

2000 Annual Report

PLANT HEALTH AND PEST PREVENTION SERVICES

P E S T E X C L U S I O N B R A N C H

Interior Pest Exclusion

County High Risk Program

Agricultural Parcel Inspection Program

Close the Los Angeles-Area Marketplace Pathway Program

Exterior Pest Exclusion

Seed and Cotton Program

INTERIOR PEST EXCLUSION

Interior Pest Exclusion personnel are responsible for enforcement of federal, foreign and domestic plant pest quarantines, as well as California state exterior and interior quarantines and county restrictions and ordinances. Interior Pest Exclusion personnel work cooperatively with the United States Department of Agriculture (USDA), other state departments of agriculture, and the California County Agricultural Commissioners. Staff also cooperates with other governmental agencies such as the United States Department of the Interior, the United States Customs Service, and the California Departments of Fish and Game, Forestry and Fire Protection, Public Health, and Pesticide Regulation in the enforcement of their respective regulations. Pest Exclusion is the cornerstone of pest prevention. In many instances, exclusion is the first, last and only means to keep exotic pests from invading California.

Port Surveillance Activities

The biologists stationed at the ports of San Pedro, San Francisco, and San Diego are responsible for inspecting domestic aircraft, second port-of-call foreign and domestic vessels, crew quarters, passenger baggage and cargo shipments for pests that may be detrimental to California agriculture. They enforce aircraft and vessel garbage regulations; issue permits to remove food stores from vessels and seal vessel stores where high pest-risk food items are contained on board to prevent crew members from taking these food items ashore while on leave; and monitor shipments of commodities while transiting California on the way to foreign destinations. Port staff also issue and administer compliance agreements for aircraft owners/operators, catering facilities, vessel dry docks, and vessel/aircraft garbage handling facilities and monitor them as needed. They supervise treatments of commodities that are infested with exotic agricultural pests. In the performance of their duties, port staff work closely with other agencies, both public and private, including the U.S. Customs, USDA, U.S. Food and Drug Administration, CDFA Animal Health Branch, county agricultural commissioners, agricultural officials of other states, plus representatives from the trucking, airline and shipping industries. When not occupied with port activities, port biologists also work on county quarantine and export activities with their cohorts in the surrounding county offices of the Agricultural Commissioner.

Port Inspections

	Vessels	Shipments	Rejections	Total Pest Interceptions	Treatments Supervised
Northern	51	950	35	25	15
Southern	70	537	101	21	19
Totals	121	1,487	136	46	34

Port Inspections

Activities	Northern	Southern	Totals
Warning/Hold Notice Issued by Port Inspector	25	200	225
Storage Facility	150	26	350
Export Transit Shipments	221	465	686
Port Operations Coordination Contacts	1,550	1,179	2,729
Vessel Stores Sealed	10	2	12
Africanized Bee Traps	10	0	10
Gypsy Moth Traps	0	0	0
Steamship Line Manifests Read	55	104	159
Lumber Inspection	19	25	44
Hawaiian Vehicle Inspection	900	0	900
Dunnage Inspection	110	52	162
Biotechnology/Soil Lab Inspection	25	0	25
Ethnic Market Inspection (Cooperation with Counties)	71	0	71

General Port Highlights

Port staff rejected 136 commodity shipments originating from foreign countries due to quarantine violations or the presence of prohibited pests. Staff intercepted a total of 46 pests and 34 shipments underwent approved supervised quarantine treatments. Examples include shipments of New Zealand apples that were infested with apple leaf-curling midge, wood dunnage and bamboo shipments infested exotic woodborers, and foreign origin citrus infected with citrus canker. Citrus canker is a bacterial disease that is currently devastating citrus in Florida, resulting in the destruction of 1,657,231 trees valued at several hundred million dollars.

During the year, Port staff monitored 686 transit shipments of citrus, mango, grain, seed, banana, and apple. These shipments, which would normally be subjected to agricultural inspection upon California entry, are allowed to move to the point of export without inspection.

New Zealand Apple Inspections

During this calendar year, over a hundred shipments of apples from New Zealand arrived at the ports of Los Angeles and San Francisco. Most of these apple shipments were pre-cleared in New Zealand by the USDA. However, upon entry, such shipments are still subject to quarantine inspections performed by port staff to determine if there are any state actionable pests present. Port staff found numerous shipments infested with the “Q” rated apple leaf-curling midge, *Dasineura mali*. Most of the infested shipments underwent approved and supervised quarantine treatments at the Port of Los Angeles. The remaining infested shipments were allowed to leave the state under safeguard to other destinations where the apple leaf-curling midge is not considered a quarantine pest. As a result of these numerous pest finds, the USDA included the apple leaf-curling midge as a pest of concern while performing pre-clearance inspections in New Zealand.

Australian Citrus

There were six vessels loaded with Australian-produced citrus fruit off-loaded at the Port of San Diego. One vessel's entire shipment did not pass the required quarantine cold treatment for exotic fruit flies due to technical problems, including errors in documentation and faulty recording of the cold treatment data. The USDA required the entire shipment to be retreated within the cargo holds, for approximately 20 days, resulting in a significant delay in off-loading and distributing the citrus fruit to the intended markets. The USDA will meet with their Australian counter-parts to address the issues of missing cold treatment data and faulty cargo hold cold-treatment sensors prior to the 2001 season.

Bamboo Cerambycids from China

Northern District biologists responded to new reports of wood boring insect infestations originating in bamboo from China that were sent from a warehouse in Contra Costa County to destinations in the Midwest and the Eastern United States. After developing better inspection procedures which involved cracking open natural bamboo sticks of $\frac{3}{4}$ " to 2 $\frac{1}{2}$ " size range, biologists were able to detect live larvae of the exotic longhorn beetle, *Chlorophorus annularis*, at this warehouse. Tracing back the shipments to other locations in the Bay Area yielded additional interceptions of either live or dead larvae of this woodborer as well as other exotic species of wood-boring insects. As a result of these interceptions, the USDA initiated a requirement of quarantine fumigation for all bamboo upon arrival, as well as regular inspections of bamboo shipments at the ports shipments of entry.

DISTRICT EMERGENCY RESPONSE/COUNTY QUARANTINE ACTIVITIES

Mexican Fruit Fly

Bloomington: The Bloomington Cooperative Mexican Fruit Fly Project was initiated on September 10, 1999 and successfully concluded in March 2000. This quarantine project included the Bloomington area of San Bernardino County and a small portion of Riverside County. Direct economic impacts to agriculture within the quarantined area were minor. However, as a result of this project, citrus and table grapes could not be exported to the People's Republic of China if the fruit was packed or produced in the entire counties of Riverside and San Bernardino. This was a significant economic impact.

Temecula: In September 2000, a single adult Mexican fruit fly was trapped in Temecula. At this time of year, there are many host commodities that are approaching harvest. Growers in the affected area feared that a subsequent detection of a second adult fly or another live life stage within the specified area would trigger a quarantine. The implementation of a quarantine so close to harvest for some commodities could result in commodity losses do to our inability to provide a feasible quarantine certification option. In order to prevent these losses, staff conducted a voluntary precautionary grower treatment program for Mexican fruit fly in Temecula. Growers were allowed to pre-treat host material within the potential quarantine area, a 4.5-mile radius surrounding the original detection site. This project lasted approximately two months. The number one commodity treated was avocado. A total of 528 acres of avocado were treated. Other commodities treated include persimmon, guava, grapefruit, cherimoya, and sweet limes. There were 59 growers who requested the voluntary quarantine treatment option and treatments were conducted at a total of 66 locations. This effort also served as a trial run in terms of establishing a mobile temporary project office. This experience demonstrated that

obtaining utility services, required site use permits, etc., was extremely time consuming and prevented field staff from being able to expedite other project goals. As a result, a more suitable strategy will be developed in the future.

Fallbrook: Staff supervised quarantine treatments, implemented compliance agreements and prevented the movement of uncertified host material. During the course of this project, staff supervised 4,517 quarantine certification treatments, including 4,209 ground treatments and 308 aerial treatments. The cumulative number of acres treated was 23,353. Staff entered into a total of 1,156 compliance agreements with affected businesses and supervised the movement of 15,085,708 pounds of fruit under permit.

Melon Fruit Fly - El Monte

In March of 2000, a melon fruit fly quarantine was established. The melon fruit fly not only attacks fruits and vegetables, but also the vegetative portion of some host material, such as cucurbits. The primary focus of this project was the regulation of affected nurseries within the quarantine boundaries. Regulatory quarantine treatments of vegetative host material, in most cases, seedling or transplants, added a new dimension to project protocols. The Melon Fruit Fly Project was successfully concluded in June 2000.

Olive Fruit Fly

There was a large increase in olive fruit fly (OLFF) infested counties and in the total number of trap finds in the San Joaquin Valley. Growers were required to institute a trapping and/or a bait spray program to prevent the artificial spread of the pest into the olive growing counties of the Sacramento Valley. Infested counties had to ensure that shipments to regulated destinations were free from OLFF by overseeing compliance. Unfortunately, by the end of the season, OLFF was trapped in the northern counties as well. Quarantine activities for the 2001 season are unlikely to be as strict for that reason. However, growers were able to move fruit to processors with less expense than expected and have learned how to apply bait sprays economically.

Central District Counties with Compliance Agreements

County	Type of Compliance Agreement (CA)	Quantity
Kern	Grower CA	2
Tulare	Grower CA	394
Fresno	Grower CA	22
Madera	Grower CA	11
San Joaquin	Processor CA	1
Kings	Grower CA	1

Red Imported Fire Ant

Interior Quarantine

Overview

Infestations of the red imported fire ant (RIFA), *Solenopsis invicta* (Buren) in Southern California were discovered in October 1998. The California Department of Food and Agriculture

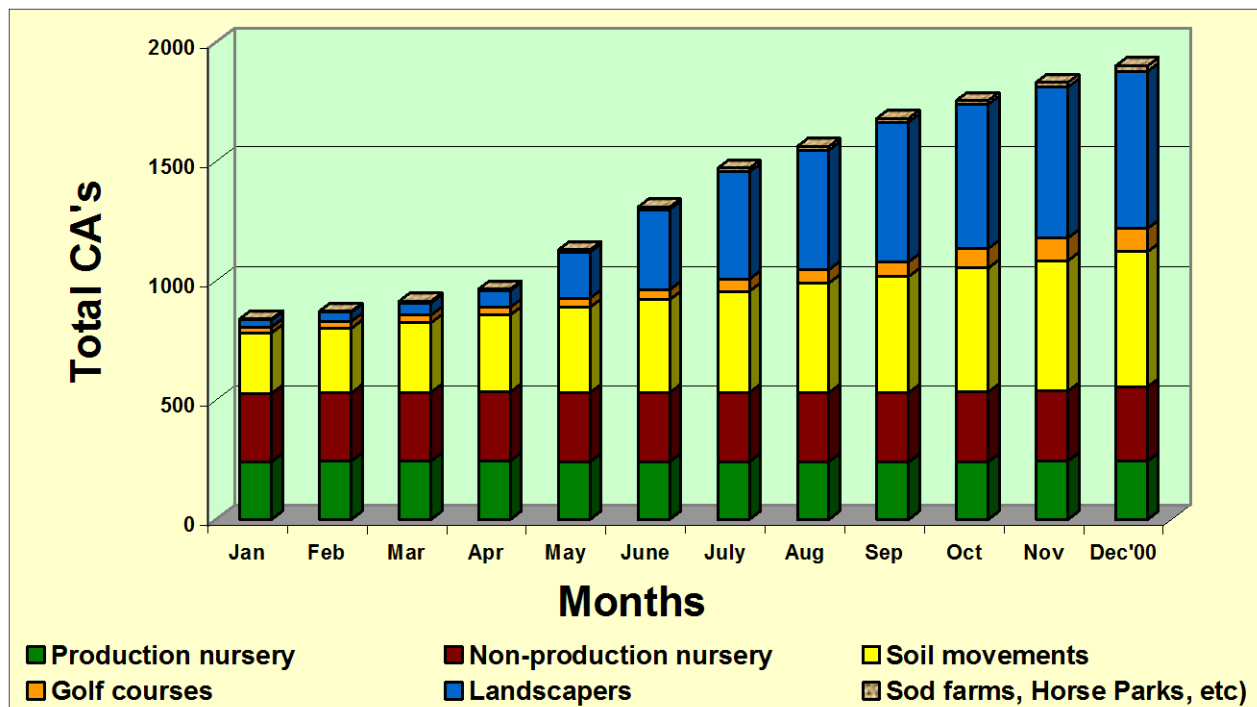
maintained existing RIFA quarantines in the entire county of Orange, and parts of Riverside and Los Angeles Counties in 2000. There remained 790 sq. miles under quarantine in Orange County, 8.5 sq. miles in Los Angeles County, and 67 sq. miles in Riverside County. Exclusion biologists also implemented regulatory actions around small RIFA finds in Fresno, Kern, Los Angeles, Madera, Riverside, San Bernardino, San Diego and Santa Barbara Counties.

The quarantines were established to limit movement of plants, soil, baled hay/straw, used soil-moving equipment and other articles determined by the department or county agricultural commissioner to present a hazard of spreading live red imported fire ant within or outside each quarantined area.

Regulatory Approach

Compliance Agreements (CA's) were used by program staff to ensure that businesses or individuals within the quarantine areas comply with regulatory restrictions during their conduct of business without the risk of further spreading RIFA. These compliance agreements which are signed by the business enterprises, specified treatment protocols necessary to ensure RIFA-free status for the commodities intended for shipment. The categories of CA's for the RIFA project include: production nurseries, golf courses, retail nurseries, landscapers, turf and sod farm, soil movers, homeowners, recyclers, hay dealers/handlers, landfills and yard maintenance. The number of CA's for nurseries had leveled off by the end of 2000, but there continues to be an increase in the numbers of new CA's in other high-risk categories such as golf courses, soil movers, etc. At the end of 2000, there had been 1,902 CA's (Figure 1) signed in the project quarantine area. The number of businesses under CA's will vary as a result of small companies beginning or failing.

Figure 1. Total RIFA compliance agreements, showing an increase in landscapers, golf courses, and soil movers



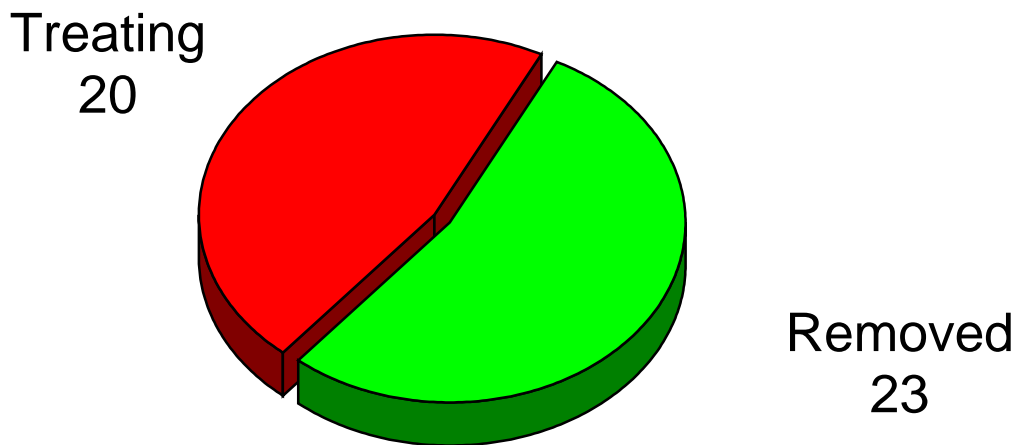
The highest priority for quarantine enforcement is compliance of production nurseries in order to ensure the movement of RIFA-free nursery stock. To ensure compliance, the goal of Exclusion Biologists is to inspect 100% of production nurseries with CA's inside the quarantine boundaries each quarter (Figure 2). All production nurseries (approximately 244) in either the quarantine areas or an infested area are under compliance. Nine nurseries covering about 883 acres tested positive for RIFA and started treatments in accordance with project protocols in 2000. The total number of nurseries treating/treated for RIFA within the year was 43 (~1,544 acres) and 53% of these nurseries were removed from RIFA treatments in 2000 after completing four consecutive negative post-treatment quarterly surveys (Figure 3). Nurseries within the quarantine areas continued treatments as a regulatory requirement. Exclusion Biologists continued a major push to sign up other businesses with compliance agreements. In 2000, a total of 28 golf courses and 26 soil movement-related sites tested positive for RIFA and started treatments according to project protocols.

