Sonoma County
Agricultural Crop Report - 2000


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Exotic Pest Prevention: Protecting Sonoma County

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Cover photos courtesy of USDA, University of Wyoming, Jack Kelly Clark, Dave Rizzo, and Kerry Dressler

JOHN WESTOBY
AGRICULTURAL COMMISSIONER/SEALER

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OFFICE OF THE AGRICULTURAL COMMISSIONER

William J. Lyons, Jr.; Secretary
California Department of Food and Agriculture

April 2001

Sonoma County Board Of Supervisors:
Michael J. Cale - District 1
Mike Kerns - District 2
Tim Smith, Chairman - District 3
Paul L. Kelley - District 4
Mike Reilly - District 5

Whether the year 2000 was the end of the century or the beginning, it was the year of the highest production value for Sonoma County agriculture. **$585,563,000** worth of agricultural commodities were sold from our farms and ranches. This total was $78 million more than our previous high in 1997 and is due mainly to the largest and most valuable wine grape crop ever produced in our fair county.

The cover of this year's report identifies a number of pests that could dramatically effect our agriculture, home landscape, and native flora and fauna. Keeping these pests out of our county has been a major portion of our workload since the appointment of the first horticultural commissioners in 1881.

The 2000 wine grape crop tonnage of 190,789 exceeded the previous record by over 3,100 tons and the price paid per ton increased to $2,043, which is $153 over last years previous high. Other fruits and nuts continued to decline due to acreage reduction and a poor growing season.

Nursery production value climbed by 44% over 1999 as all categories of nursery production value increased. The most significant increases were in grapevine production as demand for planting stock continued and in ornamental plant production based on the demand to beautify our environment, which was fueled by the strong economy.

Apiary products showed an increase in value, while vegetable crops value decreased by 48%; as the effect of the loss of a major producer continued.

Both livestock and poultry and their products decreased in value by 12%. We continue to lose dairies and while milk production increased slightly dairy operators received 14% less for the milk produced in 2000 when compared to 1999.

The information for this report was provided from a number of sources, but we rely on our farmers and ranchers for the majority of our production figures. Users of this report are reminded the values listed indicate gross production and are not meant to reflect or infer net farm income.

I want to thank Cree Morgan and Marilyn Vernon for their efforts in producing this report. Their hard work will benefit the readers of this report for many years.

Respectfully submitted,

John Westoby,
Agricultural Commissioner/Sealer

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PEST PREVENTION IN CALIFORNIA SINCE 1881

The first European settlers to California found a pristine land. Little did they know that the rugged land they settled would grow to become the number one agricultural state in the nation. California is biologically isolated from surrounding areas. Bounded on the East by the Sierra Nevada, the South by the Mojave Desert, the North by the Cascades, and the West by the Pacific Ocean, this land had the soils, diverse climate, and adequate water to grow an unparalleled number of commodities.

The crops planted sprung from the earth and produced in abundance. But, as today, when plants are transported from distant lands, exotic insects, disease and weeds can tag along and spread like wildfire in their new environs. In 1881, Felix Gillet of Nevada City expressed his concern about new pests:

> *"...the ravages of noxious insects is certainly alarming, and justly creating a general uneasiness among those engaged in various branches of agriculture; for California, which for years was relatively free of such pests, has today to confront a world of destructive insects like scale, bugs, aphis, borers, codlin moths, worms, flies, mites, phylloxera, etc. and which, as if given each other the word, are falling upon this 'promised land' of ours as bands of ravens on a dead animal, to devour and ruin it."*

In March of 1881 the state legislature voted that each County Board of Supervisors should appoint a Horticultural Board of Commissioners if requested to do so by five county free-holders. Today, 120 years later, our biologists work each day to prevent introduction of new pests into Sonoma County and their spread throughout California. Through inspections at points of entry (express carriers, nurseries, post offices, feed mills, and pet stores) and enforcement of quarantines, the Agricultural Commissioner's Office acts as a net to stop these pests. Each growing season, thousands of insect traps are placed and detection surveys are conducted to identify any new pests that escape this exclusion net. It is better to prevent exotic pest introductions then to let them darken our door and threaten our crops, gardens, and native plants.

The pests on the cover of this year's report are some of the many that are best kept out of Sonoma County. We need the help of all our citizens in keeping these pests at bay. If you bring plant material from other areas make sure that it is certified pest free and if you see an insect, weed or plant disease that you are unfamiliar with please bring a sample to us for identification.

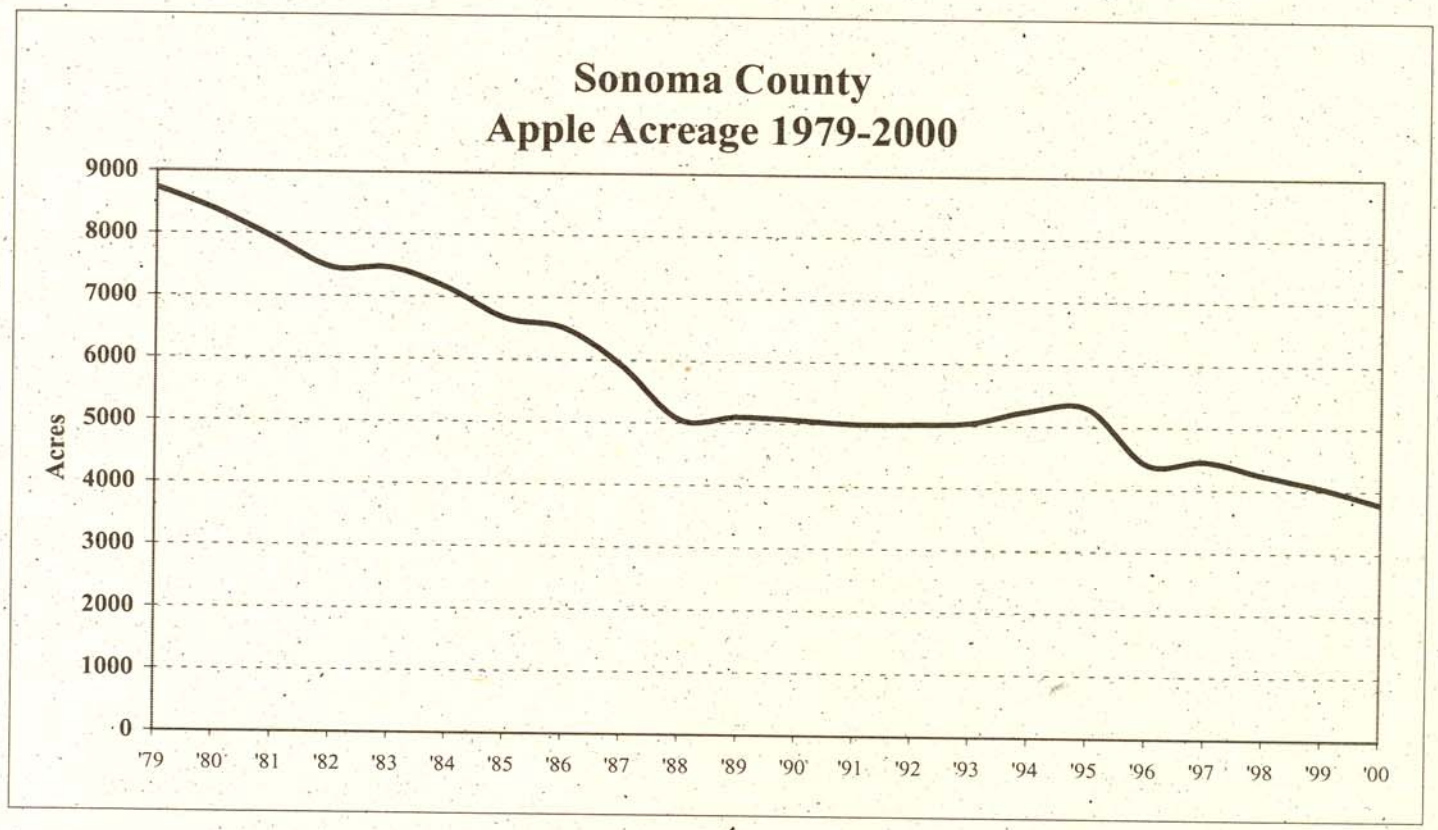
Help us keep Sonoma County green and growing.

