

# The Measure of California Agriculture

## CHAPTER 4

### University of California Agricultural Issues Center

#### Marketing, Trade, Policy and Risk Management

- 4-3.....Cooperatives
- 4-7.....Marketing channels
- 4-9.....International exports
- 4-14.....Exotic pests and diseases
- 4-20.....Government support
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California farmers market their commodities in many ways. Some sell directly to the consumer while others sell to shippers, handlers, processors or retailers. Cooperatives also play a role in bargaining, marketing and processing many commodities. About 21 percent of the state's agricultural production is exported, mainly to the European Union, Canada and East Asia. In addition, many agricultural products are shipped into California from other U.S. states and countries. Concerns about the spread of non-native agricultural pests and diseases follow naturally from interaction with other regions, through trade or travel or even migration of wildlife. These concerns have led to government programs to enforce border controls and other measures to reduce potential losses from these threats. Government also provides other support to agriculture; such support includes direct farm subsidies and other public services as well as assistance to deal with financial and other risks inherent in agriculture.

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## Cooperatives

Cooperatives are owned and operated by the farmers who use them for their mutual benefit. They are created to strengthen bargaining power, manage risk, reduce costs, purchase inputs, market products, and more. Membership of the nation's farmers in cooperatives also has consistently declined over the past 40 years, as has been the situation in California, with the exception of an increase reported in 1991. In 2001, 49,553 California members accounted for 1.6 percent of the total memberships in U.S. agricultural cooperatives (Table 4.1). The number of farmer-owned cooperatives, some headquartered in California has gradually declined since the 1950s. Many California producers are members of cooperatives headquartered in other states. In 2002, 164 marketing, service and farm supply cooperatives were headquartered in California (Table 4.2).

Net business revenue for California's farm cooperatives declined by 15 percent between 1995 and 2001 according to USDA Rural Business Cooperative Service. When adjusted for inflation (to year-2000 dollars) the decline is 23 percent. This decline in the net business revenue of California-based cooperatives understates the importance of national cooperatives to California producers, especially dairy cooperatives. This is because many California farmers are members of cooperatives in other states. Over the same 6 year period from 1995 to 2001, inflation-adjusted net business revenue for all agricultural cooperatives in the United States declined by 1 percent.

TABLE 4.1

### Memberships in farmer cooperatives, California and United States, 1965-2002<sup>a</sup>

Memberships held by farmers in		
Year	California <sup>b</sup>	United States <sup>b</sup>
1965	89,720	6,826,275
1975	85,285	5,906,379
1985	70,958	4,783,319
1989	64,462	4,133,542
1991	70,538	4,058,570
1993	65,485	4,023,264
1995	59,551	3,767,295
1997	56,715	3,424,168
1999	53,604	3,173,323
2001	49,553	3,033,907
2002	n.a.	2,793,550

<sup>a</sup> Includes marketing, farm supply, and related service cooperatives.

<sup>b</sup> Voting members. Includes membership in out-of-state cooperatives.

n.a. = Not available.

Sources: USDA National Agricultural Statistics Service, *Agricultural Statistics*, various years.

TABLE 4.2  
Location and revenue of farmer cooperatives, California and United States,  
1965-2002<sup>a</sup>

Year	Headquartered in		Net Business Revenue <sup>b</sup>	
	California	U.S.	Calif. headquartered	All U.S. cooperatives
	Number of Cooperatives		\$1,000 (in year-2000 dollars)	
1965	356	8,329	7,983,182	69,263,409
1975	277	7,535	10,321,675	105,392,109
1985	233	5,625	8,277,559	94,100,286
1989	202	4,799	9,481,162	91,816,611
1991	194	4,494	9,490,824	90,754,653
1993	200	4,244	9,446,879	93,767,303
1995	190	4,006	9,652,945	101,858,688
1997	185	3,791	9,546,538	111,798,293
1999	183	3,466	7,993,974	101,222,307
2001	171	3,229	7,395,257	100,849,154
2002	164	3,140	n.a.	92,861,742

<sup>a</sup> Includes marketing, farm supply, and related service cooperatives.

<sup>b</sup> The value at the first level at which cooperatives transact business for farmers. Excludes operational expenses and farm supplies to out-of-state destinations, if any.

n.a. = Not available.

Sources: USDA National Agricultural Statistics Service, *Agricultural Statistics*, various years; Price Index: Bureau of Economic Analysis

Marketing cooperatives accounted for most of the California membership in 2001, and most of the revenue of cooperatives headquartered in California. They account for 60 percent of the California farm cooperatives and 90 percent of the net business revenue of cooperatives headquartered in the state. Sixty-three percent of California farm cooperative members belong to marketing cooperatives throughout the United States, including California. More than two-thirds of the California marketing cooperatives deal with fruits, vegetables, tree nuts and dairy products (Table 4.3). These 72 cooperatives account for 80 percent of the total net business revenue of California agricultural cooperatives in 2001 (Figure 4.1).

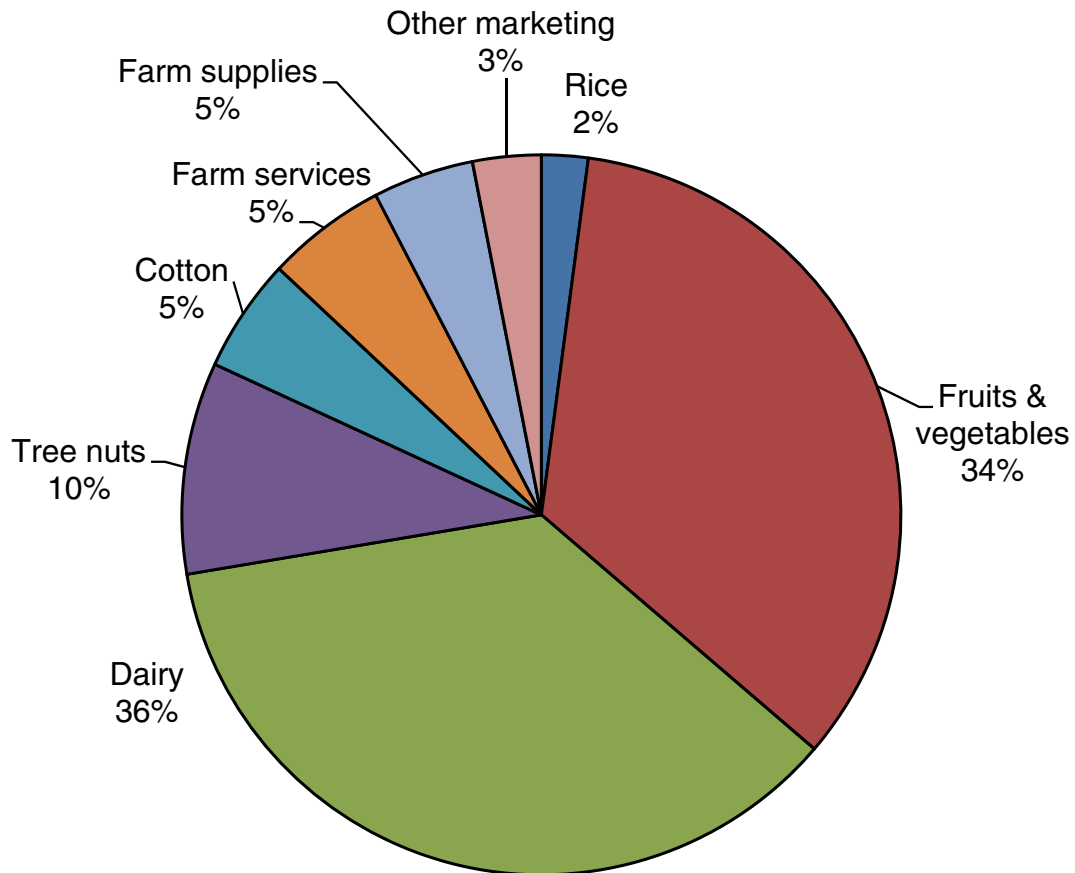
TABLE 4.3  
Types of farmer cooperatives, California and United States, 2001

Type and commodity	Headquartered in		Membership in U.S. cooperatives by	
	California	U.S.	California farmers <sup>a</sup>	All U.S. Farmers <sup>a</sup>
<b>Marketing</b>				
Fruits & vegetables	59	220	16,629	37,782
Other	17	1,107	4,277	909,385
Dairy	6	204	1,438	91,033
Nuts	7	18	5,648	40,075
Rice	4	15	1,034	13,924
Beans & peas, dry edible	3	9	673	2,734
Cotton	3	14	1,317	45,946
Poultry	4	19	78	19,121
<b>Total marketing cooperatives</b>	<b>103</b>	<b>1,606</b>	<b>31,094</b>	<b>1,160,000</b>
Service cooperatives	48	389	3,887	128,136
Farm supply cooperatives	20	1,234	14,572	1,745,771
<b>Total cooperatives</b>	<b>171</b>	<b>3,229</b>	<b>49,553</b>	<b>3,033,907</b>

Source: USDA Rural Business-Cooperative Service, Cooperative Programs Current Data, State Data 1993-2002.  
<http://www.rurdev.usda.gov/rbs/coops/data.htm>

<sup>a</sup> Voting members. Includes membership in out-of-state cooperatives.