Figure 2. Inspections of production nurseries for RIFA in 2000

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Goal	100.0%	100.0%	100.0%	100.0%
Actual	92.0%	100.0%	100.0%	100.0%

The Arizona Department of Agriculture (ADA) and CDFA continued using a Master Permit Agreement within the year for the Shipment of Nursery Stock from California to Arizona. The purpose of this agreement is to allow RIFA-free nurseries located within the quarantine area to be able to ship nursery stock into Arizona without it being held in a special ADA-approved quarantine holding area. There are 18 nurseries of about 1,250 acres, participating under the terms of this master permit.

Figure 3. Nurseries treating for RIFA in 2000



Red Imported Fire Ant - Central District

The RIFA in the Central District remains a problem mainly in almond orchards as a result of numerous introductions of infested bee shipments over the years. In nurseries in the north, it has not been found to be as prevalent as in the south. The only infested production nursery in the San Joaquin Valley was declared eradicated in the fall of 2000, and the one garden center in Bakersfield should be declared eradicated in the spring of 2001.

Infested almond orchards, on the other hand, continue to be a serious problem, with three new areas found in 2000. These new areas were in Fresno, Madera, and Stanislaus Counties. Furthermore, the infestation in Fresno County had spread into a persimmon orchard and in Madera had infested neighboring figs, prunes, grapes, and pistachios. This caused some initial problems because no insecticide had been registered for anything but almonds. This was remedied by gaining a rapid approval for Extinguish, an insecticide registered for widespread use in fruit trees.

Bee shipments continued to pose a risk of introduction, with RIFA found once in a shipment to Merced County and once in one going to Fresno County. (This remains a problem in 2001, with three shipments found infested during the 2000 season.) Also, truck shipments of other commodities have been a problem with hitchhiking RIFA. Madera County found RIFA in a cheese shipment from Florida and Stanislaus County found a colony in the wall of a truck carrying a load of pasta.

Red Imported Fire Ant - Southern District

Southern District biologists contacted Coast Waste Management located in Carlsbad regarding the signing of a compliance agreement pertaining to green waste from the entertainment park, Legoland, which is a RIFA-positive facility. Over the course of several days, Exclusion Biologist Jim Lawrence toured the facility and followed the recommendation of the district supervisor to direct Costa Mesa staff to survey the property for possible RIFA.

Closing the Los Angeles-Area Marketplace Pathways

Closing the Los Angeles-Area Marketplace Pathways (CLAMP) and the Agricultural Commodities Investigative Team (ACIT) continue to identify smuggling pathways and interdict prohibited agricultural commodities infested with significant plant pests. In the year 2000, CLAMP conducted **3,716** market and warehouse inspections, issued **107** Notices of Rejection, and seized **147,390** pounds of prohibited commodities worth an estimated retail value of **\$424,925.80**.

CLAMP Prohibited Agricultural Commodity Seizures

Agricultural Commodities Seized	2000 Amount In Pounds	2000 CDFA Rating And # of Pest Interceptions	1999 Amount In Pounds	1999 CDFA Rating And # of Pest Interceptions	1998 Amount In Pounds	1998 CDFA Rating And # of Pest Interceptions	1997 Amount In Pounds	1997 CDFA Rating and # of Pest Interceptions
Fruits	39,944	A-4 Q-8	7,186	A-9 Q-4	7,167	A-1 Q-17 B-1	30,533	Q-25 B-4
Vegetables	21,999	Q-1	25,785	Q-4	2,516	Q-2	2	none
Dried Citrus Products	2,200	A-1 Q-3	6,808	A-1 Q-3 B-2	1,148	A-5 Q-12	806	A-5 Q-10 B-1
Live Plants			406	Q-7	5,618	Q-3		
Noxious Weed Seeds	2,481	Q-2	56	Q-2	80	Q-3	125	Q-3
Nuts	37,800	A-1						
Rice Straw	2,799	none						
Meat Products	40,167	N/A	1,011	N/A	24,318	N/A		
Solid Wood Packing					N/A	Q-9		
Totals:	147,390	A-6 Q-14	41,252	A-10 Q-20 B-2	40,847	A-6 Q-46 B-1	31,466	A-5 Q-38 B-5

CLAMP Exotic Fruit Fly Interceptions

Date Seized	Establishment Type	Commodity Seized	Commodity Origin	Pounds Seized	Pest Name Scientific and Common	CDFA Pest Rating	PDR Number
09/29/00	Distributor	Longans	Thailand	1,900	Tephritidae possibly <i>Bactrocera</i> fruit fly eggs, larvae (1 st instar)	A	940489
06/29/00	Wholesale Market	Guavas	Florida	70	Tephritidae <i>Anastrepha suspensa</i> Caribbean fruit fly larva	A	1124733
03/10/00	Wholesale Market	Mangos	Mexico	1,040	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larvae	A	1166146
12/19/99	Swapmeet	Tejocotes	Mexico	45	Tephritidae <i>Rhagoletis</i> sp. NR <i>pomonella</i> fruit fly larva	A	1124729
12/02/99	Retail Market	Sweet Limes	Mexico	50	Tephritidae <i>Anastrepha</i> sp. fruit fly larva	A	1166108
11/26/99	Retail Market	Sweet Limes	Mexico	42	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larva	A	1124724
11/19/99	Retail Market	Sweet Limes	Mexico	44	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larva	A	1166107
11/19/99	Retail Market	Sweet Limes	Mexico	37	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larvae	A	1124721
11/19/99	Retail Market	Sweet Limes	Mexico	9	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larva	A	1166106
11/16/99	Wholesale Market	Sweet Limes	Mexico	1,230	Tephritidae <i>Anastrepha ludens</i> Mexican fruit fly larvae	A	1124720
06/05/99	Wholesale Market	Guavas	Unknown	120	Tephritidae <i>Anastrepha</i> prob. <i>fraterculus</i> South American fruit fly larva	A	1130093
06/04/99	Retail Market	Guavas	Unknown	11	Tephritidae <i>Anastrepha</i> poss. <i>obliqua</i> West Indian fruit fly larvae	A	1130133
08/27/98	Retail Market	Longans	Thailand	10	Probably Tephritidae Diptera eggs	Q	940536
08/19/98	Wholesale Market	Longans	Thailand	1,875	Probably Tephritidae Diptera eggs	Q	940543
					Tephritidae <i>Bactrocera dorsalis</i> Probably O.F.F. Complex	A	940546
12/13/97	Mobile Vendor	Tejocotes	Mexico	1,200	Tephritidae <i>Rhagoletis</i> prob. <i>pomonella</i> apple maggot larva	B	940586
09/15/97	Retail Market	Longans	Thailand	84	Diptera Unidentified eggs	Q	940535

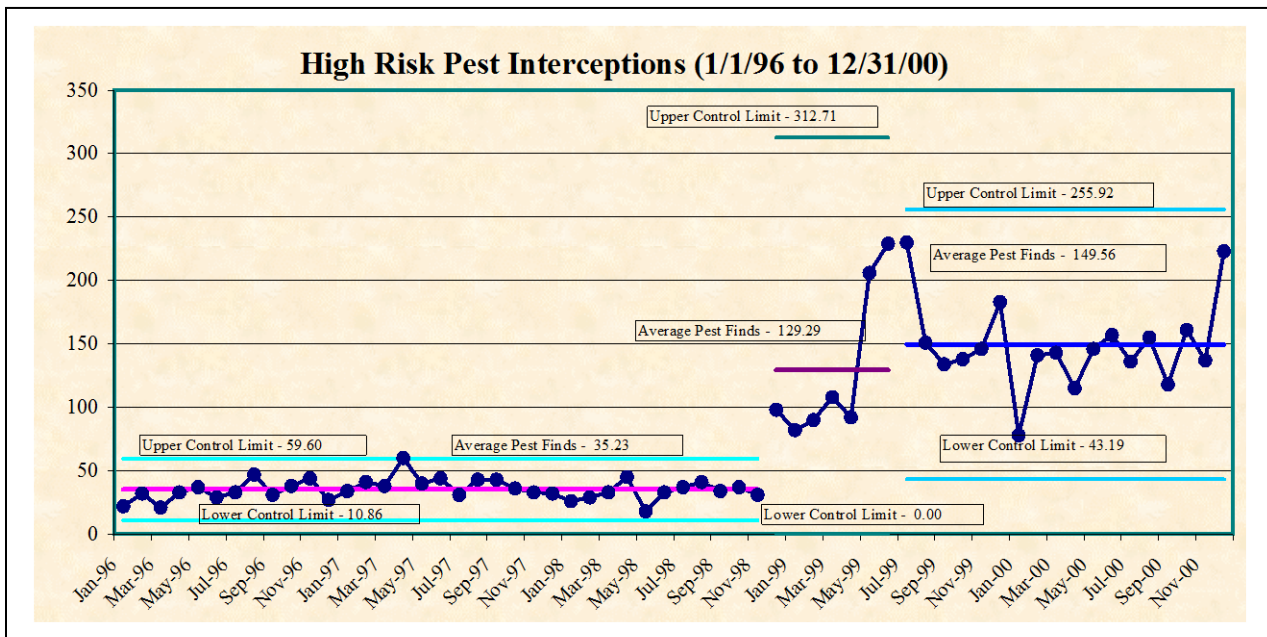
County High Risk Pest Exclusion Program

A historically strong pest prevention program and its isolating geography have kept California relatively free from harmful exotic pests. California is constantly under attack from destructive exotic pests (“high risk”) seeking to exploit our agricultural diversity and ideal climatic conditions. Rapidly increasing population, coupled with expanding worldwide travel and trade opportunities, continually test the State’s pest prevention strategies and limited resources.

Funding county agricultural commissioners to conduct high-risk pest exclusion inspections at first point of entry terminals for the last two years has strengthened a vital component in the State’s overall pest prevention efforts. The State budget has allocated \$5.5 million for this purpose. The Secretary of the California Department of Food and Agriculture (CDFA) has augmented State general funds with \$2.1 million in Motor Vehicle Fuel Account funds specified for high-risk pest exclusion. In Fiscal Year 2000/01, 50 county agricultural commissioners are participating with contracts totaling \$7.6 million.

Report Card

The County High Risk Pest Exclusion (CHRPE) Program increased high-risk pest interceptions 295 percent in its first two years. Shipments of plant materials rejected for plant quarantine violations increased 153 percent.



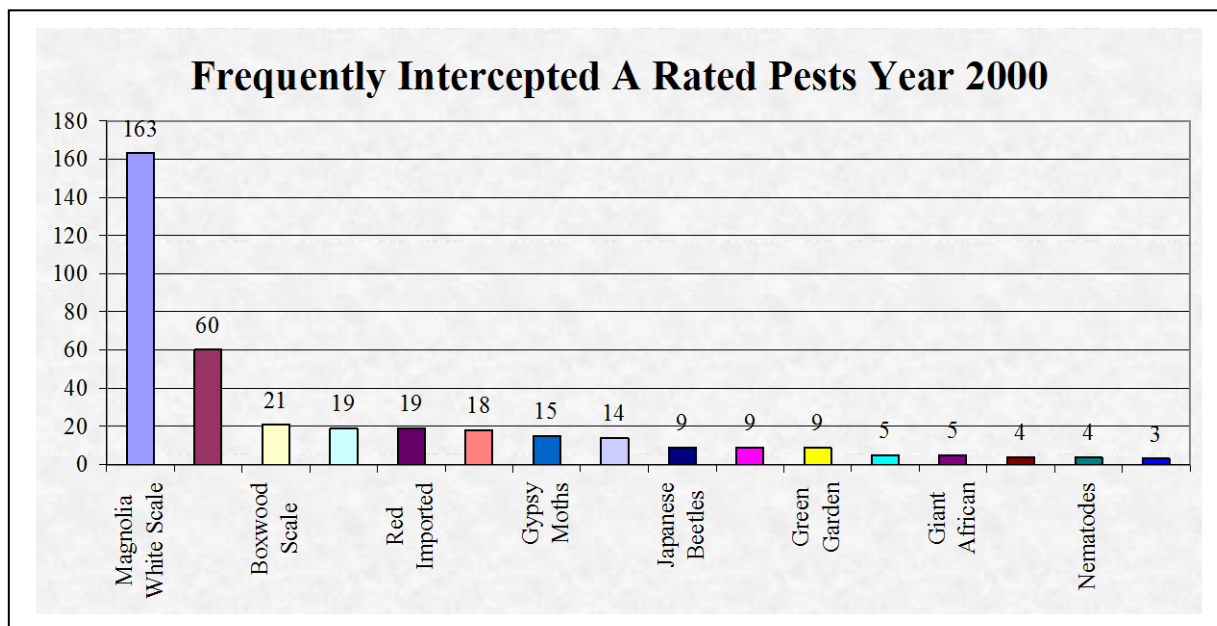
More than 215 different species of exotic pests were intercepted in shipments inspected. Red imported fire ants (RIFA) were found 19 times in the past year--in potted plants, on beehives, and even on buckets of paint. Five times giant African land snails were inadvertently shipped into California in hollow plant stalks from Hawaii where they have become a major imported pest. County biologists rounded up several truckloads of mangos, which were found to be infested with live Mexican fruit fly maggots after origin treatments proved to be ineffective.

California spent \$8.97 million in the ongoing RIFA eradication effort, and \$907,000.00 to limit the spread and to eradicate Mexican fruit fly and Oriental fruit fly infestations in Southern California in Fiscal Year 1999/00. This does not include similar levels of expenses incurred by the U.S. Department of Agriculture (USDA) in the cooperative fruit fly eradication programs.

