2011 was $82.7 million (CDFA 2013b).

Plum Pox Potyvirus

Plum pox potyvirus (PPV), also referred to as Sharka, is a virus that causes serious harm to stone fruit (Ontario Ministry of Agriculture and Food 2011). PPV first appeared in Pennsylvania, in 1999. It has also been detected in Ontario and Nova Scotia, Canada. It is not known to be present in California at the time of print.

Life History

PPV spreads between regions through the human movement of infected propagating material, such as seedlings and budwood/nursery stock. Within an orchard, the virus spreads from tree to tree by several species of winged aphids. Aphids spread the virus by sucking sap from plants infected with PPV and then feeding on uninfected plants. (Ontario Ministry of Agriculture and Food 2011)

Environmental and Economic Effects

PPV severely reduces fruit yield and quality. Almonds (2011 total value of quantity produced in California in 2011 was nearly $3.9 billion), apricots ($53 million), cherries ($197 million), nectarines ($129.8 million), peaches ($289 million), plums, Korean cherry, black cherry, American wild plum, and other stone fruit and Prunus species are susceptible to PPV. (USDA 2012) In California, the total value of plums produced in 2011 (including dried plums) was valued at $228.7 million (CDFA 2013b).

Polyphagous Shot Hole Borer

The polyphagous shot hole borer (PSHB) is an arthropod which acts as a vector for a disease-causing fungus. Native to Asia and morphologically similar to other ambrosia beetles, PSHB transmits Fusarium fungus, which causes Fusarium dieback in avocado and other host plants. PSHB was first found in California in 2003, in Los Angeles County. Since then, it has been found on ornamental trees, box elder street trees, and an avocado tree elsewhere in California, and it appears to be established in Los Angeles, Orange, and Riverside counties (University of California 2013).

Life History

Pregnant female PSHB bore into host trees and create galleries under the bark. Within these galleries, the female plants the Fusarium fungus, where it grows and spreads to the rest of the susceptible tree. The female PSHB also lays her eggs in the galleries, and when the eggs hatch, the newly emerged larvae eat the fungus. In about a month, the larvae develop into adults. Many more of the larvae develop into females than males, and females mate with related males while still in the gallery. Pregnant females pick up some of the fungus in their mouths from the gallery and leave through the entry holes created by their mothers to start the process again. (University of California 2013)

Environmental and Economic Effects

Although PSHB attacks numerous types of trees, it is only able to complete its full life cycle in a few true hosts. In about 50 percent of the tree species attacked by PSHB, the beetle drills into the tree and transmits the fungus but does not produce offspring. In these instances, the tree may become damaged (i.e., branch dieback may occur) if its xylem (plant tissue) becomes clogged, but it may not suffer substantial damage. In only about 8 percent of the tree species attacked does PSHB successfully produce offspring within the tree. These species, including box elder, coast live oak, and avocado are considered true hosts of PSHB. When these species are attacked by PSHB and infected with the Fusarium fungus, they may suffer mild symptoms, like branch die-back, or be killed outright (University of California 2013). In 2011, the total value of avocado produced in California was $460.5 million (CDFA 2013b).

Potato Cyst Nematode

The potato cyst nematode (PCN) (*Globodera pallid)* or pale potato cyst nematode and *Globodera rostochiensis* (commonly known as the golden nematode) are major pests of potatoes in cool-temperate regions. Both nematodes are small, worm-like organisms that live in soil and feed on the roots of potatoes, tomatoes, eggplant, and other plants in the Solanaceae family (Minnesota Department of Agriculture 2012).

Life History

Similar to all other plant parasitic nematodes, PCN has three general living stages in its development: eggs, juveniles, and adult females and males. Eggs hatch in response to stimulation from exudates released by a host plant at soil temperatures above 10°C. Second-stage juveniles emerge from eggs and are attracted to the roots. They soon penetrate and enter roots, and become sedentary while feeding on plant cells. The host cells respond to form a large, specialized cell that provides nutrients for the feeding nematode. Juveniles feed and develop to a swollen female and worm-like male. The swollen female body ruptures through the root cortex and is exposed, while the head remains within the root. Males are motile and emerge from the root. Females secrete a pheromone to attract males. After a female PCN is fertilized, her body swells with up to 500 developing eggs. She then dies and her exterior body wall hardens into a cyst to protect the eggs. Cysts usually get detached from roots and remain free in soil. In the absence of host plants and suitable soil temperatures, the cysts can remain alive (dormant) in the soil for 30 years or more. Cysts are spread through infested seed tubers, farm machinery, and roots or bulbs of other plants grown in infested fields. Cysts also are moved by wind and flood water. (Minnesota Department of Agriculture 2012)

Environmental and Economic Effects

PCN infestations can cause substantial yield losses for all types of potatoes (i.e., those for processing, baking whole). High populations of PCN can reduce potato yield up to 80 percent. In addition, seed potatoes from PCN-infested fields may not be sold to Canada, and PCN infestations can cause trade restrictions with other countries as well (Minnesota Department of Agriculture 2012). In 2011, the total value of potatoes produced in California was $219 million (CDFA 2013b).

Red Bay Ambrosia Beetle

Red bay ambrosia beetles (*Xyleborus glabratus*) are wood-degrading insects that live in nutritional symbiosis with laurel wilt fungus, which is lethal to host plants. Susceptible hosts in California are avocado and native California bay laurel. The red bay ambrosia beetle was first detected in Georgia in 2002. By 2005, it had been detected in coastal areas of Georgia, Florida, and South Carolina (Mann et al. 2012). This beetle is not known to be present in California.

Life History

Although little is known about the life cycle and biology of red bay ambrosia beetles, its biology presumably is similar to that of other species in the *Xyleborini*. Adult female beetles bore into the wood just below the bark and construct galleries in the sapwood, inoculating the galleries with a fungus. Most of the life of the beetles is completed within these galleries. The adults and larvae feed on fungi and not on the wood of the damaged host plant. Although adult beetles are active throughout the year, they are most active in early September. (Mann et al. 2012)

Environmental and Economic Effects

Red bay ambrosia beetles do damage primarily by transmitting the fungus, *R. lauricola,* which causes laurel wilt. Trees affected by laurel wilt exhibit wilted foliage with a reddish or purplish discoloration. This foliar discoloration may cover the entire crown of the tree. In red bay trees, the fungus plugs the flow of water in the xylem and causes the tree to die within a few weeks. (Mann et al. 2012)

If introduced into California, red bay ambrosia beetles could substantially affect commercial avocado production, as research has shown that avocado trees are extremely susceptible to attack by beetles and infection with laurel wilt fungus. In 2011, the total value of avocado produced in California was $460.5 million (CDFA 2013b). An introduction of red bay ambrosia beetles also would likely cause substantial damage to native California bay laurels.

Red Palm Weevil and South American Palm Weevil

The red palm weevil (RPW) (*Rhynchophorus ferrugineus*) and South American palm weevil (SAPW) (*Rhynchophorus palmarium*) are both insects that damage palm trees. In 2010, RPW was detected in the City of Laguna Beach in Orange County, marking its first detection in the U.S. (CDFA 2011b). As of 2013, SAPW has been detected in San Diego and Imperial Counties. Its native range is Central and South America, and it has only been recorded as far north as 50 miles north of Cabo San Lucas in Baja California Sur, Mexico (CDFA 2011c).