FIGURE 4.1  
California Farmer Cooperatives by Share of Net Business Revenue, 2001<sup>a</sup>



Source: USDA Rural Business-Cooperative Service, Farmer Cooperative Statistics, 2001.  
<http://www.rurdev.usda.gov/rbs/coops/data.htm>

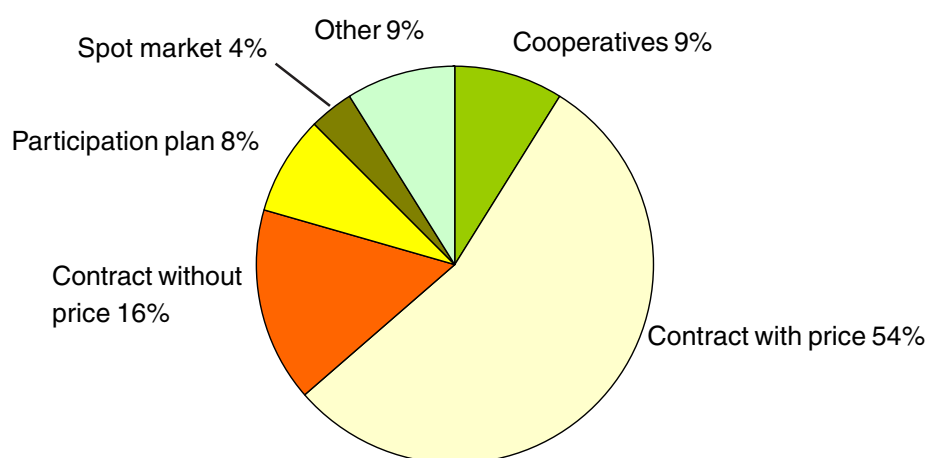
<sup>a</sup> Dairy, fruits and vegetables, tree nuts and cotton are marketing cooperatives.

## Marketing channels

In the spring of 2002, the Risk Management Agency of the United States Department of Agriculture, the California Office of the National Statistics Service, and the Department of Agricultural and Resource Economics at the University of California administered a comprehensive survey of California's horticulture producers.

The information in this section is based on the survey results representing more than one-third of California's specialty crop producers. Specialty crops also referred to as horticultural crops account for nearly 60 percent of the total farm revenue for the state. The high share of receipts from specialty crops illustrates one major difference between agriculture in California and most of the rest of the United States. California agriculture is far more tied to fruits, vegetables, tree nuts and ornamental crops than is agriculture in most other states, where grains and livestock tend to dominate receipts.

FIGURE 4.2  
Vegetable crop marketing channels, 2002



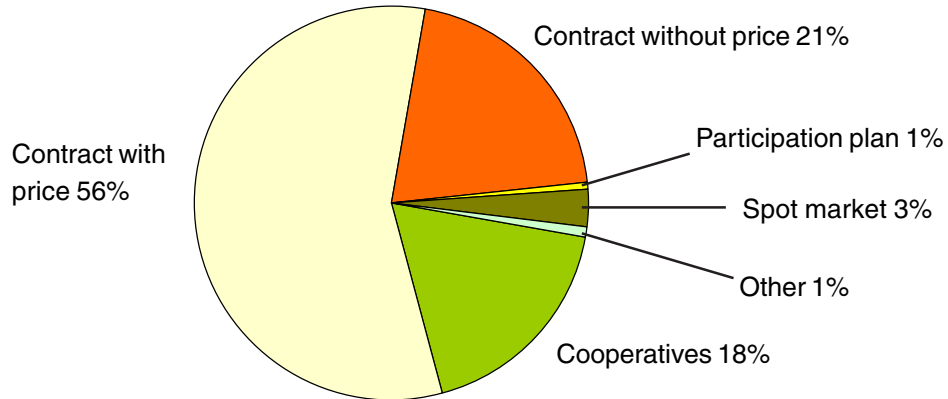
Source: Lee, Hyunok and Steven C. Blank. *A Statistical Profile of Horticultural Crop Farm Industries in California*. University of California Giannini Foundation of Agricultural Economics, 2004. [http://giannini.ucop.edu/ResearchReports/Lee\\_Blankbook.pdf](http://giannini.ucop.edu/ResearchReports/Lee_Blankbook.pdf)

California leads the nation in the use of marketing contracts. Seventy percent of the vegetable crop producers surveyed market their crops under contract. The majority, 54 percent of all producers, market their production with a contract with a predetermined price. Only 4 percent market in a spot market (Figure 4.2).

Seventy-six percent of California grapes are marketed under contracts and 18 percent through a cooperative. Contracts with predetermined prices cover the marketing of 56 percent of all grapes, while 21 percent market under contracts without price (Figure 4.3).

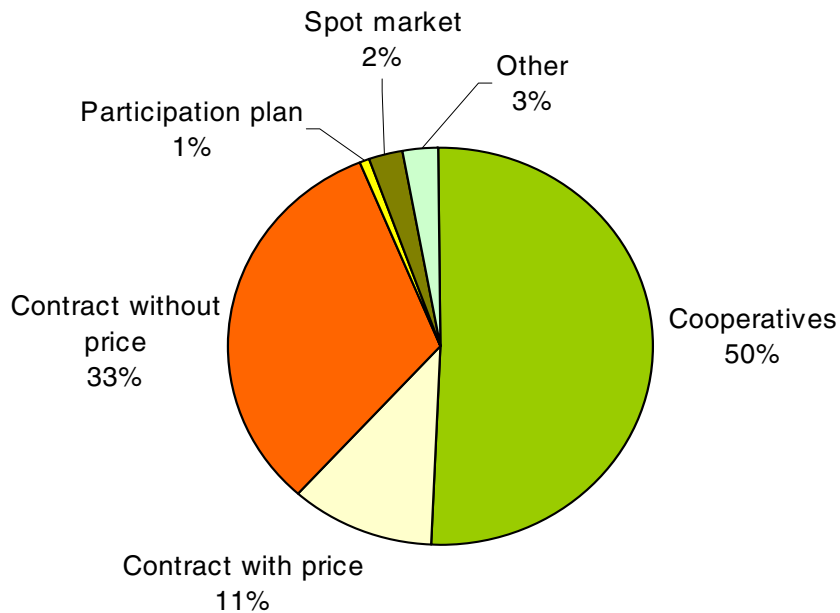
With nuts, 50 percent is moved through cooperatives while 44 percent is under a contract—33 percent of the nuts marketed are under contract without a predetermined price. Only 11 percent of the nuts are marketed under contracts with a predetermined price (Figure 4.4).

FIGURE 4.3  
Grape marketing channels, 2002



Source: Lee, Hyunok and Steven C. Blank. *A Statistical Profile of Horticultural Crop Farm Industries in California*. University of California Giannini Foundation of Agricultural Economics, 2004. [http://giannini.ucop.edu/ResearchReports/Lee\\_Blankbook.pdf](http://giannini.ucop.edu/ResearchReports/Lee_Blankbook.pdf)

FIGURE 4.4  
Tree nut marketing channels, 2002

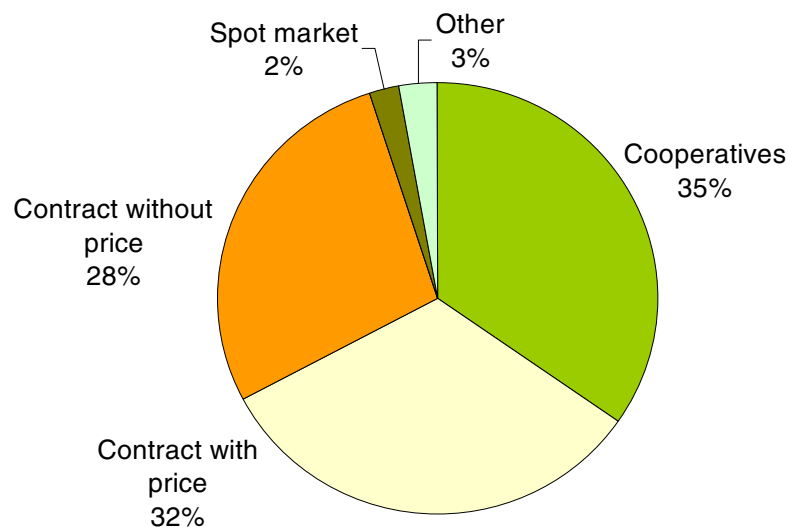


Source: Lee, Hyunok and Steven C. Blank. *A Statistical Profile of Horticultural Crop Farm Industries in California*. University of California Giannini Foundation of Agricultural Economics, 2004. [http://giannini.ucop.edu/ResearchReports/Lee\\_Blankbook.pdf](http://giannini.ucop.edu/ResearchReports/Lee_Blankbook.pdf)



FIGURE 4.5

## Marketing channels for fruits and tree crops other than nuts and grapes, 2002



Source: Lee, Hyunok and Steven C. Blank. *A Statistical Profile of Horticultural Crop Farm Industries in California*. University of California Giannini Foundation of Agricultural Economics, 2004. [http://giannini.ucop.edu/ResearchReports/Lee\\_Blankbook.pdf](http://giannini.ucop.edu/ResearchReports/Lee_Blankbook.pdf)