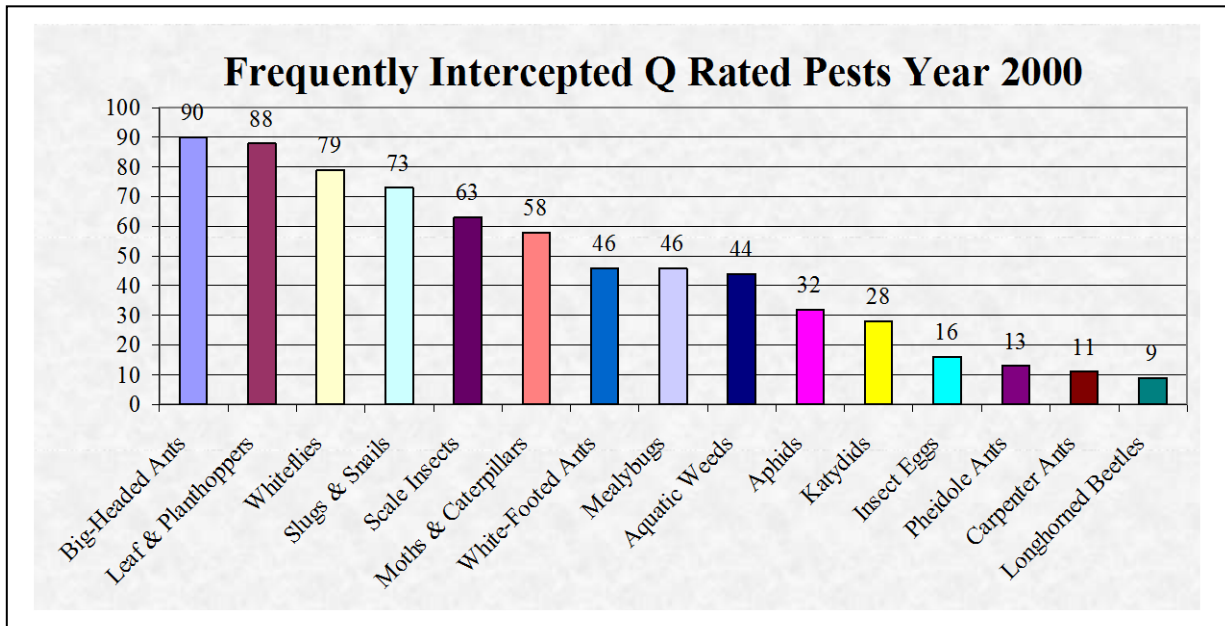
Frequently Intercepted Pests in Year 2000

A-RATED PESTS INTERCEPTED	No.	Q-RATED PESTS INTERCEPTED	No.
Scale - Boxwood, Mining, Snow, White	323	Ants - Big-Headed, Carpenter	246
Red Imported Fire Ants	19	Leaf & Planthoppers & Sharpshooters	88
Gypsy Moths	15	Whiteflies - Anthurium, Spiraling	79
Eastern Tent Caterpillars	14	Slugs & Snails - Veronicella, Cuban	73
Japanese Beetles	9	Scale - Unilobe, Slender Soft, Armored	63
Flower Thrips	9	Moths - Leafminer, Tent, Woollybear	58
Green Garden Loopers	9	Mealybugs - Soil, Clubmoss, Palm	46
Fruit Flies - Caribbean, Mexican	5	Aquatic Weeds - Frogbit, Salvinia	44
Giant African Land Snails	5	Aphids	32
Citrus Leafminers	4	Katydids	28
Nematodes - Cobb's Awl, Reniform	4	Beetles - Longhorned, Scarabs & Bark	26
Pecan Weevils	3	Insect Eggs - Katydid, Moth, Stinkbug	16

Pest Interceptions



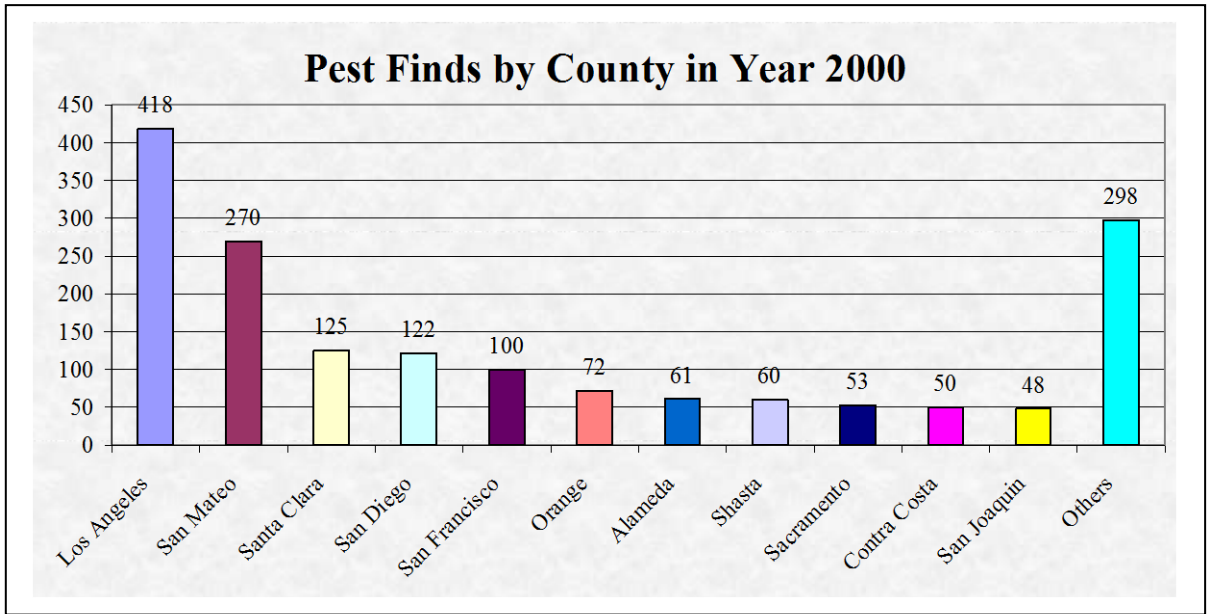
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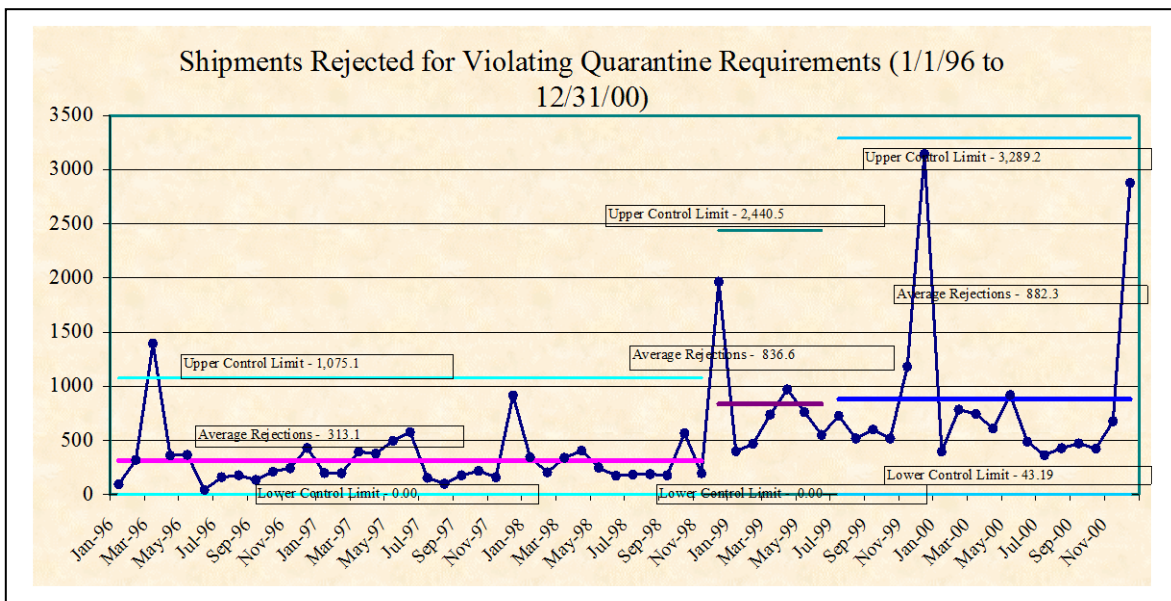
A & Q - Rated Pest Finds by County in Year 2000

COUNTY	PEST FINDS	COUNTY	PEST FINDS	COUNTY	PEST FINDS
Los Angeles	418	Riverside	44	Monterey	9
San Mateo	270	Sonoma	41	Yuba	9
Santa Clara	125	Humboldt	28	San Bernardino	8
San Diego	122	Santa Barbara	27	Ventura	7
San Francisco	100	Santa Cruz	24	Mendocino	4
Orange	72	Kern	20	Merced	3
Alameda	61	Fresno	16	Sutter	3
Shasta	60	San Luis Obispo	15	Solano	2
Sacramento	53	Tulare	12	Tehama	2
Contra Costa	50	Marin	11	Butte	1
San Joaquin	48	Yolo	11	Placer	1

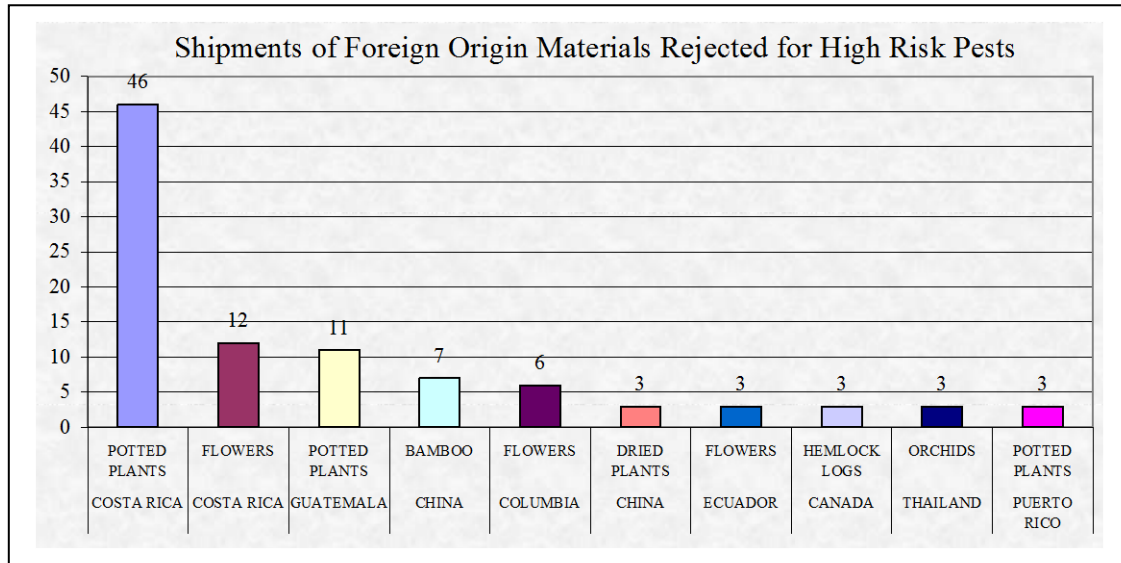


Shipments Rejected for Violating Quarantine Requirements

Since the CHRPE Program started, shipments of plant materials rejected for violations of plant quarantine laws have increased 153 percent from an annual average of 3,687 to 9,318. There were 196 seizures of foreign-origin plant materials, which had been illegally smuggled into California and sold in markets specializing in exotic foods. County biologists found items such as guavas and oranges infested with Caribbean and Mexican fruit fly maggots, and tejocotes infested with giant Mexican mealybugs, fruit fly maggots and weevils.

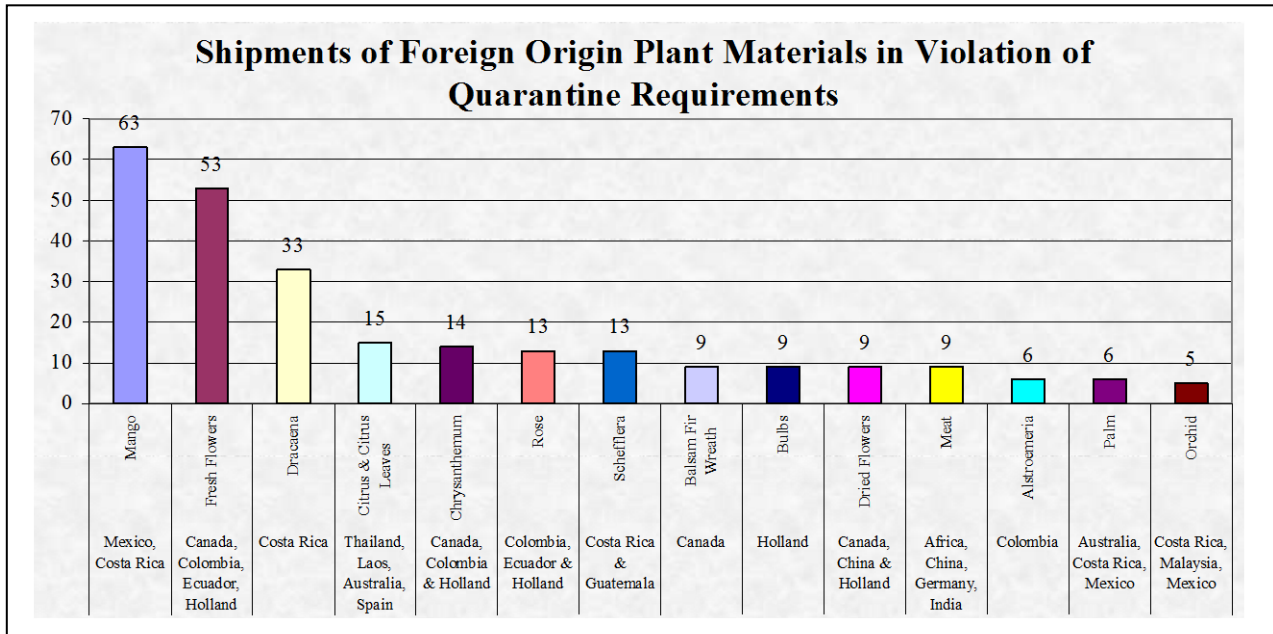


One smuggler who illegally brought fruit fly-infested sweet limes into California and distributed them last year was sentenced to a year in prison and received a hefty fine. County high-risk pest exclusion biologists working in cooperation with a CLAMP investigation at specialty markets rounded many of these sweet limes up. CLAMP is a cooperative CDFG/USDA program (Closing the Los Angeles-Area Marketplace Pathways).



Foreign Plant Materials Frequently Rejected in Year 2000

Material	Origin	NORs
Mango	Mexico, Costa Rica and Puerto Rico	63
Flowers, Cut	Canada, Colombia, Ecuador, Holland and Puerto Rico	53
Dracaena	Costa Rica	33
Citrus and Citrus Leaves	Thailand, Laos, Australia, Spain and Israel	15
Chrysanthemum	Canada, Colombia and Holland	14
Rose	Colombia, Ecuador and Holland	13
Schefflera	Costa Rica and Guatemala	13
Balsam Fir Wreath	Canada	9
Bulbs	Holland	9
Flowers, Dried	Canada, China and Holland	9
Meat	Africa, China, Germany, India, Korea, Liberia and Poland	9
Alstromeria	Colombia	6
Palm	Australia, Costa Rica, Mexico and Tanzania	6



Summary of County High Risk Pest Exclusion Activities in Year 2000*

ACTIVITY	PEST FINDS	REJECTIONS	PREMISE VISITS	SHIPMENTS
Post Office	79	805	10,570	93,469
United Parcel	93	3,181	15,659	107,511
Federal Express	512	3,759	19,603	263,463
Air Freight	448	647	34,169	36,674
Gypsy Moth	44	54	2,860	2,829
Trucks (008)	313	448	21,715	35,530
Specialty Markets	89	180	14,423	14,080
Swap Meets	4	12	483	2,776
Post Entry	0	0	225	123
Other High Risk	128	160	17,687	27,700
Total	1,710	9,246	137,394	584,155

*This information was compiled from County Report Number 4As submitted by county agricultural commissioners. At the time of publication, a few counties had not yet submitted reports for October, November, and December of 2000.

County Terminal Inspections

The number of inspections conducted at terminals and the results of those inspections are as follows:

Terminal	Shipments	Notice of Rejection	Pest Rejections
Post Office	146,369	958	2,067
UPS	99,535	2,560	362
Federal Express	250,733	2,680	673
Express Carrier	5,771	46	13
Air Freight	36,414	525	469
Sea Freight	1,301	52	85
Railroad	227	0	1
Gypsy Moth	4,399	47	64
Truck	317,943	562	527
Other	18,999	128	94
Totals	881,691	7,558	4,355

*This information was compiled from County Report Number 4s submitted by county agricultural commissioners. At the time of publication, not all counties have reported.

County Facility and Property Inspections

The number of facility and property inspections performed by county inspectors last year is as follows:

Facility/Property	Number of Inspections
Feed Grain/Screening	94
Post-Entry Property	255
Testing/Research	261
High Risk Markets	10,361
Q.C.C.211 Facility	1,397
Totals	12,368

*This information was compiled from County Report Number 4s submitted by county agricultural commissioners. At the time of publication, not all counties have reported.

Agricultural Parcel Inspection Program

In its fifth year, the Agricultural Parcel Inspection Program (APIP) continues to intercept prohibited or regulated plant material entering into California via unmarked parcels. The APIP deploys dogs in parcel-handling facilities to sniff out unmarked parcels containing plant materials and soil.

Background

Parcels are well-documented pest pathways for many serious plant pests. Although State law restricts what plant materials may be shipped to California and requires that parcels containing plant material be clearly marked to the contents and where the contents were grown, not everyone complies with the requirements. Consequently, plant materials and soil is being shipped to California in unmarked, undeclared packages, which are difficult to identify and are generally delivered without being inspected for pests.

Quarantine terminal point inspection in California is conducted primarily at United States Postal Services Processing and Distribution Centers (USPS), UPS, FedEx and other express carrier locations by the local county department of agriculture under the direction of CDFA, but this program inspects parcels that are already marked for agricultural inspection. By design, this program cannot detect and stop unmarked/undeclared agricultural parcels before they get delivered.

This “hole” in the State’s pest exclusion net weakens the overall pest exclusion system and compromises the effectiveness of all other programs. In 1996, the California Legislature recognized this weakness in the State’s comprehensive pest prevention system and approved implementation of a pilot parcel inspection program using detector dogs to screen unmarked/undeclared parcels for prohibited plant materials and soil. Initially funded as a two-year pilot program, Agricultural Parcel Inspection Program was extended for three additional years to enhance the State’s ability to protect California against exotic pests.

