



**United States Department of Agriculture
National Agricultural Statistics Service**



**CALIFORNIA AGRICULTURAL CHEMICAL USE
FRUIT CROPS 2011**

Cooperating with the California Department of Food and Agriculture

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OVERVIEW

The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture’s official source of statistics about pesticide use and pest management practices. In the fall of 2012, NASS collected data about chemical use and pest management practices for 26 fruit crops in 12 states. In California, NASS collected data for the following 21 fruit crops: Apples, Apricots, Avocados, Sweet Cherries, Dates, Figs, Grapefruit, Grapes (All), Grapes (Raisin), Grapes (Table), Grapes (Wine), Kiwifruit, Lemons, Nectarines, Olives, Oranges, Peaches, Pears, Plums, Prunes and Tangerines.

PEST MANAGEMENT PRACTICES

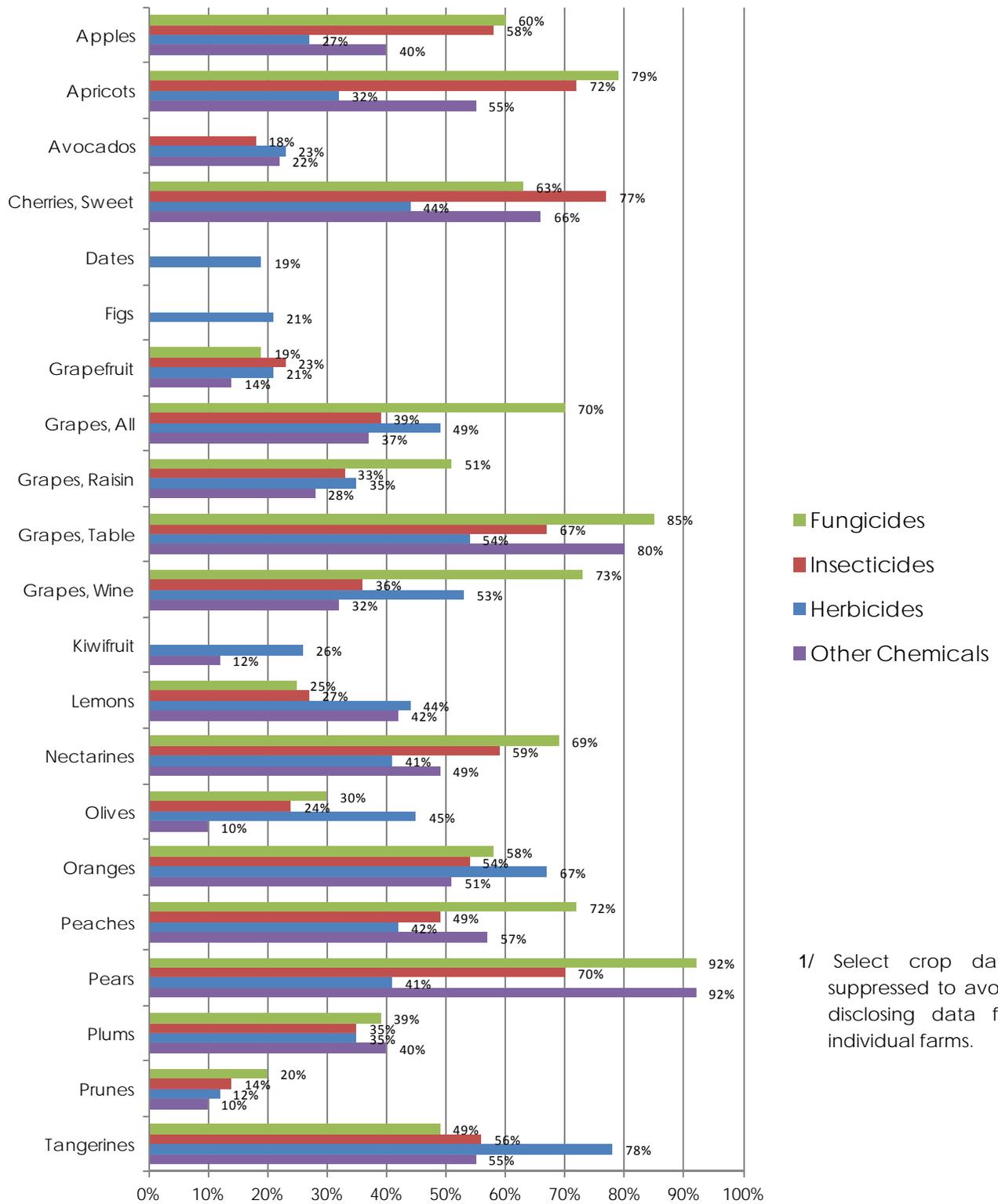
Fruit growers reported using several management practices to aid in the deterrence of pests through prevention, monitoring and suppression. In California, the top prevention methods were used in farming over fifty percent of the 2011 fruit crops.