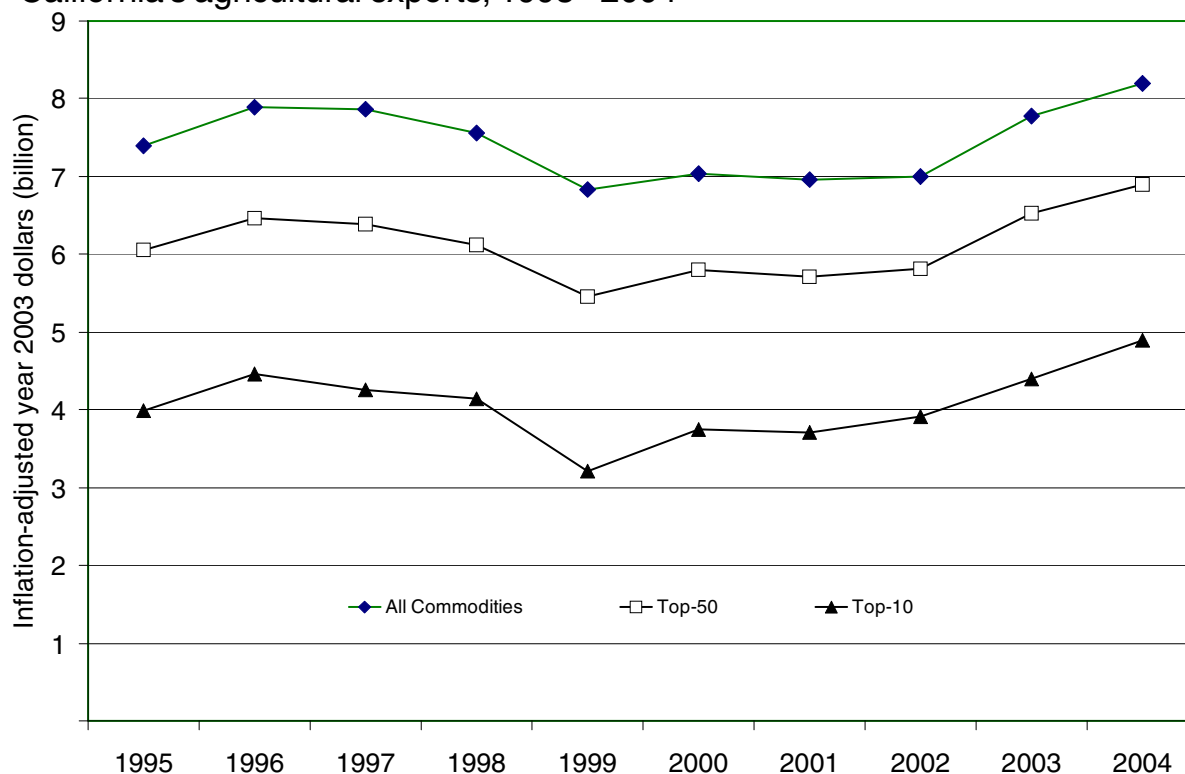
As with grapes and vegetables, the majority of fruit (60%) are marketed under contracts. Three marketing channels share almost even amounts of the volume: cooperatives, 35 percent; under contract with a predetermined price, 32 percent; and under contract without a predetermined price, 28 percent (Figure 4.5).

## International exports

California is integrated in national and global markets, and international exports are an important part of its agribusiness. California agricultural exports surpassed \$8 billion in 2004, after increasing for a second consecutive year. California agricultural exports decreased in the late 1990s, remained relatively stable in the early part of the 21st century, and increased in 2003 and 2004 (Figure 4.6).

California's agricultural exports have accounted for about 12 to 13 percent of total U.S. agricultural export value. However, for several major commodities, California accounted for 100 percent of U.S. exports. These include exports of raisins, dried plums, olives, dates, kiwis, figs, almonds, walnuts, pistachios, garlic and artichokes. In addition, California accounts for more than 90 percent of U.S. exports of wine, table grapes, plums, apricots, broccoli and celery. In value terms, the share of the state's agricultural production exported to foreign countries increased from 18 percent in 2002 to 26 percent in 2004.

FIGURE 4.6  
California's agricultural exports, 1995 - 2004



Source: AIC Issues Brief No. 30, 2005. <http://www.aic.ucdavis.edu/oa/briefs.html>

Almonds have been the leading export crop for California since 1999, and more than doubled in value between 2001 and 2004, increasing from \$685.6 million to \$1.3 billion. In 2004, the value of wine exports surpassed that of cotton when wine exports increased by 24 percent from the previous year and cotton exports fell by 7 percent. Behind almonds, wine and cotton, the fourth and fifth highest valued export commodities were table grapes and dairy products. Oranges, rice, processing tomatoes, walnuts and strawberries rounded out the top 10 export commodities for California in 2004 (Table 4.4). Notably, the value of beef and beef products for 2004 is much lower than that of preceding years as a result of trade restrictions following the discovery of BSE in the United States. In 2003, beef and beef products ranked ninth.

By value (Figure 4.7), fruits comprise the largest segment of California exports, accounting for 23 percent of the total. Tree nuts, led by almond exports, account for 22 percent. Fruits, vegetables, and tree nuts combined make up more than half of all California agricultural exports.

California exports agricultural products to almost 150 countries. Based on the Agricultural Issues Center's data for 43 major commodities, the 10 principal destinations account for 84 percent of all export value. The main four destinations—the European Union, Canada, Japan, and Mexico—account for approximately two-thirds of the total (Table 4.5). Canada had been the major market for California products for several years, but in 2003 the European Union became the top destination. The European Union is a major market for California wine and nuts, while the Canadian market is the top destination for vegetables, fruits, and flowers and nursery products.

TABLE 4.4  
California agricultural commodity export values and rankings, 2003-2004

Rank 2004	Commodity	2002	2003	2004	Percent change 2004 / 2003
		Export value \$ million			
1	Almonds	829.0	1,081.2	1,369.7	27
2	Wine <sup>a</sup>	485.0	551.8	683.8	24
3	Cotton	510.7	676.4	629.3	-7
4	Table grapes <sup>a</sup>	367.2	386.3	453.9	17
5	Dairy	300.9	326.2	439.9	35
6	Oranges <sup>b</sup>	303.2	343.8	345.2	0
7	Rice	183.3	217.1	279.7	29
8	Tomatoes, processed <sup>a</sup>	214.9	238.7	250.3	5
9	Walnuts	183.9	213.9	240.5	12
10	Strawberries <sup>a</sup>	156.0	197.9	204.5	3
11	Raisins	151.9	164.7	195.1	18
12	Lettuce <sup>b</sup>	159.5	178.1	188.3	6
13	Pistachios	130.7	135.3	179.0	32
14	Prunes	127.9	133.6	130.1	-3
15	Peaches, nectarines <sup>b</sup>	106.7	125.7	123.3	-2
16	Hay <sup>a</sup>	105.9	106.7	106.6	0
17	Broccoli <sup>a</sup>	92.1	96.9	99.4	3
18	Beef and products	167.7	214.7	80.1	-63
19	Carrots <sup>a</sup>	71.3	76.3	78.4	3
20	Lemons <sup>b</sup>	84.5	75.5	77.0	2
21	Cherries	62.9	65.4	76.7	17
22	Tomatoes, fresh	48.7	54.0	67.7	25
23	Celery	42.3	42.8	49.8	16
24	Cauliflower	51.4	53.2	48.0	-10
25	Grapefruit <sup>b</sup>	34.2	48.1	43.0	-11
26	Onions <sup>a</sup>	33.8	46.3	40.7	-12
27	Flowers and nursery	36.8	37.8	40.6	7
28	Melons	40.0	39.4	39.3	0
29	Plums	54.9	58.5	37.6	-36
30	Grape juice	28.5	30.4	29.8	-2
31	Wheat <sup>a</sup>	26.9	38.6	26.6	-31
32	Peppers	19.5	21.9	26.4	20
33	Potatoes	30.2	28.3	24.1	-15
34	Pears	17.5	14.5	21.4	47
35	Garlic	23.2	22.3	21.2	-5

TABLE 4.4 (CONTINUED)  
California agricultural commodity export values and rankings, 2003-2004

Rank 2004	Commodity	2002	2003	2004	Percent change 2004 / 2003
		Export value \$ million			
36	Asparagus <sup>a</sup>	17.4	26.7	18.0	-33
37	Apples	31.1	19.9	17.0	-15
38	Cottonseed byproducts	6.9	9.2	16.9	83
39	Olives	11.3	11.1	15.6	41
40	Turkey <sup>a</sup>	5.6	12.4	13.1	6
41	Apricots	17.5	15.5	12.7	-18
42	Dates	10.9	13.9	12.5	-10
43	Kiwi	7.6	8.8	10.6	21
44	Figs	7.1	8.0	9.2	15
45	Chickens	5.3	5.5	7.0	28
46	Dry beans	10.4	8.0	6.5	-19
47	Eggs	8.5	6.4	5.3	-17
48	Artichokes	3.1	2.9	4.2	42
49	Mushrooms	2.9	2.1	2.3	11
50	Avocados	1.5	1.5	2.2	52
Total 50 principal commodities		5,430.2	6,294.2	6,900.1	10
Total other products <sup>a,c</sup>		1,116.5	1,207.2	1,294.3	7
Total all agricultural exports		6,546.7	7,501.5	8,194.4	9

Source: AIC Issues Brief No. 30, 2005. <http://www.aic.ucdavis.edu/oa/briefs.html>

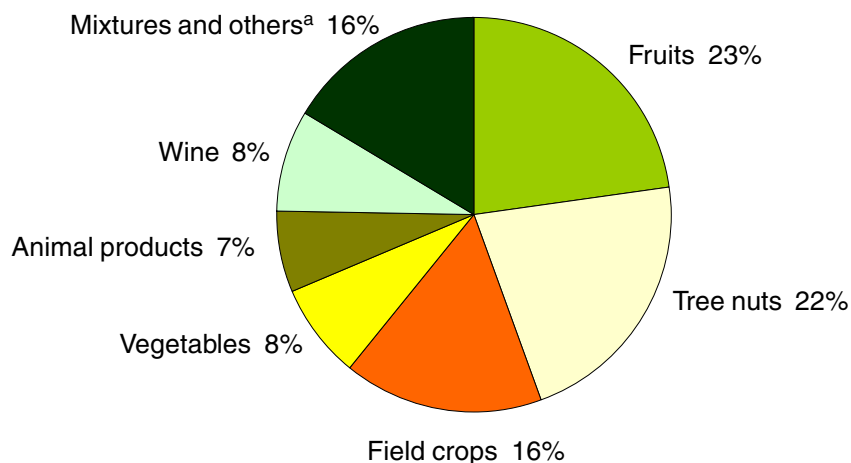
<sup>a</sup> 2002 and 2003 figures were revised based on updated production data from the U.S. Department of Agriculture, National Agricultural Statistics Service.