MILLION DOLLAR CROPS

1	Wine Grapes	$	389,853,900
2	Market Milk	$	79,854,400
3	Misc. Livestock and Poultry	$	40,054,400
4	Cattle and Calves	$	12,424,200
5	Nursery ~ Grapevines	$	11,097,900
6	Misc. Livestock and Poultry Products	$	10,612,000
7	Misc. Nursery Production	$	9,604,600
8	Nursery ~ Ornamentals	$	7,122,300
9	Vegetables	$	6,640,600
10	Apples ~ All Varieties	$	2,764,500
11	Nursery ~ Bedding Plants	$	2,625,800
12	Nursery ~ Cut Flowers	$	2,333,200
13	Sheep and Lambs	$	1,512,900
14	Oat Silage	$	1,490,700
15	Oat Hay	$	1,183,700

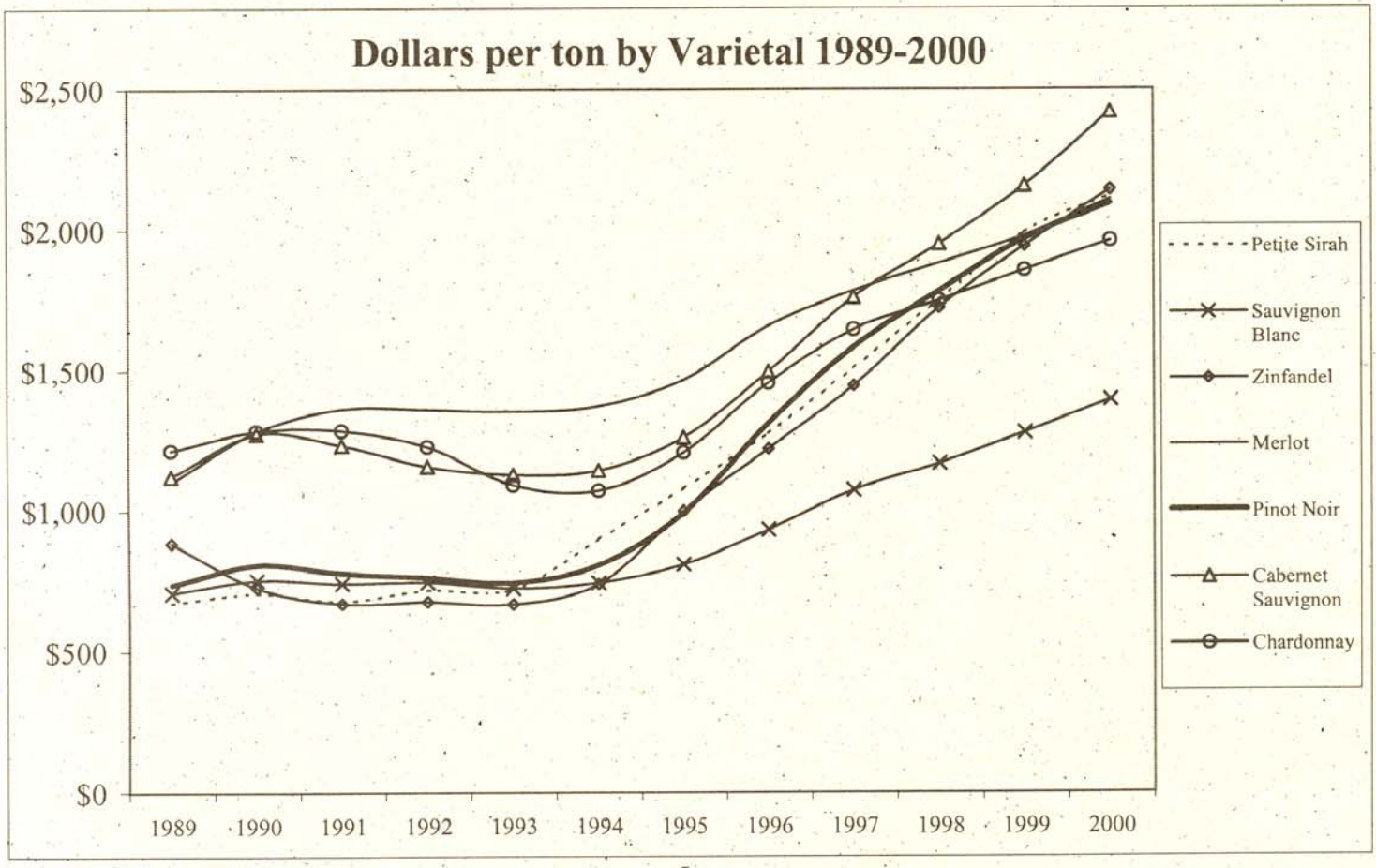
FRUITS AND NUT ACREAGE

Crop	Bearing	Non-Bearing	Total
Apples	3,781	5	3,786
Grapes (wine)	42,220	13,656	55,877
Kiwi	20	0	20
Olives	55	15	70
Peaches	20	0	20
Pears	65	0	65
Prunes	289	0	289
Walnuts	192	0	192
Miscellaneous	48	0	48
Total acreage	**46,690**	**13,676**	**60,367**



