CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

OFFICIAL NOTICE
FOR THE CITY OF ARROYO GRANDE
PLEASE READ IMMEDIATELY

PROCLAMATION OF AN EMERGENCY PROGRAM REGARDING THE ASIAN CITRUS PSYLLID

On March 26, 2014, one Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama, a serious exotic pest, was identified from the city of Arroyo Grande, San Luis Obispo County. In order to determine the extent of the infestation, and to define an appropriate response area, additional surveys took place for several days over a nine-square mile area, centered on the detection site. The results of the additional surveys indicate that the infestation is sufficiently localized to be amenable to effective implementation of the California Department of Food and Agriculture's (CDFA) ACP emergency response strategies, which include treatment.

Emergency action is needed to protect California from the negative environmental and economic impact this pest will cause, should it be allowed to remain in this area and spread. This pest transmits to citrus trees, via feeding action, a devastating disease known as huanglongbing (HLB). HLB is considered one of the most deadly diseases of citrus in the world. The causal agents of HLB are the phloem-inhabiting bacteria in the genus *Candidatus* Liberibacter. HLB is found in citrus producing areas in various parts of the world, but was unknown from California until a single infected plant was discovered in March 2012. HLB cannot move from tree to tree independently; it is solely dependent on ACP for its transmittal. Therefore, without mitigation measures, such as quarantines and eradicative treatments, ACP would spread on infested host plants or by natural dispersal to infest all the citrus-growing areas of the State. The resulting decline and death of citrus trees will have severe consequences to the California citrus industry and to the urban landscape. In addition, without the CDFA's actions to eradicate ACP populations before they spread or as soon as they are detected, commercial and residential citrus producers would increase pesticide use in order to control ACP infestations.

The emergency program is based on recommendations developed in consultation with the California HLB Task Force, the United States Department of Agriculture, the Primary State Entomologist, and the Primary State Plant Pathologist. Based on these recommendations, the program includes insecticide treatments to control all life stages of ACP. Pursuant to Sections 5401-5405 and 5761-5763 of the Food and Agricultural Code (FAC), the Secretary is mandated to: thoroughly investigate the existence of the pest; determine the probability that the pest will spread; adopt regulations as are reasonably necessary to carry out the provisions of this code (Title 3 of the California Code of Regulations; Section 3591.21); abate the pest from the established treatment area; and, prevent further economic damage.

In accordance with integrated pest management principles, the CDFA has evaluated possible eradication methods and determined that there are no physical, cultural, or biological methods available to eradicate ACP.

To comply with FAC mandates, the treatment portion of the work plan will be implemented within a 400- to 800-meter radius of each detection site, as follows:

- Tempo® SC Ultra (cyfluthrin), a contact insecticide for controlling the adults and nymphs of ACP, will be applied to the foliage of host plants; and

- Merit® 2F or CoreTect™ (imidacloprid), a systemic insecticide for controlling the immature life stages of ACP, will be applied to the soil underneath host plants.

Tempo® SC Ultra and Merit® 2F are applied from the ground using hydraulic spray equipment. CoreTect™, if used in place of Merit® 2F, is applied by inserting the tablets into the ground and watering the soil beneath the host plants.

Public Notification:
Residents of affected properties will be invited to a public meeting where officials from CDFA, the Department of Pesticide Regulation, the Office of Environmental Health Hazard Assessment, and the county agricultural commissioner's office will be available to address residents' questions and concerns. Residents are notified in writing at least 48 hours in advance of any treatment in accordance with FAC Section 5779. After treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to the citrus fruit. Please contact the CDFA toll-free telephone number at 800-491-1899 and staff will be able to assist with any questions related to this project. This telephone number is also listed on all treatment notices.

PROCLAMATION OF AN EMERGENCY PROGRAM
REGARDING THE ASIAN CITRUS PSYLLID

On March 26, 2014, one Asian citrus psyllid (ACP), *Diaphorina citri* Kuwayama, was identified from the city of Arroyo Grande, San Luis Obispo County. Based on the survey data, pest biology, information from California's Huanglongbing Task Force, recommendations provided to me by the California Department of Food and Agriculture's (CDFA) Primary State Entomologist and Primary State Plant Pathologist, and experience gained from the United States Department of Agriculture's (USDA) control efforts in the southeastern United States, I have determined that an infestation of ACP exists in the area.