<sup>b</sup> 2002 and 2003 figures were revised based on updated Canadian import data.

<sup>c</sup> "Other products" is composed of (a) highly processed products that are difficult to attribute to a specific commodity such as mixtures of fruits, nuts and vegetables and other processed foods, and (b) animal and plant products marketed in such small quantities that they are not included in the top 55 leading commodities.

FIGURE 4.7

## Share of California agricultural exports by value of main commodity groups, 2004



Source: AIC Issues Brief No. 30, 2005. <http://www.aic.ucdavis.edu/oa/briefs.html>

<sup>a</sup> Includes flowers and nursery and mixtures and other products.

TABLE 4.5

Percent of California export value shipped to major markets, by commodity group, 2004<sup>a</sup>

	EU-25	Canada	Japan	Mexico	China/ H.Kong	Korea	Rest of the world
Animal products <sup>b</sup>	0.9	1.7	7.7	45.6	7.1	3.7	33.3
Field crops <sup>c</sup>	2.6	13.0	23.8	7.7	15.1	5.7	32.1
Flowers and nursery	19.1	39.6	5.9	26.1	1.7	0.3	7.3
Fruits <sup>d</sup>	9.9	32.8	14.5	5.0	7.9	6.3	23.6
Tree nuts	56.4	6.7	8.3	1.7	3.3	2.2	21.4
Vegetables <sup>e</sup>	2.3	69.0	12.0	7.7	0.8	0.3	7.9
Wine	65.2	14.9	8.2	0.8	1.3	1.0	8.6
All commodity groups	24.9	21.5	13.3	7.7	6.7	3.8	22.2

Source: AIC Issues Brief No. 30, 2005. <http://www.aic.ucdavis.edu/oa/briefs.html>

<sup>a</sup> Based on 43 individual commodity groups for which reliable data were available. They account for 99 percent of the exports of the 50 leading commodities.

<sup>b</sup> Only beef and dairy products.

<sup>c</sup> Excluding wheat.

<sup>d</sup> Excluding apples and avocados.

<sup>e</sup> Excluding mushrooms.

## Exotic pests and diseases

A pest can be any plant, animal, virus or disease pathogen whose introduction and establishment in a region causes negative consequences. A pest is commonly considered “exotic” wherever it is non-indigenous or beyond its range or natural zone of potential dispersal. Exotic pests and diseases can impact the natural and urban environment, can be costly to agriculture and other industries, and can even affect human health and safety. To prevent that, the United States and California have developed exotic pest and disease exclusion measures to monitor national and international travelers and shipments that may accidentally or intentionally carry exotic pests or diseases. Should those precautions fail, additional measures may be taken to prevent establishment or spread of introduced pests and diseases.

Exotic pests and diseases can have a number of economic effects on agriculture. They can decrease crop yields and quality, lead to livestock depopulation and negatively affect water resources. In addition, infestations often result in costs for chemical, biological or physical control.

Exotic pests and diseases may arrive through many pathways including the importation of infected plants or animals, natural migration of infected animals, on equipment or vehicles, and on the bodies and possessions of travelers. Some pests, such as citrus canker in Florida, have been introduced to other parts of the United States but have not been found in California. Other pests have been prevented from entering the United States or have been eradicated. For example, foot-and-mouth disease was eradicated from the United States in 1929.

In 1881, California instituted the nation’s first system of plant inspection at points of entry to the state. The California Department of Food and Agriculture (CDFA) monitors incoming vehicles at major highway entrances. Inspection of private vehicles entering the state was curtailed in 2003 due to budget constraints. This accounts for the recent reduction in inspections (Table 4.6).

Commercial shipments of plants and animals entering California via Arizona, Nevada and Oregon doubled in the seven years from 1997 to 2003 (Table 4.7). CDFA reported monitoring 366,266 commercial plant shipments at the 16 California border agricultural inspection stations in 2003. Of these, 1,646 were rejected and another 30,952 were sent under “Warning-Hold Inspection Notices” to the destination county Agricultural Commissioners for final disposition.

The U. S. Department of Homeland Security (DHS) is responsible for agricultural pest and disease exclusion and enforcement at international borders and ports (sea and air). Many U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS) quarantine and inspection employees were transferred to the DHS upon its creation in 2003. The CDFA is also an active participant together with APHIS in activities designed to detect and exclude exotic pests and disease entry, and if necessary, for control.

TABLE 4.6

Vehicles monitored by CDFA at California border agricultural inspection stations, 1989-2003<sup>a</sup>

Calendar year	Total vehicles	Automobiles	Commercial trucks	Recreational vehicles	Buses
	(thousands)				
1989	25,340	21,669	2,989	644	39
1991	26,881	22,803	3,521	522	35
1994	27,878	23,617	3,725	510	26
1997	30,222	24,914	4,660	525	34
1998	30,571	24,969	4,970	596	35
1999	31,292	25,111	5,453	693	35
2000	33,711				
2001	33,832				
2002	33,355				
2003 <sup>b</sup>	26,068				

*Sources:* California Department of Food and Agriculture, Plant Health and Pest Prevention Service. Annual Reports, 1990-2000 and personal communications.

<sup>a</sup> Vehicles monitored by CDFA at the 16 California border agricultural inspection stations (not international borders).

<sup>b</sup> Note: 2003 drop in totals due to the curtailing of private vehicle inspection on July 1, 2003.

TABLE 4.7

Incoming commercial shipments of plants and animals recorded at California interstate pest exclusion border stations, 1997-2003<sup>a</sup>

Calendar year	1997	1998	1999	2000	2001	2002	2003
	(thousands)						
Total plant shipments	n.a.	305	364	372	378	369	366
Total animal shipments	n.a. <sup>b</sup>	18	27	29	31	33	28
Individual animals							
Horses	12	8	15	18	20	20	14
Goats	48	50	71	67	68	64	67
Rabbits	76	27	93	107	97	119	139
Sheep	557	357	494	472	427	455	560
Cattle & calves	577	521	784	758	797	878	857
Fish (live)	723	186	255	1,042	123	704	1,059
Swine	1,598	1,683	2,050	2,071	2,187	2,202	2,199
Poultry birds (live)	4,670	1,946	6,745	6,248	9,521	8,612	10,341
Miscellaneous <sup>c</sup>	0.5	0.9	3.2	1.1	0.4	0.4	0.5
Poultry eggs (fertile), dozens	9,691	17,156	23,970	23,285	24,447	23,626	22,898
Total individual animals, excluding fertile poultry eggs and fish	7,539	4,592	10,255	9,741	13,117	12,350	14,177

Source: California Department of Food and Agriculture personal communication (10/2004).

<sup>a</sup> Recorded at interstate borders, not international entrances.

<sup>b</sup> Not available.

<sup>c</sup> Llamas, alpacas, camelidae, bison, ostrich, etc.

As national and international commerce and travel increase, so do the chances of exotic pests being introduced to the state. California and the United States operate a number of programs designed to exclude, eradicate or contain the spread of exotic pests and diseases. Some pest and disease exclusion programs are funded jointly by state and federal government, while others are specific to the state or federal level.

According to information obtained by the Center, roughly \$450 million, including emergency funds, were spent by the state and federal government on the control of exotic pests and diseases of plants and animals in California during 2003.<sup>1,2</sup> That year, the state spent \$128.4 million and the U.S. government spent \$321.1 million on controls. By far the largest share (44%) of government expenditures on the control of exotic pests and diseases in California in 2003 was attributable to programs containing Pierce's disease, which affects many plants, and eradicating exotic Newcastle disease, which affects poultry and other birds. Total government expenditure on pest and disease control was equivalent to about 1.4 percent of the value of cash receipts for all of California agriculture.

<sup>1</sup> This is a rough but reasonable approximation because state expenditures for the July 1, 2002 - June 30, 2003 have been combined with expenditures by the federal government over the October 1, 2002 - September 30, 2003 period. All expenses for exotic Newcastle disease eradication occurred during these respective budget years.