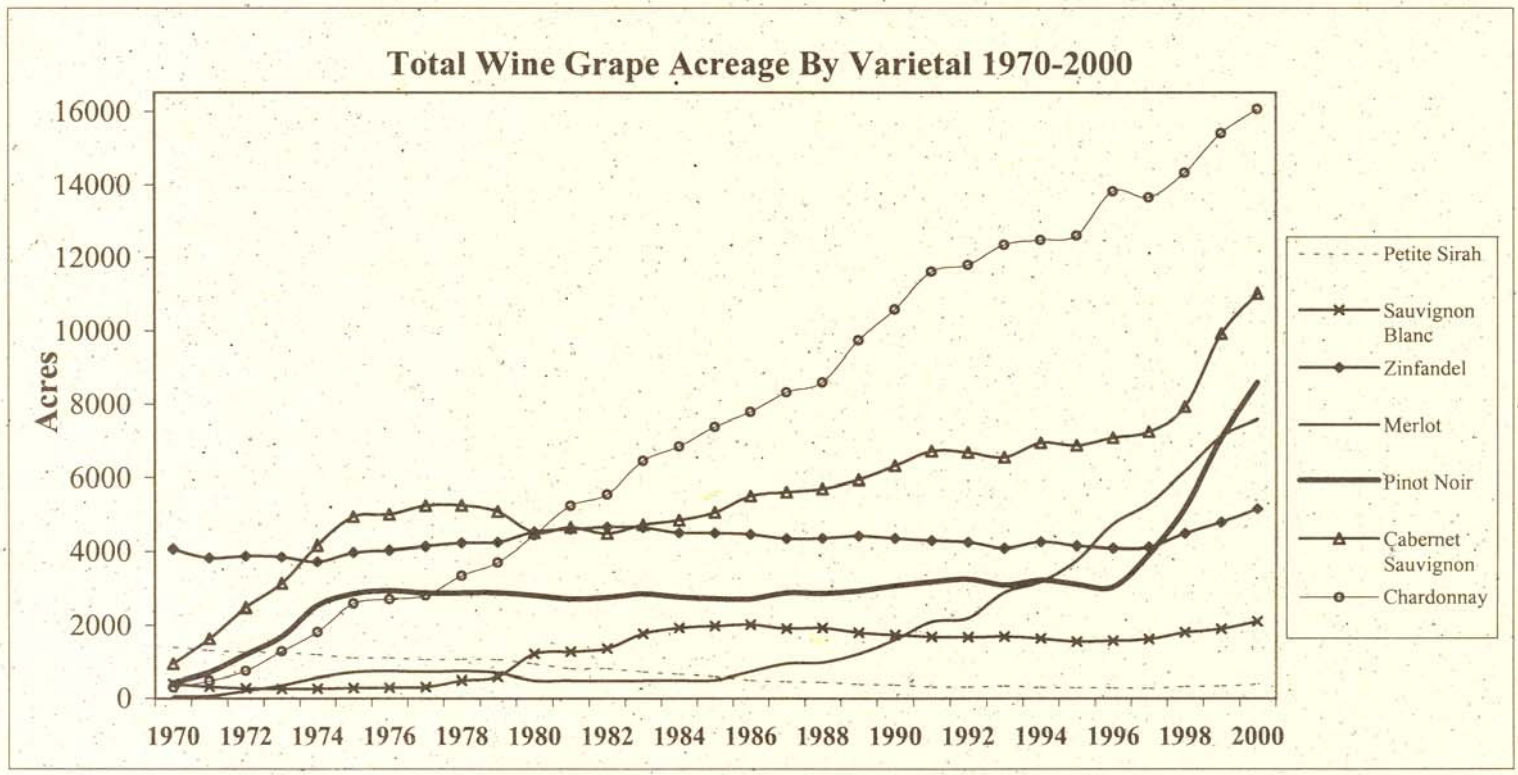
WHITE WINE GRAPE PRODUCTION

VARIETY	YEAR	Acres BEARING	Acres NON-BEARING	Acres TOTAL	Production TONS	DOLLARS PER TON	TOTAL VALUE
Chardonnay	**2000**	**13,394**	**2,702**	**16,097**	**69,478**	**$ 1,962**	**$ 136,305,000**
	1999	13,565	1,841	15,406	52,411	$ 1,857	$ 97,331,500
Chenin Blanc	**2000**	**54**	**0**	**54**	**439**	**$ 604**	**$ 265,000**
	1999	75	0	75	588	$ 612	$ 359,700
French Colombard	**2000**	**186**	**0**	**186**	**1,154**	**$ 562**	**$ 648,700**
	1999	212	0	212	1,305	$ 562	$ 733,100
Gewürztraminer	**2000**	**216**	**0**	**216**	**694**	**$ 1,265**	**$ 877,300**
	1999	213	3	216	915	$ 1,152	$ 1,054,200
Muscat Blanc	**2000**	**39**	**0**	**39**	**123**	**$ 1,722**	**$ 212,300**
	1999	39	0	39	93	$ 1,641	$ 153,200
Pinot Blanc	**2000**	**70**	**0**	**70**	**522**	**$ 1,607**	**$ 838,700**
	1999	112	5	117	441	$ 1,443	$ 635,900
Sauvignon Blanc	**2000**	**1,650**	**448**	**2,099**	**8,781**	**$ 1,396**	**$ 12,256,437**
	1999	1,624	276	1,900	5,754	$ 1,278	$ 7,354,600
Semillon	**2000**	**161**	**34**	**195**	**797**	**$ 1,444**	**$ 1,150,659**
	1999	177	16	193	704	$ 1,292	$ 909,300
Viognier	**2000**	**189**	**22**	**211**	**497**	**$ 2,140**	**$ 1,062,858**
	1999	183	4	187	267	$ 2,101	$ 561,900
White Riesling	**2000**	**44**	**0**	**44**	**112**	**$ 1,489**	**$ 166,808**
	1999	49	0	49	84	$ 1,324	$ 111,200
Other Whites	**2000**	**282**	**318**	**600**	**1,166**	**$ 1,615**	**$ 1,882,606**
	1999	281	292	573	728	$ 1,506	$ 1,096,300
TOTAL WHITES	**2000**	**16,286**	**3,524**	**19,810**	**83,762**	**$ 1,858**	**$ 155,666,367**
	1999	16,530	2,437	18,035	62,292	$ 1,743	$ 110,300,900



Red Wine Grape Production

		Acres			Production		
VARIETY	YEAR	BEARING	NON-BEARING	TOTAL	TONS	DOLLARS PER TON	TOTAL VALUE
Cabernet Franc	**2000**	**523**	**151**	**674**	**2,097**	**$ 2,227**	**$ 4,668,600**
	1999	578	101	679	1,769	$ 2,047	$ 3,622,400
Cabernet Sauv.	**2000**	**7,328**	**3,688**	**11,016**	**32,772**	**$ 2,418**	**$ 79,240,400**
	1999	7,625	2,298	9,923	21,037	$ 2,158	$ 45,400,600
Carignane	**2000**	**196**	**1**	**197**	**766**	**$ 1,392**	**$ 1,065,400**
	1999	201	1	202	590	$ 1,215	$ 717,200
Merlot	**2000**	**6,564**	**1,058**	**7,622**	**31,480**	**$ 2,019**	**$ 63,566,200**
	1999	6,276	848	7,124	24,558	$ 1,979	$ 48,599,700
Meunier	**2000**	**129**	**17**	**146**	**637**	**$ 2,069**	**$ 1,318,700**
	1999	129	17	146	426	$ 1,817	$ 774,807
Napa Gamay	**2000**	**84**	**0**	**84**	**195**	**$ 1,144**	**$ 222,500**
	1999	101	0	101	283	$ 966	$ 273,600
Petite Sirah	**2000**	**280**	**86**	**365**	**1,073**	**$ 2,128**	**$ 2,284,000**
	1999	285	59	344	787	$ 1,991	$ 1,567,600
Petite Verdot	**2000**	**86**	**77**	**162**	**282**	**$ 2,176**	**$ 614,000**
	1999	96	22	118	244	$ 1,970	$ 479,900
Pinot Noir	**2000**	**4,973**	**3,631**	**8,604**	**17,520**	**$ 2,094**	**$ 36,692,700**
	1999	4,744	2,344	7,088	13,792	$ 1,968	$ 27,146,600
Sangiovese	**2000**	**281**	**68**	**349**	**1,791**	**$ 1,860**	**$ 3,331,000**
	1999	297	41	338	1,469	$ 1,796	$ 2,638,800
Syrah-shiraz	**2000**	**559**	**371**	**930**	**3,349**	**$ 2,172**	**$ 7,272,000**
	1999	559	238	797	2,089	$ 1,989	$ 4,154,900
Zinfandel	**2000**	**4,478**	**665**	**5,143**	**13,223**	**$ 2,143**	**$ 28,337,800**
	1999	4,316	471	4,787	10,777	$ 1,943	$ 20,942,000
Other Reds	**2000**	**455**	**319**	**774**	**1,844**	**$ 2,037**	**$ 3,755,200**
	1999	491	363	854	1,366	$ 1,901	$ 2,652,000
Total Reds	**2000**	**25,934**	**10,132**	**36,067**	**107,027**	**$ 2,188**	**$ 234,187,000**
	1999	25,697	6,803	32,501	79,188	$ 2,008	$ 158,970,100
Total All Wine Grapes	**2000**	**42,220**	**13,656**	**55,877**	**190,789**	**$ 2,043**	**$ 389,853,900**
	1999	42,227	9,240	51,467	142,477	$ 1,890	$ 269,271,000