ACP is an exotic insect that is originally from Asia. It has been introduced into Central and South America, the Caribbean, and Mexico. In the United States, ACP has been found in Alabama, Arizona, Florida, Georgia, Hawaii, Louisiana, Mississippi, South Carolina, Texas, and California (Fresno, Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura counties). ACP feeds on members of the plant family Rutaceae, primarily on *Citrus* and *Murraya* species, but is also known to attack several other genera. The most serious damage caused by ACP is due to its vectoring the phloem-inhabiting bacteria in the genus *Candidatus* Liberibacter, the causal agents of huanglongbing (HLB). HLB is considered one of the most devastating diseases of citrus in the world. Symptoms of HLB include yellow shoots with mottling and chlorosis of the leaves, misshapen fruit, fruit that does not fully color, and fruit that has a very bitter taste making it unfeasible for human consumption. The psyllids cause injury to their host plants via the withdrawal of large amounts of sap as they feed and via the production of large amounts of honeydew, which coats the leaves of the tree and encourages the growth of sooty mold, which blocks sunlight from reaching the leaves.

Under my statutory authority, as Secretary of the CDFA, I have decided, based upon the likely environmental and economic damage that would be inflicted by this infestation of ACP, that it is incumbent upon me to address this threat. This pest presents a major threat to citrus grown within the State. California is the top citrus-producing state in the U.S., with total production valued at over $1.8 billion. Additionally, the establishment of ACP in California would increase the need for pesticide use by commercial and residential citrus producers, as well as require enforcement of quarantine restrictions. Recent studies in Florida have shown that the presence of HLB increases citrus production costs by up to 40 percent and has resulted in a loss of over $7 billion and 6,600 jobs over the last five years. Because HLB has been detected in Mexico, the establishment of ACP in California will pave the way for HLB to spread. HLB would have severe consequences to both the citrus industry and to the urban landscape via the decline and the death of citrus trees.

My duty to act, and this decision, is based upon authority set forth in Sections 24.5, 401.5, 403, 407, 408, 5401-5405, and 5761-5764 of the Food and Agricultural Code (FAC) authorizing and mandating the Secretary to: thoroughly investigate the existence of the pest; to determine the probability that the pest will spread; to adopt regulations (Title 3 of the California Code of Regulations, Section 3591.21) as are reasonably necessary to carry out the provisions of this code; to abate the pest within the established treatment area; and, to prevent further economic damage. In order to determine the extent of the infestation, and to define an appropriate response area, an additional survey took place for several days over a nine-square mile area, centered on the detection site. The results of this additional survey indicate that the infestation is sufficiently localized to be amenable for effective implementation of the CDFA's ACP emergency response strategies, which include treatment. Emergency action is needed to protect California from the negative environmental and economic impact this pest will cause, should it be allowed to remain in

this area and spread. The enclosed project plan describes the actions to be taken by the CDFA which are necessary to mitigate the spread of this pest.

This decision, to proceed with a treatment program, is based upon a realistic evaluation that it may be possible to address the threat posed by ACP using currently available technology in a manner that is recommended by California's HLB Task Force. Treatment needs and environmental conditions are outlined in the attached work plan. In making this decision, the CDFA has evaluated possible treatment methods. In accordance with integrated pest management principles, the following is a list of the options that I have considered for the treatment of this ACP infestation: 1) physical controls; 2) cultural controls; 3) biological controls; and 4) chemical controls.

Based upon input from my professional staff, including memorandums from the Primary State Entomologist and Primary State Plant Pathologist, and the input of experts familiar with ACP, I have concluded that there are no physical, cultural, or biological controls that are effective to treat ACP that allow the CDFA to meet its statutory obligations. To treat ACP in this area, I am ordering ground applications of pesticides be made to all ACP hosts within a 400- to 800-meter radius around the detection sites. A description of the alternative treatment methods considered, and methodologies chosen, is contained in the attached alternatives analysis.

Sensitive Areas

The treatment area has been reviewed by consulting the California Department of Fish and Wildlife's California Natural Diversity Database for threatened or endangered species. Mitigation measures will be implemented as needed. The CDFA also consults with the United States Fish and Wildlife Service, the National Marine Fisheries Service and the California Department of Fish and Wildlife when rare and endangered species are located within the treatment area. The CDFA will not apply pesticides to bodies of water or undeveloped areas of native vegetation. All treatment will be applied to residential properties, common areas within residential development, non-agricultural commercial properties, and right-of-ways.