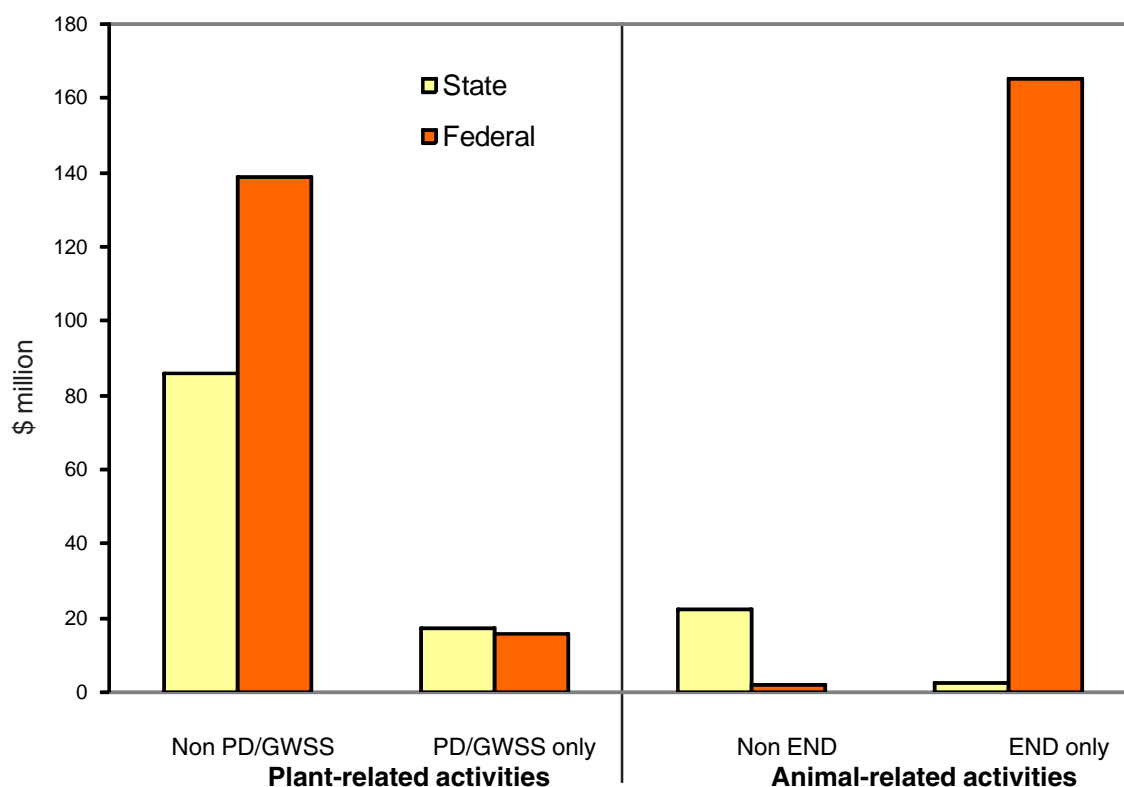
<sup>2</sup> Does not include funding on research.



*Not counting* the state's substantial expenditures to eradicate exotic Newcastle disease and contain Pierce's disease between July 1, 2002 and June 30, 2003, CDFA spent \$22.3 million to control exotic pests and diseases of animals and \$85.9 million to control plant pests and diseases (Figure 4.8). The federal government (U.S. Department of Agriculture APHIS) spent another \$1.8 million in California on the control of exotic pests and diseases of animals and \$138.7 million (APHIS and Department of Homeland Security) on the control of plant pests and diseases during federal fiscal year 2003—this does not include the \$165 million for the emergency eradication of exotic Newcastle disease and \$15.6 million for suppression of Pierce's disease.<sup>3</sup>

FIGURE 4.8

### Pest control expenditures in California by government level and activity, 2003<sup>a</sup>



*Source:* UC Agricultural Issues Center, based on information from the California Department of Food and Agriculture and USDA Animal and Plant Health Inspection Service.

PD = Pierce's disease, GWSS = glassy-winged sharpshooter, END = exotic Newcastle disease.

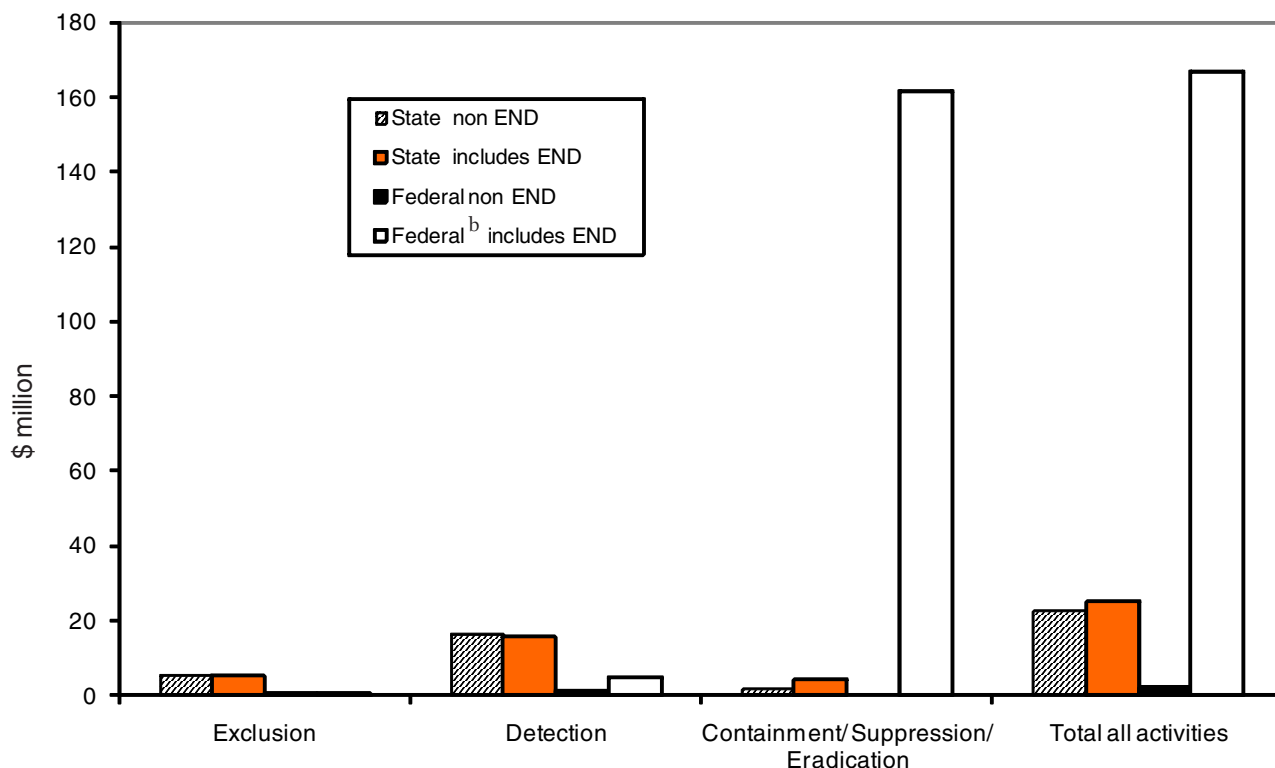
<sup>a</sup> State fiscal year July 1, 2002 - June 30, 2003; federal fiscal year October 1, 2002 - September 30, 2003.

Of the \$22.3 million in state monies spent to control pests and diseases of animals (not counting the exotic Newcastle disease eradication activities), exclusion activities required \$5.2 million, detection \$15.9 million, and containment/suppression/eradication activities \$1.6 million (Figure 4.9). Of the total \$1.8 million federal monies, almost \$0.7 million was budgeted for exclusion, \$1.2 million for detection and none for containment, suppression or eradication.

<sup>3</sup> The federal fiscal year is October 1, 2002 - September 30, 2003; state fiscal year is July 1, 2002 - June 30, 2003.

FIGURE 4.9

Animal pest and disease control activities in California by the state and federal government, 2003 expenditures<sup>a</sup>



Source: UC Agricultural Issues Center, based on information from the California Department of Food and Agriculture and USDA Animal and Plant Health Inspection Service.

END = exotic Newcastle disease.

<sup>a</sup> State fiscal year July 1, 2002 - June 30, 2003; federal fiscal year October 1, 2002 - September 30, 2003.