Life History

Female RPW and SAPW bore into palm trees to lay their eggs. Eggs typically take about 3 days to hatch. On emerging, larvae feed on the surrounding palm tissues and/or tunnel into the tree. The larval period typically requires about 2 months to complete. Mature larvae pupate inside the tree for roughly 3 weeks and then emerge as adults. Adult weevils live from 1 to 3 months. (CDFA 2011b; CDFA 2011c)

Environmental and Economic Effects

RPW and SAPW are major pests of palm trees. In addition to landscaping, palm trees are used for producing agricultural commodities, such as coconuts, dates, and oils. Palm trees generate approximately $70 million in nursery plant sales in California annually. In California, date palm growers produce an annual crop valued at approximately $45 million (2011 estimate, CDFA 2013b). SAPW in particular causes economic damage during the larval stage, when larvae feed on the growing tissues in the crown of the palm. This feeding often destroys the apical growth area and subsequently causes the death of the palm. Populations of only 30 larvae have been reported as sufficient to cause the death of an adult coconut palm. In addition, SAPW is an important vector of the red ring nematode, which causes red ring disease of coconut. This disease can kill palm trees within 5 months of inoculation. (CDFA 2011c; CDFA 2011d)

Siberian Silk Moth

The Siberian silk moth, identified by the European and Mediterranean Plant Protection Organization as *Dendrolimus superans and Dendrolimus sibiricus,* is the most important defoliator of conifers (i.e., Siberian pine, larch, fir, and spruce) in Russia and Kazakhstan, and one of the most important defoliators of larch in China. Outbreaks can occur over many thousands of acres and can lead to the death of entire forests (University of Tennessee 2013). In 2013, the Siberian silk moth was not present in California or the rest of the U.S.

Life History

Adult Siberian silk moths usually emerge in mid-July. After mating, female moths lay eggs on the needles of trees. Each female lays an average of 200 to 300 eggs. Egg development typically takes 13 to 15 days, with an occasional maximum of 20 to 22 days. There are six to eight larval instars. The first instar larvae eat the edges of needles and molt in 9 to 12 days. The second instar also feed on needles and develop for 3 to 4 weeks before molting. Third instar larvae descend to the soil in September and overwinter in the top layers of soil. In the spring of the following year, the larvae return to the crowns to feed, eating complete needles and sometimes the bark of young shoots and cones. These larvae molt after one month and again at the end of July or in August. In autumn, the larvae return to the soil and overwinter for a second time. Larvae break diapause the following spring and ascend to the tree crowns to resume feeding. This is the stage at which major damage occurs. Larvae finish maturation feeding by late July or early June, and pupate in the crowns of trees where they form silken cocoons intertwined with foliage and branches. The pupal stage lasts from 18 to 22 days, after which adults emerge and the cycle begins again. The full life cycle usually takes 2 years. Outbreaks of Siberian silk moth are cyclical, occurring every 8 to 11 years, and last for 2 to 3 years. (FAO 2007)

Environmental and Economic Effects

The Siberian silk moth can cause substantial defoliation of forests, potentially threatening California's forestry industry. It is able to attack and kill healthy plants and has been known to kill trees and forests across very wide areas. Death of forests can be caused directly by defoliation or indirectly by increasing the susceptibility of the forest to subsequent attack by other forest pests, such as bark beetles. Other than defoliation and tree death, Siberian silk moth can cause loss of vigor, reduction in growth, and reduced seed crops. The duration and effect of outbreaks depends on the forest type. Outbreaks in fir and five-needled pines result in defined focal areas with very high densities of larvae that defoliate trees for 2 or 3 successive years before the outbreak collapses. Tree mortality is close to 100 percent in many fir and five-needled pine stands. Outbreaks in larch forests are more prolonged but cause less tree mortality. Moths migrate from defoliated larch hosts to new areas to lay eggs. Therefore, successive years of severe defoliation rarely occur and the outbreak population becomes dispersed (FAO 2007). In 2011, California's total timber value was $273 million (CDFA 2013b).

Sirex Wood Wasp

The Sirex woodwasp, *Sirex noctilio,* is an insect pest of pine trees. Native to Europe, Asia, and northern Africa, it was first discovered in the U.S. in 2004, in New York (USDA 2005, New York State Department of Environmental Conservation 2014). The Sirex woodwasp has caused extensive losses to pine plantations across the Southern Hemisphere, in Australia, New Zealand, Chile and South Africa, and is considered one of the top 10 most serious forest insect pest invaders worldwide. (New York State Department of Environmental Conservation 2014). In 2013, the Sirex woodwasp was not present in California.

Life History

The female sirex wood wasp lays her eggs in the bark of susceptible pine trees. While laying eggs, she injects a toxic mucus and a fungus (*Amylostereum areolatum*) into the tree. This typically occurs 10 to 30 feet up in the tree on pole-sized and larger trees (6 to 8 inches in diameter). The mucus quickly kills tree cells from the egg-laying site upwards. The fungus feeds on the killed wood, and the insect larva feed on the fungus. As they grow, the larvae bore galleries deep into and through the wood. (New York State Department of Environmental Conservation 2014)

All larval instars feed on the fungus as they tunnel through the wood. The number of instars varies from 6 to 12, and the larval stage generally takes 10 to 11 months. Mature larvae pupate close to the bark surface. Adults emerge about 3 weeks later. In most regions of the U.S., adult emergence of the sirex wood wasp is likely to occur between July and September, with peak emergence in August. The sirex wood wasp is likely to complete one generation per year. (USDA 2005)

Environmental and Economic Effects

All pine species are believed to be at risk from the sirex wood wasp, but Scots (or Scotch) pine and red pine, as well as eastern white pine, are thought to be particularly at risk. Reference literature indicates that sirex wood wasp also will attack virtually all other softwood species. (New York State Department of Environmental Conservation 2014)

At low populations, sirex wood wasp selects stressed or injured trees for egg laying. The foliage of infested trees initially wilts, and then changes color (from dark green to light green, to yellow, and finally to red) during the 3 to 6 months following attack. Infested trees may have resin beads or dribbles at the egg-laying sites and in larval galleries that are tightly packed with sawdust (USDA 2005). Although the sirex wood wasps prefers stressed trees, it can kill apparently healthy trees. Infestations have been documented to cause up to 80 percent tree mortality (Minnesota Department of Agriculture 2013). In 2011, California's total timber value was $273 million (CDFA 2013b).

Sudden Oak Death

Sudden Oak Death is a tree disease caused by an invasive plant pathogen, *Phytophthora ramorum* (Alexander and Swain 2010). *Phytophthora ramorum* is an oomycete (a fungus-like microorganism). Sudden Oak Death was first reported in 1995, on tanoak in Mill Valley, Marin County. Since then, the pathogen that causes the disease has been confirmed on various native hosts in 14 coastal California counties: Marin, Santa Cruz, Sonoma, Napa, San Mateo, Monterey, Santa Clara, Mendocino, Solano, Alameda, Contra Costa, Humboldt, Lake, and San Francisco. Sudden Oak Death also has been observed in Oregon.

Life History

Phytophthora species are fungus-like organisms that are water-loving and produce abundant spores in moist or humid conditions. Although most *Phytophthora* species dwell in the soil as root pathogens, *P. ramorum* acts primarily as a leaf pathogen. In California, *Phytophthora ramorum* thrives in coastal tanoak, redwood, and oak forests, and in non-coastal nurseries with similar microclimates that support the growth and development of the fungus. Also, in California where coast live oak and California bay laurel are the dominant species, infections on California bay laurel serve as the main producer of fungal inoculums, thereby, indicating the importance of California bay laurel as a predictor of the disease on oak (Kliejunas 2010). *Phytophthora ramorum* is dispersed by rainsplash or wind-driven rain from nearby infected bay laurel leaves onto oak trunks that they enter through natural openings in the bark. Bark tissue soon is colonized, killing cells and clogging water and nutrient transport vessels. Although *Phytophthora ramorum* infects both oak and non-oak species, it is particularly deadly to oaks (Alexander and Swain 2010). Although most non-oak plant hosts are not killed by *P. ramorum,* they can function as reservoirs for fungal inoculums that can spread to non-infected host plants through water, wind-driven rain, plant materials, and human activity. Oaks are considered terminal hosts for the fungus, which usually does not spread further from intact bark cankers.

Environmental and Economic Effects

Phytophthora ramorum can be lethal to trunk hosts and madrone (*Arbutus menziesii*) saplings, although it may cause only a minor leaf or needle disease for its numerous foliar hosts. Depending on a number of factors, some trees may never become infected, some may become infected and survive for various lengths of time, and others may become infected and die quickly. In only a few rare cases have trees recovered on their own. (Alexander and Swain 2010)

Sweet Potato Weevil

The sweet potato weevil (SPW) (*Cylas formicarius elegantulus*) is an arthropod that often is considered the most serious pest of sweet potato. It was first noted in Louisiana in 1875. In 2013, SPW was found throughout the coastal plain of the Southeast, from North Carolina to Texas, as well as in Hawaii and Puerto Rico. (Capinera 2009b) It also was present in San Diego County in California.