Apple Production

Crop	Year	Bearing Acres	Tons/Acre	Total Tons	Dollar Value $/Ton	Dollar Value Total
Gravenstein	**2000**	**1,207**	**2.46**	**2,973**	**$ 163**	**$ 484,900**
	1999	1,267	10.80	13,681	$ 168	$ 2,294,300
Fresh	**2000**			**294**	**$ 381**	**$ 112,000**
	1999			636	$ 468	$ 297,900
Processed (A)	**2000**			**2,679**	**$ 139**	**$ 372,900**
	1999			13,045	$ 153	$ 1,996,400
Late Apples	**2000**	**2,574**	**6.13**	**15,780**	**$ 144**	**$ 2,279,600**
	1999	2,780	11.52	32,032	$ 114	$ 3,636,000
Fresh	**2000**			**998**	**$ 307**	**$ 305,900**
	1999			1,791	$ 245	$ 439,400
Processed (A)	**2000**			**14,782**	**$ 155**	**$ 2,289,300**
	1999			30,241	$ 106	$ 3,196,600
Total	**2000**	**3,781**	**4.96**	**18,753**		**$ 2,764,500**
	1999	4047	11.30	45,713		$ 5,930,300

(A) includes canned, juice, vinegar, cider

FRUITS AND NUTS SUMMARY

Crop	Year	Bearing Acres	Tons/Acre	Total Tons	Dollar Value $/Ton	Dollar Value Total
Apples (all)	**2000**	**3,781**	**4.96**	**18,753**	**$147**	**$ 2,764,500**
	1999	4,047	11.30	45,713	$130	$ 5,930,300
Fresh	**2000**					**$ 417,900**
	1999					$ 737,300
Processed (A)	**2000**					**$ 2,662,200**
	1999					$ 5,193,000
Grapes (wine)	**2000**	**42,220**	**4.52**	**190,789**	**$2,043**	**$ 389,853,900**
	1999	42,227	3.37	142,477	$1,890	$ 269,271,000
Prunes (B)	**2000**	**297**	**0.86**	**255**	**$898**	**$ 229,100**
	1999	318	0.96	305	$892	$ 272,000
Walnuts	**2000**	**211**	**0.21**	**44**	**$1,300**	**$ 57,200**
	1999	192	0.57	109	$869	$ 95,100
Miscellaneous (C)	**2000**					**$ 469,200**
	1999					$ 338,700
TOTAL	**2000**					**$ 393,373,900**
	1999					$ 275,907,100

(A) includes canned, juice/cider, vinegar

(B) dry tons

(C) includes bush-berries, kiwi, black walnuts, plums, all pears, strawberries, figs, chestnuts, olives, etc.

NURSERY PRODUCTS

Item	Year	Units Sold	Unit	DOLLAR VALUE $/Unit	DOLLAR VALUE Total
Grapevines (A)	**2000**				**$ 11,097,900**
	1999				$ 7,500,600
Ornamentals	**2000**	**1,129,156**	**plant (B)**	**$ 6.31**	**$ 7,122,300**
	1999	476,434	plant (B)	$ 6.29	$ 2,997,000
Bedding Plants	**2000**	**223,971**	**flat**	**$ 11.72**	**$ 2,625,800**
	1999	138,384	flat	$ 15.15	$ 2,097,200
Cut Flowers	**2000**				**$ 2,333,200**
	1999				$ 1,843,900
Christmas Trees	**2000**	**15,117**	**each**	**$ 32.19**	**$ 486,600**
	1999	15,087	each	$ 26.65	$ 402,000
Miscellaneous Products (C)	**2000**				**$ 9,604,600**
	1999				$ 8,292,500
TOTAL	**2000**				**$ 33,270,400**
	1999				$ 23,133,200

(A) includes field grown non-grafted, bench grafts, greenhouse propagation

(B) average unit price includes all type trade containers

(C) includes deciduous fruit and nut trees, liners, bulbs, forest seedlings, house plants, orchids, cacti, herbaceous perennials, dry flowers, turf and wreaths

APIARY PRODUCTS

Total Value (D)	**2000**	**$**	**129,100**
	1999	$	116,500

(D) includes honey, wax and pollination

VEGETABLE CROPS

Crop	Year	Harvested Acreage	Dollar Value	
Miscellaneous Truck Farms (E)	**2000**	659	**$**	**6,640,600**
	1999	847	$	12,819,800

(E) includes melons, mushrooms, potatoes, pumpkins, sprouts, squash, tomatoes, lettuces, etc.

TIMBER H ARVEST

(Informational Only-- most recent figures available, furnished by State Board of Equalization)

Crop	Year	Production	Unit (F)		Value (G)
Timber	**1999**	**30,918,000**	**board feet**	**$**	**14,231,400**
	1998	20,509,000	board feet	$	7,768,000

(F) board feet is the quantity of timber cut and scaled

(G) value of the timber immediately before cutting

FIELD CROPS

Crop	Year	Harvested Acreage	Ton/ Acre	Total Tons	Units	DOLLAR VALUE $/Unit	DOLLAR VALUE Total
Hay, Oat	**2000**	**5,986**	**2.58**	**15,442**	**ton**	**$ 76.65**	**$ 1,183,700**
	1999	4,497	2.87	12,920	ton	$ 66.83	$ 863,500
Hay, Volunteer	**2000**	**1,028**	**2.14**	**2,205**	**ton**	**$ 65.17**	**$ 143,700**
	1999	1,160	1.66	1,924	ton	$ 60.60	$ 116,600
Green Chop (A)	**2000**	**470**	**8.95**	**4,205**	**ton**	**$ 17.86**	**$ 75,100**
	1999	1,369	9.78	13,388	ton	$ 21.70	$ 290,500
Oats, Grain	**2000**	**919**	**2.42**	**2,221**	**ton**	**$ 105.90**	**$ 235,200**
	1999	1,427	1.35	1,923	ton	$ 147.48	$ 283,600
Silage, Corn (A)	**2000**	**385**	**24.06**	**9,265**	**ton**	**$ 37.95**	**$ 351,600**
	1999	370	20.85	7,715	ton	$ 34.00	$ 262,300
Oats, Silage (A)	**2000**	**4,251**	**10.63**	**45,200**	**ton**	**$ 32.98**	**$ 1,490,700**
	1999	3,670	11.56	42,435	ton	$ 29.00	$ 1,230,600
Straw	**2000**						**$ 23,100**
	1999						$ 66,200
Pasture, Irrigated (B)	**2000**	**9,550**			**acre**	**$ 100.00**	**$ 955,000**
	1999	9,450			acre	$ 100.00	$ 945,000
Grassland (B)	**2000**	**204,414**			**acre**	**$ 10.00**	**$ 2,044,100**
	1999	206,350			acre	$ 10.00	$ 2,063,500
Woodland (B)	**2000**	**172,625**			**acre**	**$ 1.00**	**$ 172,600**
	1999	172,725			acre	$ 1.00	$ 172,700
Miscellaneous (C)	**2000**						**$ 503,600**
	1999						$ 283,300
TOTAL	**2000**						**$ 7,178,400**
	1999						$ 6,577,800