The Program

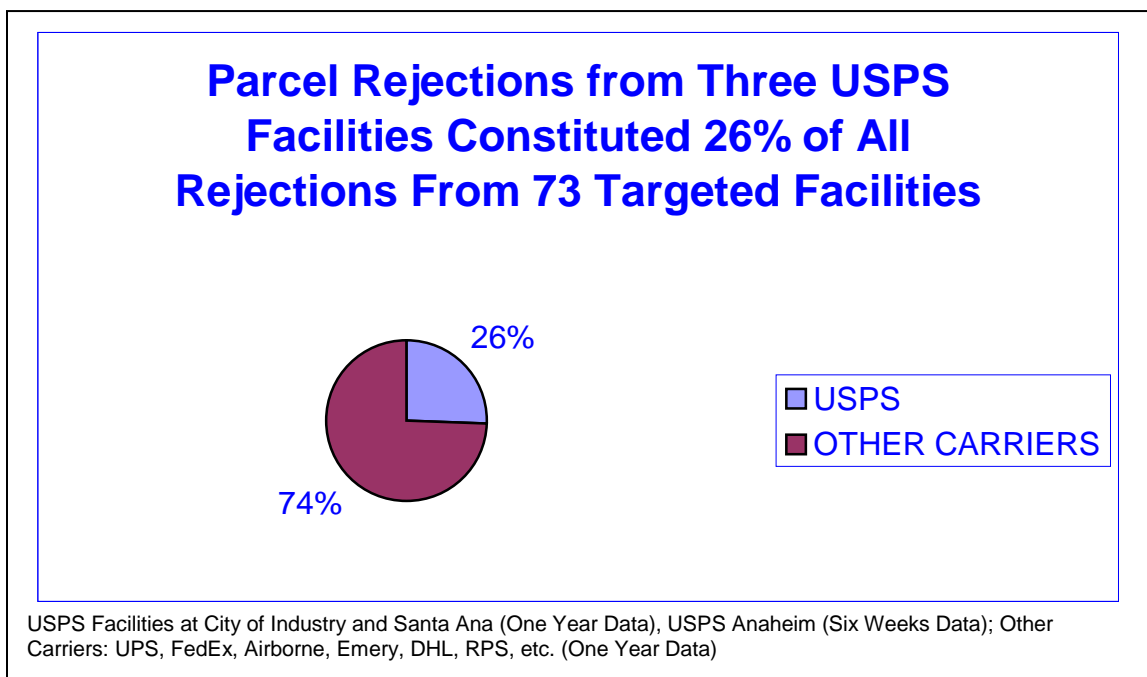
The Agricultural Parcel Inspection Program targets a pathway of pest entry previously not covered by other interior or border exclusion programs. This program functions by deploying trained dog teams at parcel terminals to sniff out unmarked parcels containing plant material. Currently, the program has 11 active dog teams in the San Francisco Bay Area, the Los Angeles Basin, and the San Diego area. These locations were selected since these areas have historically experienced a high number of exotic pest introductions. It is estimated that approximately 85 percent of the parcels shipped to California enter through these areas. Dog teams consist of an agricultural biologist, an agricultural technician, and a trained dog.

The program was structured to sample a higher number of terminals by conducting at least two days of inspection per week at each facility. To minimize the impact to carrier operations, inspections are conducted while the parcels are being processed for distribution. Depending on the facility, this can take place during day, swing, or graveyard shifts. Dogs work under various sort conditions, such as conveyer belts, delivery vans, etc.

Accomplishments

After establishing the success of dog teams in two USPS facilities in Southern California, the United States Postal Service has agreed to APIP’s entry into other Processing and Distribution Centers and has further agreed to provide access to other facilities beyond the 10 originally proposed. During this year, one more dog team gained access to a third USPS Processing and Distribution Center at Anaheim. The program will now place additional teams in facilities in the Los Angeles Basin, the San Francisco Bay Area with expansion plans for San Diego.

During this year 54 Federal Search Warrants were obtained and executed to inspect first class and priority mail parcels at three USPS Processing and Distribution centers in Southern California. The Federal Court denied none of the applications for warrants. Interception data indicated that USPS presents the greatest pest risk for pest introduction via unmarked parcels. Three USPS facilities accounted for 26 percent of all rejections from seventy-three targeted facilities. Fifty-one percent of the fruit fly host material intercepted by this program came from the same three USPS facilities.



E-commerce

E-commerce has grown as the Internet proves to be a timesaving shopping mechanism to many Californians. Although it is difficult to determine the magnitude of agricultural, or plant related e-business, there is little doubt that people engaged in agricultural E-commerce can ignore the State quarantines due to lack of regulations and enforcement capability. One particular Web site has over 2,000 agricultural and plant- oriented businesses contracted under one blanket organization. Many of these plants originate from other states under specific quarantines. Unless a package is intercepted, the shipper remains invisible, and the potentially infested package or prohibited plant material continues on its way through California. The Agricultural Parcel Inspection Program has intercepted many parcels shipped by E-commerce businesses.

Interceptions

The Agricultural Parcel Inspection Program has demonstrated that unmarked parcels are a high-risk pathway for harmful pests to enter California. During 2000, dog teams uncovered 1,636 unmarked packages containing plant material, from which 307 pest interceptions were made. This brings totals for the program to 6,386 interceptions of unmarked packages with plant material, yielding 1,075 pest interceptions. Some of these interceptions involved hundreds of pest specimens in a single package. Significant pest interception and high risk fruit fly host material intercepted during the year 2000 is shown below in Tables 1 and 2, respectively.

Table 1: Significant Pest Interceptions

January 2000 – December 2000

Pest Scientific Name	Pest Common Name
<i>Pheidole megacephala</i> (Fabricius)	Bigheaded ant
Aphididae	Aphid
<i>Tetranychus</i> sp.	Mites
<i>Phyllophaga</i> sp.	Scarab beetle
<i>Ostrinia nubilalis</i> (Hubner)	European corn borer
<i>Diatraea grandiosella</i> Dyar	Southwestern corn borer
<i>Aleurocerus</i> sp.	Whitefly
<i>Chaetococcus bambusae</i> (Maskell)	Bamboo mealy bug
<i>Pseudococcus viburni</i> (Signoret)	Obscure mealy bug
<i>Parlatoria blanchardi</i> (Targioni Tozzetti)	Parlatoria date scale
<i>Aonidiella orientalis</i> (Newstead)	Oriental scale
<i>Ischnaspis longirostris</i> (Signoret)	Black thread scale
<i>Pseudaonidia trilobitiformis</i> (Green)	Trilobe scale
<i>Howardia biclavis</i> (Comstock)	Mining scale
<i>Coccus acutissimus</i> (Green)	Slender soft scale
<i>Parlatoria ziziphi</i> (Lucas)	Black citrus scale
<i>Clavaspis herculeana</i> (Doane & Hadden)	Herculeana scale
<i>Aulacaspis tubercularis</i> (Newstead)	Armored scale
<i>Radionaspis indica</i> (Marlatt)	Mango scale
<i>Thysanofiorinia nephelii</i> (Maskell)	Longan scale
Pseudococcidae	Mealybug
<i>Curculio caryae</i> (Horn)	Pecan weevil
<i>Cydia caryana</i> (Fitch)	Hickory shuckworm
<i>Rhagoletis</i> sp.	Fruit fly
Pyralidae	Pyralid moth
<i>Acrolophus</i> sp.	Sod webworm
<i>Genaparlatoria pseudaspidotus</i> (Lindinger)	Vanda orchid scale

Table 2: High Risk Exotic Fruit Fly Host Material Interceptions
January 2000 – December 2000

Material	Shipper State	Number of Parcels	Estimated Weight (lbs)
Apple	Florida	7	20
Apple	Texas	2	37
Avocado	Florida	20	181
Avocado	Puerto Rico	9	56
Avocado	Texas	1	3
Calamondin	Texas	1	4
Carambola	Florida	2	28
Cashew Apple	Florida	1	14
Cherimoya	Florida	5	68
Cherry	Montana	1	11
Cherry	Oregon	3	42
Cherry	Unknown	1	21
Cherry	Washington	15	197.5
Chicosapote	Colorado	1	13
Chicosapote	Florida	7	61
Chicosapote	Virginia	2	450
Citrus	Florida	3	42
Custard Apple	Hawaii	1	5
Grapefruit	Florida	17	177
Grapefruit	Texas	2	25
Guava	Texas	2	5
Lemon	Florida	2	3
Lime	Puerto Rico	1	10
Limequat	Florida	1	1
Litchi/Lychee	Florida	7	64.75
Litchi/Lychee	Ohio	1	2
Longan	Florida	7	77
Longan	New Jersey	1	8
Longan	Ohio	2	2
Mamay Colorado	Florida	2	19
Mamey Sapote	Florida	2	23
Mamey Sapote	New York	1	20
Mango	Florida	37	389
Mango	Puerto Rico	16	139
Mango	Texas	1	5
Mangosteen	Minnesota	1	7
Mangosteen	Ohio	1	4
Miscellaneous Fruit	Puerto Rico	1	26
Orange	Texas	1	2
Orange	Florida	16	104.5
Otaheite Apple	Florida	1	10
Passion Fruit	Puerto Rico	3	13
Peach	Texas	1	7
Pear	Florida	5	11
Pear	Texas	1	2
Persimmon	Florida	1	8
Persimmon	Texas	1	16
Prickly Custard Apple	Florida	2	4
Star Apple	Florida	1	8
Tangelo	Florida	2	20
Tomato	Florida	3	76
Unknown fruit	Puerto Rico	1	3
Vegetables	Florida	1	2
	TOTAL	228	2,551.75 lbs.

Again, Agricultural Parcel Inspection Program consistently intercepts prohibited and infested plant material year-round. The total fruit fly host material intercepted during this period was approximately 4,456 pounds. Of these, 2,552 pounds originated either from high-risk origins known to be infested with harmful fruit flies or were shipped from an origin not known to produce that kind of fruit (Table 2). The program total for fruit fly host material is 11,405 pounds, consisting of avocado, prickly custard apple, citrus, guava, star apple, mango, sapote, tangelo, longan, litchi, mangosteen, starfruit and others.

Public Education on Plant Quarantines

The Agricultural Parcel Inspection Program has been very successful with public outreach events. The program’s, **“Don’t Pack a Pest”**, an informative flyer, accompanies every notice of rejection issued to individuals in and out of state who violates California plant quarantines and laws. Dog team demonstrations at the California Nurserymen’s Association, State Fair, County Fairs, elementary schools, League of Cities, Nut Growers’ Association and other sites have helped to educate the public about the importance of plant quarantines and increased awareness of the harm caused by exotic pests.

Phytosanitary Certification Activities

Phytosanitary certification is a service provided to industry to help them meet the plant quarantine requirements of foreign countries, other states, or interior quarantine requirements. This service helps facilitate the domestic and foreign trade in agricultural commodities. The USDA is the federal agency responsible for the overall nationwide implementation of the international phytosanitary certification program. Pest Exclusion administers both this federal program in California for the USDA and the domestic phytosanitary certification program. Interior Pest Exclusion personnel work closely with industry, federal, state and county personnel to coordinate the phytosanitary certification program activities and also provide training concerning the issuance of phytosanitary certificates.

Phytosanitary inspections may include post-harvest inspections of agricultural commodities at packing sheds or terminal inspection points; and/or growing season inspections of seed fields, nursery stock, and fruit and vegetable stock.

The following chart lists the number of inspections and certificates issued for various areas of responsibility:

County Origin Certification		
	Inspections	Certificates Issued
Federal Phytos	105,880	139,477
State Phytos	12,693	16,830
Compliance Certificates	21,559	45,702
Quick Decline Permits	3,300	3,562
Compliance Agreements	8,279	1,400
Others	17,098	6,212
Totals	168,652	213,183

*This information was compiled from County Report Number 4s submitted by county agricultural commissioners. At the time of publication, not all counties have reported.

PQ Seed Field Inspection Program Highlights

A total of 3,361 applications for Phytosanitary Field Inspections of Seed were processed in the year 2000. Five counties each submitted at least 5 percent of the total number of applications. Colusa submitted 719 applications, with the top two crops being cucumber and watermelon. Fresno submitted 452 applications, with the top crop being alfalfa. Monterey submitted 411 applications, with the top crop being beans. Imperial submitted 331 applications, with the top two crops being alfalfa and onion. Sutter submitted 207 applications, with the top crops being watermelon and cucumber.

Five crops exceeded 5% of the total number of crops inspected. Alfalfa was the highest with 515 fields, followed by beans-423 fields, cucumber-323 fields, sunflower-280 fields, squash-253 fields, onions-234 fields, and tomato-193 fields.

Phytosanitary Training

The Northern District office conducted phytosanitary training for new county biologists in most district counties. A total of 30 new biologists were trained.

The Central District office conducted new phytosanitary training. Seven training sessions were held for a total of 41 inspectors who were trained to become phytosanitary cooperators. No refresher training was given during the year 2000.

Phytosanitary Export Program Highlights

There were a number of foreign delegates in California from El Salvador, Guatemala, Australia, Taiwan, China and Mexico.

Work Plans

Work plans continue to be the trend used by the USDA for facilitating the export of prohibited, unprocessed, agricultural products to many foreign countries. The purpose of a work plan is to develop mutually agreeable, written terms between the USDA and a foreign government's agricultural, regulatory agencies to resolve particular pest problems. The work plans outline specific steps to be followed to obtain entry of the covered commodity and each participant's responsibilities, including those of the growers, packers, industry associations, exporters, the USDA, and state and county regulatory agencies. Work plan negotiations are often politically sensitive and, in some instances, many millions of dollars worth of agricultural exports are at stake.

This activity requires Pest Exclusion staff to research and document the distribution of pests, assess pest introduction potentials and subsequent colonization risks, treatments, and alternative mitigating actions, and then negotiate the most reasonable work plan terms. These negotiations involve cooperatively working with affected industries and associations, agricultural commissioners, the USDA, and the foreign governments' regulatory agencies.

Pests Affecting Trade

Detections of introduced exotic fruit flies and any resulting incipient infestations continue to be one of our greatest challenges to continued exports of host material to numerous trading partners. However, other introduced pests or diseases, such as codling moth, fire blight, glassy-winged sharpshooter, pink hibiscus mealybug, Oriental fruit moth, etc., also have severe impacts on trade of affected host material.

Phytosanitary Management Activities Conducted 2000	
Commodities	Countries
Apples	Japan, Mexico, and Taiwan
Apricots	Canada and Mexico
Asparagus	New Zealand and Taiwan
Carrots	Japan and Taiwan
Cherries	Australia, Japan, and Mexico
Citrus	Argentina, Australia, Chile, People's Republic of China, Republic of Korea and Taiwan.
Table Grapes	Australia, New Zealand and China
Peaches and Nectarines	Canada, Mexico, Japan and New Zealand
Plums	Canada, Japan, Mexico, and New Zealand
Prunes	Japan
Potatoes	Republic of Korea, Taiwan and Thailand
Rice Straw	Japan

EXCERPT

Pest Exclusion continues to represent California's and the Western Plant Board member states' interests in the computerized EXCERPT program. Certifying officials have long been burdened with the task of keeping track of other countries' ever-changing import requirements. EXCERPT reduces that burden, increases the overall efficiency of maintaining manuals of foreign import summaries, and makes any import changes and modifications available to certifying officials in a consistent and timely manner. EXCERPT is now available through a Web site.

Origin Inspection Programs (OIP)

The Interior Pest Exclusion Branch administers CDFA's origin inspection programs in conjunction with other states' regulatory officials for qualifying agricultural commodities. Administering these programs jointly with other states' regulatory agencies involves cooperative negotiations to establish mutually agreeable terms for the preclearance of qualifying agricultural

commodities destined for California markets. Encouraging valid origin certification programs is an integral part of California's pest prevention system and this program, in particular, mitigates the pest risk at origin and reduces the necessary quarantine inspection workload in California. Presently, the commodities covered under the OIP include fruits and vegetables, cut flowers and cut greens, canola pellets, bulbs, seed, and nursery stock.

