

# CALIFORNIA AGRICULTURAL CHEMICAL USE : FRUIT CROPS 2009



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 on-farm fertilizer and pesticide use and pest management practices. In the fall of 2009, NASS collected data about chemical use and pest management practices for 23 fruit crops in 12 states. In California, NASS collected data for the following 18 fruit crops: Apples, Apricots, Avocados, Sweet Cherries, Dates, Figs, Grapefruit, Grapes, Kiwifruit, Lemons, Nectarines, Olives, Oranges, Peaches, Pears, Plums, Prunes and Tangerines.

## Pest Management Practices

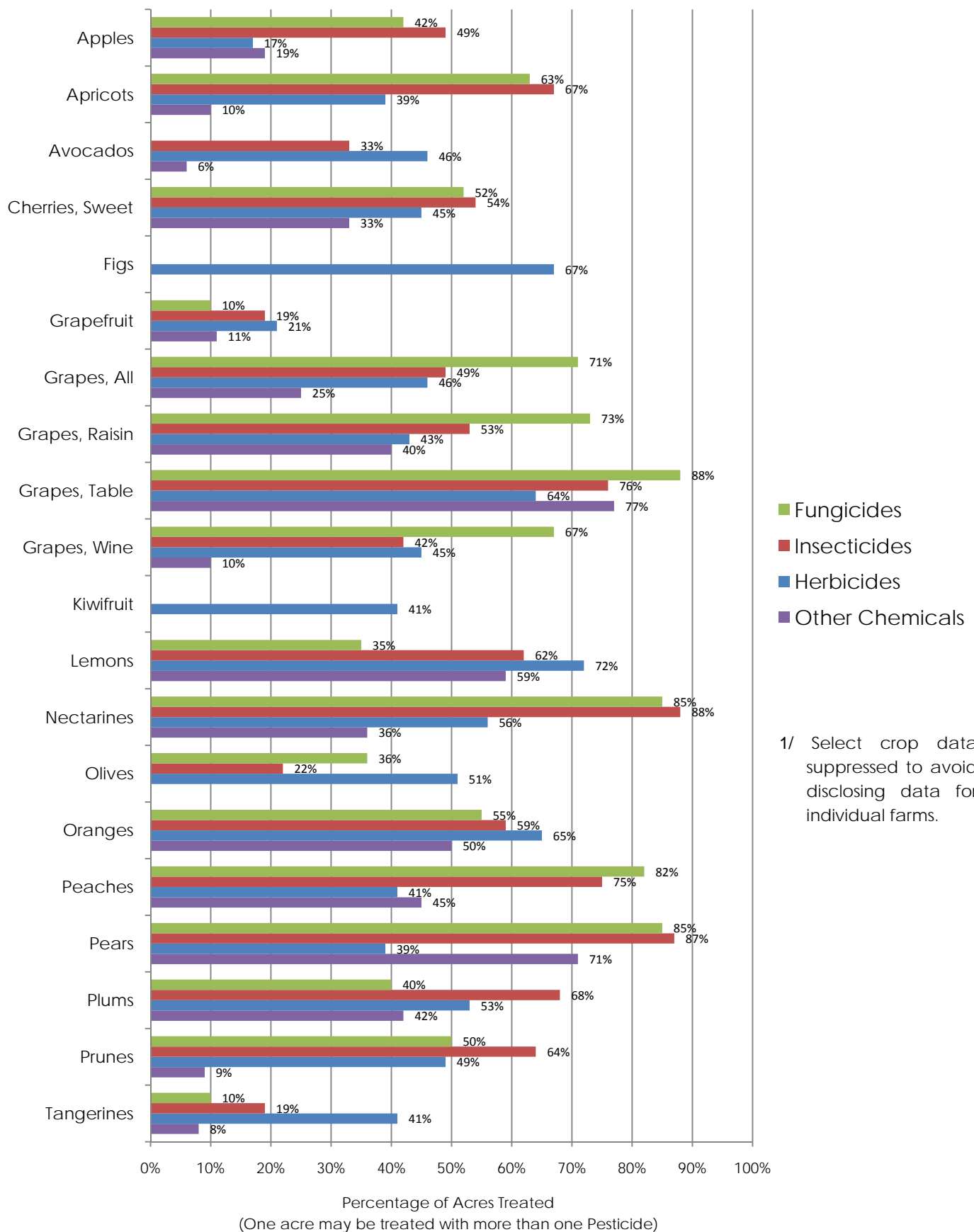
Fruit growers reported using several management practices to aid in the deterrence of pests through prevention, monitoring and suppression. In California, the top prevention methods were used in farming over fifty percent of the 2009 fruit crops.