(A) much of the green chop and silage is not sold but used on the farm-- value is determined by it's feed equivalent
(B) estimated
(C) includes alfalfa, barley, safflower, wheat, rye, vetch, Sudan, etc.

LIVESTOCK AND POULTRY

Item	Year	Number of Head	Total Live Weight	Unit	Dollar Value $/Unit	Dollar Value Total
Cattle/Calves	**2000**	**34,984**	**186,718**	**cwt.**	**$ 66.54**	**$ 12,424,200**
	1999	54,875	318,834	cwt.	$ 64.82	$ 20,667,100
Sheep/Lambs	**2000**	**20,052**	**21,384**	**cwt.**	**$ 70.75**	**$ 1,512,900**
	1999	16,625	17,954	cwt.	$ 68.38	$ 1,227,800
Hogs	**2000**	**2,042**	**4,876**	**cwt.**	**$ 44.10**	**$ 203,100**
	1999	2,552	6,095	cwt.	$ 32.62	$ 198,800
Miscellaneous (A)	**2000**					**$ 40,054,400**
	1999					$ 39,705,500
TOTAL	**2000**					**$ 54,194,600**
	1999					$ 61,799,200

(A) includes chicks, ducks, turkey poults, fryers, roasters, turkeys, etc.

LIVESTOCK AND POULTRY PRODUCTS

Item	Year	Production	Unit	Dollar Value $/Unit	Dollar Value Total
Milk, Market	**2000**	**6,588,643**	**cwt.**	**$ 12.12**	**$ 79,854,400**
	1999	6,456,837	cwt.	$ 14.12	$ 91,171,000
Milk, Manufacturing	**2000**	**29,160**	**cwt.**	**$ 10.97**	**$ 319,900**
	1999	28,644	cwt.	$ 13.37	$ 383,000
Wool	**2000**	**79,912**	**lb.**	**$ 0.40**	**$ 32,000**
	1999	97,767	lb.	$ 0.25	$ 24,442
Miscellaneous Products (B)	**2000**				**$ 10,612,000**
	1999				$ 11,106,600
TOTAL	2000				$ 90,818,300
	1999				$ 102,685,042

(B) includes market duck eggs, turkey hatching eggs, chicken eggs for consumption, egg bi-products and goat milk

LIVESTOCK INVENTORY

(Number of head as of January 1, 2001)

Item	Number
Cattle and Calves (all)	83,000
Milk Cows and heifers 2 years and over	32,000
Beef cows and heifers 2 years and over	15,000
Sheep and Lambs (all)	13,008
Hogs	2,268
Laying Hens and Pullets	1,182,873
Turkey Breeders	31,462
Horses	13,758

COMMERCIAL FISH CATCH

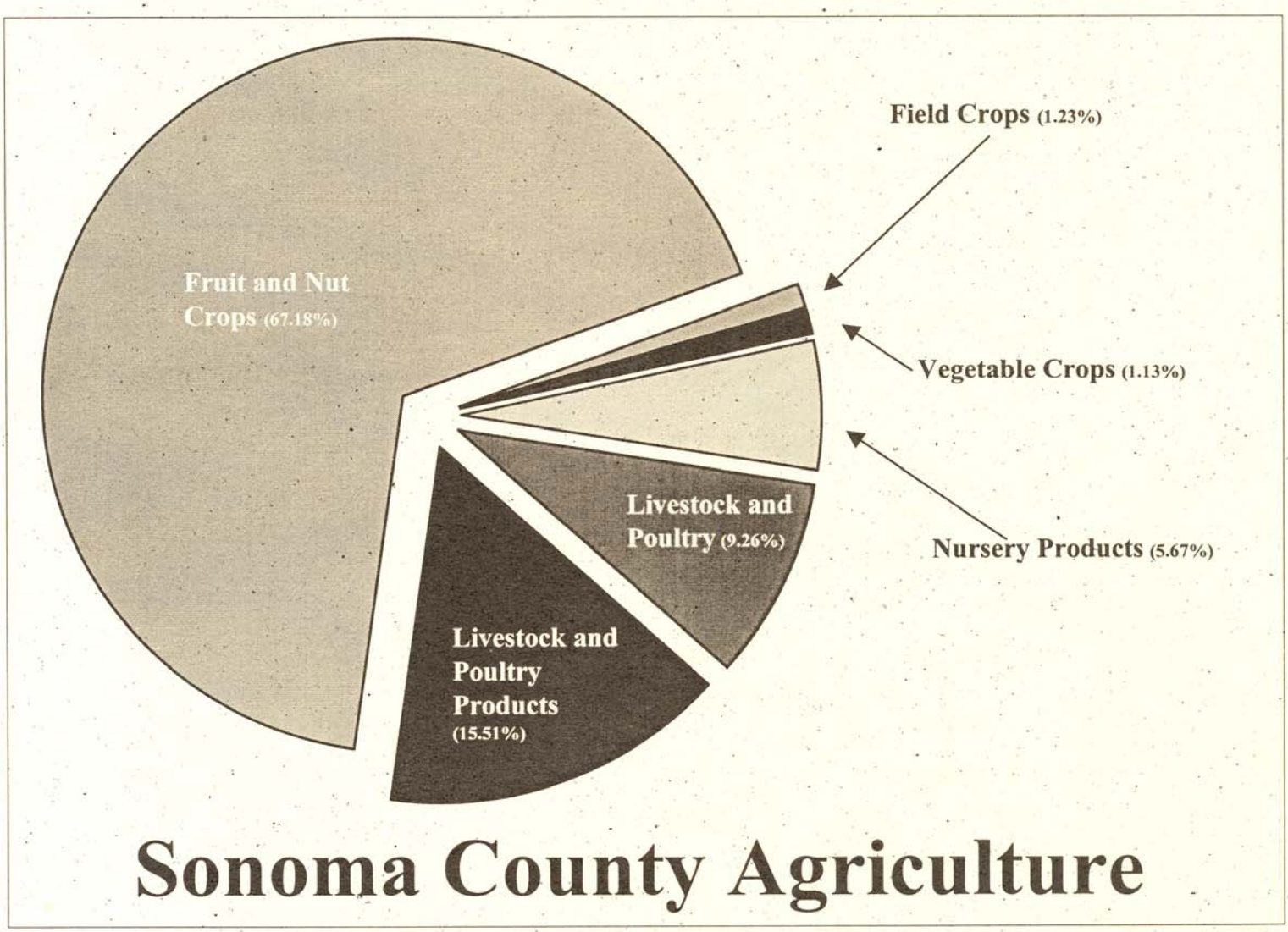
(Informational Only—most recent figures available, furnished by California Dept. of Fish and Game)