Pest Management Practices in California		% All Fruit Crops	% All Fruit Operations
Prevention	Field edges/etc. chopped, mowed/etc.	73	52
	Clean implements after fieldwork	72	44
	Field cultivated for weed control	65	46
Monitoring	Scouted for diseases	96	86
	Scouted for insects	96	85
	Scouted for weeds	95	86
Suppression	Alternate pesticides with different Mechanisms of Action	61	36
	Maintain ground cover or physical barriers	58	44
	Scouting used to make decisions	40	25

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Percent Of Acres Treated With Pesticides In California ^{1/}



Percentage of Acres Treated
(One acre may be treated with more than one Pesticide)

^{1/} Select crop data suppressed to avoid disclosing data for individual farms.

Top Insecticides Used On Fruit Crops In California ^{1/}

	Insecticide Active Ingredient	Acres	Rate per	Total
		Treated	Crop Year	Applied
		%	Lbs/Acre	Lbs
Apples	Carbaryl	25%	3.612	15,500
	Diazinon	15%	2.163	5,500
	Acetamiprid	14%	0.154	400
Apricots	Esfenvalerate	16%	0.065	100
Avocados	Abamectin	16%	0.021	200
	Spinetoram L	1%	0.056	(Z)
	Spinetoram	1%	0.056	(Z)
Sweet Cherries	Lambda-cyhalothrin	36%	0.062	600
	Abamectin	34%	0.024	200
	Spinosad	29%	0.170	1,400
Grapefruit	Imidacloprid	6%	0.521	300
	Spinetoram L	5%	0.046	(Z)
	Spinetoram	5%	0.046	(Z)
	Acetamiprid	5%	0.123	100
Grapes, All	Imidacloprid	19%	0.303	46,900
	Abamectin	14%	0.020	2,200
	Spirotetramat	9%	0.125	9,200
Grapes, Raisin	Abamectin	27%	0.021	1,200
	Imidacloprid	23%	0.230	11,000
	Methoxyfenozide	14%	0.165	4,600
Grapes, Table	Spinetoram L	39%	0.033	1,100
	Spinetoram	39%	0.033	1,100
	Spirotetramat	35%	0.118	3,500
Grapes, Wine	Imidacloprid	19%	0.282	26,400
	Abamectin	11%	0.019	1,000
	Methoxyfenozide	7%	0.208	7,800
	Spirotetramat	7%	0.124	4,300
Lemons	Chlorpyrifos	12%	4.359	22,800
	Abamectin	8%	0.020	100
	Sulfur	5%	21.465	43,500
Nectarines	Formetanate Hydro	32%	0.980	8,400
	Esfenvalerate	25%	0.066	500
	Spinetoram L	17%	0.051	200
	Spinetoram	17%	0.051	200
Olives	Spinosad	20%	(Z)	(Z)
	Pyriproxyfen	2%	0.107	100
Oranges	Spinosad	28%	0.145	7,400
	Malathion	21%	0.285	10,900
	Imidacloprid	18%	0.605	19,300
Peaches	Esfenvalerate	21%	0.070	700
	Lambda-cyhalothrin	20%	0.069	700
	Abamectin	9%	0.019	400
Pears	Esfenvalerate	47%	0.056	400
	Abamectin	46%	0.019	100
	Spinetoram L	28%	0.057	200
	Spinetoram	28%	0.057	200
Plums	Esfenvalerate	25%	0.052	300
	Pyriproxyfen	9%	0.088	200
	Chlorpyrifos	4%	2.329	2,400
Prunes	Esfenvalerate	11%	0.056	400
	Abamectin	2%	0.015	(Z)
Tangerines	Imidacloprid	42%	0.592	8,100
	Spinosad	36%	0.058	700
	Abamectin	28%	0.012	100

1/ Select crop data suppressed to avoid disclosing data for individual farms.

(Z) Less than one half of the Unit Shown.