Treatment Plan

The proposed project area encompasses those portions of San Luis Obispo County which fall within a nine-square mile area around the property on which ACP has been detected. A map of the detection site with the project boundaries and the proposed treatment work plan is attached. In summary form, the treatment plan consists of the following elements:

1. Delimitation. Yellow panel traps may be placed throughout the project area to delimit the infestation and to monitor post-treatment ACP populations. Yellow panel traps are placed at a density of up to 100 traps in the core square mile and 50 traps per square mile in the surrounding eight square miles. Additional traps may be added to further delimit the infestation and to determine the efficacy of treatments. These traps will be serviced on a regular schedule for a period equal to two years beyond the date of the last ACP detection.

2. Visual survey and tap sampling. All host plants will be inspected at all locations where traps are placed. Host plants at other properties may be surveyed within a 400- to 800-meter radius around each detection site.

3. Treatment. Properties within 400 to 800 meters of the detection site and any subsequent detection sites within the project boundaries will be treated according to the following protocol. Treatments will be repeated, if necessary, as per label instructions.

   a. Tempo® SC Ultra, containing the contact pyrethroid insecticide cyfluthrin, will be applied by ground-based hydraulic spray equipment to the foliage of host plants for controlling the adults and nymphs of ACP.

   b. Either Merit® 2F or CoreTect™, containing the systemic insecticide imidacloprid, will be applied to the root zone beneath host plants for controlling developing nymphs and providing long term protection against reinfestation. Merit® 2F is applied as a soil drench, while CoreTect™ tablets are inserted two to five inches below the soil surface.

Public Information

Residents of affected properties are invited to a public meeting where officials from the CDFA, the California Department of Pesticide Regulation, the Office of Environmental Health Hazard Assessment, and the county agricultural commissioner's office will be present to address residents' questions and concerns. Residents are notified in writing at least 48 hours in advance of any treatment in accordance with FAC Section 5779. After treatment, completion notices are left with the residents detailing precautions to take and post-harvest intervals applicable to the citrus fruit.

Information concerning the ACP project will be conveyed directly to local and State political representatives and authorities via letters, emails, and/or faxes. Press releases, if issued, are prepared by the CDFA information officer and the county agricultural commissioner, in close coordination with the project leader responsible for treatment. Either the county agricultural commissioner or the public information officer serves as the primary contact to the media.

If you have any questions related to this program, please contact the CDFA Toll-Free Pest Hotline at 1 (800) 491-1899.

Attachments

INTEGRATED PEST MANAGEMENT ANALYSIS OF ALTERNATIVE TREATMENT METHODS FOR CONTROL OF THE ASIAN CITRUS PSYLLID
March 2014

The chemical treatment program used by the California Department of Food and Agriculture (CDFA) for control of the Asian citrus psyllid (ACP), *Diaphorina citri* (Hemiptera: Psyllidae), targets multiple life stages. A contact insecticide is used for an immediate control of adults in order to prevent spread, and a systemic insecticide is used to control developing nymphs and to give the plant long term protection from re-infestation. The contact insecticide preferentially used contains the synthetic pyrethroid cyfluthrin, while the systemic insecticide contains the synthetic neonicotinoid imidacloprid. Both products have been shown to be effective against ACP elsewhere, particularly in Florida. The California Huanglongbing Task Force, a joint government, university, and industry group formed in 2007 to provide guidance to the CDFA on matters pertaining to ACP and huanglongbing has endorsed the use of these chemicals in the CDFA's treatment program.

Below is an evaluation of alternative treatment methods to control ACP which have been considered for treatment programs in California.

A. PHYSICAL CONTROL

Mass Trapping. Mass trapping of adults involves placing a high density of traps in an area in an attempt to physically remove them before they can reproduce. The current available trapping system for ACP relies on short distance visual stimulus, and is not considered effective enough to use in a mass trapping program. The CDFA is participating in research to develop a plant volatile attractant to enhance the trap, but the results are preliminary and are currently under review.

Active Psyllid Removal. Adult ACPs are mobile daytime fliers, and adults could theoretically be netted or collected off of foliage. However, due to their ability to fly when disturbed, and the laborious and time-prohibitive task of collecting minute insects from several properties by hand, it would be highly unlikely that all adults could be captured and removed. Nymphs attach themselves to developing leaves and stems via their proboscis. Therefore, physical removal of the nymphs would entail removal of the growing shoots which will stunt the tree and reduce fruit production. For these reasons, mechanical control is not considered to be an effective alternative.