Species		Pounds		Value
Salmon, Chinook	**1999**	**550,488**	**$**	**1,044,777**
	1998	134,440	$	294,782
Crab, Dungeness	**1999**	**336,585**	**$**	**896,953**
	1998	1,211,760	$	2,960,630
Rockfish, all	**1999**	**680,691**	**$**	**415,055**
	1998	1,724,088	$	903,939
Urchin, red	**1999**	**465,382**	**$**	**338,398**
	1998	513,659	$	315,296
Sole, all	**1999**	**641,320**	**$**	**230,871**
	1998	441,398	$	180,460
Sablefish	**1999**	**206,018**	**$**	**206,311**
	1998	73,603	$	81,284
Prawn, spot	**1999**	**16,917**	**$**	**121,479**
	1998	19,528	$	132,621
Thornyhead, all	**1999**	**133,473**	**$**	**99,229**
	1998	151,745	$	102,223
Tuna, Albacore	**1999**	**60,198**	**$**	**67,871**
	1998	49,467	$	61,550
Halibut, California	**1999**	**15,633**	**$**	**33,039**
	1998	20,978	$	42,846
Shrimp, Pacific Ocean	**1999**	**56,062**	**$**	**28,031**
	1998	9,748	$	6,886
Cabezon	**1999**	**8,539**	**$**	**25,436**
	1998	24,470	$	65,604
Lingcod	**1999**	**12,573**	**$**	**11,755**
	1998	17,916	$	14,468
Swordfish	**1999**	**2,297**	**$**	**7,851**
	1998	6,604	$	26,344
Grenadiers	**1999**	**15,460**	**$**	**1,729**
	1998	48,498	$	7,098
Crab, rock unspecified	**1999**	**1,364**	**$**	**1,089**
	1998	9,106	$	15,555
Salmon, all other	**1999**	**611**	**$**	**1,075**
	1998	1,073	$	3,317
Shark, all	**1999**	**287**	**$**	**263**
	1998	5,461	$	3,686
Miscellaneous **(A)**	**1999**	**32,809**	**$**	**23,641**
	1998	26,901	$	24,494
Total	**1999**	**3,236,707**	**$**	**3,554,853**
	1998	4,490,443	$	5,243,083

(A) 1998 figues adjusted

RECAPITULATION

	1999	2000	Change
Apiary Products	$ 116,000	**$ 129,100**	*11%*
Field Crops	$ 6,577,800	**$ 7,178,400**	*9%*
Vegetable Crops	$ 12,819,800	**$ 6,640,600**	*-48%*
Nursery Products	$ 23,133,200	**$ 33,270,400**	*44%*
Livestock and Poultry	$ 61,799,200	**$ 54,194,600**	*-12%*
Livestock and Poultry Products	$ 102,685,000	**$ 90,818,300**	*-12%*
Fruit and Nut Crops	$ 275,907,100	**$ 393,373,900**	*43%*
Total	$ 483,038,100	**$ 585,605,300**	*21%*



SUSTAINABLE AGRICULTURE REPORT

By Priscilla Lane

Biological Control Program

Targeted Noxious Weed	Biological Control	# of Release Sites
BULL THISTLE *(Cirsium vulgare)*	Seed Head Gall Fly *(Urophora stylata)*	2
YELLOW STARTHISTLE *(Centaurea solstitialis)*	Hairy Weevil *(Eustenopus villosus)*	5
	Flower Weevil *(Larinus curtus)*	5

Organic Farming Statistics

184 individual organic registrants

Commodity	Registrants	Growing Locations	Acres
Eggs	5	6	N/A
Fruit/Nuts	76	490	1626
Grain	3	3	148
Milk	2	3	N/A
Nurseries	16	17	21
Vegetables	89	100	338
Wine Grapes	19	46	389
Handlers	12	N/A	N/A

Pest Detection

Trapping: There were 1,081 traps placed for the detection of exotic insect pests including Mediterranean and Oriental Fruit Flies, Melon Fly, Gypsy Moth, Japanese Beetle, Khapra Beetle, Western Grapeleaf Skeletonizer and Olive Fruit Fly. These traps were serviced 9,674 times. There were 1,074 traps placed for the Glassy-Winged Sharpshooter. These traps were serviced 6,855 times.

Entryway Survey: 237 miles and 22 properties were surveyed for the presence of noxious weed and disease pests.

Pest Exclusion

A total of 2,348 premise inspections for incoming shipments of plant material were made in 2000. This was a 12% decrease in inspections over 1999. Inspections occurred at the express carriers, nurseries, post office, feed mills, post entry inspections, United Parcel Service and pet stores. 1073 rejections of plant material were made. The number of rejections decreased 32% over 1999 rejections. This was due to better communication with shippers as to the nature of our quarantines. Rejected plant material was either destroyed or reconditioned and released.

To prevent the spread of GWSS into Sonoma County from infested counties department personnel inspected all shipments of nursery material arriving from these counties. More than 2000 shipments were inspected; two were found to have viable egg masses and rejected. Wineries receiving bulk grapes from infested counties were under compliance agreements requiring the shipping vineyards to be inspected and determined to be free from GWSS or be treated. 17 wineries received 188 shipments. All were from vineyards free from GWSS.

Listed below are a few of the economically important pest species intercepted in 2000:			
Balsam Fir Gall Midge *Paradiplosis tumifex*	**Yellow Nut Sedge** *Cyperus esculeutis*	**Black Citrus Scale** *Parlatoria zizyphi*	**Boxwood Scale** *Pinnaspis buxi*
Croton Whitefly *Orchamoplatus mammaeferus*	**Glassy-Winged Sharpshooter** *Homodiscus coagulata*	**Purple Loosestrife** *Lythrum salicaria*	**Quack Grass** *Elytrigia repens*
Big-headed Ant *Pheidole Magacephlia*	**"a Snail"** *Zachrysia provisopa*	**Lesser Snow Scale** *Pinnaspis strachani*	**Unilobe scale** *Pinnaspis uniloba*
Tropical Palm Scale *Hemiberlesia palmae*	**Redgum Lerp Psyllid** *Glycaspis brimblecombei*	**"a Long-horned Beetle"** *Chlorophorus annuaryis*	**Magnolia White Scale** *Pseudaulacaspis cockerelli*

EXOTIC PEST PROFILES

1. Burrowing Nematode *(Radopholus similis)*

Nematodes are microscopic worms that cause eighty billion dollars of crop loss in the world each year. These tiny wormlike animals feed on the roots, leaves, and stems of more than 2,000 vegetables, fruits, and ornamental plants, and are highly capable of surviving in any environment. In general, nematodes have slender, cylindrical, non-segmented bodies tapering towards the head and tail, but females of some of the plant-parasitic species assume varying forms, such as pear, lemon or kidney shapes. They are called plant-parasitic because of the nutrients they get from plant with their needle-like structure called a stylet, which is used to pierce plant cells to get food. This also allows nematodes to pass on many plant viruses. The economic consequences of crop loss due to nematode-borne disease are many and varied. These involve reduction in quality and quantity of crop yield. The burrowing nematode was first reported in banana plants in the Fiji islands in 1893. It carries spreading decline of citrus (first recognized as a disease in 1930, but the method of transmission was not known until 1953).