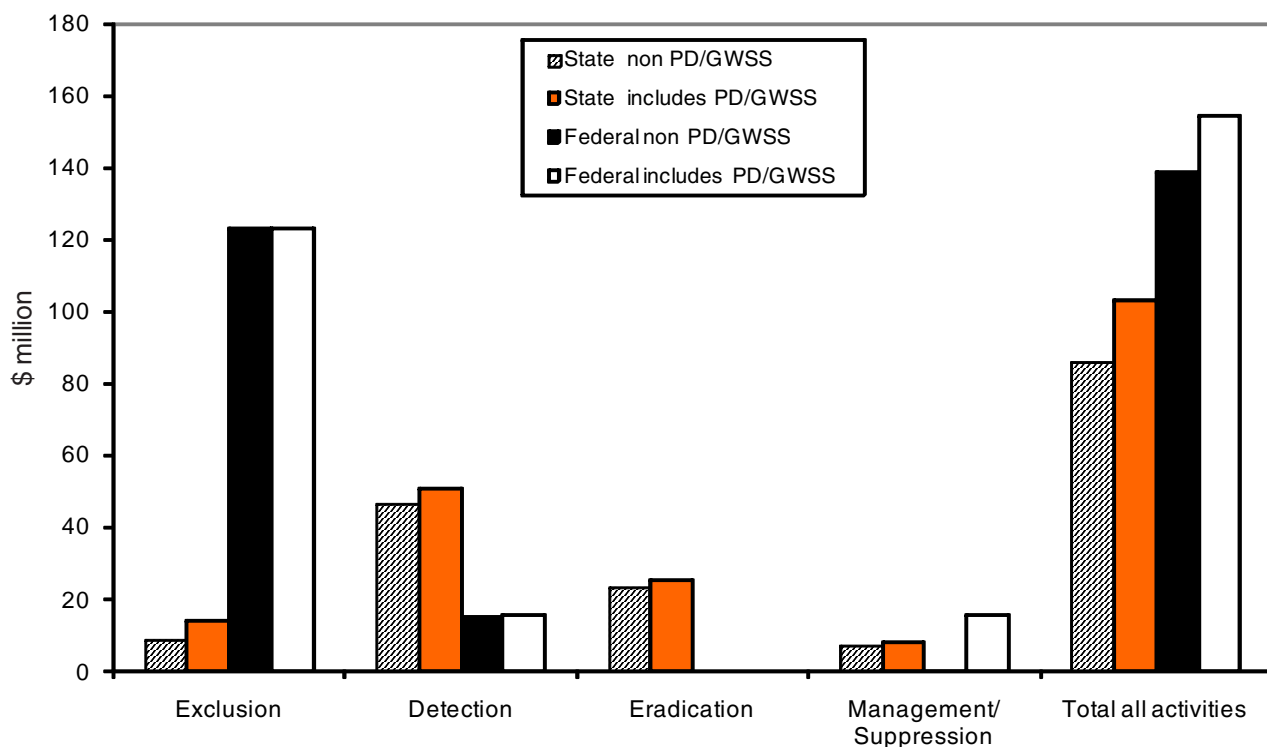
<sup>b</sup> Includes END eradication (emergency and regular funds).

Again excluding Pierce's disease eradication and suppression costs, \$8.6 million of the state's \$85.9 million expenditures on plant pest and disease control (Figure 4.10) were focused on exclusion activities, \$46.7 million on detection, \$23.3 million on eradication and \$7.1 million on suppression activities. The federal expenditure of \$138.8 million on plant pests and diseases consisted of \$123.3 million for exclusion, \$15.4 million on detection, and less than \$0.2 million on management and suppression activities.

Because the glassy-winged sharpshooter can rapidly spread Pierce's disease, which kills grapevines and adversely affects 460 other plant species, the discovery of a single glassy-winged sharpshooter in 2000 led to major government efforts to contain that plant disease and eradicate or contain its insect vector. The state spent \$17.4 million on the Pierce's Disease Program between July 1, 2002 and June 30, 2003, not counting industry assessments for research. This represented 17 percent of CDFA expenditures for control of plant pests and diseases.

FIGURE 4.10

### Plant pest and disease control activities in California by the state and federal government, 2003 expenditures<sup>a</sup>



*Source:* UC Agricultural Issues Center, based on information from the California Department of Food and Agriculture and USDA Animal and Plant Health Inspection Service.

PD = Pierce's Disease, GWSS = Glassy-Winged Sharpshooter.

<sup>a</sup> Includes border inspections of animal products and byproducts by APHIS PPQ. State fiscal year July 1, 2002 - June 30, 2003; federal fiscal year October 1, 2002 - September 30, 2003.

U.S. Department of Agriculture-APHIS spent \$15.6 million for Pierce's disease and glassy-winged sharpshooter control in California between October 1, 2002 and September 30, 2003—10 percent of the federal expenditures in California to control exotic plant pests and diseases.

The successful eradication of exotic Newcastle disease (END), which threatened California poultry, consumed \$3.4 million USDA-APHIS Veterinary Service funds plus \$161.6 million in federal emergency funds during 2003. END eradication accounted for 99 percent of all federal expenditures used to control pests and diseases of agricultural animals in California during the federal fiscal year and the depopulation of more than 3 million poultry birds.<sup>4</sup> In addition, CDFA spent \$2.7 million on END, almost 11 percent of its 2002/2003 budget, to control exotic pests and diseases of animals. END is a fatal viral disease that affects all bird species. Totally eliminated in California by September 2003, END was first detected October 1, 2002 in Southern California backyard poultry. The method of control: quarantines combined with depopulation and extensive surveillance and laboratory detection.

<sup>4</sup> California Department of Food and Agriculture news release, September 16, 2003. CDFA03-060: California Free of Exotic Newcastle Disease.

## Government support

Although California accounts for about 13.2 percent of national cash receipts from agriculture, it receives only about 3 to 4 percent of the direct government payments to agriculture depending on the year (Table 4.8). One reason for the low share is that California's fruit, tree nut and vegetable crops are not commonly provided with such payments.

TABLE 4.8

### Direct federal government payments to farmers, 1960-2004

Year	Payments		Payments
	in U.S.	in California	in California
	(\$ million)		(as % of United States)
1960	702	22	3.1
1970	3,717	132	3.5
1980	1,286	14	1.1
1990	9,298	252	2.7
1995	7,279	240	3.3
2000	22,896	667	2.9
2001	20,727	587	2.8
2002	11,236	462	4.1
2003	17,209	815	4.7
2004	13,304	507	3.8

Source: USDA Economic Research Service, [www.ers.usda.gov/data/FarmIncomeFinFidMux/s.htm](http://www.ers.usda.gov/data/FarmIncomeFinFidMux/s.htm)

A more complete way to measure the effect of government subsidies on agricultural commodities is to use the “producer support estimate” (PSE), which is designed to capture the total benefits to recipients of government policies and supports. The PSE is a widely applied summary measure of agricultural policy that attempts to measure the monetary value of explicit or implicit income transfers to agriculture. When calculated as a ratio of total transfer to total industry revenue (value of production plus government payments), the PSE ratio is a rough indicator that may be compared across commodities, time, and national or other geographic boundaries. A PSE for a commodity includes the value of direct payments, input assistance such as crop insurance and subsidized water, marketing orders and other support (e.g. support assistance and trade barriers). In California, government assistance contributes an important part of the revenue for producers of dairy products and several field crops (Table 4.9 and Figure 4.11).

Annual producer support in California for the 1999-2001 period averaged \$2.9 billion. Of the total, slightly over \$2.3 billion was shared by four industries: dairy, cotton, rice and vegetables other than tomatoes and lettuce. The total amount of support to these industries reflects the magnitude of their total production value and their ratio of PSE support to the value of production. With 54 percent of the total government support to producers in California, dairy producers received far more assistance than producers of any other commodity as the dairy industry is very large and dairy trade barrier benefits are significant. Cotton and rice farmers in California also received large shares of the total support (cotton 14% and rice 9% of total PSE, Figure 4.12).

The 1999-2001 state average PSE ratio—government support expressed as a percent of crop production value including support—is about 10.7 percent. Horticultural crops have PSE ratios ranging from 2.3 percent for strawberries, lettuce, and nursery and flowers to 4.9 percent for many fruits. With a PSE ratio of 63.9 percent, sugarbeets have the largest subsidy ratio, followed by rice (60.5%) and cotton (40.5%).

TABLE 4.9  
Producer support estimate (PSE) by commodity<sup>a</sup>

Commodities	Value of production plus government payments	Producer support estimate (PSE)	Ratio of PSE to value of production plus government payments
	(\$1,000)		(percent)
Dairy	4,705,171	1,571,330	33.4
Cattle/calves	1,351,500	33,691	2.5
Poultry <sup>b</sup>	980,110	23,081	2.4
Other livestock/poultry	384,478	10,141	2.6
Sugarbeets	53,306	34,047	63.9
Rice	456,194	275,851	60.5
Cotton	987,875	400,399	40.5
Wheat	142,475	42,071	29.5
Feed grains <sup>c</sup>	120,914	29,392	24.3
Hay, all	1,020,510	34,252	3.4
Other field crops	1,018,197	30,279	3.0
Almonds	753,720	27,997	3.7
Other tree nuts <sup>d</sup>	482,016	15,609	3.2
Grapes, rest <sup>e</sup>	2,249,650	68,582	3.0
Raisins	401,256	11,090	2.8
Citrus <sup>f</sup>	736,564	19,037	2.6
Strawberries	832,515	19,444	2.3
Other fruit	1,401,503	68,526	4.9
Tomatoes, processed	654,156	24,011	3.7
Tomatoes, fresh	290,081	7,049	2.4
Lettuce, all	1,331,292	30,272	2.3
Other vegetables	4,149,622	101,858	2.5
Nursery/flowers	3,096,506	70,512	2.3
Total	27,599,611	2,948,522	10.7

Source: Sumner, Daniel A. and Henrich Brunke. "Commodity Policy and California Agriculture" in *California Agriculture, Dimensions and Issues, 2003*. Jerry Siebert, editor. University of California Giannini Foundation of Agricultural Economics, 2004. <http://aic.ucdavis.edu/pub/CalAgBookchap6.pdf>

<sup>a</sup> The producer support estimates are generally an average of the period 1999-2001, except for government payments. For federal government payments, we used the federal fiscal year 2001 through 2003 for production flexibility contract payments (replaced in 2002 Farm Bill by a direct payment program) and market loss assistance payments (replaced in 2002 Farm Bill by a counter cyclical payment program). We used data from crop years 2000 through 2002 for loan deficiency payment and marketing loan gains.