Life History

A complete life cycle for the SPW requires 1 to 2 months. Adult weevils do not undergo a period of diapause in the winter, but seek shelter and remain inactive until the weather becomes warmer. All life stages can be found throughout the year, if suitable host material is available. Female SPWs deposit eggs in small cavities in the sweet potato root or stem. When the egg hatches, the larva typically burrows directly into the tuber or stem of the plant. Larvae create winding tunnels packed with fecal material as they feed and grow. Under laboratory conditions at 59°F, adults can live over 200 days when provided with food and about 30 days if starved. (Capinera 2009b)

Environmental and Economic Effects

Damage to the sweet potato is caused primarily by feeding during the larval stage. Infested tubers often are riddled with cavities, are spongy in appearance, and are dark in color. Larval feeding also can facilitate the entrance of soil-borne pathogens into sweet potato tubers. Even low levels of feeding induce a chemical reaction that imparts a bitter taste and terpene odor to the tubers. Adults feed on tubers as well, but damage by this stage is less severe than by larvae (Capinera 2009b). Sweet potato losses can reach 97 percent where the weevil occurs, although reports of losses vary substantially. In California, the total value of sweet potato production in 2011 was $128.7 million (CDFA 2013b).

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Appendix G

2003 Pierce's Disease Control Program Environmental Impact Report Court of Appeal Decision

Filed 12/29/05; partial pub. order 1/27/06 (see end of opn.)

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

FIRST APPELLATE DISTRICT

DIVISION FOUR

CALIFORNIANS FOR ALTERNATIVES TO TOXICS et al., Plaintiffs and Appellants, v. DEPARTMENT OF FOOD AND AGRICULTURE, Defendant and Respondent; CALIFORNIA ASSOCIATION OF WINEGRAPE GROWERS et al., Interveners and Respondents.	A107088 (San Francisco County Super. Ct. No. CPF03503249)

There is no doubt that the glassy-winged sharpshooter (GWS), a primary vector of Pierce's disease to crops in this state, is a threat to California agriculture, especially grapevines. Winegrape production in California has a total direct and indirect annual impact on the state's economy in excess of $33 billion. (Food & Agr. Code, § 6292, subd. (c).)

Respondent California Department of Food and Agriculture (DFA) began operating an emergency program to control Pierce's disease and the GWS in 2000. In May 2003 the DFA certified a final environmental impact report for a permanent Pierce's Disease Control Program (PDCP). A key component of the program calls for the use of pesticides to control and eradicate the GWS.

This appeal arises under the California Environmental Quality Act (CEQA). (Pub. Resources Code,[1] § 21000 et seq.) It raises the question whether a lead agency such as DFA can forego environmental analysis of the use of pesticide products in the program by relying on the certified regulatory and registration program operated by the California Department of Pesticide Regulation (DPR). We conclude it cannot and for this and related reasons reverse the judgment.

I. FACTUAL BACKGROUND

A. *The Peril and the Program*

The GWS is a nonnative insect of the leafhopper family that probably established itself in California in the late 1980's, but was first reported here in 1994. It is an aggressive flyer, traveling greater distances than native sharpshooters.

Pierce's disease, present in this state for more than 100 years, is caused by a strain of the bacterium Xylella fastidiosa. The disease kills grapevines by clogging their water-conducting vessels (xylem). Native species of sharpshooters have not succeeded in spreading the disease as far and wide as the GWS because they are poor fliers and their habitat primarily is adjacent to waterways. Moreover, even where the disease is present in a vineyard, vine-to-vine transmission is minimal because the native sharpshooter does not travel far and has limited ability to spread the disease because of its small mouth size.

On the other hand, the GWS feeds on xylem fluid of numerous plants and thus spreads Pierce's disease through their feeding habits. Further, the GWS is prolific, building to high populations on an array of host plants, thereby substantially increasing the number of insects vectoring the X. fastidiosa bacteria to crops. And, in a vineyard setting it transfers the bacteria vine to vine, exponentially increasing the disease incidence in that setting.

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[1] Unless otherwise noted, all statutory references are to the Public Resources Code.

The destructive combination of Pierce's disease vectored by the GWS in vineyards was observed in Riverside County in August 1999, when more than 300 acres of grapevines infested with the GWS were destroyed by the disease. The next year the Legislature enacted emergency legislation aimed at combating Pierce's disease and its vectors,[2] declaring that they "present a clear and present danger to California's fifty billion dollar grape industry . . . ." (Food & Agr. Code, § 6045, subd. (a).) The emergency provisions established the PDCP within the DFA; directed the Governor to appoint a statewide coordinator to fight the disease and its vectors; appropriated funds for the program including funds for local public entities that develop Pierce's disease workplans as specified in the legislation; and authorized the secretary of DFA to establish, maintain and enforce a regulatory program to interpret, clarify and implement the PDCP. (*Id*., §§ 6046-6047.)

In July 2000 the DFA adopted emergency regulations for (1) designating areas as infested or noninfested with the GWS and (2) inspecting shipments of bulk grapes and other commodities and disposing of infected shipments; and set standards for movement of nursery stock and bulk grapes. (Cal. Code Regs., tit. 3, §§ 3650-3660.) These regulations implement a statewide response program for arresting the spread of the GWS and, where feasible, eradicating it upon detection in noninfested areas.

The DFA is the agency charged with coordinating the statewide program. The county agricultural commissioner or other designated body is responsible for local implementation, with coordination by DFA. Because the emergency regulations and program were created in response to an emergency, they were exempt from CEQA. (Cal. Code Regs., tit. 14, § 15269, subd. (c).) Taking the next step, the DFA proposed continuation of the emergency program as a long-term program, with attendant regulations, and acting as lead agency, submitted the proposed program for environmental evaluation.

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[2] Food and Agricultural Code sections 6045-6057; Statutes 2000, chapter 21, section 1 (Sen. Bill No. 671), effective May 19, 2000.

B. *Draft Environmental Impact Report*

DFA issued its notice of preparation of an environmental impact report (EIR) for the permanent PDCP in March 2001. Approximately a year later, following a period of public comment, DFA issued its draft EIR (DEIR).

1. *Program Elements:* The DEIR set forth five elements of the PDCP: public outreach; a statewide survey; containment of the spread; local management/rapid response; and research. In infested counties in Southern California, the DEIR identified the goal of the program as containment rather than eradication. In Northern California, where the GWS is not generally established, the goal would be local eradication.

a. *Public Outreach*: The purpose of the public outreach component is to raise public awareness about Pierce's disease, the GWS and the combined threat they pose in this state. The idea is that with increased public awareness would come involvement, earlier detection and reduced damage. Outreach would be accomplished through a variety of efforts, including the PDCP Web site, dissemination of general and technical information, informational public meetings, press releases and networking.

b. *Statewide Survey*: This element is intended to locate and monitor GWS infestations and populations. Statewide surveys would be conducted annually. In nonagricultural and cropland areas, detection activities would take place from March or April through October, whereas in nurseries, detection activities would occur year round.

c. *Containment*: This component of the PDCP seeks to prevent or retard the spread of the GWS by regulating the movement of commodities which may harbor the GWS and through biological and other control measures. Regulations setting forth standards and protocols for moving and shipping bulk grapes, bulk citrus and nursery stock would continue to be enforced under the permanent PDCP. Biological control measures would include release of natural enemies of the GWS such as a native tiny, stingless parasitic wasp which parasitizes sharpshooter eggs. There would be an evaluation process for importing nonnative natural enemies which would include an assessment of rearing activities and trial releases, and analysis of potential undesirable effects of these biological control agents such as whether the agent would adversely impact other organisms, e.g., native insects.

d. *Rapid Response*: The rapid response component focuses on immediate action to minimize the spread of a newly discovered GWS infestation, defined as "five or more adults within any five day period within a 300 yard radius of each other, or the presence of multiple life stages (e.g., adults, nymphs, and eggs)." As soon as there is discovery of a GWS in one or more life stages that is not associated with a recent shipment of regulated commodities, the county agricultural commissioner conducts a property-by-property visual survey for the presence of the GWS. The delimitation survey area encompasses all properties within one-quarter mile of the GWS find, with each newly infested property serving as the center of another one-quarter mile radius.