Pest Management Practices in California		% All Fruit Crops	% All Fruit Operations
<b>Prevention</b>	Field cultivated for weed control	77	61
	Clean implements after fieldwork	75	57
	Field edges/etc. chopped, mowed/etc.	75	65
<b>Monitoring</b>	Scouted for diseases	98	91
	Scouted for insects	98	92
	Scouted for weeds	93	86
<b>Suppression</b>	Alternate pesticides with different Mechanisms of Action	67	40
	Scouting used to make decisions	50	34
	Maintain ground cover or physical barriers	47	48

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## Percent Of Acres Treated With Pesticides In California <sup>1/</sup>



## Top Insecticides Used On Fruit Crops In California <sup>1/</sup>

	Insecticide Active Ingredient	Acres Treated	Rate per Crop Year	Total Applied
		%	Lbs/Acre	Lbs
Apples	Petroleum distillate	26%	38.668	192,400
	Carbaryl	18%	2.353	7,900
	Phosmet	12%	4.115	9,400
Apricots	Esfenvalerate	43%	0.070	300
	Petroleum distillate	40%	25.140	111,500
	Lambda-cyhalothrin	17%	0.054	100
Avocados	Abamectin	29%	0.024	500
	Petroleum distillate	12%	35.451	267,300
	Petroleum oil	9%	2.160	12,300
Sweet Cherries	Benzoic acid	18%	0.212	1,100
	Lambda-cyhalothrin	15%	0.053	200
	Petroleum distillate	12%	24.519	85,400
Grapefruit	Chlorpyrifos	8%	2.279	1,600
	Pyriproxyfen	4%	0.464	200
Grapes, All	Imidacloprid	17%	0.283	38,800
	Petroleum distillate	11%	11.480	964,800
	Cryolite	9%	8.498	603,800
Grapes, Raisin	Cryolite	28%	7.142	430,000
	Abamectin	16%	0.015	500
	Imidacloprid	15%	0.183	6,100
Grapes, Table	Spinosad	33%	0.176	4,900
	Imidacloprid	33%	0.551	15,300
	Spinetoram	23%	0.078	1,500
Grapes, Wine	Petroleum distillate	17%	11.503	958,600
	Imidacloprid	16%	0.228	17,300
	Benzoic acid	6%	0.203	5,900
Lemons	Abamectin	44%	0.014	300
	Petroleum distillate	42%	56.396	1,126,300
	Petroleum oil	30%	9.635	134,200
Nectarines	Spinosad	50%	0.156	2,300
	Esfenvalerate	28%	0.059	500
	Pyriproxyfen	27%	0.123	1,000
Olives	Spinosad	19%	0.001	(Z)
	Petroleum distillate	3%	22.521	18,900
Oranges	Spinosad	23%	0.147	6,300
	Beta-cyfluthrin	20%	0.037	1,400
	Abamectin	17%	0.018	600
Peaches	Esfenvalerate	52%	0.090	2,500
	Petroleum distillate	23%	31.601	384,300
	Lambda-cyhalothrin	23%	0.052	600
Pears	Petroleum distillate	69%	63.736	613,800
	Abamectin	53%	0.020	100
	Esfenvalerate	47%	0.069	500
Plums	Esfenvalerate	44%	0.060	700
	Pyriproxyfen	16%	0.113	500
	Petroleum distillate	14%	34.605	127,100
Prunes	Esfenvalerate	48%	0.061	1,900
	Petroleum distillate	22%	26.571	367,100
	Petroleum oil	15%	14.196	133,900
Tangerines	Spinetoram	16%	0.066	300
	Imidacloprid	10%	0.500	1,300
	Beta-cyfluthrin	9%	0.025	100