<sup>b</sup> Poultry includes broilers, eggs and turkeys.

<sup>c</sup> Feed grains includes corn, barley and oats.

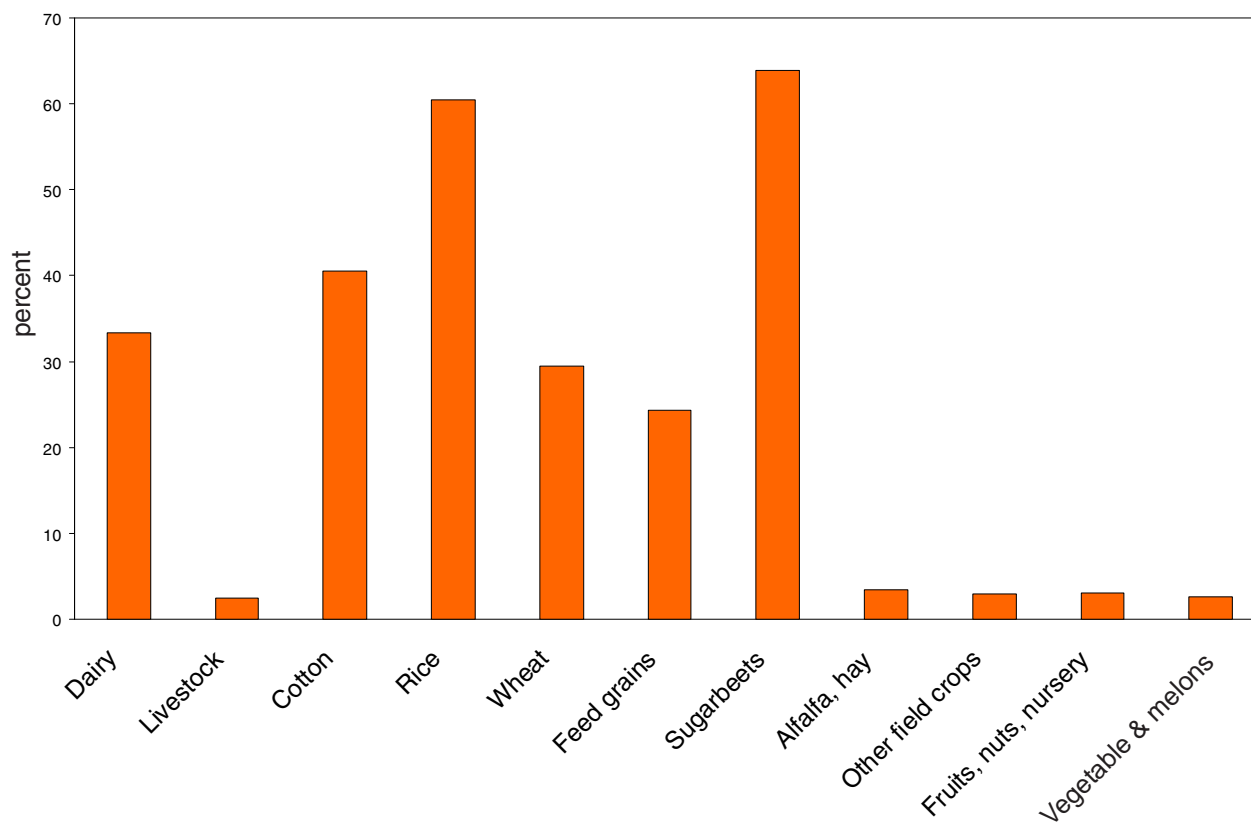
<sup>d</sup> Other tree nuts include walnut and pistachios.

<sup>e</sup> Grapes, rest includes table and wine grapes.

<sup>f</sup> Citrus includes oranges and lemons.

FIGURE 4.11

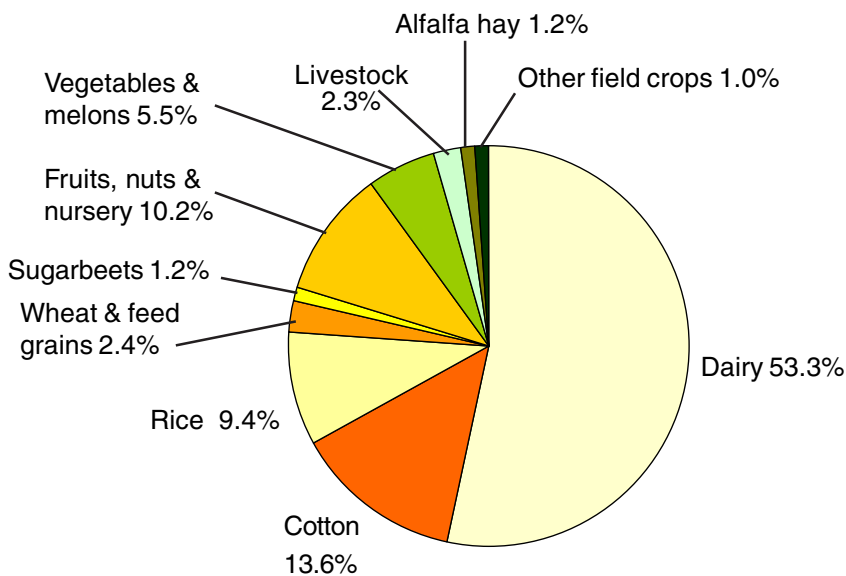
Ratio of producer support estimate (PSE) to value of production plus government payments, by commodity or commodity group, 1999-2001



Source: Sumner, Daniel A. and Henrich Brunke. "Commodity Policy and California Agriculture" in *California Agriculture, Dimensions and Issues, 2003*. Jerry Siebert, editor. University of California Giannini Foundation of Agricultural Economics, 2004. <http://aic.ucdavis.edu/pub/CalAgBookchap6.pdf>

Import barriers, government payments and input assistance account for three-quarters of the estimated producer support in California. Import barriers contributed 41 percent to the total average annual support and government payments accounted for 26 percent (Figure 4.13). Eighty-two million dollars of the \$304 million in input assistance went into water subsidies. Important recipients of the water subsidies were hay, cotton and rice, each of which received about \$12 million in such support annually.

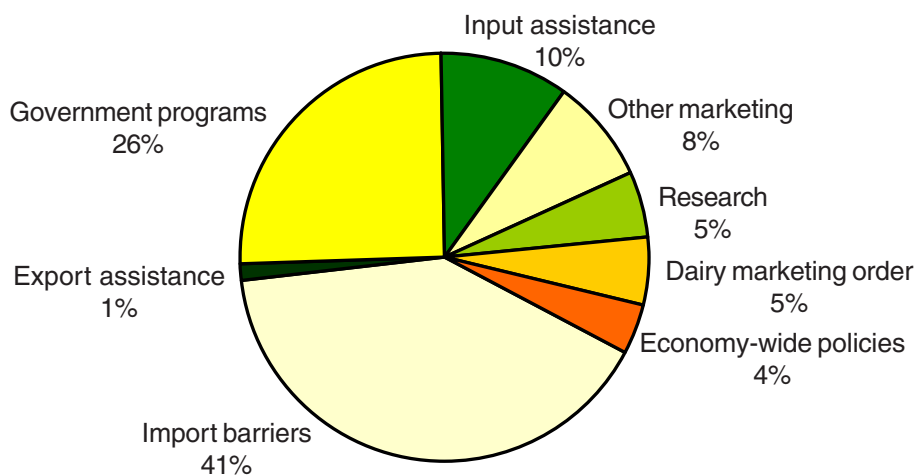
FIGURE 4.12  
Share of agricultural support by commodity, California



Source: Sumner, Daniel A. and Henrich Brunke. "Commodity Policy and California Agriculture" in *California Agriculture, Dimensions and Issues, 2003*. Jerry Siebert, editor. University of California Giannini Foundation of Agricultural Economics, 2004. <http://aic.ucdavis.edu/pub/CalAgBookchap6.pdf>

Note: see numbered footnotes to Table 4.9.

FIGURE 4.13  
Share of agricultural support by program, California, 1999-2001



Source: Sumner, Daniel A. and Henrich Brunke. "Commodity Policy and California Agriculture" in *California Agriculture, Dimensions and Issues, 2003*. Jerry Siebert, editor. University of California Giannini Foundation of Agricultural Economics, 2004. <http://aic.ucdavis.edu/pub/CalAgBookchap6.pdf>

Note: see numbered footnotes to Table 4.9.

## Risk management

Farmers face production, financial, price and institutional risks and uncertainties. Tools available to deal with risks differ based on the commodity produced. These include crop insurance, government programs, contracts, liquidity, enterprise and market channel diversification, vertical integration, trading of futures and options in commodity markets and others.

Several federal crop insurance programs are available to California farmers. The Catastrophic Coverage Program (CAT) is available for many policy types and is fully subsidized by the federal government (after \$100 administrative fee per crop per county). Farmers can also choose from higher levels of insurance that are partially paid by the government. Some policies are more general while others are designed for producers of a specific crop, such as avocado revenue coverage.

Since 1999, the total number of insurance policies sold has remained relatively constant, the number of catastrophic insurance plans sold has decreased, and buy-up policy sales have increased (Table 4.10). The loss ratio (total indemnity/total premium) has decreased markedly between 1998 and 2003.