There are 136 companies participating in the Origin Inspection Program. Nine companies entered into compliance agreements in 2000, and four participants were removed from the program for non-compliance.

State/Country	OIP Participants
Arizona	1
Canada	2
Colorado	1
Hawaii	35
Mississippi	1
Nevada	1
New Mexico	1
Ohio	1
Oregon	63
Utah	1
Washington	29
Total	136

OTHER ACTIVITIES

Exotic Fruit Fly Regulatory Response Manual

Directed by Interior staff, a major revision of this manual is underway. Originally produced by the state/federal regulatory staff of the Los Angeles Basin Medfly Project, Bell, California, circa 1996, the purpose of this manual is to serve as a practical, detailed, "nuts and bolts" guide to the day-to-day regulation of various, affected establishments during an exotic fruit fly quarantine in this state (i.e., from growers to sellers to landfill operators, etc.). It has demonstrated its usefulness in subsequent California quarantines and even in Florida and New York on non-fly regulatory work. As a result of the recent Fallbrook Mexican Fruit Fly Quarantine, the new edition will expand its coverage to include all exotic fruit flies, not just Mediterranean fruit flies. This is a collaborative effort involving input from local county, federal and CDFA officers. Eventually, the technical writing staff at USDA's Development Center in Fredericksburg, Maryland, will format a version of this manual for national distribution. Periodic updates to each section of the manual will be issued to subscribers on record. The entire manual will be posted on both CDFA and USDA Web sites. Copies of the draft revision will be distributed to the CACASA Pest Prevention Committee early in 2001.

Extranet Web site — Pest Exclusion

All CDFA staff is encouraged to subscribe to this site (<http://phpps.cdfa.ca.gov>) to enable them to have viewing rights for division and PE information and documents posted to this controlled-access Web site. This site allows subscribers (county, California, federal, as well as other states' depts. of agriculture) access to selected CDFA documents and information posted to this location. This is not a public site like those on the World Wide Web; it is designed for information sharing among approved subscribers. It is now operational with links that will display public documents such as the Plant Quarantine Manual, and more private documents, such as the "suspended shippers list." Soon, visitors to the site will be able to search a database archive of branch advisories (Pest Exclusion or Phytosanitary advisories) by pest/year/type of advisory and have selected ones that appear in .pdf format for viewing and printing. Training and informational materials in the form of videos and slide shows will be added to the site in 2001.

California Commodity Treatment Manual

The Pest Exclusion Branch is revising the California Commodity Treatment Manual (CTM). The manual was last revised in 1991 in hardcopy form only. In planning for the next revision of the CTM, Pest Exclusion requested input from all County Agricultural Commissioners.

For the ongoing revision, plans are to generate an Internet document that will include search functions by both pest and commodity. In addition, links to key related sites such as the California Department of Pesticide Regulation and pesticide label resources on the Web are considered desirable.

The Center for Education and Research in Information Assurance and Security (CERIAS) has submitted a proposal for Web publishing the next revision of the California Commodity Treatment Manual. Information technology staff at the CDFA is reviewing the CERIAS proposal for compatibility with current and projected computer resources.

CERIAS is a center within the Entomology Department at Purdue University. The CERIAS is the world's foremost University center for multidisciplinary research and education in areas of information security. Areas of research include computer, network, and communications security as well as information assurance.

EXTERIOR PEST EXCLUSION

At its 16 border agricultural inspection stations, Exterior Pest Exclusion personnel enforce the Food and Agricultural Code, federal and state quarantines, and county enforcement policies. The program has cooperative working relationships with several other branches of the Department: Fruit and Vegetable Quality Control Standardization; Animal Health; Egg Quality Control; Feed, Fertilizer and Livestock Drugs; and Agricultural Statistics. It also cooperates with other federal and state agencies (U.S. Forest Service, U.S. Department of Agriculture, Public Utilities Commission, Immigration and Naturalization Service, Parks and Recreation, Fish and Game, Water Resources, Caltrans, CAL/EPA's Department of Pesticide Regulation, Board of Equalization, California Highway Patrol, Conservation, and the Bureau of Land Management).

At the local level, border station personnel cooperate with the county agricultural commissioners, county sheriff/city police, and fire departments. They also provide information to the Arizona, Nevada, and Oregon Departments of Agriculture and the Oregon-Washington-Idaho Potato Commission. They provide public assistance with emergencies that arise at or in the vicinity of the stations. Also, the [California Travel Ideas Map](#) and other handouts are distributed.

Inspections

The number of vehicles monitored at the California border agricultural inspection stations in the 2000 calendar year totaled 33,711,382, including 24,499,233 automobiles, 6,497,570 commercial trucks, 706,395 recreational vehicles, and 40,278 commercial buses. These figures represent an eight percent increase in total traffic from last year.

Truck shipments of feed grain totaled 7,241. Of these, 5,946 were inspected and released, and 1,295 were sent to approved mills under Warning-Hold Inspection Notices.

Shipments of hay totaled 41,853. Of these, 41,497 were inspected and released, and 356 were sent to approved mills under Warning-Hold Inspection Notices.

There were 304,917 shipments of fruits, vegetables, nursery stock, seeds, and other items regulated by plant quarantines. Of these, 301,588 were inspected and released, 25,010 were sent to destination for final disposition by the county agricultural commissioners under Warning-Hold Inspection Notices, and 3,190 were permitted to transit the State under quarantine. There were 1,619 shipments rejected and returned out-of-state. A total of 43,559 shipments had origin certificates and 19,104 were accompanied with treatment certification.

Plant Materials Intercepted

There were 70,103 lots of prohibited plant material intercepted at the border inspection stations. These lots were either infested with plant pests or were not properly certified for entry into California.

Plant Pest Samples

A total of 5,020 samples were submitted to the Division's Plant Pest Diagnostics Branch for identification during the year. These consisted of 4,567 insect specimens, 63 root and soil samples suspected of containing nematodes, 26 suspected disease samples, and 364 weed seed samples. The following is a partial list of selected, serious pests confirmed by the laboratory:

Gypsy moth	Imported fire ant	Japanese beetle
Mexican fruit fly	Pink bollworm	European corn borer
Oriental fruit fly	Boll weevil	Vanda orchard scale
Eastern cherry fruit fly	Pecan weevil	Musk thistle
Western cherry fruit fly	Zebra mussel	Halogeton
Apple maggot	Burrowing nematode	Diffuse knapweed

Animal Rejections

A total of 340 animal interceptions were made in accordance with Department of Fish and Game regulations. The following is a partial list of animals rejected:

Ferret	Chimpanzee	Monkey	Kodiak Bear
Gerbil	Piranha	African frog	Hedgehog
Monk parakeet	Snapping turtle	Bush Baby	

Citrus Inspection Program

A total of 8,695 commercial shipments of citrus entered California in 2000 from the Bahamas, Mexico, Spain, Florida, Texas, and Arizona. From these shipments, border station personnel sampled 5,727 containers of fruit. Dead fruit fly larvae were found in 12 shipments. There were 152 shipments rejected due to lack of proper certification.

Mango Inspection Program

In 2000, a total of 6,641 hot-water treated commercial shipments of mangoes were permitted to enter California from Haiti, Mexico, and other Central and South American countries. From these, 29 shipments were rejected for various violations of the entry requirements, usually lack of proper certification. Border station personnel cut and inspected 27,265 containers of mangoes to ensure that the fruit was pest-free. Only dead fruit fly larvae were discovered.

Cherry Fruit Fly Origin Sampling and Certification Program

Sixty-four shippers participated in the 2000 program. Included were one from Colorado, 10 from Idaho, 10 from Oregon, three from Utah, and 40 from Washington.

A total of 1,411 commercial cherry shipments entered the State through the border stations. Of these, 1,390 shipments were destined to California markets. The remainder were transiting the State for foreign destinations.

All shipments entering California by special permit were sampled by border station personnel. There were 123 shipments that failed to meet the special permit requirements. Those shipments were either shipped out-of-state or released after the requirements were met. One shipment from Washington was rejected for live cherry fruit fly larvae.

Cherry Shipments Entered Under the Special Permit Program

	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>2000</u>
Colorado	0	0	0	0	2
Idaho	10	17	23	10	24
Montana	3	1	0	0	0
Oregon	64	92	304	410	207
Utah	0	0	0	12	6
Washington	<u>664</u>	<u>720</u>	<u>1,244</u>	<u>1,793</u>	<u>1,172</u>
TOTALS	741	830	1,571	2,225	1,411

Commercial Cherry Shipments Converted to Pounds

Colorado	0	0	0	0	40,000
Idaho	278,891	25,935	330,656	301,000	684,710
Montana	72,380	39,600	0	0	0
Oregon	1,304,786	2,046,456	5,347,078	6,5907,094	4,531,109
Utah	0	0	0	48,000	240,000
Washington	<u>9,605,780</u>	<u>10,828,220</u>	<u>14,582,722</u>	<u>23,167,353</u>	<u>20,840,906</u>
TOTALS	11,261,837	13,540,211	20,260,456	30,113,447	26,336,725

Gypsy Moth Program

There were no operational changes to the border station Gypsy Moth Program in 2000. Border station personnel issued 86 citations for lack of proper certification to drivers carrying high-risk gypsy moth shipments. The activities summary follows:

<u>Recreational Vehicles Monitored/Inspected</u>	<u>Confirmed Border Station Gypsy Moth Finds From Rvs</u>	<u>Warning Notices on Household Goods</u>
706,397/7,218	21	4,408
<u>Citations Issued</u>	<u>Gypsy Moth Treatment Sites</u>	
86	0	

California Travel Ideas Magazine/Map

Under an agreement with the California Department of Commerce, Division of Tourism, the border stations distributed 1.2 million California Travel Ideas Maps, which provides a detailed map of California as well as a message on California's Pest Prevention System.

Beverage Container Recycling Program

Under an agreement with the Department of Conservation, border inspection staff recorded information on used beverage containers and scrap metal entering California. Conservation uses this information to track fraudulent claims and to convict persons presenting false claims for redemption from the recycling fund.

There were a total of 305 shipments of used beverage containers and scrap metal recorded in 2000.

SEED SERVICES

(Portion of Nursery, Seed and Cotton Program)

The value of seed planted in California exceed \$337 million, up slightly from 1999. The total number of firms registered to sell seed in California increased to 402, up from 389. While the trend has been a decrease in the number of firms due to consolidation of companies, some of these ventures have not worked out and some companies have now re-registered separately.

Seed Services administers that statewide seed law enforcement program that is funded entirely through an annual assessment on the value of seed sold in California by seed labelers and others. The program is conducted by the local county agricultural commissioners. Headquarters and district staff evaluates seed enforcement workload, provide assistance and training, and provide information on the program to the local counties. Additionally, staff works with the seed industry to determine the effectiveness of the program, other states, the United States Department of Agriculture, and with the California Crop Improvement Association, the state seed certification entity. An advisory board of nine seed industry members and two public members provides oversight to the Department.

Program expenditures for Fiscal Year 1999/00 totaled \$772,628. Significant program expenditures were the funding of the Seed Laboratory (\$267,360) and the Agricultural Commissioners (\$119,999). Upon reviewing the budget and Fund Condition, the Seed Advisory Board recommended that the assessment rate be increased from \$0.15 to \$0.20 per hundred dollars gross annual dollar volume sales in California for this reporting period. The increased assessment combined with program reserves will provide adequate funds to cover program expenditures in Fiscal Year 2000/01.

Subvention of County Agricultural Commissioners for enforcement of the California Seed Law remains at the maximum of \$120,000 annually, as provided by law. This voluntary program has established annual performance measures as the basis for funding county seed law enforcement workload. The commissioners, by contract, are to maintain an 85 percent compliance level of all seed offered for sale or labeled in their respective counties. In the mid 1980's, seed law enforcement activities by the commissioners were redirected toward the wholesale/distribution level. The performance measures, which were introduced in 1999, resulted in a substantial increase in the number of official samples. County personnel now collect for analysis 1,000 official samples. This is up 25 percent over 1998 and almost double the number of samples collected in 1997 that makes it a more statistically valid sampling of agricultural seed. In addition, a total of 75 "stop-sale" orders were written on 163,366 lbs. of seed. The majority (59) of the "stop-sale" order was placed on vegetable seed that was "out-of-date" at the time of inspection. The average "stop-sale" was written on 2,178 lbs. of seed.

Program staff continued to promote TEAM SEED activities. The TEAM SEED concept, developed in 197, recognizes the many groups that play a vital role in providing the highest quality seed to California agriculture and the public. In the spring of 2000, staff put on six specialized TEAM SEED workshops at locations throughout the state. The training focused on the new county subvention program and seed complaint procedures in addition to covering basic seed inspection procedures. This training was attended by 125 participants from 39 county agricultural commissioner's offices. In the past, one-third of the participants were from the seed industry. These workshops have become a value tool in training the industry on labeling requirements and on the county's role. The 2001 schedule was announced in

November and has also been noticed to the California seed industry by the California Seed Association.

In addition to enforcement activities, the California Seed Law provides an alternative dispute resolution procedure to assist farmers and labelers to settle disputes through conciliation or mediation when seed planted in California fails to perform as represented. This procedure provides an economical alternative to litigation when the dispute can be resolved and are a mandatory prerequisite to pursuing the matter in court. This year two seed complaints have been files. Both cases were filed late in 2000 and are in the process of being investigated before being turned over to an investigative committee. Disputing parties are attempting to resolve their differences but may need the services of the investigative committee and a mediator. Except for an initial filing fee, the cost of procedures is borne by the program that is funded by an assessment on seed sold in the state.

Revisions of the seed inspection regulations were submitted for review and establishment. The proposed changes include reorganization of sections for clarity, editorial changes and updates, elimination of the use of separate sections known as "schedules", revision of reflect changes to the Federal Seed Act and the California Seed Law, and an update of the fee schedule for seed testing. Also included is replacement of the current seed complaint mediation procedures with procedures that also provide for arbitration of seed disputes

QUALITY COTTON

(Portion of Nursery, Seed and Cotton Program)

The Quality Cotton element of the Program has primary responsibility for enforcing the San Joaquin Valley Cotton District Law and regulations.

The San Joaquin Valley Quality Cotton District continued to produce exceptional Acala and Pima cotton quality including fiber strength that was the highest in the nation. Favorable weather conditions and relatively low pest pressure resulted in increased yields per acre. The USDA estimated that Upland cotton yields (including Acala) averaged a record setting 1,380 pounds per acre; 11% above the 1999 average. Pima yields were 1,200 pounds per acre; 7.5% above 1999. Pima acreage in the District was approximately 144,000 in 2000, nearly 44% lower than in 1999. Upland acreage increased significantly from 585,000 acres in 1999 to 765,000 acres in 2000.

The District consists of Merced, Madera, Fresno, Tulare, Kings, and Kern Counties. It is administered by the 40 member San Joaquin Valley Cotton Board composed of cotton growers, cotton industry representatives, and public members. Cotton grower and industry members are elected by their peers. The Board meets at least five times a year to make major decisions and recommendations regarding testing and commercial release of new cotton varieties that will be most beneficial to the District. The exceptional quality and yield of the cottons in the District are some indication of the success of the Board's decisions. Throughout the year, numerous Board committees examine major cotton issues in order to make well-researched recommendations to the full Board. The Board's activities are supported by staff in the Quality Cotton element of the Nursery, Seed, and Cotton Program.

The year 2000 is notable for being the second full season in which cotton growers were allowed to plant any commercially available variety of cotton in the San Joaquin Valley. This was the result of passage of 1998 legislation allowing the planting of varieties not previously allowed under the Quality Cotton Law. Section 52981 was added to the Food and Agricultural Code to allow varieties not tested and approved by the San Joaquin Valley Cotton Board to be planted as "nonapproved" varieties beginning in 1999. The new law also charges the Department with adopting regulations to ensure that the growing of nonapproved varieties does not adversely affect the quality of Acala and Pima approved by the Board. Regulations to implement this law were developed by the Department in conjunction with the cotton industry. Program personnel are responsible for enforcing these regulations. Also added to the law was wording allowing the Secretary to increase the District assessment to pay additional regulatory costs of enforcing the law.