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

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

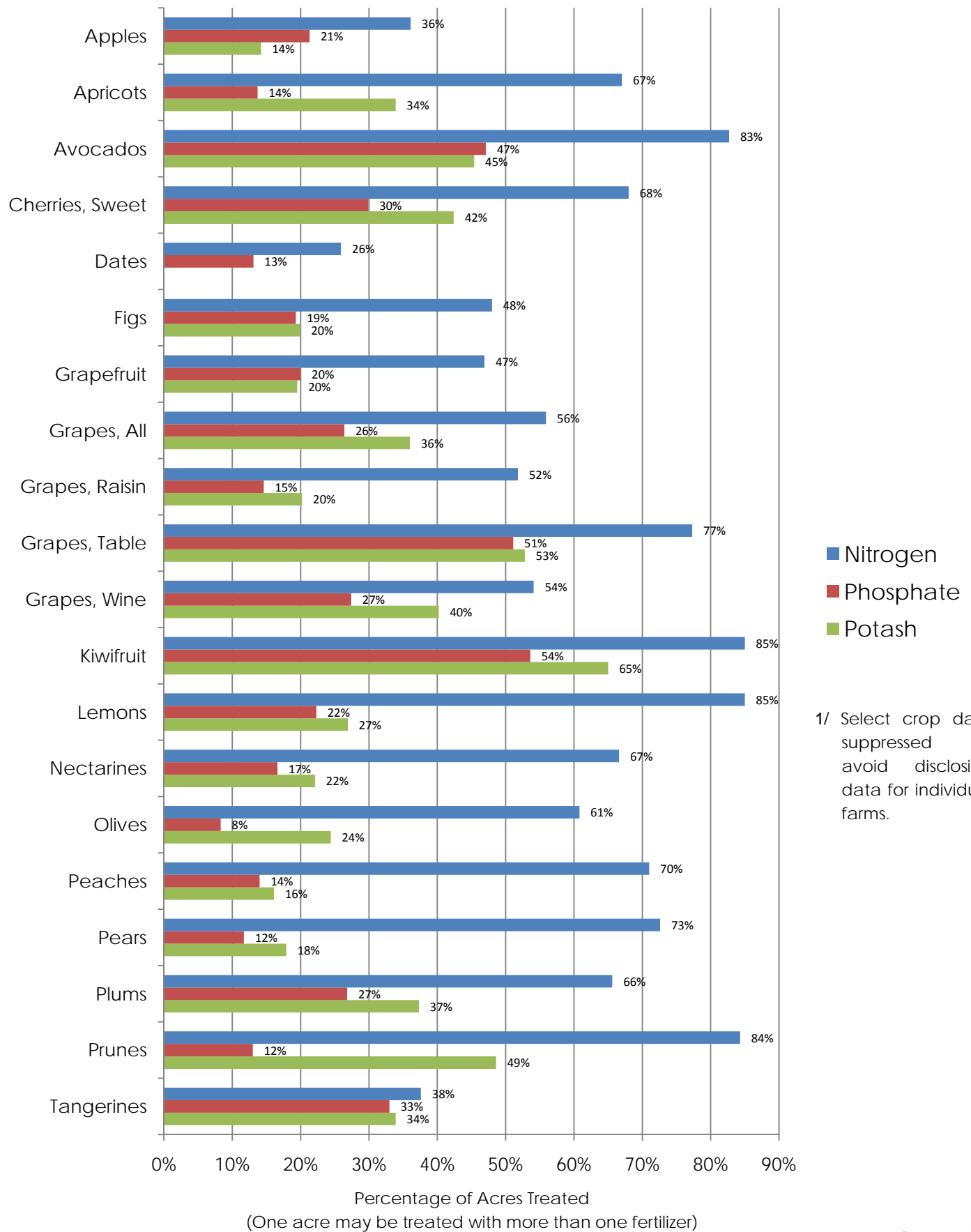
## Top Fungicides Used On Fruit Crops In California <sup>1/</sup>