TABLE 4.10

### Use of federal crop insurance by California farmers, 1998-2003

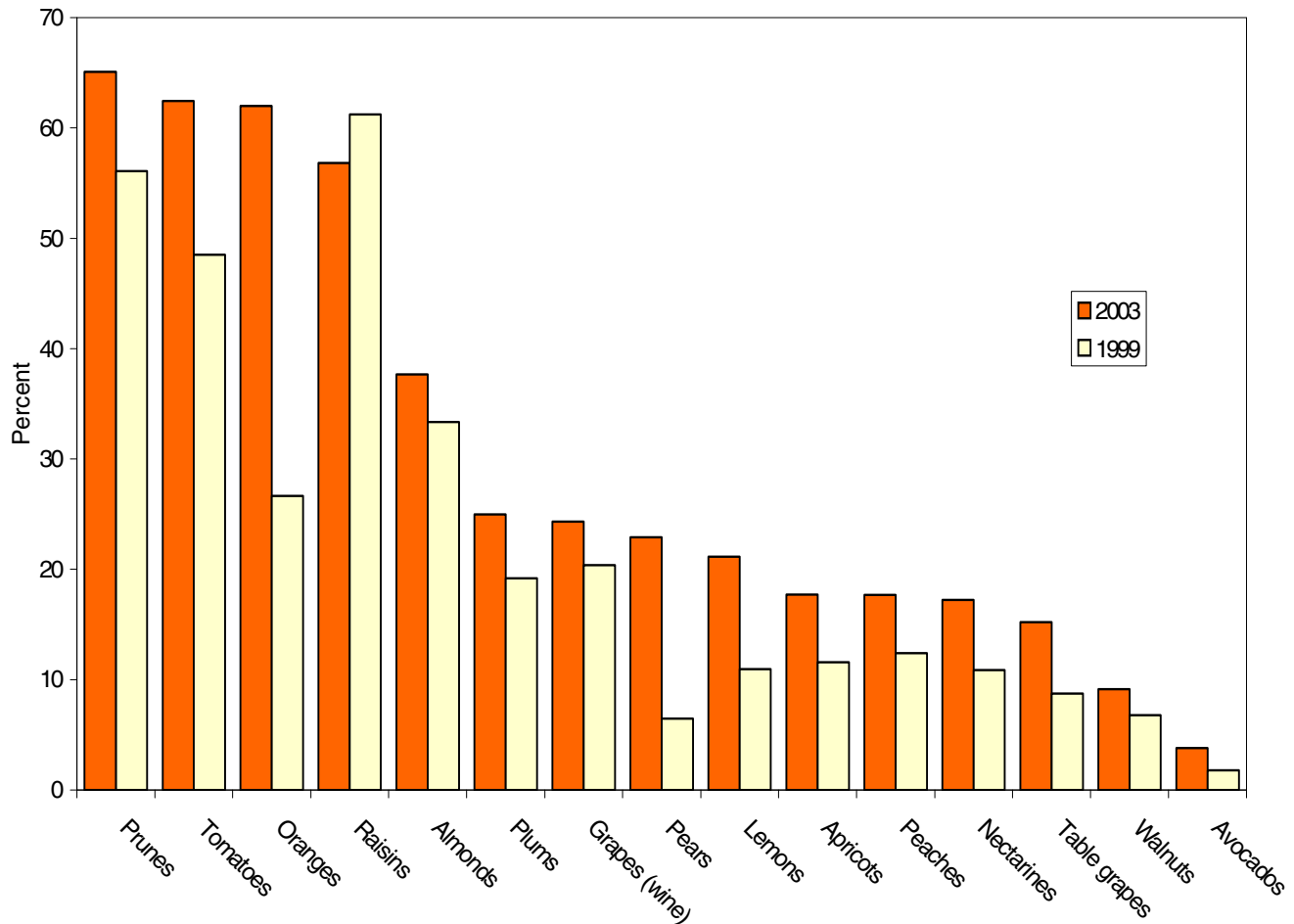
Year	Total policies sold	Catastrophic policies	Buy-up policies	Net acres insured	Total liability (\$1,000)	Total premium (\$1,000)	Total indemnity (\$1,000)	Loss ratio
1998	33,379	23,462	9,917	3,526,388	2,124,396	109,882	118,272	1.08
1999	37,994	25,002	12,992	4,023,277	2,494,656	130,826	133,134	1.02
2000	35,947	21,814	14,133	4,278,811	2,796,254	143,340	392,360	0.64
2001	36,313	20,235	16,078	4,011,464	2,692,201	142,630	118,202	0.83
2002	35,223	18,618	16,605	3,919,529	2,833,052	146,274	78,489	0.54
2003	34,119	17,917	16,202	3,997,235	2,956,385	150,660	78,332	0.52

Source: USDA Risk Management Agency, <http://www3.rma.usda.gov/apps/sob/>



FIGURE 4.14

Percent of California harvested fruit, tree nut, and vegetable acreage with buy-up insurance, 1999 and 2003



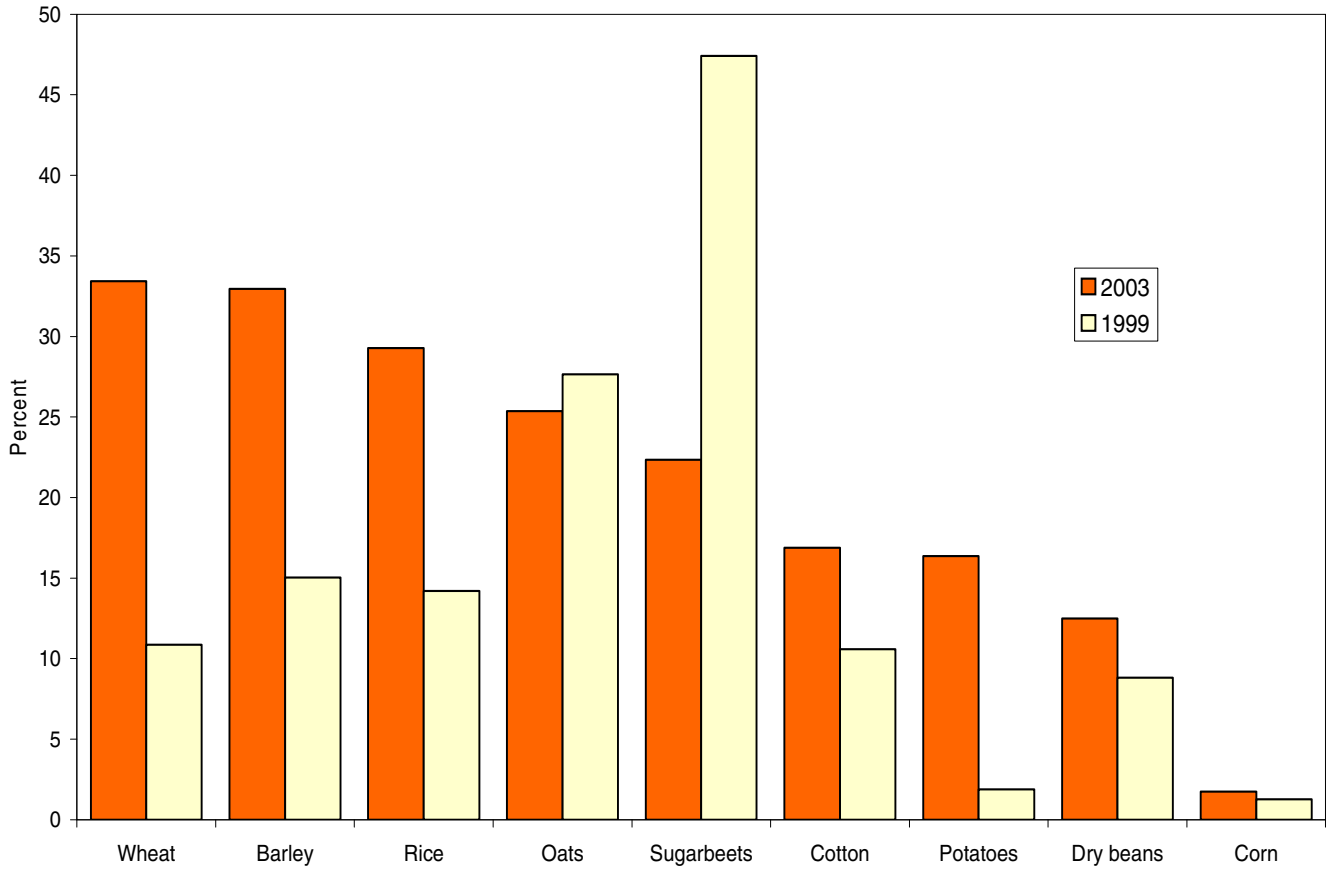
Source: USDA Risk Management Agency, <http://www3.rma.usda.gov/apps/sob/>

The Agricultural Risk and Protection Act of 2000 led to higher insurance subsidy levels, higher levels of coverage and availability of insurance for additional crops. As a result, the number of producers purchasing buy-up coverage has increased in California and in the nation (Figures 4.14 and 4.15).

The subsidy resulting from crop insurance in 2001 was substantial to a number of California crops including cotton, all grapes, almonds, prunes, apples and wheat. However, most other fruits, vegetables, and field crops received little subsidy from the crop insurance program.

FIGURE 4.15

Percent of California harvested field crop acreage with buy-up insurance, 1999 and 2003.



Sources: USDA Risk Management Agency, <http://www3.rma.usda.gov/apps/sob>; California Agricultural Statistics Service.