Host Removal. Removal of host plants would involve the large scale destruction of plants and their roots by either physical removal or phytotoxic herbicides. The remaining soil may have to be protected against new plants sprouting up by regular herbicide sprays or by tarping. For these reasons, host removal is considered economically inefficient and too intrusive to use over the entirety of the 400- to 800-meter radius treatment area used for ACP. Additionally, host removal could promote dispersal of female psyllids in search of hosts outside of the treatment area, thus spreading the infestation.

B. CULTURAL CONTROL

Cultural Control. Cultural controls involve the manipulation of cultivation practices to reduce the prevalence of pest populations. These include crop rotation, using pest-resistant varieties, and intercropping with pest-repellent plants. None of these options are applicable for ACP control in an urban environment, and may only serve to drive the psyllids outside the treatment area, thus spreading the infestation.

C. BIOLOGICAL CONTROL

Microorganisms. No single-celled microorganisms, such as bacteria, are currently available to control ACP. One species of entomopathogenic fungus, *Isaria fumosorosea* (*Paecilomyces fumosoroseus*) (Hypocreales: Cordycipitaceae), recently has been shown to be effective at suppressing ACP populations, but it is not yet registered for use on food crops, including citrus, in California. The CDFA is cooperating with the University of California at Davis in pursuing authorization to conduct research in California on this fungus for use against ACP.

Nematodes. Entomopathogenic nematodes can be effective for control of some soil-inhabiting insects, but are not effective, nor are they used, against above ground insects such as psyllids.

Parasites and Predators. There have been two parasites released in Florida against ACP, but only one of these are considered somewhat successful there, namely *Tamarixia radiata* (Hymenoptera: Eulophidae). This insect has been released into the environment in southern California. The CDFA is now actively working with the citrus industry to pursue options for incorporating this parasite into treatment programs statewide. In addition, testing has begun by the University of California Riverside on the second species to examine its suitability for potential future releases into California.

Sterile Insect Technique (SIT). SIT involves the release of reproductively sterile insects which then mate with the wild population, resulting in the production of infertile eggs. SIT has neither been researched nor developed for ACP, nor has it been developed for any species of psyllids, and is therefore unavailable.

D. CHEMICAL CONTROL

Foliar Treatment. A number of contact insecticides have been researched for use against ACP elsewhere, particularly in Florida. Contact insecticides are more effective against adult ACPs than the sedentary nymphs because adults actively move around on plants, thereby coming into contact with residues, whereas nymphs have to be directly sprayed in order for them to come into contact. The following product has been identified for use by the CDFA, based on a combination of effectiveness against ACP, worker and environmental safety, and California registration status.

Tempo® SC Ultra is a formulation of cyfluthrin which is applied to the foliage of all host plants. Tempo® SC Ultra is a broad-spectrum synthetic pyrethroid insecticide which kills insects on contact. Tempo® SC Ultra has no preharvest interval, which makes it compatible with residential fruit-growing practices.

Soil Treatment. A number of systemic insecticides have been researched for use against ACP elsewhere, particularly in Florida. Systemic insecticides are particularly effective against psyllid nymphs because nymphs spend much of their time feeding, thereby acquiring a lethal dose. The following products have been identified for use by the CDFA, based on a combination of effectiveness against ACP, worker and environmental safety, and California registration status.

Merit® 2F is a formulation of imidacloprid which is applied to the root system of all host plants via a soil drench. Imidacloprid is a synthetic neonicotinoid insecticide which controls a number of other phloem feeding pests such as psyllids, aphids, mealybugs, etc.

CoreTect™ is a formulation of imidacloprid which is applied to the root system of all host plants via insertion of a tablet into the soil, followed by watering. It is used in place of Merit® 2F in