2. Red Imported Fire Ant *(Solenopsis invicta)*

In 1929, Red Imported Fire Ants (RIFA) were accidentally introduced to the United States at the port of Mobile, Alabama. By the time of the first official survey carried out by the USDA in 1953, RIFA had invaded 102 counties in 10 states. Since then they have spread to 14 States and Commonwealths. They now infest approximately 270 million acres (all or part of Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, and Texas). These pests pose serious threats to people, small animals, the environment and agricultural equipment. The arrival of RIFA into an ecosystem wrecks havoc on the local ecological community, displacing many native ant species and reducing food used by wildlife. These insects feed on the buds or fruits of many plants and may remove bands of bark from young citrus trees, often killing them. They feed on the seeds of 139 species of native wildflowers and grasses. Multiple stings can cause serious injury or even death to newborn livestock, domestic animals, pets and wildlife; especially animals on the ground or those nesting in low trees. The hard, cone-shaped nests of RIFA can mount as high as 2 feet, making it difficult to cultivate and harvest crops from infested fields. These mounds are unsightly hazards in yards, parks, and other recreational areas, where they are especially dangerous to children and pets. In urban areas, RIFA nest within structures such as the walls of homes and offices. Fire ant colonies have been found inside automobiles, trucks and recreation vehicles; causing traffic accidents by stinging the drivers.

3. Glassy-winged Sharpshooter *(Homalodisca coagulata)*

Glassy-winged sharpshooter (GWSS) is a serious new agricultural pest in California. When feeding, it can transmit Pierce's disease (*Xyella fastidiosa*) to grapevines, and other diseases to almond trees, alfalfa, citrus and oleanders. First sighted in the state in 1990, this insect has spread throughout Southern California and into the southern San Joaquin Valley. The glassy-winged sharpshooter and the diseases it carries pose a serious threat to the California viticulture industry, as well as to other crops throughout the state. Based on current knowledge of the biology of GWSS, there is reason to believe that this insect pest may disperse northward into the major wine, table and raisin grape producing areas of the state. While the presence of GWSS would represent a serious threat to California viticulture, this disease vector also poses serious consequences for other commercial crops and nursery ornamentals. GWSS is already thought to be responsible for much of the spread of oleander leaf scorch (OLS) in Southern California. This disease has killed a large number of the oleanders planted as ornamental shrubs in parks, commercial and residential landscapes and in freeway medians. OLS is caused by a strain of *Xyella fastidiosa* distinctive from that affecting grapes and almonds, but it may yet prove capable of causing disease in other ornamental and commercial crops. Some strains of the bacterium not yet in California may now spread rapidly if they are introduced into the state. This includes citrus variegated chlorosis (CVC), a serious disease of citrus that has killed more than 60 million orange trees in Brazil. Other strains of the *Xyella fastidiosa* bacterium are known to infect peaches, plums and forest trees in the southeastern United States.

4. Sudden Oak Death *(Phytophthora sp. nov.)*

Throughout California's coastal counties tanoaks (*Lithocarpus densiflorus*), coast live oaks (*Quercus agrifolia*), black oaks (*Quercus kelloggii*) and Shreve's oak (*Q. parvula var. shrevei*) are dying in large numbers. Rhododendron (*Rhododendron sp.*) and huckleberry (*Vaccinium ovatum*) are also suffering. University of California researchers isolated a previously unknown species of *Phytophthora* fungus from dying trees. Relatives of this fungus are responsible for Port-Orford-cedar Root Disease and Jarrah Dieback and are causing oak dieback in many parts of the world. Researchers must now search to understand the fungus' biology, its role in Sudden Oak Death, and what role, if any, bark beetles and other fungi consistently associated with the dying trees play. Tree mortality has been noted in multiple forest types including redwood-tanoak forests, mixed-evergreen forests and coastal oak woodlands. This includes trees in wildland settings and at the urban-wildland interface. Initial surveys suggest that up to 80% of trees may be affected within some stands. Sudden oak death was first seen on tanoak in Mill Valley (Marin County) in 1995. Since then, elevated levels of oak mortality have been reported as far north as Humboldt County and as far south as Monterey County. To date only seven counties have been confirmed as infested: Marin, Napa, Sonoma, San Mateo, Santa Clara, Santa Cruz and Monterey counties. Of the currently known affected areas, Marin, Santa Cruz and Monterey show particularly elevated levels of mortality. The unprecedented level of dieback of tanoak, coast live oak, black oak poses several immediate and future environmental threats:

1) Dead and dying oaks worsen the already severe fire hazard conditions in both wildland and developed hillside areas.
2) Many wildlife species depend on these major acorn-bearing trees for habitat.
3) Oaks are highly valued trees in an urban setting, providing beauty, shade and property value to homes.

5. Gypsy Moth *(Lymantria dispar)*

The gypsy moth is considered one of North America's most devastating pests of forests. The species is originally from Europe and Asia, and was accidentally introduced near Boston, MA around 1868. About 10 years after this introduction, the first outbreaks began, and in 1890 the State and Federal agencies began their eradication efforts. These attempts ultimately failed and since that time, the range of gypsy moth has continued to spread. Current range includes: Connecticut, Delaware, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, and Virginia. It is predicted that it could spread to Illinois, Indiana, Iowa, North Carolina, Ohio, West Virginia and Wisconsin by 2005. The gypsy moth is known to feed on the foliage of over 300 species of coniferous and deciduous trees and shrubs during the larval stage of its life. In 1981 alone, gypsy moths were responsible for the defoliation of a record 12.9 million acres of forest. Some preferred host species include oak, apple, alder, basswood, poplar, sweetgum, willow and hawthorn. Over the last 20 years, several millions of acres of forestland have been aerially sprayed with pesticides in order to suppress outbreak gypsy moth populations. In 1992 three live adult were detected in Sonoma County. After an extensive trapping delimitation program, no others were found. Currently, an eradication effort consisting of aerial application of Bacillus thuringiensis (a bacterial organism which controls certain insects by causing disease) is underway in Marin County.

Fruit Flies *(family Tephritidae)*

The "true" fruit flies comprise over 4,000 species distributed over most of the planet, and include several of the greatest potential threats to agriculture. The New World genus *Anastrepha*, the primarily African genus *Ceratitis*, and the genus *Bactrocera* contain most of the world's most serious fruit fly pests. The genus *Bactrocera*, with 350 to 375 species, is indigenous to Africa, the Mediterranean Region, the Near and Far East, Australia, and the Pacific. Fruit flies are very destructive pests of fruit in areas where it occurs. Typically, the female attacks ripening fruit, piercing the soft skin and laying eggs in the puncture. The eggs hatch into larvae (maggots), which feed inside the fruit pulp.

6. Melon Fruit Fly *(Bactrocera cucurbitae)*

The melon fruit fly is a serious agricultural pest that originated in Asia and spread to other areas including Africa, China and Sri Lanka. This pest attacks more than one hundred fruits and vegetables preferring chili peppers, cucumbers, eggplant, melon, squash and tomato.