	Fungicides Active Ingredient	Acres Treated	Rate per Crop Year	Total Applied
		%	Lbs/Acre	Lbs
Apples	Mancozeb	19%	5.040	18,000
	Streptomycin	19%	0.245	900
	Sulfur	16%	10.906	33,400
Apricots	Copper hydroxide	33%	2.523	9,200
	Myclobutanil	32%	0.189	700
	Propiconazole	26%	0.203	600
Sweet Cherries	Iprodione	22%	1.011	6,400
	Boscalid	20%	0.014	100
	Pyraclostrobin	20%	0.001	(Z)
Grapefruit	Basic copper sulfate	7%	3.469	2,200
Grapes, All	Sulfur	65%	32.443	16,656,600
	Copper hydroxide	20%	0.845	130,500
	Trifloxystrobin	19%	0.096	14,400
Grapes, Raisin	Sulfur	71%	36.151	5,545,600
	Fenarimol	19%	0.053	2,200
	Myclobutanil	16%	0.141	4,900
Grapes, Table	Sulfur	81%	31.436	2,127,900
	Copper hydroxide	60%	1.235	61,800
	Boscalid	56%	0.022	1,000
	Pyraclostrobin	56%	0.001	100
Grapes, Wine	Sulfur	60%	30.770	9,003,200
	Quinoline	20%	0.102	10,100
	Copper hydroxide	18%	0.617	53,000
Lemons	Copper hydroxide	25%	0.933	10,800
	Basic copper sulfate	16%	3.668	27,300
Nectarines	Propiconazole	57%	0.148	2,400
	Ziram	30%	8.282	72,000
	Sulfur	28%	8.188	66,500
Olives	Copper hydroxide	21%	5.091	32,600
	Basic copper sulfate	16%	8.521	41,300
Oranges	Basic copper sulfate	42%	4.602	362,700
	Copper hydroxide	7%	2.972	38,600
	Mefenoxam	2%	0.649	2,000
Peaches	Sulfur	45%	26.566	633,400
	Propiconazole	40%	0.147	3,100
	Ziram	29%	7.716	116,900
Pears	Oxytetracycline	67%	0.585	5,500
	Mancozeb	59%	7.018	57,800
	Sulfur	40%	12.381	69,400
Plums	Propiconazole	25%	0.179	1,200
	Copper hydroxide	10%	1.978	5,100
	Iprodione	8%	0.962	2,100
Prunes	Propiconazole	24%	0.139	2,200
	Sulfur	18%	17.268	200,100
	Captan	12%	2.707	20,400
Tangerines	Basic copper sulfate	8%	1.814	3,900