With the discovery of a new infestation, there is consultation with the California Department of Fish and Game (DFG), the United States Fish and Wildlife Service (USFWS) and, where appropriate, the National Marine Fisheries Service (NMFS). DFA has entered into memoranda of understanding with DFG and USFWS detailing a communication process for notification of pest control activities and development of measures to avoid adverse environmental impacts.[3] If DFG or USFWS conclude that proposed PDCP activities would pose a potential jeopardy to threatened or endangered species or species of concern, the agencies would develop appropriate measures to avoid jeopardy.

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[3] Although DFA does not have a memorandum of understanding with NMFS, there is a coordination program with that entity and an informal arrangement to discuss activities that might impact marine mammals, coastlines, or streams that empty into the ocean.

The next step is treatment of infested properties. The county agricultural commissioner proceeds according to established protocols. In Southern California where the goal is containment, rapid response activities would be limited. Commissioners might coordinate vegetation host removal on abandoned cropland or roadsides and, at their discretion, growers may apply pesticides on their property.

The goal in Northern California is eradication, typically through the use of pesticides, applied by ground treatment in nonagricultural areas. Host removal could also occur.

Registered pesticides used under the emergency program most likely would continue as the primary pesticides for rapid response. These include carbaryl (Sevin ("7")) and cyfluthrin (Tempo) as foliar sprays and imidacloprid (Merit) as a foliar spray or applied as soil drench or soil injection. Other pesticides registered for use against leafhoppers could be applied if information suggests a benefit such as reduced risk.

Prior to initiating a course of treatment in a nonagricultural area, the county agricultural commissioner would convene public outreach meetings in the affected area. As well, occupants of all properties subject to treatment would be notified of the pending application. Administrators of schools, rest homes, hospitals and day care centers near treatment areas would also be notified.

County agricultural commissioners may also require growers to treat their crops with registered pesticides suitable for controlling leafhoppers. The efficacy of control methods appropriate for organic growers is being evaluated by DFA. According to the DEIR, trial releases of biological control agents have not been as effective as pesticides and therefore are not recommended.

The proposed PDCP also provides for posttreatment evaluation and includes protocols for environmental monitoring of pesticide treatments and treatment areas, including monitoring of residue levels.

e. *Research:* The research effort described in the DEIR is collaborative, with over 40 scientists working on more than 60 projects. Funded research has focused on ascertaining the tools needed to reduce the spread of the GWS, including the use of biological control agents; learning how the GWS selects host plants, analyzing the epidemiology of Pierce's disease and determining if cultural practices can reduce infection rates; and developing plant resistance to the disease.

2. *Alternatives*: The DEIR sets forth several alternatives: a no-project alternative and three action alternatives, each of which would regulate movement of commodities that may cause the spread of the GWS. For alternative A, the DFA would not take any action against new GWS infestations. Under alternative B, new infestations would be abated on agricultural lands, using the most effective treatments available. Under alternative C, the DFA would abate all new infestations outside of the generally infested areas, but would not use conventional pesticides in nonagricultural areas.

3. *Environmental Impacts*: The DEIR also identifies potential environmental impacts. These include loss of wild and hobby-kept bees; loss of some beneficial insect species; temporary withdrawal of organic certification for growers; surface water impacts from the use of pesticides; potential exposure to pesticide residues on the part of agricultural and nursery workers as well as fragile populations (the acutely ill, very young or old, or pregnant women) and other persons in nonagricultural areas who come into contact with residues through skin contact, inhalation, etc. Notwithstanding these potential impacts, the report concluded that attendant safeguards within the PDCP reduced all such impacts to less than significant and therefore no additional mitigation measures were proposed. Determining there would be no harm to human health or the environment from the application of pesticides, the DFA relied on state and federal pesticide registrations. Likewise, DFA relied on licensing and worker safety regulations in deciding that exposure to pesticides did not constitute a significant impact for pesticide applicators and agricultural workers.

C. *Comments on DEIR*

Appellants[4] and others submitted comments critical of the DEIR. Appellants criticized the DEIR's reliance on compliance with existing pesticide regulations as adequate to protect human health. They also faulted the DEIR's risk evaluations of carbaryl, pyrethroids and imidicloprid, as well as its failure to address the issue of impacts of additives in pesticide formulations.

Appellants also condemned the report for its purported lack of disclosure and inadequate risk assessment of impacts of pesticides on sensitive populations (as well as the deficient consideration of mitigation measures). Further, they objected to statements in the DEIR sanctioning the deferred analysis of impacts on endangered species. Appellants also disputed the DEIR's findings that impacts from pesticide use on pest management programs and organic farming would be less than significant. Appellants also faulted the DEIR's cumulative impacts assessment.

Appellants found the DEIR's cumulative impacts assessment and range of alternatives inadequate, and observed that integrated pest management (IPM) should have been treated as a viable alternative. Nor, according to appellants, did the DEIR evaluate how alternatives to pesticides might be used in combination with one another or in conjunction with conventional pesticides.

Finally, appellants asserted that the DEIR should not be certified because it failed to evaluate mitigation measures that could minimize significant impacts detailed in their comments.

The California Regional Water Quality Control Board, North Coast Region commented that "[t]he potential for run-off of pesticides into waterbodies exists, even when the pesticides are applied by licensed pesticide applicators according to

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[4] Appellants herein are Californians for Alternatives to Toxics, Public Employees for Environmental Responsibility, and People Opposed to Insecticide Spraying on Neighborhoods.

label directions." It suggested a no-spray riparian buffer zone in mitigation, as well as ground water monitoring and measures that would mitigate for weather conditions.

D. *Final EIR*

DFA issued the final EIR in May 2003. It concluded: "Commenters did not identify any new significant environmental impacts not addressed in the EIR." Changes from the DEIR were minimal.

E. *Litigation*

Appellants filed this lawsuit in June 2003. Respondents California Association of Winegrape Growers and Family Winemakers of California were allowed to intervene. This appeal followed the denial of appellants' petition for writ of mandate and request for injunctive relief.

II. DISCUSSION

A. *Standard of Review*

CEQA embodies the fundamental legislative intent that the act be interpreted in a manner that affords the fullest possible protection to our environment within the reasonable scope of the statutory language. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 563-564.) "The EIR is the primary means of achieving the Legislature's considered declaration that it is the policy of this state to 'take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.' [Citation.] The EIR is therefore 'the heart of CEQA.' [Citations.] An EIR is an 'environmental "alarm bell" whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.' [Citations.] The EIR is also intended 'to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.' [Citations.]" (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392.) Thus, the EIR is an accountability document and the EIR process itself protects the environment as well as informed decisionmaking. (*Ibid*.)

Judicial review under CEQA generally is limited to ascertaining whether the lead agency abused its discretion by not proceeding as required by law, or by making a determination that is not supported by substantial evidence. (*San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 688.) An agency fails to proceed in a manner required by law and thus abuses its discretion when it does not comply with the informational requirements of CEQA. Harmless error analysis is inapplicable in these circumstances. (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1105-1106.) Under the substantial evidence test, we resolve reasonable doubts in favor of administrative findings and decision. Thus, we will not overturn an agency's approval of an EIR because an opposite conclusion would have been equally or more reasonable. Nor do we weigh conflicting evidence and determine who has the better argument. (*Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs.* (2001) 91 Cal.App.4th 1344, 1356.)

B. *The EIR's Evaluation of Environmental Impacts from Application of Pesticides Under the PDCP is Inadequate*

1. *Introduction*

Appellants are adamant that DFA did not independently evaluate the impacts of the PDCP's proposed statewide use of multiple pesticides. Instead, they argue DFA impermissibly relied solely on the certified regulatory program of the DPR to conclude that there were *no significant adverse impacts*.