In 2000, approximately 216,000 acres of nonapproved varieties were harvested in the District. The nonapproved cotton was marked at harvest and ginning with tags supplied by the Department with one of the following designations: California Pima, California Upland, or SJV Experimental. Nonapproved acreage is projected to decrease in 2001 due to: (1) the shift of five popular experimental varieties to approved status; and (2) the increased demand for high quality approved cotton lint in the world marketplace.

There was considerable interest on the part of researchers to develop new cotton varieties in 2000, with 12 cotton breeders approved to conduct research on nonapproved cotton in the District. The most promising cottons from private and public breeding programs are submitted to the Board's tests. Genetically enhanced varieties were widely grown in researcher's test plots and in seed increases allowed by the Department. Program staff supervised the monitoring and planting, harvesting, ginning, delinting, and marketing of all experimental cotton.

After extensive testing by private breeders and the Board, three Acala and two Pima were approved for commercial release in 2000, increasing to 51 the number of approved cotton varieties available to area cotton growers.

In 2000, the San Joaquin Valley Cotton District assessment rates were set by the Secretary, upon recommendation from the Board, at \$3.75 per hundredweight of undelinted approved seed and at \$7.35 per hundredweight of undelinted nonapproved seed for commercial planting within the District. The assessments are the primary source of income for two budgets: the Quality Cotton budget and the Nonapproved Cotton budget. These budgets in turn fund the Board's testing program and the enforcement of the San Joaquin Valley Quality Cotton District Laws and Regulations.

PLANT HEALTH AND PEST PREVENTION SERVICES

PERMITS AND REGULATIONS

The Permits and Regulations Program develops all regulations administered by the Division of Plant Health and Pest Prevention Services and develops associated, legally required documents such as notices, statements of reason, orders, and certificates of compliance. The Special Assistant serves as regulatory coordinator for the Division and as a technical staff assistant to the Director.

This program issues state permits involving agricultural pests, approved laboratories, soil, and quarantine commodities as authorized under administrative regulations and the Food and Agricultural Code. In addition, this program approves or disapproves applications for federal permits that are issued by the United States Department of Agriculture (USDA). These permits concern movement into California of plant pests, foreign soil, foreign post-entry quarantine plant material, genetically engineered organisms (biotechnology permits), and foreign plants and plant products normally prohibited entry into the United States.

The primary activities of the Permits and Regulations Program during the 2000 calendar year were:

- State Permits

There were 332 state permits issued including 104 plant pest permits (46 for pathogens, 58 for arthropods), 208 quarantine commodities permits, eight biotechnology authorizations, and 12 approved laboratory permits.

- Federal (USDA) Permits

A total of 952 applications for federal permits were reviewed and processed including 212 post-entry quarantine agreements, 36 soil permits, 324 plant pest permits (142 for pathogens, 182 for arthropods), 343 biotechnology permits, and 37 permits for federally prohibited plant material.

- Regulations

There were 73 regulatory actions completed that included the adoption, repeal, or amendment of 36 regulations; 12 certificates of compliance; and 25 notices of changes in the regulations.

**PLANT HEALTH AND PEST PREVENTION SERVICES
P E S T D E T E C T I O N
A N D
E M E R G E N C Y P R O J E C T S B R A N C H**

Exotic Fruit Flies

Japanese Beetles

Gypsy Moth

Red Imported Fire Ant

Africanized Honey Bees

Karnal Bunt and Citrus Canker

Pink Hibiscus Mealybug

2000 Exotic Fruit Fly Detections

During 2000, the Detection Trapping Program found 989 individuals of seven different fruit fly species. The large number is due primarily to the 945 olive fruit flies that were detected this year.

Table 1: Exotic Fruit Flies Detected in California During 2000

PEST (Fruit Fly)	COUNTY	NUMBER FOUND	TOTAL BY SPECIES
Guava Fruit Fly	Alameda	1	9
	Los Angeles	4	
	Orange	2	
	Santa Clara	2	
Mexican Fruit Fly	Alameda	1	6
	Los Angeles	1	
	Riverside	1	
	San Diego	2	
	Santa Clara	1	
Olive Fruit Fly	Alameda	93	945
	Butte	2	
	Fresno	239	
	Imperial	10	
	Kern	121	
	Kings	2	
	Madera	18	
	Monterey	1	
	Orange	1	
	San Bernardino	1	
	San Joaquin	7	
	San Luis Obispo	94	
	Santa Barbara	3	
	Santa Clara	45	
	Santa Cruz	1	
	Sutter	3	
	Tehama	5	
	Tulare	185	
Ventura	113		
Yuba	1		
Oriental Fruit Fly	Alameda	1	29
	Los Angeles	23	
	Orange	3	
	Riverside	1	
	Solano	1	
TOTAL			989

Fruit Fly Eradication Programs

Guava Fruit Fly

The single guava fruit fly eradication program was initiated on August 9, 2000, due to the trapping of two flies (last fly find date August 8, 2000) in Cerritos, Los Angeles County. Additional guava fruit flies were trapped in La Palma/Buena Park, Orange County and the treatment area was expanded to 31 square miles. The guava fruit fly is eradicated using the same protocols as the Oriental fruit fly. The infestation has been eradicated.

Oriental Fruit Fly

Three Oriental fruit fly eradication programs occurred in Los Angeles County. The treatment protocols were the standard Oriental Fruit Fly Male Annihilation Program. This program consists of establishing 600 bait stations per square mile. The bait station is a mixture of Dibrom, methyl eugenol, and Min-U-Gel, which is squirted on to utility poles and tree trunks along public roads. The following table provides additional details.

Table 2: 2000 Oriental Fruit Fly Eradication Information

County	City	Number Trapped	Last Find Date	Treatment Sq. Miles	Quarantine Sq. Miles	Eradicated
Los Angeles	Hacienda Heights	2	08/28/00	6	N/A	Yes
	Lennox/	7	11/13/00	19	N/A	Yes
	Inglewood	10	08/18/00	12	N/A	Yes
	Long Beach					
Orange	Westminster	2	09/15/00	10	N/A	Yes

Mediterranean Fruit Fly Preventative Release Program (PRP)

California's Mediterranean fruit fly (Medfly) strategy shifted in 1996, to a proactive approach that emphasized prevention of Medfly infestation through the use of sterile Medflies. The PRP uses continuous release of sterile Medflies to interfere with Medfly colonization in 2,500 square miles (the release area was increased 345 square miles in November, 2000) of Los Angeles, Orange, Riverside, and San Bernardino Counties. This program has become a major component of the California Department of Food and Agriculture (CDFA) and the United States Department of Agriculture's (USDA) ongoing efforts to prevent the establishment of this pest in California. The PRP is reviewed annually by an outside panel of international Medfly experts, the Mediterranean Fruit Fly Science Advisory Panel (MedSAP). The annual report to the California Legislature provides detailed information and is available upon request.

Olive Fruit Fly Program

Olive fruit fly (OLFF) was initially detected during October 1998, in West Los Angeles, Los Angeles County. This find was the first record of this pest in the Americas. In 1999, the OLFF was detected in seven counties, primarily in the Southern California counties of Santa Barbara, Los Angeles, Orange, San Diego, Riverside, San Bernardino, and one fly in Tulare County (Southern San Joaquin Valley). Expanded surveys in 2000, found OLFF widely distributed in the following counties: Tulare, Kern, Madera, Fresno (San Joaquin Valley), Alameda, Monterey, San Luis Obispo, Santa Clara (Coastal Counties). In Northern California, three adults were trapped in Sutter County, four in Tehama County, and one in Yuba County. This represents a large expansion of the known infested areas within California. The CDFA is currently working with commercial olive producers to implement olive management programs in California modified from similar programs currently in use in Europe. The CDFA sponsored OLFF management seminars conducted by European scientists. In November 2000, a parasitic wasp (*Opius concolor*), that attacks olive fruit fly larvae, was released in Riverside and San Diego Counties. These two counties were chosen due to the high larval populations that are desirable for establishing and evaluating this parasite. Evaluations are ongoing at this time. It should be noted that heavy OLFF infestations have been found in olive-producing regions of Baja California, Mexico. In November 2000, OLFF was, for the first time, detected in mainland Mexico in the olive-producing region of Corborca within the State of Sinoloa, Mexico.

Table 3: 2000 Olive Fruit Fly Detection Information

County	Cities with Captures	Number of Finds	Number of Traps
Alameda	7	93	364
Butte	1	2	72
Fresno	12	239	1,407
Imperial	4	10	0
Kern	11	121	0
Kings	1	2	36
Madera	2	18	419
Monterey	1	1	0
Orange	1	1	0
San Bernardino	1	1	0
San Joaquin	2	7	37
San Luis Obispo	9	94	101
Santa Barbara	3	3	0
Santa Clara	8	45	16
Santa Cruz	1	1	0
Sutter	1	3	5
Tehama	1	5	150
Tulare	24	185	1,084
Ventura	12	113	0
Yuba	1	1	0
Totals		945	3,691

Japanese Beetle Detection Program

The Japanese beetle (JB) detection program has two major components: statewide trapping and aircraft detection. During 2000, over 11,000 JB traps were deployed throughout the urban and high-risk areas. The trap density for JB detection is two traps per square mile. There were no JB's in the urban/residential area of the State during the 2000 season.

On board inspections of aircraft from high-risk areas of the eastern United States resulted in the collection of 708 specimens (with 178 alive) from major airports. See Table 4 for a listing of beetle collections by county/airport. The large number of live and dead beetles collected from Airborne Express aircraft this year is due primarily to the very heavy JB population at the Wilmington, Ohio hub.

Table 4: Number of Aircraft Inspected and Beetles Collected by Airport

COUNTY	AIRPORT	AIRCRAFT INSPECTED	BETTER COLLECTED
Alameda	Oakland International	293	123 (50 alive)
Fresno	Fresno/Yosemite International	33	90 (24 alive)
Los Angeles	Burbank	92	0
	Long Beach	102	172 (66 alive)
	Los Angeles International	4,047	84 (7 alive)
Yolo	Sacramento International	43	2 (0 alive)
Sacramento	Mather Airport	49	9 (0 alive)
San Bernardino	Ontario International	51	2 (0 alive)
San Diego	San Diego International	1,057	110 (7 alive)
San Mateo	San Francisco International	572	38 (16 alive)
Santa Clara	San Jose International	564	77 (8 alive)
	Moffett Federal Airfield	0	0
TOTALS		6,903	708

Gypsy Moth Detection Program

During the 2000 season, over 18,000 traps were deployed and monitored as part of California's program to detect and delimit new gypsy moth (GM) and/or Asian gypsy moth (AGM) infestations. Trap density in the 19 coastal California counties is at three traps per square mile, and two traps per square mile in the remaining 39 counties. Traps are deployed in urban areas and in rural residential areas of 300 or more homes per square mile. This season, a total of 35 moths were trapped (Table 1) at 24 sites in nine counties.

Six of the find sites were single-moth catches. One of the find areas, Novato, Marin County, had several multiple moth catch traps and single moth trap catches as well. Two moths taken in two separate traps at Woodside, San Mateo County were in an area where four moths were trapped in 1999. There were seven moths trapped in Fallbrook, San Diego County for the season; four of these moths were single trap catches and two were two moth catches. Two moths were trapped in a single trap in Meiners Oaks, Ventura County. Evidence was found to identify the Novato and Fallbrook finds to move-ins from infested areas back east. No evidence was found to identify any of the remaining finds to move-ins from the infested areas of the Northeastern United States.

Egg mass surveys were conducted during November 2000, at Novato, Marin County; Meiners Oaks, Ventura County; Woodside, San Mateo County; and Fallbrook, San Diego County. Viable egg masses were found at a site in Fallbrook; no other viable egg masses were found at any other locations. Eradication programs are planned for the Novato and Fallbrook sites for Spring 2001. Intensive trapping will occur at the sites where GM was trapped during 2000. Trap density for intensive trapping is 25 to 49 traps per square mile in a four-square-mile area around the find site.

All specimens were analyzed for possible AGM identification. The Mitochondrial DNA test, as well as the FS1 Nuclear DNA test, was utilized. The analysis of these specimens did not identify any AGM.

No GM eradication programs were conducted in California during 2000. The results of the 2000 GM delimitation trapping for 2000 GM trap sites were negative at all sites except the Woodside, San Mateo County site. The remaining 10 sites in five counties will revert to normal detection trapping levels for the 2001 season.

Table 5: 2000 GYPSY MOTH FINDS

COUNTY City	ADULTS TRAPPED		TOTAL ADULTS	PROPERTIES W/ VIABLE EGG MASSES/PUPAL CASES*
	DETECTION	QUARANTINE		
LOS ANGELES Duarte	1	0	1	N/A
MARIN Novato	0	19	19	N/A
ORANGE Laguna Beach	1	0	1	N/A
SACRAMENTO Carmichael	1	0	1	N/A
SAN DIEGO Bonsall Fallbrook	0 0	1 6	1 6	N/A 1
SAN MATEO Woodside	2	0	2	N/A
SHASTA Cottonwood	1	0	1	N/A
VENTURA Meiners Oaks	2	0	2	N/A
YOLO West Sacramento	1	0	1	N/A
TOTAL	9	26	35	1

Red Imported Fire Ant Program

In 1997, red imported fire ant (RIFA) was discovered in an almond orchard in Kern County, arriving there on a shipment of honeybees from Texas. During 1998, the RIFA was found infesting large urban areas of Orange County. Subsequent surveys and public notifications discovered a major infestation in Southern California: Orange County is the major infested area. Plant quarantine was established to stop the spread of the pest while allowing the nurseries in the infested areas to ship plants that were treated and certified free of this pest. Currently, entire Orange County (790 square miles), parts of Riverside County (67 square miles), and Los Angeles County (9 square miles) are under quarantine.

Based on the RIFA Science Advisory Panel (RIFA SAP) recommendations and input from various stakeholders, the CDFA developed the California Action Plan to control and eradicate

this pest. The plan provides funding and direction for local agencies in Southern California to develop local RIFA survey, control, and treatment programs. The plan also includes statewide survey, public outreach, and quarantine enforcement of the infested areas and strengthened surveillance for RIFA at California's border inspection stations.

Almond orchards in the San Joaquin Valley counties are the primary infested sites. In that area, eradication activities are being undertaken by the CDFA.

The CDFA, with the consultation of the SAP, developed survey and treatment protocols. The survey is conducted both visually and by using SPAM bait. Granular bait treatments using a metabolic inhibitor (MI) such as AmdroPro® (hydrmethylnon) and insect growth regulator (IGR) such as Distance® (pyriproxyfen) are the treatment methods of choice for the RIFA.

During 2000, there has been an overall 1,138 percent increase in the number of RIFA treatment locations in Southern California and 58 percent in the Central Valley (Table 6). While continuing surveys have discovered new sites infested with the RIFA, by and large the infestations are within the same generally infested areas. It should be noted that the percent increase in the RIFA treatment locations is primarily due to the finding of new mounds within existing **sites**. New **sites** have been found in Los Angeles (73), Riverside (173), San Bernardino (28), San Diego (6), Fresno (1), Stanislaus (4), and Madera (2) Counties.

Table 6: 1999 Red Imported Fire Ant Information

Southern California				
County	Entity	Treated Sites		Remarks
		January 2000	December 2000	
Los Angeles	County Ag. Dept.	180	253	New infested areas
Orange	Orange Co. Vector Control	350	8,895	Additional infested sites within the infested area
Riverside	Coachella Valley Vector Control	255	759	Additional sites within the infested area
	County Ag. Dept.	16	189	New infested areas
San Bernardino	County Ag. Dept.	7	35	Few additional sites
San Diego	County Ag. Dept.	12	18	Few additional finds
San Joaquin Valley				
Fresno	CDFA	7	8	One additional site
Stanislaus	CDFA	1	5	Four additional sites
Madera	CDFA	0	2	Two new sites
Kern	CDFA	4	4	No change

Africanized Honey Bee Detection Program

The Africanized honeybee (AHB) first migrated into California during 1994, arriving at Blythe, Riverside County. This year, AHB found its way into San Luis Obispo for the first time. The total number of California square miles colonized with AHB is 51,060, an increase of 2,160

square miles from last year. The AHB currently colonizes the entire Counties of Imperial, Riverside, San Diego, San Bernardino, Orange, Los Angeles, Kern, Ventura and portions of San Luis Obispo County.