7. Mexican Fruit Fly *(Anastrepha ludens)*

Mexican fruit fly is one of the world's most destructive insect pests, and is native to the New World genus. It attacks more than 40 kinds of fruits (including apples, apricots, avocados, grapefruit, mangos, nectarines, peaches, pears, plums, prunes, oranges, and tangerines) and vegetables, many of which grow in home gardens and orchards. If the fly were to become established in the United States, losses caused by the pest would amount to about $1.44 billion over 5 years, according to a 1991 APHIS (USDA's Animal and Plant Health Inspection Service) study.

8. Oriental Fruit Fly *(Bactrocera dorsalis)*

Oriental Fruit Fly is one of the most harmful of all fruit flies. It spread from Southeast Asia to the Pacific Islands, and has become a major pest in Hawaii. These flies attack over 230 different fruits, including: apples, apricot, avocados, bananas, citrus, cucumbers, fig, grapefruit, grapes, guava, lemons, mango, papaya, peaches, pears, plums, peppers, tomatoes, and walnuts.

9. Mediterranean Fruit Fly *(Ceratitis capitata)*

The Mediterranean fruit fly, commonly called Med fly is one of the world's most destructive agricultural pests. The adult Med fly is slightly smaller than a common housefly, is very colorful, and originated in Africa. It has since spread throughout the Mediterranean region, southern Europe, the Middle East, western Australia, South and Central America, and Hawaii. In general, it is found in most tropical and subtropical areas of the world. The Med fly became established in Hawaii in 1910. Hawaii remains infested with this pest, and no eradication program is currently under way. The first U.S. mainland infestation occurred in Florida in 1929. Several infestations have occurred on the mainland since then. However, State and Federal eradication programs in California, Florida, and Texas have prevented it from becoming established.

10. Olive Fruit Fly *(Bactrocera oleae)*

The Olive fruit fly, the most serious pest of olives, is found in many olive-producing areas in the world. The larvae cause premature fruit drop and yield reduction, resulting in about 30 percent loss of the olive crop in Mediterranean countries, and especially in Greece and Italy where large commercial production occurs. An infestation seriously affects oil volume, altering its color and increasing acidity. The larger, earlier maturing olive varieties such as those grown in California, are preferred for egg laying. California, with 35,000 acres of olives (valued at more than $100 million in 1996), is the nation's sole producer of commercial olives.

11. Japanese Beetle *(Popillia japonica)*

The Japanese beetle is a highly destructive plant pest. It was first found in the United States in a nursery in southern New Jersey nearly 80 years ago. By 1972, beetle infestations had been reported in 22 States east of the Mississippi River and also in Iowa and Missouri. Since then, the pest has continued to disperse south and west. Isolated infestations have been found in Wisconsin, Oregon, and California. In Japan the beetle's natural enemies keep its populations in check, and this insect is not a serious plant pest. In the United States, however, the beetle entered without its natural enemies and found a favorable climate and an abundant food supply. Both as adults and as grubs (the larval stage), Japanese beetles are destructive plant pests. Adults feed on the foliage and fruits of several hundred species of fruit trees, ornamental trees, shrubs, vines, and field and vegetable crops. Adults leave behind skeletonized leaves and large, irregular holes in leaves. The grubs develop in the soil, feeding on the roots of various plants and grasses and often destroying turf in lawns, parks, golf courses, and pastures. Today, the Japanese beetle is the most widespread turfgrass pest in the United States. Efforts to control the larval and adult stages are estimated to cost more than $460 million a year. Losses attributable to the larval stage alone have been estimated at $234 million per year--$78 million for control costs and an additional $156 million for replacement of damaged turf.

12. Iberian Star Thistle *(Centaurea iberica)*

First reported in Sonoma County in 1987, the Iberian Star Thistle is native to Turkey. It is a noxious bushy weed with spiny or comb-like phyllaries and white, pink, or purple flowers. Plants exist as basal rosettes until erect, highly branched flowering stems (often over six feet) are produced late spring/summer. *Centaurea* species produce allelopathic (poisoning) effects, which combined with their spiny nature, make them a particular nuisance to livestock. They are prolific seed producers, and are highly competitive with other plants, often displacing desired vegetation. There are thirteen species of *Centaurea* currently in California as introduced weeds and escaped ornamentals, the best known being the Yellow Star Thistle (*Centaurea solstitialis*). Numerous biocontrol agents are known to parasitize *Centaurea* species in their native habitats. Currently the target of an eradication project in Sonoma County, the range of the Iberian Star Thistle is down to less than 1 acre from a high of 20 acres.

13. Whitestem Distaff Thistle *(Carthamus leucocaulos)*

This weed was introduced into Sonoma County in 1958, the only recorded infestation in the Western Hemisphere., Native to the Southern Aegean islands of the Mediterranean region, the Whitestem Distaff thistle is a noxious, annual composite weed with light lavender flowers. Plants exist as rosettes until spiny-leaved flowering stems (up to 1 m tall) are produced in spring/summer. The Whitestem Distaff thistle is closely related to the Smooth and Woolly Distaff thistles, and are often difficult to distinguish from one another. It is also closely related to commercial safflower [*Carthamus tinctorius L.*], precluding the development and release of biocontrol agents in California. Distaff thistles are highly competitive with cereal crops and desirable rangeland species, and because of their spiny nature can injure the eyes and mouths of livestock forced to graze within dense populations of the weeds. While the Whitestem Distaff thistle was successfully eradicated from Sonoma County in 1992, other Distaff Thistles remain a problem.

14. Hydrilla *(Hydrilla verticillata)*

Native to Asia, Africa, and Australia, this aquatic plant was introduced into Florida waters in the early 1950s, where it was being cultured for the aquarium industry. It expanded rapidly in the eastern United States and quickly spread to other U.S. waters. By 1995, hydrilla was choking lakes and rivers as far west as California and Washington. Because it tolerates many different environments, hydrilla could potentially spread throughout most of the United States and north into Canada, with serious consequences for aquatic systems, native biodiversity, recreation, and agriculture. Although it is rooted in the soil, 70 percent of hydrilla's biomass floats on the water's surface. Hydrilla forms green carpets thick enough for ducks to walk on, and clogs waterways so thoroughly that they are inaccessible to swimmers and boaters. Hydrilla can grow as much as 10 inches a day, develop from a small fragment into a large mass in a few weeks, and spread from a few acres to several thousand acres in only a few years. Hydrilla alters water chemistry and can outcompete native vegetation by photosynthesizing under low light levels and producing a dense canopy on the water's surface that shades out most of the vegetation below it. This reduces the diversity of other submersed aquatic vegetation, as well as fish and other aquatic life. Hydrilla infestations also can eliminate open-water feeding areas for birds and spawning sites for fish. Once established, hydrilla is nearly impossible to eradicate. Mechanical harvesting and herbicide spraying are the most common control methods. Both are costly—Florida alone spent more than $50 million on hydrilla management between 1980 and 1991, with limited effectiveness. In 1984 there was a successful eradication of hydrilla from Spring Lake. The Sonoma County Agricultural Commissioner's Office spent almost 1 million dollars to eliminate this threat, protecting Santa Rosa Creek and the Laguna.

Sources:

USDA, Animal and Plant Health Inspection Service (APHIS)
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University of Florida Department of Entomology and Nematology
USDA, ARS, Nematology Laboratory
UC Sudden Oak Death Research Team
Weeds of the West, University of Wyoming

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