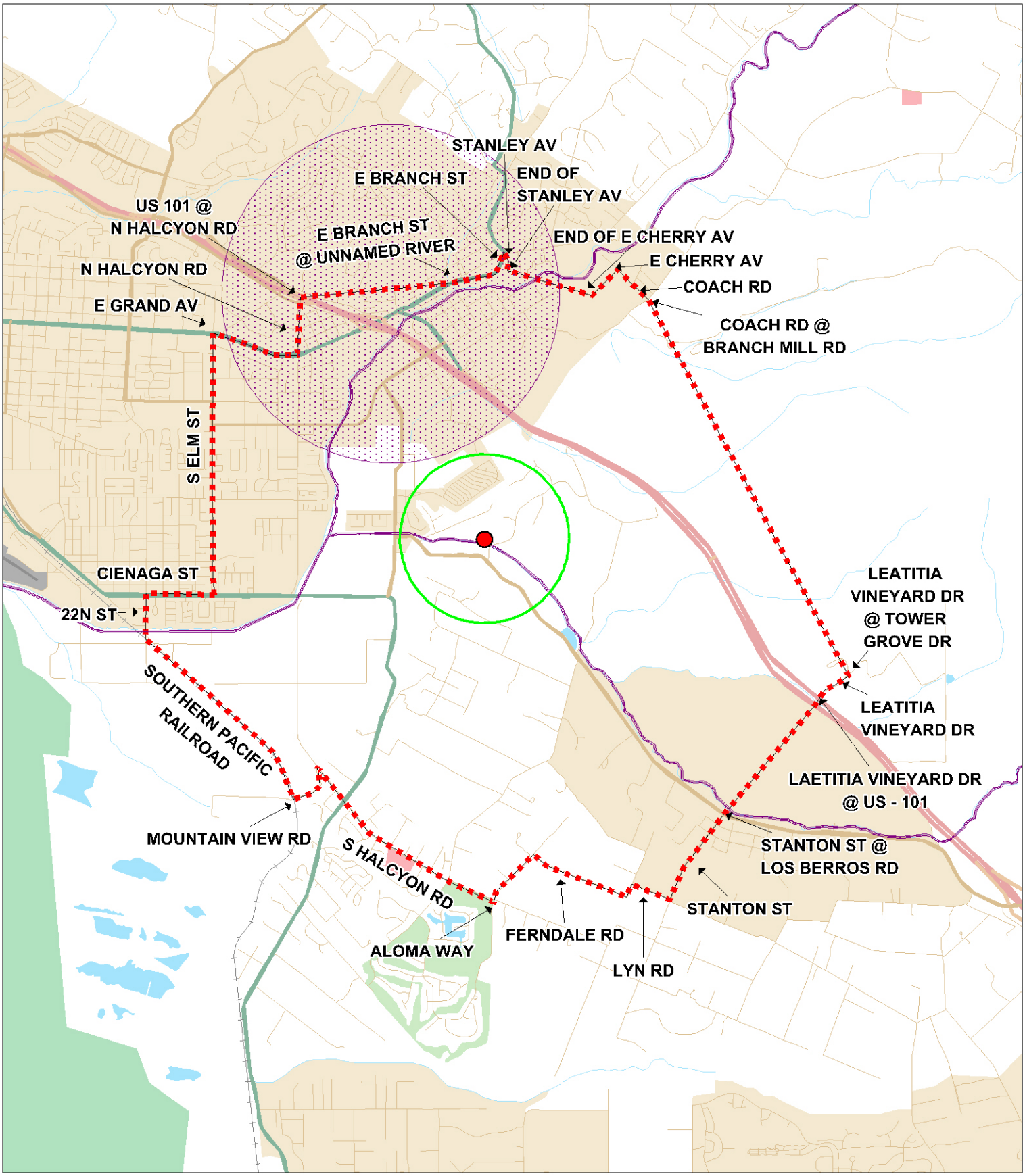
situations where there are environmental concerns about soil surface runoff of the liquid Merit® 2F formulation, such as host plants growing next to ponds and other environmentally sensitive areas.

E. RESOURCES

Grafton-Cardwell, E. E. and M. P. Daugherty. 2013. Asian citrus psyllid and huanglongbing disease. Pest Notes Publication 74155. University of California, Division of Agriculture and Natural Resources Publication 8205. 5 pp. http://www.ipm.ucdavis.edu/PDF/PESTNOTES/pnasiancitruspsyllid.pdf.

Grafton-Cardwell, E. E., J. G. Morse, N. V. O'Connell, P. A. Phillips, C. E. Kallsen, and D. R. Haviland. 2013. UC IPM Management Guidelines: Citrus. Asian Citrus Psyllid. Pest Notes Publication 74155. University of California, Division of Agriculture and Natural Resources. http://www.ipm.ucdavis.edu/PMG/r107304411.html.

ASIAN CITRUS PSYLLID
ARROYO GRANDE, SAN LUIS OBISPO
2014



2014 ACP

MAXIMUM PROGRAM BOUNDARY

PROPOSED 800M TREATMENT BOUNDARY

SENSITIVE ENVIRONMENTAL AREA / TREATMENT MITIGATIONS IN PLACE