"The purpose of an [EIR] is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." (§ 21002.1, subd. (a).) CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment." (§§ 21068, 21000, subd. (d).) The term "environment" refers to "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna . . . ." (§ 21060.5.)

The DFA, as lead agency for the PDCP, is charged with considering, discussing and analyzing the environmental impacts of the proposed program, taking into account all phases of the program when evaluating its effect on the environment. (§ 21100, subd. (a); Guidelines,[5] § 15126.) As a general matter the EIR must present facts and analysis, not simply the bare conclusions or opinions of the agency. (*Citizens of Goleta Valley v. Board of Supervisors*, *supra*, 52 Cal.3d at p. 568.) The discussion of impacts is acceptable if it provides sufficient information and analysis to allow the public to discern the basis for the agency's impact findings. (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1397.) Thus the EIR should set forth specific data, as needed to meaningfully assess whether the proposed activities would result in significant impacts. (See *Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs.*, *supra*, 91 Cal.App.4th at pp. 1381-1382.) DFA's impact analysis fell far short of these standards.

2. *Department of Pesticide Regulation*

In order to fully appreciate appellants' argument, we first examine DPR's mission and role in regulating pesticide use in this state.

The DPR has broad authority to regulate the registration and classification of pesticides and promulgate regulations and standards for monitoring the effects of pesticide use. The agency administers a pervasive pesticide regulatory scheme governing all aspects of registration, sales, possession and use of pesticides in California. (Food & Agr. Code, § 12811 et seq.)

CEQA authorizes state agencies such as DPR, operating pursuant to their own regulatory program, to generate a plan or other environmental review document which functions as the equivalent of an EIR. (§ 21080.5; *Mountain Lion Foundation v. Fish & Game Com*. (1997) 16 Cal.4th 105, 115.) The plan required by the

[5] All references to "Guidelines" are to the CEQA Guidelines. (Cal. Code Regs., tit. 14, § 15000 et seq.)

regulatory program must include a description of the proposed activity with alternatives and mitigation measures to minimize any significant adverse effects on the environment. (§ 21080.5, subd. (d)(3)(A).) As well, the plan must be available for public review and comment. (*Id*., subd. (d)(3)(B).)

The secretary of the resources agency has certified the pesticide regulatory program administered by DPR and the county agricultural commissioners as meeting the requirements of section 21080.5 with respect to (1) the registration, evaluation and classification of pesticides; (2) the adoption, amendment or repeal of regulations and standards for licensing and regulating pesticide dealers and pest control operators and advisors; (3) the adoption, amendment or repeal of regulations for standards dealing with the monitoring of pesticides and of the human health and environmental effects of pesticides; and (4) the regulation of pesticide use in agricultural and urban areas through the permit system administered by county agricultural commissioners. (Guidelines, § 15251, subd. (i)(1)-(4).)

Food and Agricultural Code section 12824 is a key provision requiring that pesticides be evaluated and registered prior to being sold or used in this state. Pursuant to that statute, DPR is authorized to place appropriate restrictions on pesticide use. Pesticides for which renewal of registration is sought are also subject to thorough evaluation under Food and Agricultural Code section 12824. After registration, a registrant must submit to DPR any new evidence of a pesticide's adverse effect or risk to human health, livestock, crops or the environment. (*Id*., § 12825.5.)

The registration process begins with submittal of the prescribed application (Cal. Code Regs., tit. 3, §§ 6270, 6170.5) and supporting data required by law. In addition to information submitted to the federal Environmental Protection Agency (EPA) in support of federal registration of the product (*id*., §§ 6159, 6170), prospective registrants and, where appropriate, reregistrants must submit extensive data to the DPR. These requirements include general toxicity data (*id*., § 6172); dermal absorption data (*id*., § 6176) and dermal or inhalation exposure data (§ 6177), where applicable; a protocol for treatment of poisoning (*id*., § 6178); acute toxicity data on certain spray adjuvants (*id*., § 6179); biochemical data on rodenticides (*id*., § 6180, subd. (a)); acceptable foliar and soil residue data where product is intended for use on commercially grown crops and there may be substantial exposure by field workers (*id*., § 6181); an established safety reentry interval for proposed pesticide use that poses a safety hazard to field workers (*id*., § 6182, subd. (a)); appropriate indoor exposure data where product may result in dermal or respiratory exposure after indoor application (*id*., § 6183); a method and standard sample for accurately determining residues of active ingredients and certain metabolites (*id*., § 6184); data supporting each efficacy claim (*id*., § 6186); data indicating the product's acute chronic toxicity to bees where product may be likely to contact commercial apiaries or pollinating bees (*id*., § 6187); data on viscosity of liquid pesticide product carrying the signal word "DANGER" on the label for an agricultural use (*id*., § 6188); where registration is sought for use on crop for which product was not previously registered, data on any adverse effect on pest management systems for that crop (*id*., § 6189); in the discretion of the director of DPR (director), data regarding evaporative emission of volatile organic compounds contained in the product (*id*., § 6191); and other data as the director determines necessary, which may include data on pesticide drift; phytotoxicity; environmental effects; analytical and environmental chemistry; and effect from use of mixtures of two or more products in combination; and contaminants in pesticide products (*id*., § 6192).

With this data, the DPR undertakes a comprehensive analysis prior to determining whether to register a pesticide in the first instance. (Food & Agr. Code, §§ 12824, 12825.) During the review and evaluation of proposed labeling and data supporting registration, the director pays particular attention to the following factors in deciding whether or not to register the pesticide: acute health effects; evidence of chronic health effects; potential for environmental damage, including interference with attainment of applicable environmental standards (e.g., air quality standards, water quality objectives); toxicity to aquatic biota or wildlife; method of medical management of poisoning or other injuries; analytical methods; availability of feasible alternatives; and efficacy. If it is anticipated that any of these factors will result in significant adverse impacts which cannot be avoided or adequately mitigated, the director will not grant registration unless he or she makes a written finding that anticipated benefits clearly outweigh risks. (Cal. Code Regs., tit. 3, § 6158.)

Finally, DPR has broad discretion, after a hearing, to refuse to register, or cancel the registration of, any pesticide: "(a) That has demonstrated serious uncontrollable adverse effects either within or outside the agricultural environment. [¶] (b) The use of which is of less public value or greater detriment to the environment than the benefit received by its use. [¶] (c) For which there is a reasonable, effective, and practicable alternate material or procedure that is demonstrably less destructive to the environment. [¶] (d) That, when properly used, is detrimental to vegetation, except weeds, to domestic animals, or to the public health and safety. [¶] (e) That is of little or no value for the purpose for which it is intended." (Food & Agr. Code, § 12825, subds. (a)-(e).)

3. *Analysis*

a. *DPR Scheme v. DFA's Duty*

In its discussion of potential environmental impacts, DFA reasoned that the DPR's multifaceted pesticide registration regulatory scheme ensured that proposed pesticide use under the PDCP would not result in any significant adverse environmental impacts. Appellants fault this state of affairs, asserting that DFA abused its discretion by relying on DPR's regulatory scheme as a substitute for performing its own evaluation of the environmental impacts of using pesticides under the PDCP. We agree.

We acknowledge that DFA's duty under CEQA to analyze the effects of pesticide use must necessarily take into account the distinct regulatory scheme of the DPR. However, sole reliance on DPR's registration of pesticides and its regulatory program, including safety regulations for employees handling pesticides (Cal. Code

Regs., tit. 3, § 6720 et seq.), is inadequate to address environmental concerns under CEQA. DFA is responsible for analyzing the environmental impacts of proposed pesticide use under the PDCP, notwithstanding that DPR must also register pesticides before they can be used in this state. DPR's registration does not and cannot account for specific uses of pesticides in the PDCP, such as the specific chemicals used, their amounts and frequency of use, specific sensitive areas targeted for application, and the like.