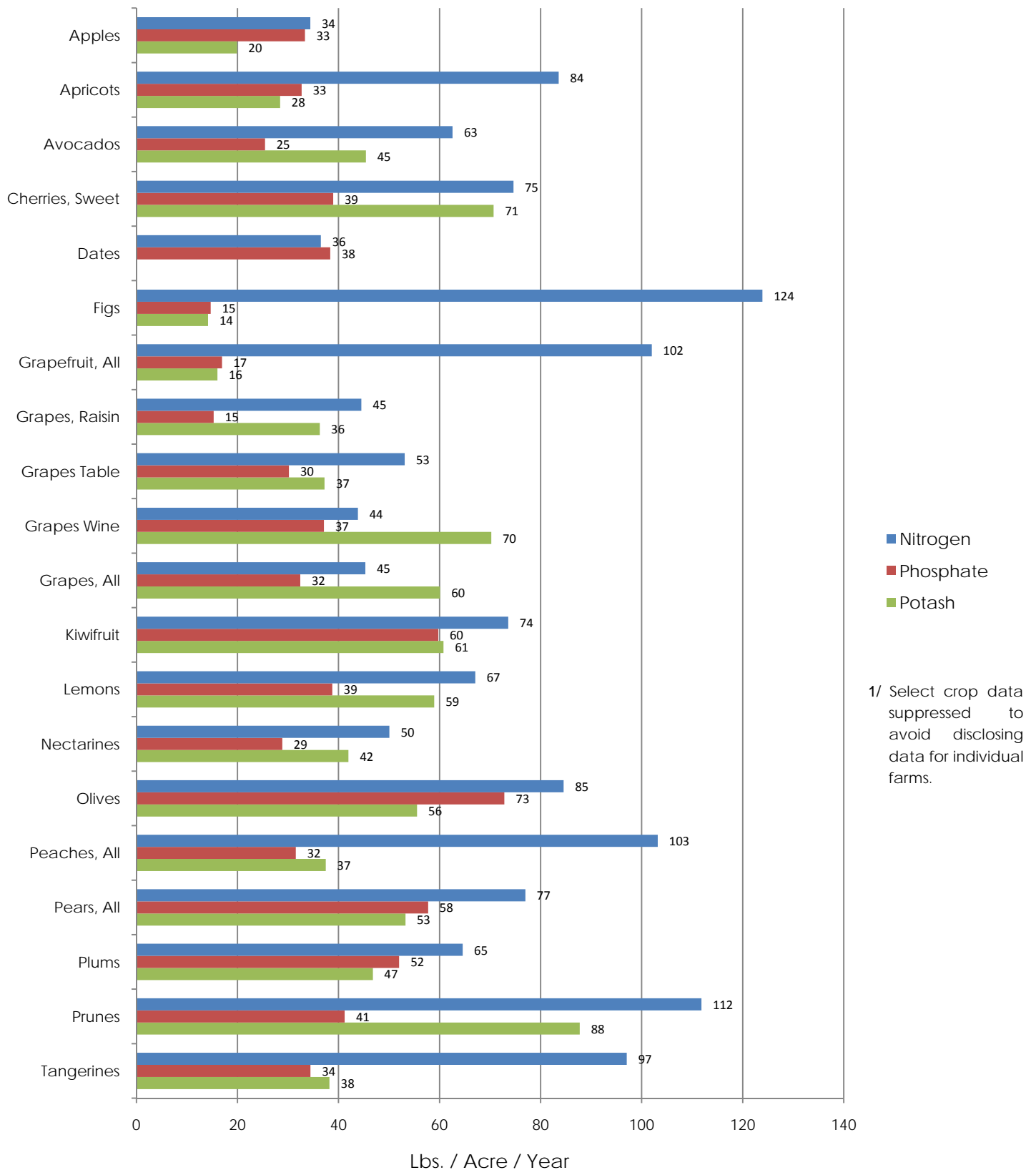
1/ Select crop data suppressed to avoid disclosing data for individual farms.

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

## Percent Of Acres Treated With Fertilizers In California <sup>1/</sup>



## Fertilizer Use In Pounds Per Acre For Crop Year 2009 In California <sup>1/</sup>



## 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.

**Rate per Application:** Ratio indicating pounds (lbs) of a fertilizer primary nutrient or pesticide active ingredient applied, per single application, per planted acre.

**Rate per Crop Year:** Ratio indicating pounds (lbs) of a fertilizer primary nutrient or pesticide active ingredient applied, counting all applications per crop year, per planted acre.

**Number of Applications:** The average number of times a treated acre received a specific fertilizer primary nutrient or pesticide active ingredient.

**Fertilizer:** A soil-enriching agricultural input which contains one or more of the four primary nutrients: nitrogen, phosphate, potash, and sulfur.

**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).

**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 2009 agricultural chemical use data for fruit were published July 28, 2010, 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/](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, select Environmental. If you need additional assistance, please call us at (916) 498-5161.

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