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Service



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# Agricultural Chemical Usage 2001 Fruit Summary

## August 2002

# USDA





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## Overview

This publication is the sixth Fruit Summary in the series of “**Agricultural Chemical Usage**” reports issued by the National Agricultural Statistics Service (NASS). These reports contain statistics for the on-farm use of agricultural chemicals. Other chemical usage publications recently issued have focused on agricultural chemical use on vegetables (July 2001) and field crops (May 2002).

Information in this report is provided from a survey funded by the USDA Pesticide Data Program. The purpose of the Pesticide Data Program is to provide reliable pesticide use statistics and to enhance the quality of information on pesticide residues in food. Multiple agencies within the USDA administer this program. This data series addresses the increased public interest in agricultural chemical use and provides the means for government agencies to respond effectively to food safety and water quality issues.

This report includes farm use of pesticides for the 2001 crop year for selected fruit crops in 11 major producing States. In addition, Kansas was surveyed for chemical use on apples and grapes with funding from outside sources. The previous report on fruit crops, published in 1999, also featured pesticide usage data for nut crops; however, due to budget constraints, nut crops were not surveyed for this report.

This is the second report that includes pesticide usage data on grapes in California, by utilization - table, raisin or wine. In addition, usage data for non-bearing grapes in California are included in this publication.

## Highlights

**Apples:** Insecticide applications were made on 95 percent of the apple acreage in the eight Program States. The most commonly used insecticides were azinphos-methyl and petroleum distillate. Fungicides were applied to at least 82 percent of the acreage in six of the eight Program States. Myclobutanil was the fungicide most commonly used, and it was applied to 37 percent of the acreage. Herbicides were applied to 52 percent of the acreage overall and ranged from 8 percent of the acreage in North Carolina upwards to 66 percent in New York.

**Apricots:** Herbicides were applied to 24 percent of California’s apricot acreage, while insecticides and fungicides were applied to 79 and 74 percent of the acreage, respectively. Esfenvalerate, applied to 49 percent of the acreage, was the most widely used insecticide, followed by petroleum distillate at 38 percent. Only one fungicide was applied to at least 30 percent of the acreage: iprodione at 31 percent. Glyphosate was the most commonly used herbicide, applied to 17 percent of the acres.

**Avocados:** Insecticide applications were made to 44 percent of California’s avocado acreage, with petroleum distillate most commonly used, on 32 percent of the acres. Herbicides were applied to 24 percent of the acreage. Other chemicals, such as growth regulators and rodenticides were applied to 6 percent of the acreage. There were insufficient reports to publish any herbicide, fungicide, or other chemical active ingredient data.

**Blackberries:** Herbicides, insecticides and fungicides were applied to Oregon's blackberry acreage in percentages ranging from 71 percent upward. The herbicides diuron and simazine were applied to 40 and 34 percent of the acreage, respectively. Paraquat was applied to 29 percent. Carbaryl was the most common insecticide in use and was applied to 32 percent of the acreage. The fungicide calcium polysulfide was the most widely used of all chemicals, being applied to 66 percent of the blackberry acres in Oregon.

**Blueberries:** Herbicides were applied on 65 percent of the blueberry acres in the four Program States. Insecticides and fungicides were used on 89 and 87 percent of the acreage, respectively. The most popular insecticide was phosmet, used on 52 percent of the acreage, followed closely by azinphos-methyl at 47 percent. For herbicides, diuron was the most commonly used, at 30 percent of the acres. Captan (63 percent of acres); benomyl (61 percent of acres); and ziram (45 percent of acres) were the three most commonly used fungicides.

**Cherries, Sweet:** Both insecticide and fungicide applications were made to 79 percent of the sweet cherry acreage in the four Program States. Herbicides were used on 41 percent of the acreage. California had the lowest percent coverage in each chemical class. The insecticide azinphos-methyl was applied to 37 percent of the acreage. In the fungicide class, myclobutanil was used on 37 percent of the acres. For herbicides, glyphosate was the most commonly applied and was used on 26 percent of the acres.

**Cherries, Tart:** Insecticides and fungicides were applied to virtually all of the tart cherry acreage in the two Program States, and herbicides were applied to 62 percent of the acreage. Azinphos-methyl was the insecticide applied to the most acres, at 88 percent. Chlorothalonil, at 96 percent, and sulfur, at 89 percent, were the most widely used fungicides.

**Dates:** Insecticides were used on 18 percent of California's date acreage. There were insufficient reports to publish any herbicide or fungicide usage data for the acreage in California.

**Figs:** California fig growers applied herbicides to 50 percent of the total acreage. Insecticides were applied to 11 percent of the acreage. There were insufficient reports to publish any insecticide or fungicide active ingredient data.

**Grapefruit:** Herbicides and insecticides were each used on 90 percent of the grapefruit acreage in the two Program States, followed closely by fungicides at 83 percent. Florida's growers used herbicides and insecticides on nearly all of the acreage, while California's growers treated only 62 percent of the acreage with herbicides and 41 percent with insecticides. Glyphosate and petroleum distillate were the most commonly used herbicide and insecticide, respectively.

**Grapes, All:** Fungicides were applied to more grapes on a higher percent of acres than were herbicides or insecticides in the five Program States. In the fungicide category, sulfur was the most commonly used material as it was applied to 79 percent of the acreage. Herbicide applications were made to 65 percent of the acres overall with glyphosate being the most commonly used, on 45 percent of the acreage. Percent of acres treated with insecticides was 60 percent. Imidacloprid was the leading insecticide and was in use on 24 percent of the acres.