Diseases Survey

During 2000, no significant plant diseases were discovered through detection activities. The CDFA participated in the National Karnal Bunt Survey where all samples were found negative for this disease. The CDFA also conducts an annual Citrus Canker Survey in the citrus-growing areas. This year's survey results for citrus canker were negative. A plum pox survey was also conducted in *Prunus* sps. greenhouse and growing areas with negative results.

**PLANT HEALTH AND PEST PREVENTION SERVICES
INTEGRATED PEST CONTROL BRANCH**

Hydrilla

Weed and Vertebrate

Weed Management

Biological Control

Curly Top Virus

Pink Bollworm and Other Cotton Pests

Environmental Farming

HYDRILLA

Hydrilla (*Hydrilla verticillata* Royal L. F.) is a noxious aquatic weed. It may grow from the hydrasoil to the water surface and fill the entire water column. Once established, dense biomass of plant material has the ability to replace native aquatic vegetation, destroy fishery habitat, block or impede water delivery systems and ruin the recreational value of natural and man-made water systems.

Hydrilla has been eradicated from various waterbodies in 14 counties (Calaveras, Imperial, Los Angeles, Monterey, Riverside, Santa Barbara, San Bernardino, San Diego, San Francisco, Shasta, Sonoma, Sutter, Tulare and Yuba). Eradication activities continue in eight counties (Calaveras, Lake, Imperial, Madera, Mariposa, Tulare, Shasta and Yuba). Hydrilla eradication program funding and in-kind services are provided by various federal, state and county agencies.

Eradication is primarily achieved through the use of aquatic herbicide in conjunction with physical or mechanical removal. In Imperial County, use of triploids, grass carp, an herbivorous fish, in conjunction with chemical and mechanical control methods have dramatically reduced the infestation. In 1988, approximately 1,000 miles of canal, 72 ponds, 32 private delivery ditches and 12 drains were infested with hydrilla. As of December 31, 2000, only two drains contained hydrilla.

The Lake County hydrilla eradication project continues to be the major component of the Hydrilla Program. Hydrilla was first detected in Clear Lake in August 1994. Clear Lake is a 43,000-acre lake and known as the "Bass Capital of the West." Because of its high recreational use, the potential spread of hydrilla to the rest of California and other western states via boat traffic is extremely high. At the present time, approximately 1,000 acres along the shoreline are under eradication.

Hydrilla eradication activities in the remaining counties continue to progress well. Only scattered plants remain in the waterbodies under treatment. However, the presence of dormant, reproductive structures (tubers and turions) requires continual treatment. For example, in Shasta County, 16 ponds were found infested. Eradication has been achieved in 11 ponds. However, plants germinate from tubers produced before eradication was initiated and continue to be detected and requires treatment.

WEED AND VERTEBRATE

Noxious Weeds

The noxious weed program is a cooperative effort with the county agricultural commissioners. Its primary objectives are the early detection, containment and eradication of noxious weeds given an "A" rating under "Pest Ratings of Noxious Weed Species and Noxious Weed Seed," published by the California Department of Food and Agriculture (CDFA), Division of Plant Health and Pest Prevention Services. The Food and Agricultural Code of California (Division 4, Chapter 1, Article 1, Section 5004) defines a noxious weed as "any species of plant which is, or is liable to be, detrimental or destructive and difficult to control or eradicate." Noxious weeds are rated as either "A", "B" or "C" in California, under the following descriptions based on distribution within the State:

- "A" Eradication, quarantine or other holding action at the state-county level. Quarantine interceptions to be rejected or treated at any point in the State.
- "B" Intensive control or eradication, where feasible, at the county level. Quarantine or other holding action is done at the discretion of the County Agricultural Commissioner.
- "C" Control or eradication, as local conditions warrant, is done at the county level. Quarantine or other holding action is done at the discretion of the County Agricultural Commissioner.

Noxious weed project activities are conducted by eight Department biologists based at five district offices (Fresno, Sacramento, San Jose, Redding and Riverside). The biologists provide information on weed locations and their control activities to a central database project, which maps and tracks their activities. Approximately 7,600 infested acres in California are under eradication or containment. In the 2000 season, as well as managing contracts for weed control carried out by several counties, Department biologists took direct responsibilities in managing approximately 450 infested sites across the State, which together received over 500 visits totaling approximately 5,200 hours of on-site control effort. In addition to chemical, mechanical, or physical control methods, biological control agents are released in a few cases on a select number of noxious weed species.

Twenty-five "A" rated weeds are currently under eradication, control or containment within California. These are:

- 1) Bidly Bidly (BB) - *Acaena anserinifolia*, *A. novae-zelandiae* and *A. pallida*
- 2) Punagrass (PG) - *Achnatherum brachychaetum*
- 3) Camelthorn (CT) - *Alhagi maurorum*
- 4) Alligatorweed (AW) - *Alternanthera philoxeroides*
- 5) Fertile capeweed (FC) - *Arctotheca calendula*
- 6) Plumless Thistle (PT) - *Carduus acanthoides*
- 7) Musk Thistle (MT) - *Carduus nutans* (BC)
- 8) Diffuse knapweed (DKN) - *Centaurea diffusa* (BC)
- 9) Iberian starthistle (IST) - *Centaurea iberica*
- 10) Spotted knapweed (SKN) - *Centaurea maculosa* (BC)
- 11) Squarrose knapweed (SqKN) - *Centaurea squarrosa*
- 12) Skeletonweed (SKW) - *Chondrilla juncea* (BC)
- 13) Yellowspine Thistle (YSPT) - *Cirsium ochrocentrum*
- 14) Wavyleaf Thistle (WT) - *Cirsium undulatum*
- 15) Bearded creeper (BC) - *Crupina vulgaris*
- 16) Dudaim melon (DM) - *Cucumis melo* var. *dudaim*
- 17) Leafy spurge (LS) - *Euphorbia esula*
- 18) Halogeton (HN) - *Halogeton glomeratus*
- 19) Dalmatian toadflax (DTF) - *Linaria genistifolia* spp. *dalmatica*
- 20) Scotch Thistle (ST) - *Monopodium acanthi*
- 21) Illyrian Thistle (IT) - *Monopodium illyricum*
- 22) Taurian Thistle (TT) - *Onopordum tauricum*
- 23) Harmel (HL) - *Peganum harmala*
- 24) Wormleaf salsola (WS) - *Salsola vermiculata*
- 25) Golden Thistle (GT) - *Scolymus hispanicus*

BC = Biological Control

Sixteen weeds have been eradicated from the State, with two eradicated in 2000 (perennial sowthistle (*Sonchus arvensis*) and smooth groundcherry (*Physalis virginiana* var. *sonorae*)). The other eradicated species are: whitestem distaff thistle, dudaim melon, giant dodder, serrate spurge, Russian salttree, blueweed, tanglehead, creeping mesquite, meadowsage, heartleaf nightshade, Austrian peaweed, wild marigold and Syrian beancaper. Other weeds approaching eradication at the statewide level include camelthorn, golden thistle, and Illyrian thistle.

Vertebrate Pest Control

The primary objective of the Vertebrate Pest Control Program is to maintain the Department's nine field-use rodenticide registrations and to administer the Vertebrate Pest Control Research Program. The agricultural community and other stakeholders utilize the Department's rodenticides in order to prevent and control vertebrate pest damage to agricultural commodities, agricultural infrastructure, water control and conveyance structures, and to protect public health and safety. The rodenticide registrations are currently in the United States Environmental Protection Agency's Reregistration Eligibility Decision (RED) process. In order to address issues outlined in the RED, the Vertebrate Pest Control Research Program funded a field study titled, "Anticoagulant Baiting Strategies for the Control of the California Ground Squirrel." The goals of the study are to determine if experimental application strategies will result in satisfactory efficacy while reducing the potential hazard of secondary poisoning to nontarget species.

WEED MANAGEMENT

The mission of this program is to demonstrate the power of local cooperative action in:

1. Eradicating and controlling weeds in an integrated, strategic, and prioritized fashion;
2. Stopping the spread of noxious and invasive weeds on public and private lands; and
3. Educating people at all levels about the need and opportunities to control weeds.

Weed Management Areas (WMAs) are local working groups that bring together interested landowners, land managers (private, city, county, state, and federal), special districts, and the public for the purpose of combining their actions and expertise to deal with their common noxious weed control problems. This organizational concept originated with the Federal government in the Greater Yellowstone region, resulting in increased weed control across the boundaries of three states. This type of collaborative weed control is widely recognized as an ideal way to implement weed management programs locally.

Governor Gray Davis signed legislation (Assembly Bill 1168, Frusetta and Senate Bill 1740, Leslie) providing the CDFA sufficient funding to develop pilot weed management programs (through local WMAs) in several counties. Assembly Bill 1168 (Chapter 961, Statutes of 1999) was adopted in 1999. It established a Noxious Weed Management Account in the CDFA, allocating \$200,000 for each of three years to support work by WMAs. Senate Bill 1740, adopted in 2000, added \$5,000,000 to the Noxious Weed Management Account and extended the time over which funding will be available to WMAs throughout the state.

As a result of AB 1168 and SB 1740 funding, the number of countywide WMAs in California has grown from seven in early 1998, to 39 in 2001; WMAs treated approximately 5,000 acres of yellow starthistle (YST) in the first year, 1999, achieving an average of 70 percent control. These treatments were based on cooperative projects involving over 33 entities, including county agricultural commissioners, the Cattlemen's Association, the California Exotic Pest Plant Council and ranchers to name a few. One of the main benefits to WMAs is the ability to

leverage money from cooperating agencies to support projects that are mutually beneficial. Total in-kind funds for year one and year two of AB 1168 funding came to \$1,801,617. Eighty percent of the projects focus on on-the-ground weed control, 10 percent on inventorying and mapping, and 10 percent on education. Target weeds include YST (*Centaurea solstitialis*), dalmatian toadflax (*Linaria genistifolia*), and tall whitetop (*Lepidium latifolium*).

BIOLOGICAL CONTROL

The primary objective of the Biological Control Program (BCP) is to find, introduce, distribute and evaluate new natural enemies of insect and weed pests in California. The BCP is divided into two working groups: one that deals with insect pests and the second unit works with weed biological control.

Insect Pests

Silverleaf Whitefly: Until recently, the silverleaf whitefly caused widespread damage to a variety of field and vegetable crops in Imperial and San Joaquin Valleys. Over the last five years, new growers in these regions have adopted highly specific insecticides. These insecticides, along with changes in cultural practices and the introduction of new parasites, have greatly reduced the problem. To date, six different species of exotic Aphelinidae parasites (*Encarsia* and *Eretmocerus*) have been reared and released by the BCP in conjunction with United States Department of Agriculture (USDA)-Animal and Plant Health Inspection Service and County Agricultural Commissioners in the Imperial and San Joaquin Valleys. Crops receiving these parasites included melons, cotton and a variety of cole crops. The last releases of exotic parasites were in the summer of 2000. Post-release monitoring showed that at least two species of exotic parasites are persisting and spreading in both the Imperial and San Joaquin Valleys.

Glassy-winged sharpshooter: A major effort was initiated in 2000 to import and establish new, exotic parasites of the glassy-winged sharpshooter. The first exotic egg parasite was released in summer 2000. In order to produce the quantities needed for statewide distribution, most of staff time was spent finding adequate greenhouse space in a timely fashion. Two rearing operations have been identified, one in the Riverside area and a second in Bakersfield. The CDFA is currently negotiating conditions under which these complexes can be leased or bought. Foreign exploration continues, as does research into rearing technology and efficacy of new natural enemies.

Western tarnished plant bug (*Lygus Hesperus*): *Lygus* is a serious pest to cotton, strawberries, and most other seed crops in California. The pest lacks nymphal parasites. The USDA, Agricultural Research Service (ARS) successfully imported a nymphal parasite into the east coast of the United States that was collected from a related *Lygus* sp.; infesting alfalfa in Europe. Reductions in levels of *Lygus* infesting alfalfa from Delaware north to New York are attributed to the introduction of this parasite. The BCP has spent the last three years importing and releasing similar parasites into Central California. Over 20,000 were reared and released at five locations last summer. Parasites have successfully overwintered at one site and have been recovered within the same season of release at two other sites. Two new strains and one new species will be released in the summer of 2001. Cotton Incorporated and the California Cotton Pest Control Board have funded part of this work.

Red Gum Lerp Psyllid: The BCP will initiate a parasite-rearing program to support efforts by Dr. Donald Dahlsten of the University of California (UC) Berkeley to establish new, exotic parasites recently imported from Australia. He has 17 experimental release sites. The BCP will use the same culture for statewide release.

Olive Fruit Fly: The olive fruit fly is specific to olives and recently invaded Southern California. Its rapid spread precluded an eradication effort. Foreign exploration for parasites from the pest's native home was initiated last year. The European Biological Control Laboratory USDA, ARS will be exploring areas of eastern and southern Africa. A culture of one known parasite of olive fruit fly was brought to the attention of the BCP. Dr. Russell Messing of the University of Hawaii produced 4,000 adults in 1999 and 2000, which were shipped to and released into Southern California.

Cotton Aphid: In an attempt to enhance biological control, a critical management tactic for cotton aphid, a cooperative project involving the BCP, USDA, ARS and UC Cooperative Extension was initiated in 1996. The long-term goal of this project is to reduce densities of the cotton aphid by constructing a natural enemy complex that has more species richness than currently exists in the San Joaquin Valley. After extensive field-testing of four natural enemies at Shafter Research and Extension Center, two parasites (*Aphelinus* near *paramali* and *Aphelinus gossypii* Timberlake), were deemed appropriate for more wide-scale release. During 2000, 10 parasite nurseries were established in the San Joaquin Valley and releases of the parasites were made. Maintenance of the parasite nurseries will continue, and other natural enemies will be tested for inclusion in the introduced parasite complex. Additional studies were also done that demonstrated that the two introduced parasites would move up to a quarter mile in search of hosts and would attack cotton aphid in a variety of habitats.

Vine mealybug: The vine mealybug is a serious pest of table grapes throughout the Coachella Valley and in southern parts of the San Joaquin Valley. This insect does direct damage to the clusters and developing berries. For the past five years, a cooperative project among the BCP, UC Cooperative Extension and UC Riverside has been underway in an attempt to elucidate the life history of the vine mealybug and establish and evaluate biological controls for this insect. In the studies conducted last year, more information was gathered on the seasonal dynamics of the vine mealybug and evidence was found for the establishment of at least one introduced parasite in the Coachella Valley.

Weed Pests

Yellow starthistle: Yellow starthistle (YST), *Centaurea solstitialis* L., is an annual Eurasian weed, which currently infests over 10 million acres in California. Its importance as a weed pest arises from its interference with agricultural productivity, particularly in rangeland, and its implication in a physiological chewing disorder in horses. Scientists (from the USDA, ARS Biological Control of Weeds Laboratory located in Albany, California, in cooperation with the CDFA scientists) have released five natural enemies against YST. These natural enemies comprise two tephritid flies [*Urophora sirunaseva* (Hering) and *Chaetorellia australis* (Hering)] and three weevils [*Bangasternus orientalis* (Capiomont), *Eustenopus villosus* (Boheman), and *Larinus curtis*]. The gall fly (*U. sirunaseva*), the bud weevil (*B. orientalis*), and the hairy weevil (*E. villosus*) have become well established and are actively distributed statewide through workshops offered by the BCP.

The role of indigenous seedling diseases occurring on YST in California was investigated. Several soil-born pathogens were identified: *Colletotrichum gloeosporioides*, *Sclerotinia minor*, and *Ascochyta* n. species. All three appear to cause locally high rates of mortality, sometimes exceeding 50 percent of recruited plants.

Squarrose Knapweed: In addition to YST biocontrol agent releases, natural enemies were released on six weed species: squarrose knapweed, diffuse knapweed, spotted knapweed, purple loosestrife, Klamath weed, and puncturevine. Of special importance is the release of two insects for control of squarrose knapweed. In cooperation with the Montana State University and the Oregon Department of Agriculture, seedhead-feeding weevils, *Bangasternus fausti* and *Larinus minutus*, have been obtained and released in selected Northern California sites. Follow-up monitoring was encouraging as over 90 percent of seedheads were attacked at one release site in Shasta County.