Top Fungicides Used On Fruit Crops In California ^{1/}

	Fungicides	Acres	Rate per	Total
	Active Ingredient	Treated	Crop Year	Applied
		%	Lbs/Acre	Lbs
Apples	Streptomycin Sulfate	45%	0.025	2,000
	Mancozeb	40%	4.000	28,300
	Oxytetracycline Calc	29%	0.291	1,500
Apricots	Iprodione	59%	0.763	4,900
	Copper hydroxide	57%	5.510	31,800
	Pyraclostrobin	50%	0.205	1,100
	Propiconazole	50%	0.104	600
Sweet Cherries	Boscalid	41%	0.254	300
	Pyraclostrobin	41%	0.129	1,500
	Iprodione	26%	0.962	7,300
Grapefruit	Basic copper sulfate	12%	6.709	7,800
	Copper hydroxide	7%	1.515	1,000
Grapes, All	Sulfur	66%	28.451	15,058,600
	Myclobutanil	22%	0.119	21,300
	Trifloxystrobin	20%	0.098	15,300
	Boscalid	20%	0.225	35,600
	Pyraclostrobin	20%	0.114	17,800
Grapes, Raisin	Sulfur	50%	28.544	2,903,600
	Myclobutanil	28%	0.119	6,800
	Kresoxim-methyl	20%	0.080	3,300
Grapes, Table	Sulfur	84%	21.152	1,502,100
	Trifloxystrobin	53%	0.099	4,400
	Boscalid	52%	0.190	8,400
	Pyraclostrobin	52%	0.096	4,300
Grapes, Wine	Sulfur	69%	30.073	10,512,000
	Boscalid	20%	0.243	24,800
	Pyraclostrobin	20%	0.123	12,300
Lemons	Basic copper sulfate	13%	7.396	42,200
	Copper hydroxide	12%	2.311	12,300
Nectarines	Propiconazole	49%	0.133	1,800
	Sulfur	38%	5.055	52,100
	Iprodione	33%	0.528	4,800
Olives	Copper hydroxide	26%	3.775	40,600
	Basic copper sulfate	3%	18.916	22,300
Oranges	Basic copper sulfate	52%	7.583	704,300
	Copper hydroxide	5%	4.044	39,700
	Copper oxide	1%	3.201	7,900
	Mefenoxam	1%	0.665	900
Peaches	Propiconazole	48%	0.221	5,100
	Sulfur	43%	19.176	387,900
	Iprodione	35%	0.666	11,000
Pears	Oxytetracycline Calc	80%	0.731	8,200
	Streptomycin Sulfate	65%	0.298	2,700
	Mancozeb	40%	6.927	38,600
Plums	Propiconazole	26%	0.216	1,500
	Myclobutanil	13%	0.181	600
	Copper hydroxide	6%	3.399	5,300
	Boscalid	6%	0.196	300
	Pyraclostrobin	6%	0.100	200
Prunes	Propiconazole	11%	0.146	1,000
	Sulfur	8%	15.509	75,500
	Chlorothalonil	6%	3.075	11,200
Tangerines	Basic copper sulfate	39%	5.152	66,100
	Copper hydroxide	7%	4.108	9,400

1/ Select crop data suppressed to avoid disclosing data for individual farms.

(Z) Less than one half of the Unit Shown.

Selected Terms and Definitions

Active Ingredient: The specific pesticide ingredient which kills or controls the target pest(s) or other target material(s), or otherwise results in the pesticide effect(s). All pesticide-use estimates in the report are at the active ingredient level; one or more active ingredients are present in known amounts in the pesticide products reported in survey.

Pesticide: Defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as “(1) any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant, and (3) any nitrogen stabilizer...(Title 7, U.S. Code, 136).” Under FIFRA, pesticides are registered and regulated through the Environmental Protection Agency’s Office of Pesticide Programs. Four classes of pesticides are included in report: (1) herbicides targeting weeds, (2) insecticides targeting insects (3) fungicides targeting fungi, and (4) other chemicals targeting all other pests or other materials (including extraneous crop foliage).

Other Chemicals: Any other agricultural chemicals such as growth regulators, microbial agents, rodenticides, repellents, thinners, soil fumigants, pheromones, defoliants, desiccants, etc.

Mechanism of Action (MOA): The method or biological pathway by which the pesticide or active ingredient kills or controls the target pest(s) or other target material(s).

Avoidance: A strategy in which the detrimental effects of pests on crops are mitigated or eliminated solely through various cultural practices.

Monitoring: A strategy involving the observance or detection of pests through systematic sampling, counting, or other forms of scouting. Monitoring may include prediction of pest population levels through the observance of environmental factors such as weather or soil and crop quality. Monitoring is one of four classes of pest-management practices for which data is included in report.

Prevention: A strategy in which a pest population is kept from infesting a crop or field, by taking various preceding actions. Prevention is one of four classes of pest-management practices for which data is included in report.

Suppression: A strategy which involves the control or reduction of existing pest populations in order to mitigate crop damage. May include physical or biological controls, or management of resistance build-up through pesticide rotation. Suppression is one of four classes of pest-management practices for which data is included in report.

Farm: Any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year. Government payments are included in sales.

Crop Year: The period starting immediately after harvest of the previous year’s crop, and ending at harvest of the current year’s crop.

FOR MORE INFORMATION

The 2011 agricultural chemical use data for fruit were published August 1, 2012, and are available through the Quick Stats database on the NASS website:

<http://www.nass.usda.gov>.

Information on survey methods can be found by selecting Methodology at:
http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/

To access the database directly, go to <http://quickstats.nass.usda.gov> and under Sector: Environmental, Groups: Fruit & Tree Nuts, Commodity: Fruit Crop, State: California.
If you need additional assistance, please call us at (916) 498-5161.

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