Save Our Ecosystems v. Clark (9th Cir. 1984) 747 F.2d 1240 is instructive. There, the United States Forest Service had determined that certain herbicides could properly be used for defoliation activities, relying solely on their EPA registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The Ninth Circuit Court of Appeals held that "[t]he EPA registration process for herbicides under FIFRA is inadequate to address environmental concerns under NEPA [National Environmental Policy Act] . . . ." Instead, an agency must conduct independent research on the safety of herbicides it proposes to use.[6] (*Id*. at p. 1248; see *Northwest Coal. for Altern. to Pesticides v. Lyng* (9th Cir. 1988) 844 F.2d 588, 596.) An agency can appropriately fulfill this duty of independent investigation by considering the registering agency's data on herbicides *in the specific context of the area targeted for proposed application*. (*Save Our Ecosystems v. Clark, supra,* 747 F.2d at p. 1247.)

Our review of the EIR reveals that DFA repeatedly deferred to the DPR regulatory scheme instead of analyzing environmental consequences of pesticide use and therefore fell short of its duty under CEQA to meaningfully consider the issues raised by the proposed project. (See *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2003) 106 Cal.App.4th 715, 720-722.)

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[6] Judicial interpretations of the federal environmental regulatory scheme are persuasive authority on analogous CEQA questions. (*Citizens of Goleta Valley v. Board of Supervisors*, *supra*, 52 Cal.3d at p. 565, fn. 4.)

By way of example, the EIR's "environmental analysis" section discusses the use of pesticides in nonagricultural areas, concluding as follows: "The U.S. EPA and CDPR evaluate pesticides for potential effects on human health prior to registration and require appropriate use restrictions be present on the pesticide label to ensure a reasonable certainty of no harm to human health and the environment. CDPR's pesticide registration process has been certified as meeting the requirements of CEQA. [Citation.] Professional application in compliance with pesticide labels ensures that pesticides used in the PDCP would not be detrimental to the public health and safety." Similar reliance on pesticide label restrictions and existing occupational health and worker safety regulations supported DFA's assessment that potential hazards to pesticide applicators and agricultural workers would be less than significant. As well, DFA concluded that applying pesticides consistent with label requirements would reduce potential water quality impacts to less than significant.

Likewise, in the appendix on the use of pesticides in the PDCP, DFA writes: "All [pesticide] applications must be in compliance with federal and state laws and regulations . . . . The CDPR pesticide registration program was approved under [CEQA] as meeting the requirements of the Act with respect to environmental review of pesticide use. Therefore, the use of pesticides registered by CDPR according to approved label directions is in compliance with CEQA."

These conclusory statements do not fit the CEQA bill. Compliance with the law is not enough to support a finding of no significant impact under the CEQA. (*Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 881-882 [court rejected assertion that noise level under proposed project would be insignificant simply by virtue of being consistent with general plan standards for zone in question].) While *Oro Fino* did not involve a program certified as CEQA equivalent, its holding still pertains. The DPR program is in essence the master plan for pesticide registration, evaluation and regulation. It does not, nor was it intended, to address the environmental impacts of administering a statewide pesticide application program backed by the full force of the DFA and the county agricultural commissioners. Nor is there legal authority for the proposition that using registered pesticides according to their labels never results in significant adverse effects. (See *Oregon Environmental Council v. Kunzman* (9th Cir. 1983) 714 F.2d 901, 905 [reliance on pesticide registrations in lieu of analysis under federal environmental laws was improper because "[t]he licensing of pesticides containing carbaryl does not 'reflect a conclusion that a pesticide is safe under *any* conditions' "].)

b. *DFA's Arguments*

DFA argues that it should not be required to duplicate the work of DPR. We do not expect duplication. However, we do expect the EIR or its appendices to *consider* the extensive DPR data on the pesticides proposed for application in the rapid response and containment elements of the PDCP. Regrettably, the administrative record does not contain *any* compilation of DPR's data. (See pt. II.B.1., *ante* [identifying type of data reviewed in pesticide registration].) Nor does it disclose DPR's environmental analysis or risk assessments with respect to these pesticide products. Hence we do not even have the functional equivalent of an EIR for the relevant pesticide registrations, let alone an environmental enquiry into their potential effects under the statewide PDCP program. (See *Citizens for Non-Toxic Pest Control v. Department of Food & Agriculture* (1986) 187 Cal.App.3d 1575, 1586-1587 [in order to rely on CEQA exemption for pesticide regulatory program to excuse preparation of EIR before commencing spraying of "Imidian" to eradicate apple maggot fruit fly, there must be evidence in record that registration is up to date and "contemplates the pesticide being sprayed statewide on all possible hosts, for up to the seven-year period being proposed by appellants"].)

In lieu of a proper assessment and evaluation, what we have in appendices are the product labels and material safety data sheets for pesticides used most frequently in the emergency program; a very general discourse of general principles related to chemical toxicology and risk evaluation; followed by brief summaries for three pesticides employed in the emergency program,[7] notwithstanding that the DEIR identified *30* active pesticide ingredients “that so far have passed CDFA’s treatment selection process and might be used in non-agricultural settings in the PDCP.” Moreover, these summaries only cursorily treat toxicology, behavior in the environment and human exposure experience. Further, they do not analyze how potential effects could impact people and the environment under the PDCP.

Given the potential adverse impacts to human health and the environment from a statewide program authorizing pesticide use in numerous settings that could expose humans, animal and aquatic life and surface water and air to pesticide residue, at a minimum the EIR should contain a serious risk assessment of *all* pesticides that could be used in the rapid response and containment programs of the PDCP.

As a contrasting example, the EIR for the vegetation control program of the California Department of Transportation (Caltrans) contains an appendix devoted to risk assessment that is larger than the entire DEIR and appendices for the PDCP. It includes a quantitative risk assessment for each of the 25 herbicides used or proposed for use in the Caltrans program. This assessment evaluates the likelihood of the occurrence of adverse effects in humans and representative aquatic and terrestrial species that may result from herbicides used for vegetation management in California. The appendix presents herbicide-specific information on chemical/physical characteristics; use patterns within the state; fate and transport in the environment; potential toxicity to humans, animals and aquatic organisms; and estimates of risks to humans, animals and aquatic organisms under specified conditions of use. Tables detail the average and maximum estimates of (1) single day intake and associated estimates of noncancer risk; (2) life-time average daily dose and associated estimates of cancer risk (where available); and (3) single day intake and associated estimates of ecological risk. Information related to humans is broken down according to exposure, e.g., to workers, and by manner of application;

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[7] Continued use of these pesticides is contemplated under the permanent program.

and to the public, by manner of contact, e.g., contact with sprayed vegetation, ingestion of vegetables, ingestion of surface water.

While we agree with DFA that it was not required to replicate the Caltrans EIR model, we include its description in part to expose the narrowness of DFA's concept of environmental review, which can be summed up in the following response to comments critical of its assessment of impacts from pesticide use in the PDCP: "The profiling of chemical and toxic properties of individual pesticide materials is outside the scope of environmental review of the PDCP. Review of physical and chemical characteristics and general toxicity of individual compounds is conducted by regulatory agencies which are tasked with determining safe use parameters. . . . [T]hose interested in detailed and comprehensive examination of the toxic and general use profiles of pesticide products, including those that may be selected for use in the PDCP, are referred to the agencies that regulate the use of these materials."

DFA also asserts that rather than ignoring the impact of pesticide use, it "extensively discussed in the administrative record the effects of pesticides likely to be used in the PDCP . . . ." This assertion is not supported by the record. Attempting to back up this statement, DFA points to nine pages which include a description of the label for one pesticide and some pesticide protocols; a general discussion of the public's concern about pesticides, hazards inherent in any pesticide use and the importance of following label directions; and conclusory statements about potential pesticide impacts, devoid of reference to any specific pesticide and without any citation to evidence, risk assessment or other toxicological information.

Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection (2004) 123 Cal.App.4th 1331, 1361 does not aid DFA. There, challengers to a timber harvest plan—which is the functional equivalent of an EIR—claimed that the Department of Forestry and Fire Protection impermissibly relied solely on the state and federal herbicide registration processes in determining that potential herbicide use would not result in significant environmental impacts. (*Id*. at pp. 1338, 1362.) Dismissing this claim the reviewing court stated that both the department and the timber company "extensively discussed the particular pesticides that might be used, including potential environmental impacts. [¶] The use of herbicides by Sierra Pacific will be evaluated in the context of a specific setting under the regulatory program for the certification and use of pesticides, including herbicides. (Cal. Code Regs., tit. 14, § 15251, subd. (i).) The review and issuance of appropriate permits will be required." (*Id.* at p. 1362.) As we have shown, there was no extensive discussion here. Moreover, unlike the instant situation which almost guarantees pesticide use, the potential use of herbicides in *Ebbetts Pass* was deemed speculative. (*Ebbetts Pass, supra,* at pp. 1363-1364.)

For all these reasons we conclude that DFA abused its discretion by failing to fulfill its obligation under CEQA to analyze the environmental effects of statewide pesticide use under the rapid response and containment elements of the PDCP. This error infected the analysis of the impact from exposure to pesticides on people in nonagricultural areas—including individuals who are susceptible to health complications because of health or developmental status—upon activation of the emergency response program in their area and in distinctive locations such as schools, parks, hospitals, nursing homes; agricultural and nursery workers, upon activation of the containment program requiring growers and/or nursery owners in their vicinity to treat crops with pesticides; pesticide applicators and agricultural workers, upon applying pesticides under the PDCP;[8] and fish and wildlife, upon pesticide treatment in nonagricultural areas.[9]

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[8] We note that with respect to worker health and safety, DFA relied on pesticide use restrictions as well as DPR's regulations governing the licensing and training of pesticide applicators (Cal. Code Regs., tit. 3, § 6500 et seq.) and pesticide worker safety regulations.

[9] Concerning the fate of fish and wildlife under the PDCP, appellants also criticize the built-in mitigation effort inherent in the consultation and communication protocols that have been set in place with other agencies, notably DFG, USFWS and NMFS. The gist of appellants' complaint is that they do not trust that the interagency environmental coordination and consultation processes will lead to any appropriate or enforceable

4. *The Evaluation of Effects of Pesticides on Nontarget Organisms and Organic Farming Is Also Deficient*

DFA's evaluation of the effects of pesticides on nontarget organisms and organic farming did not just depend on the DPR regulatory scheme. For example, the DEIR discloses that pesticide use as proposed may result in the temporary reduction of some beneficial insect populations, including bees. DFA reasons that these impacts would be limited to the application areas and insects would recolonize those areas from adjacent untreated areas. Commercial beekeepers would be notified within the treatment areas to enable them to take protective action, although this program precaution would not alleviate impacts on wild bees. Label restrictions, including specific application measures to reduce impacts (e.g., not treating blooming plants or not applying pesticides while bees are actively foraging) must be followed. In most situations, applications in the same area would occur only once or twice a year, although the number of treatments and material used could vary with local conditions. With these measures and parameters, the impact was deemed less than significant.

Appendix P to the DEIR cautions that "[s]hould chemical pesticide treatments be required in commercial crops where integrated pest management (IPM) practices rely on the presence of beneficial insect populations, e.g., some citrus orchards, disruptive impacts may be experienced. If existing populations of beneficial insects are drastically altered, commercial growers may find it necessary to increase the use of pesticide chemicals in the future to combat pests other than glass-winged sharpshooter. Such disruption in an established IPM program may lead to economic losses."

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mitigation measures to protect fish and wildlife. DFA has developed these protocols with the agencies directly responsible for protecting key aspects of our environment, to be triggered should conditions arise requiring mitigation efforts. We see no reason to question the good faith of DFA's interagency commitments.

The discussion of significant environmental impacts should give due consideration to both short-term and long-term effects. (Guidelines, § 15126.2, subd. (a).) Here the EIR emphasizes that although pesticide use will kill beneficial insects, the population loss would be temporary. Interestingly, appendix P identifies the longer-term consequence of the losing of beneficial insects: the potential to perpetuate a cycle of increased pesticide use to counteract the loss of beneficial insects that are natural enemies of pests other than the GWS. Rather than analyzing this reasonably foreseeable consequence as an environmental impact, DFA mislabels it as an economic impact. Clearly the potential disruption to the balance of nature from the loss of beneficial insects cannot be isolated to the economic impact of having to abandon an IPM program.

The DEIR also reveals that forced application of pesticides at and near organic farms could result in the temporary withdrawal of organic certification for growers, concluding that this would be an economic, not an environmental, effect. But if, as the DEIR suggests, some organic farmers would convert, even temporarily, to nonorganic farming, this would increase the percentage of growers on the pesticide treadmill. There is no baseline data in the DEIR on the acreage or number of organic or IPM farmers and growers versus conventional growers and thus there is no way to assess the magnitude of potential conversions from these beneficial practices and the environmental impact of such conversions. This potential indirect, more nuanced effect should have been discussed, but was not even mentioned in the DEIR.

C. *The Project Description Was Inadequate in Part*

The program description in the DEIR disclosed that the three pesticides used in the emergency program "would most likely continue to be used as the primary pesticides for the rapid response program. However, other pesticides registered for use against leafhoppers may be applied under the direction of county agricultural commissioners and departments if information suggests an advantage exists or other benefit (e.g., reduced risk)." As well, to meet shipment protocols for nursery stock, bulk grapes and citrus from infested areas, the program description states that "[g]rowers and nursery owners may use *any r*egistered pesticide suitable for leafhopper control." (Italics added.)

"[A]n accurate description of the project is necessary in order to decide what kind of environmental impact statement need be prepared. [Citations.] [¶] A curtailed or distorted project description may stultify the objectives of the reporting process. . . . An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192-193.)

Appellants complain that the program description was inadequate because it did not identify *all* pesticide ingredients that could be used in the PDCP. The description was adequate with respect to pesticide use in nonagricultural areas. DFA disclosed all pesticides it had evaluated to date for use in urban and residential settings. DFA followed a treatment selection decisionmaking matrix for choosing insecticides for use in the program. Many potential pesticides were removed for consideration for use in urban/residential settings based on application of the matrix; 30 remained. With regard to pesticide use by growers and nursery owners, we realize that flexibility in selection may be necessary to allow for specific circumstances of harvest, worker reentry and/or shipment. However, this does not excuse the DFA from failing to disclose in the program description all registered pesticides suitable for leafhopper control.

D. *The Cumulative Impacts Analysis Was Inadequate*

A proposed project may have a significant effect on the environment if "[t]he possible effects of a project are individually limited but cumulatively considerable. . . . '[C]umulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (§ 21083, subd. (b)(2).) The pertinent question "is not how the effect of the project at issue compares to the preexisting cumulative effect, but whether 'any additional amount' of effect should be considered significant in the context of the existing cumulative effect." (*Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 120, fn. omitted.)

Appellants assert that the EIR failed to evaluate cumulative impacts. As with the environmental impact analysis, the cumulative impact analysis improperly relies on the DPR pesticide registration evaluation to conclude there will be no additive or cumulative effect from the PDCP.

Moreover, what is disclosed is inadequate: total pounds of pesticide active ingredients reported used in 2000 and sold in 1999, as well as pounds used in the emergency program statewide and per county. This is far from a baseline description of environmental impacts from existing pesticide use in California. DFA did note that all pesticides applied by growers and licensed pesticide applicators are reported to county agricultural commissioners, and provided a Web site for accessing those reports. But again the EIR does not, as a baseline on existing pesticide use, show where those applications occur, what pesticides are involved, amounts, and the like. Nor is the information on treatments under the emergency program detailed to show agricultural vs. nonagricultural treatments or specific locations or number of treatments per location. By failing to provide proper baseline data, DFA punted its obligation to provide a proper cumulative impacts analysis.

E. *DFA's Response to Public Comments Was Deficient*

Appellants and others provided volumes of scientific articles on impacts and potential impacts. DFA "noted" the material but again relied on DPR's regulatory scheme to avoid any analysis of its own.