Spotted Knapweed: Six biological control insects were released on spotted knapweed at one site in Shasta County: the gall flies, *Urophora quadrifasciata*, and *U. affinis*; the seedhead fly, *Terellia virens*; the seed head weevil, *Larinus minutus*; the root-feeding moth, *Agapeta zoegana*; and the root-boring weevil, *Cyphocleonus achates*. The root-feeding insects have not fared well. Despite repeated release efforts, *A. zoegana* has not established. Adult moths are extremely rare and larval numbers have plummeted following the initial population surge in 1997. Field samples in late 1999 and 2000 failed to include plants damaged by this insect. The weevil, *C. achates*, now appears to be established, but occurs at a low infestation level of about 10 percent. The gall fly, *U. quadrifasciata*, likely migrated to the site prior to 1995. Adults of the first generation are highly visible in the field but the seedhead weevils easily consume larvae and limits final infestation levels which range from six percent to 32 percent annually. The gall fly, *U. affinis*, is still increasing in abundance, but the weevils, limiting the size of the overwintering population, consume even its hard galls. The infestation level was estimated at 37 percent in 1999. The seedhead fly, *T. virens*, has remained at a low level (less than five percent) for several years and is hard to locate in the field. The weevil, *L. minutus*, is well established at this site. Adults are visible during most of the flowering season. Larvae appear to have a significant impact within infested seed heads, and most reach maturity, successfully producing visible exit holes. The infestation level in 2000 was over 50 percent.

Diffuse Knapweed: Two gall flies on diffuse knapweed, *Urophora quadrifasciata* and *Urophora affinis*, are established at several sites in Trinity County. In addition, the seedhead weevils, *Bangasternus fausti*, and *Larinus minutus* are well established. The root-boring beetle, *Sphenoptera jugoslavica* is established and occurs in high numbers (over 70 percent of the plants attacked).

Purple loosestrife: Purple loosestrife, *Lythrum salicariae*, a serious invasive weed of wetlands in the northern United States, is limited to relatively small acreages in Northern California, although the number of reported sites has approximately doubled during the 1990's. In 1999, approximately 3,100 *Galerucella californiensis* and *G. pusilla* beetles were released at six sites in Shasta (two sites), Butte (three sites) and Kern (one site) counties and approximately 200 *Hylobius transversovittatus* were released at two sites in Shasta and Butte counties. All beetles were obtained from Basket Slough Wildlife Refuge near Salem, Oregon and collected in cooperation with the Oregon Department of Agriculture and the United States Fish and Wildlife Service.

Pink Hibiscus Mealybug: The goal of this program is to develop and implement a biologically-based sustainable approach to suppression and control of populations of Pink Hibiscus

Mealybug (PHM), *Maconellicoccus hirsutus*, in Imperial County. To accomplish this, a cooperative PHM management area has been formed, comprised of representatives from the USDA, APHIS and ARS, the University of California, the CDFA and the Imperial County Agricultural Commissioner. In addition, a close line of communication with neighboring Mexico is facilitated by the attendance of Mexican officials from *Programa de Sanidad Vegetal* (SAGAR) and *Instituto Nacional de Investigaciones Forestales Y Agropecuarias* (INIFAP) at all workshops and at each quarterly meeting. Staff from the Arizona Department of Agriculture attends quarterly meetings.

The primary topics addressed during the development and implementation of this PHM management program include an extensive and intensive survey to understand the extent of the infestation and the state of its progressive spread, classical biological control (including: local production, release and monitoring of exotic biocontrol agents) to achieve complete control or reduce PHM impact until other management tools become available, and an assessment of new generation and several existing pesticide products with an emphasis on finding effective products that have reduced negative impact on beneficial species. In addition, studies are ongoing related to host plant preference, suitability, etc.

The PHM, *Maconellicoccus hirsutus* (Green), is native within the area encompassing Southeast Asia and nearby Australia. Its host range is very large, exceeding over 200 plant species, many of which are important in agriculture and as ornamentals. During the early part of the twentieth century, its range extended into Central Asia and Egypt. In Egypt, it was a very significant pest of several common plant species, including cotton. Initially, a predatory beetle species (*Cryptolaemus montrouzieri*) was reared and introduced in large numbers. This provided some short-term relief, however, it was not until several parasite species were introduced that high levels of control were sustained. The PHM appeared first in the Western Hemisphere in Hawaii in 1984, and in the Caribbean Island of Grenada and neighboring islands in 1994. In subsequent years, it spread to over 25 island countries and in 1999, it was found in Imperial County, California, the United States of America (USA) and the Central American country of Belize. In 2000, it has extended into the Bahamas and northern South America.

In 1996, the USDA-APHIS initiated an "Offshore Biological Control Program" to protect our borders from this pest. This project utilized two parasite species that were reared in insectaries in St. Thomas, USA Virgin Islands and in San Juan, Puerto Rico. Parasites were distributed to islands throughout the Caribbean as they became colonized by the PHM. The PHM was found in Imperial Valley, California during August of 1999. The USDA held several workshops which the CDFA and county employees attended, followed by the release of parasites in September 1999 as a rapid response to the newly-found PHM infestation. The colonization by one species, *Anagyrus kamali*, was soon observed. Preparations were then made to setup an insectary facility in El Centro, California so that large numbers of *A. kamali* and *Gyranusoidea indica* could be released during the summer of 2000. The intent of this effort was to greatly accelerate the establishment of these biocontrol agents and slow the spread of PHM.

CURLY TOP VIRUS

The Curly Top Virus (CTV) is an extremely serious plant virus affecting several hundred varieties of ornamental and commercial crops in California. The only known vector of this virus is the sugar beet leafhopper, *Circulifer tenellus* (Baker).

The CTV is highly destructive to commercially-produced sugar beets, tomatoes, peppers, cucumbers, muskmelons, watermelon, squash, pumpkins, green and dry beans, spinach and varieties of vine seed. Because of the threat to commercial crops, the growers of susceptible crops contribute 100 percent of the funds necessary to control the CTV in California. The CTV also infects backyard gardens upon which many people in California depend to provide fresh table vegetables.

The Curly Top Virus Control Program (CTVCP) utilizes intensive surveys to locate and monitor beet leafhopper (BLH) populations throughout the year. Once the populations are located, they are evaluated as to the amount of virus, potential for migration to susceptible crops in the area, and feasibility of control versus natural mortality due to parasites, predators or weather trends affecting host plants.

The general pest control strategy developed by the CTVCP is to:

1. Reduce the potential number of overwintering female BLHs through the use of insecticide on selective Russian thistle strands in the early fall;
2. Further reduce surviving gravid overwintering BLH females, prior to egg deposition, once they have concentrated on winter host plants; and
3. Selectively treat areas of habitat where a spring population of BLH has developed preventing migration to crops during late spring and early summer.

The goals of the CTVCP for 2000 were:

- Monitor and selectively suppress overwintering female BLH populations on winter host plants prior to egg deposition;
- Locate, monitor and selectively suppress the spring hatch of BLH to maturation and migration into susceptible crops;
- Assess the Program's success by surveying susceptible crops for CTV;
- Map all Russian thistle acreage and suppress high BLH populations prior to dispersal to overwintering areas; and
- Continue to support and solicit research that will improve control including the pursuit of identifying biological control agents that would enable the Program to use less insecticide while maintaining CTV damage below economic levels.

Biological Control of the Beet Leafhopper

A total of 17,080 parasites were released between February and October 2000 for a total of 97,661 egg parasites released since 1996.

Recovery attempts resulted in the collection of a *Polynema* species from several of the release locations of Coalinga, Hemet and Riverside. Insects resembling *A. turanica* were also collected from Coalinga. The identity of the collected insects remains to be confirmed. Of the nine imported species of BLH egg parasites released, only a few individuals are being recovered using both Vegetative Sampling and Host Exposure. The majority of the recovered egg

parasites are indigenous. Since the Program is not seeing a classical biological control from imported parasites impacting the BLH population, a change to investigating the rearing and augmentative release of indigenous egg parasite species is being considered.

PINK BOLLWORM AND OTHER COTTON PESTS

A grand total of 919,000 acres of cotton was mapped in California during 2000. Southern California cotton acreage totaled 21,320 acres. The four cotton-growing counties of Northern California's Sacramento Valley had a total of 18,000 acres. Pink Bollworm (PBW) Program personnel mapped 879,680 acres of cotton in six counties of the San Joaquin (SJ) Valley. This acreage is up from 1999. Pima cotton plantings in 2000 amounted to 144,275 acres.

General trapping activities (one trap per 60 acres) began in June. The total number of traps deployed during the peak of the season was 14,496. Traps are inspected weekly through October 24 and are removed by October 31.

The Pink Bollworm Identification Laboratory in Visalia examined 48,299 traps containing suspect moths submitted by trappers. Totals of 1,162,661 sterile moths and 154 native moths were identified in these SJ Valley traps. Production of sterile moths at the Pink Bollworm Rearing Facility in Phoenix was very consistent.

Silverleaf Whitefly Monitoring Program

The PBW Program staff continued to monitor silverleaf whitefly (SLWF) populations in all cotton growing areas of the SJ Valley. The SLWF populations in Kern County were generally higher and more widespread than in previous years, and based on sample sites, Kern County is considered generally infested. Kings and Tulare Counties also showed an increase in percentage of infested sites, rising to 80 percent and 100 percent, respectively. Fresno, Madera, and Merced Counties continue to have a low percentage of sample sites infested and those sites that are positive for SLWF are very lightly infested. SLWF infested sites generally increased by comparison to 1999 infestation levels.

Cotton Bollweevil

Since November 19, 1990, no boll weevils (*Anthonomus grandis*) have been trapped in California. The declaration of eradication of boll weevil was issued December 1993. Program efforts continue to help keep the State free of boll weevil. Traps are deployed in Southern California cotton-growing areas to monitor any post eradication boll weevil activity. These monitoring activities are coordinated with the Southwestern Boll Weevil Eradication Program.

ENVIRONMENTAL FARMING

The CDFA's Environmental Farming Program was established as a result of legislation that reformed the California Endangered Species Act in 1998. The CDFA was required to participate with the Department of Fish and Game to encourage the creation and enhancement of wildlife habitat on agricultural land that protects participants from statutory prohibitions against the "taking" of endangered or threatened species.

The CDFA is currently engaged in the second round of negotiations to promulgate a set of regulations that will be acceptable to all stakeholders. It is anticipated that the new regulations

will be approved and adopted into law by the fall of 2001. At that time, stakeholders will be actively recruited for participation in the program.

PLANT HEALTH AND PEST PREVENTION SERVICES

P L A N T P E S T D I A G N O S T I C S B R A N C H

MISSION, VISION AND ROLE

The mission of the Plant Pest Diagnostics Branch is to serve as an official scientific resource, providing timely and accurate plant pest diagnostics, quality control services, and professional expertise to our clients. The Branch's vision is continual enhancement of its professional expertise as an internationally recognized service and research center committed to meeting future plant pest challenges and client needs.

The Branch's primary role is technical support of the California Department of Food and Agriculture's efforts to prevent the introduction and spread of injurious plant pests and weeds in the State. Successful pest prevention averts the harm that exotic and important pests can cause to agriculture, the state's economy and its environment. Diagnostics performed by the Branch in support of the issuance of federal phytosanitary certificates helps to ensure the export marketability of California's agricultural commodities.

ORGANIZATION

The Plant Pest Diagnostics Branch consists of five laboratories: Insect Biosystematics; Nematology; Plant Systematics; Plant Pathology; and Seed Taxonomy, Purity and Germination. Resources include electron microscopes and other laboratory equipment, reference libraries, greenhouses, and scientific collections representing the discipline of each laboratory. The Branch is housed in the Henry J. Voss Plant Pest Diagnostics Center, a state-of-the-art laboratory facility located at the Department's Meadowview complex.

The scientific collections include the State Collection of Arthropods consisting of more than one million specimens, a seed herbarium of 50,000 specimens, a plant herbarium of about 30,000 specimens, a plant disease and mycological herbarium, and nematology specimens. There is a reference library with more than 28,000 scientific volumes. Researchers from around the world representing museums, universities, the private sector, and every level of government have access to the Branch's reference and research materials.

STAFF

A branch chief administers the Branch. The branch chief and a program supervisor provide organizational and management leadership and oversight for the professional scientists. Four supervising scientists direct the work of the individual laboratories. The staff consists of 39 permanent full-time employees, including 23 professional scientists, 12 technicians, an Associate Information Systems Analyst, a librarian, and two administrative support staff. The professional scientists are internationally-recognized experts in their fields and have authored many scientific publications. Of the 39 authorized permanent full-time positions, two professional scientist and three technical support staff positions are now vacant. These positions will be filled as soon as approvals are obtained and hiring lists are developed.

BUDGET

The Branch's 2000/01 Budget is approximately \$3,802,000. Ninety percent of the budget consists of state General Fund appropriations. The remaining 10 percent is received in fees and cost recovery assessments.

LONG RANGE PLANNING

The Branch is working to implement goals set in its strategic plan for improvement of its service, scientific advancement, and organizational coherence. The Branch's strategy for excellence and innovation in diagnostics, scientific consultation, training, and accreditation includes:

- Management for excellent quality in every aspect of service;
- Maintenance of core competencies consistent with strategic plan and client needs;
- Keeping abreast of scientific advances and applications;
- Annual planning to identify and address internal weaknesses and external threats; and
- Maintenance of a coherent organization, committed to professional integrity, and cooperation.

CONTEMPORARY AND SCIENTIFIC PUBLICATIONS (Not An Exhaustive List)

- R. Gill . California Plant Pest & Disease Report (quarterly)
. The Scale Insects of California, Part 1: Soft Scales
. The Scale Insects of California, Part 2: Minor Families
. The Scale Insects of California, Part 3: Armored Scales
- T. Eichlin . T. Eichlin, et al "Noctuid Search Program" (1999 Web based production)
- F. Hrusa . Pest Ratings of Noxious Weed Species (Annual)
. "Noteworthy Collections; *Ononis alopecuroides* (new to NA), *Boehmeria cylindrica* (new to California), and *Eryngium constancei* (new to Sonoma County" Madrono 47:138-139. 2000.
. Online Occurrence Database for Native and Naturalized California Plant Taxa, at "CalFlora Occurrence Database" at <http://elib.cs.berkeley.edu/calflora/occ/> (Ongoing)
. CalFlora-California Plant Synonymy Table (XWALK); Online queryable database of synonyms to native and naturalized California Plant taxa at <http://elib.cs.berkeley.edu/calflora/xwalk/>
- D. Mayhew . Index of Plant Viruses, Mycoplasmas, and Viroids in California (annual)
. "Plant Virology Web Page" (Web based production)
. R. R. Urs, D. E. Mayhew, P. D. Roberts. 1999. Hypovirulence in *Didymella bryoniae* associated with dsRNA. Phytopathology: S29. Abstr.

- Contributing author: Compendium of Diseases of the Umbelliferae.
R.M. Davis, et al, eds. 2001. APS Press, St. Paul, MN. (In preparation)
- T. Seeno . Chrysomela (Ongoing)
- Tidwell, T.E. . Index of Phanerogamic Parasites of California, Part I. CPPDR 15:
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- . Adams, David, Frankel, Susan, and Tidwell, Timothy. 1998. Chronicle of
Pitch Canker in California.
- . Index of Diseases & Microorganisms Associated with Eucalyptus in
California. 1990
- . Index of Diseases & Microorganisms Associated with California Oak
Trees. 1986
- T. Matsumoto* . Laboratory Guide to Smut Fungi (1989)
- Alex French* . California Plant Disease Host Index (1989)

*Deceased

2000 CALENDAR YEAR OUTPUT

Insect Biosystematics	32,951 insect identifications (More than 120,000 insect specimens examined)
Nematology	4,245 samples examined and logged. (Data incomplete due to incomplete data entry and lack of record keeping on non-official samples.)
Plant Systematics	1,800 plant and damage record submissions (More than 2,500 identifications of miscellaneous origins)
Plant Pathology	90,357 samples processed (Includes 47,026 plum pox and 947 seed pathology tests)
Seed	5,292 samples processed 7,518 tests performed 26,065 identifications