DFA's response was grossly inadequate. In preparing the final EIR, the lead agency must respond to comments received with a good faith, reasoned analysis, explaining in detail its reasons for rejecting suggestions and proceeding with the project despite environmental effects. Conclusory statements that are not supported by factual information will not do. (*Laurel Heights Improvement Assn. v. Regents of University of California* (1993) 6 Cal.4th 1112, 1124; *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal.App.4th 182, 191.)

F. *DFA Considered a Reasonable Range of Alternatives*

CEQA requires lead agencies to consider a "reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation." (Guidelines, § 15126.6, subd. (a).) The EIR should discuss the comparative merits of each in terms of impact on the environment. (*Id*., subds. (b), (d).) Here the DEIR evaluated four alternatives and concluded that although the less toxic alternatives would limit the use of pesticides in the short term, in the long term those alternatives would likely increase pesticide use because more growers and homeowners would independently treat their properties to control sharpshooter infestations. In response to public comment, DFA in the final EIR considered two additional alternatives: (1) alternative control methods used in combination; and (2) required use of alternative control methods for sensitive persons. These alternatives were found to be less effective and not flexible enough to ensure that the spread and impacts of GWS infestations would be minimized.

Appellants wish that DFA had considered IPM and a combination of nontoxic control methods as alternatives to the pesticide use elements of the program it proposed. They claim the range of alternatives in the EIR was "[u]nreasonable."

" 'CEQA does not require analysis of every *imaginable* alternative or mitigation measure; its concern is with *feasible* means of reducing environmental effects.' " (*Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351, 376.) We judge the discussion of alternatives in an EIR by a rule of reason. (*Bowman v. City of Petaluma* (1986) 185 Cal.App.3d 1065, 1083-1084.) DFA considered a reasonable range of alternatives. With respect to IPM, DFA and appellants have a differing opinion as to its effectiveness in combating Pierce's disease. Appellants claim DFA never "evaluate[d]" an IPM alternative, yet the agency did briefly describe the Texas approach and the fact that one study showed that growers lost millions of dollars to Pierce's disease. This was enough. However, we cannot predict at this time whether the current range of alternatives will survive judicial review in light of the subsequent environmental analysis contemplated by this opinion.

G. *Guidance on Remand Regarding Evaluation of Toxicity Effects from Full Formulations of Pesticide Products*

The appendices of the DEIR include a page and a half general description of inert ingredients which are added to pesticide products to enhance or aid performance or coverage. This paper acknowledges that inert ingredients may have toxic properties and states that "whenever practicable, products without inerts of toxicological concern are used." It further explains that pesticide manufacturers test the acute toxicity of their final product, but are not required to test each ingredient to the same extent required for active ingredients.

Under federal law, inert ingredients of toxicological concern must be identified on the pesticide label. (54 Fed.Reg. 48314 (Nov. 22, 1989).) Nonetheless, full formulations of pesticide products may, in some instances, be protected as trade secrets. (See Gov. Code, § 6254.2; 7 U.S.C. § 136h(d)(1).)

Appellants insist that the EIR was deficient because it failed to adequately evaluate the toxicity effects from full formulations of pesticide products including inert ingredients such as adjuvants and surfactants. We have already determined that the evaluation of environmental impacts from pesticide use under the PDCP does not survive CEQA scrutiny. However, sitting as the Court of Appeal, we do not know what is available with respect to full formulation listings, nor do we know whether and to what extent test results on the final toxicity of a given product would indicate any contribution to toxicity attributable to a given inert ingredient. Given this state of affairs, as guidance on remand, we would direct DFA to include information on toxicity of full formulations, to the extent the product in question contains a toxic inert ingredient and full formula testing information is available.

H. *No Injunctive Relief at This Time*

Appellants asked the trial court to enjoin DFA from engaging in any activity pursuant to the PDCP until it met the requirements of CEQA. Here they insist we should direct the trial court to grant injunctive relief. We disagree.

Section 21168.9 mandates that if a court finds that the decision of a public agency has not complied with CEQA, it must enter an order with one or more specified provisions. For instance, a court can issue an order enjoining activities that could adversely change or alter the environment, if it finds that such activities "will prejudice the consideration or implementation of particular mitigation measures or alternatives to the project . . . ." (*Id.*, subd. (a)(2).) Traditional equitable principles govern the decision to grant or deny equitable relief. (*Laurel Heights Improvement Assn. v. Regents of University of California, supra,* 47 Cal.3d at p. 423.)

While we have found that the EIR was substantially flawed, we are not in a position to dictate the outcome of an EIR process to combat the GWS and Pierce's Disease that is *not* flawed. Appellants assume that, with proper assessment and evaluation of the impacts of using proposed pesticides against the GWS, it is a foregone conclusion that significant impacts will be found, that reasonable mitigation measures exist that can substantially lessen or avoid these impacts, and therefore the subsequent EIR must describe such measures and adopt a monitoring program to track changes. (§§ 21002, 21002.1, subd. (a), 21081, subd. (a), 21081.6) This very well may be but we cannot foreordain these outcomes. Nor can we predict what conditions, in which type of locale or region of the state, will arise, and how DFA or the county agricultural commissioner will respond. We are not faced with a situation such as was present in *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 743. There, the reviewing court directed the lower court to issue an order enjoining the county and the developer from approving or carrying out the development project and to suspend all activity that could result in any change or alteration to the physical environment of the project site until there was full compliance with CEQA. The court deemed injunctive relief necessary "to protect the site from adverse and possibly irreparable alteration prior to full and accurate assessment and disclosure of the scope and environmental impacts of the development project and to ensure adequate consideration of alternative sites and additional mitigation measures which may be identified in the revised EIR." (*Id*. at p. 741, fn. omitted.) In contrast to a development project which, once begun, may moot consideration of alternatives or mitigation measures, here we have a program EIR with an array of options for combating the GWS based on conditions as *they develop in the future*. At this point in time we conclude that any injunctive relief is best left to the trial court to fashion and decide.

III. DISPOSITION

We reverse the judgment and remand to the Superior Court of San Francisco County with directions:

(1) To issue a writ of mandate vacating certification of the EIR as it pertains to the containment and rapid response elements of the EIR;

(2) To issue orders, after notice and hearing, that set a date by which DFA must certify a new EIR complying with CEQA consistent with the views expressed in this opinion;[10] and

(3) To determine, after notice and hearing, whether application of pesticides pursuant to the rapid response and containment components of the PDCP prior to full CEQA compliance and reapproval will prejudice consideration or implementation of

[10] Appellants have also challenged the adequacy of the EIR as a "program" EIR (see Guidelines, § 15168) and assert that the only legitimate way to rely on another agency's environmental analysis is to "tier" to the preexisting EIR. Appellants take too rigid approach to EIR preparation. Public agencies may use various special types of EIRs to simplify preparation and avoid duplication, including "tiering," use of the program EIR, staged EIR and master EIRs. (See 1 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act (Cont.Ed.Bar 1st ed. 2004 update) § 11.2 pp. 426-427; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1373-1374.) It is up to DFA, in its discretion on remand, to select an appropriate streamlining process.

particular mitigation measures or alternatives to the project and, if so, to issue appropriate relief pursuant to section 21168.9.

Appellants are entitled to costs on appeal.

Reardon, Acting P.J.

We concur:

Sepulveda, J.

Rivera, J.

CERTIFIED FOR PUBLICATION

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

FIRST APPELLATE DISTRICT

DIVISION FOUR

CALIFORNIANS FOR ALTERNATIVES TO TOXICS et al., Plaintiffs and Appellants, v. DEPARTMENT OF FOOD AND AGRICULTURE, Defendant and Respondent; CALIFORNIA ASSOCIATION OF WINEGRAPE GROWERS et al., Interveners and Respondents.	A107088 (San Francisco County Super. Ct. No. CPF03503249) ORDER GRANTING PUBLICATION

THE COURT:

The requests for publication of this court's December 29, 2005 opinion are granted and it is hereby ordered that said opinion, with the exception of parts II.B.4. and II.C.-G., be published in the Official Reports.

Ruvolo, P.J.

Trial court: San Francisco Superior Court

Trial judge: Hon. James L. Warren

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Californians for Alternatives to Toxics v. Dept. of Food and Agriculture

A107088