**Grapes, Raisin:** Fungicides were applied to 78 percent of California's bearing raisin grape acreage, with sulfur, by far, the most commonly used. Herbicide applications were made on 59 percent of the acres, and glyphosate was the most widely used, at 38 percent. Insecticides were used on 59 percent of the raisin grape acreage. Cryolite was the most frequently used insecticide with 42 percent of the acres treated.

**Grapes, Table:** Fungicides were applied to 96 percent of California's bearing table grape acreage. Insecticides were used on 80 percent of the acreage. Other chemicals, including growth regulators, were applied to 76 percent of the acreage, followed by herbicides, which were used on 75 percent of the acreage. Glyphosate, imidacloprid and sulfur were the most popular herbicide, insecticide and fungicide, respectively.

**Grapes, Wine:** California's wine grape growers treated 87 percent of the bearing acreage with fungicides and 65 percent of the acres with herbicides. Insecticides were used on 58 percent of the acres, while only 9 percent of the acreage had other chemicals applied. The herbicide, glyphosate, was used on 47 percent of the acres. Imidacloprid was again the most commonly used insecticide. Sulfur, used as a fungicide, was applied to 85 percent of the acreage.

**Grapes, Non-bearing:** Herbicides were applied to 2 percent of California's non-bearing grape acreage. There were insufficient reports to publish data for the other pesticide classes or for any specific active ingredient used.

**Kiwifruit:** California's kiwifruit growers applied herbicides to 28 percent of the total acreage. The most commonly used herbicide was glyphosate.

**Lemons:** Slightly more than half of California's lemon acreage had herbicides and insecticides applied, and one-fourth of the acreage received fungicides. Glyphosate, petroleum distillate and basic copper sulfate were the most widely used herbicide, insecticide, and fungicide, respectively.

**Nectarines:** Fungicides were applied to 89 percent of the nectarine acreage in California, while 87 percent received insecticides and 70 percent of the acreage was treated with herbicides. Petroleum distillate and esfenvalerate were the most commonly used insecticides, based on acres treated. Glyphosate and copper hydroxide were the most widely used herbicide and fungicide, respectively.

**Olives:** Herbicides were applied to 38 percent of California's olive acreage, with glyphosate the most commonly used. Insecticides were used on 31 percent of the acreage. Spinosad was the leading insecticide applied to the crop. Fungicides were applied to only 6 percent of the California olive acreage.

**Oranges excluding Temples:** Herbicides were applied to 85 percent of the orange acreage in the two Program States, insecticides to 82 percent and fungicides to 48 percent of the acreage. Glyphosate, petroleum distillate and copper hydroxide were, by far, the most frequently used herbicide, insecticide and fungicide, respectively.

**Peaches:** Fungicide use was reported on 92 percent of the peach acreage in the five Program States. Michigan reported fungicide use on all of their peach crop. All other Program States ranged from 88 to 99 percent of the acres. Insecticides were applied to 91 percent of the acreage, with Georgia treating their entire crop. Herbicide use was reported on 59 percent of the peach acreage. New Jersey had the lowest percent treated, reporting use on only 45 percent of the crop.

**Pears:** Pear growers in the three Program States applied insecticides to 91 percent of the acreage, while fungicides were applied to 85 percent of the acres. Oregon applied insecticides to 97 percent of their acres, followed by Washington at 90 percent and California at 87 percent. Fungicides were applied to 96 percent of the Oregon acreage, with California and Washington at 81 and 80 percent of their acreage, respectively. Herbicides were applied to 49 percent of the acreage in the three States. California growers used herbicides on 60 percent of their pear acreage while the other two States treated 44 percent of their crop. An average of 56 percent of the acreage was treated with other chemicals, ranging from 50 to 62 percent, by State.

**Plums:** Insecticides were used on 85 percent of the plum acres in California. Petroleum distillate was used as an insecticide on 60 percent of the plum acreage. Fungicide usage was reported on 66 percent of the acreage, with propiconazole the most common, at 26 percent of the acres. Herbicides were applied to 60 percent of the plum acres. Glyphosate was the leading herbicide, used on 43 percent of the acreage.

**Prunes:** California's prune growers treated 58 percent of their acreage with insecticides. Approximately one-third of the acreage received herbicide and fungicide applications. Glyphosate, petroleum distillate and captan were the most commonly used herbicide, insecticide and fungicide, respectively.

**Raspberries:** Fungicides were applied to 94 percent of the raspberry acreage in the two Program States. Virtually all of Washington's acreage received fungicide applications. Herbicides were used on 89 percent of the Program States' acreage, and insecticides were used on 81 percent. Paraquat was the most commonly applied herbicide with 65 percent of the acres treated. Bifenthrin was the insecticide used most commonly and was applied to 64 percent of the acreage. Captan was the most widely used fungicide, at 76 percent, followed closely by cyprodinil and fludioxonil, each of which were used on 71 percent of the acreage.

**Tangelos:** Insecticides were applied to 86 percent of Florida's tangelo acres, followed by herbicides at 79 percent and fungicides at 71 percent. Petroleum distillate was, by far, the most commonly used insecticide, with 70 percent of the acreage treated. Glyphosate was the most popular herbicide, being used on 77 percent of the acreage. Copper hydroxide was the most widely used fungicide, applied to 53 percent of the acreage.

**Tangerines:** Herbicides and insecticides were each applied to approximately three-fourths of the bearing tangerine acreage in the two Program States. Fungicides were used on 62 percent of the acreage.

**Temples:** Insecticides were applied to nearly all of the bearing temple acreage in Florida. Herbicides and fungicides were put on 93 and 66 percent of the acres, respectively.

**Apples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States								
	ALL	CA	KS	MI	NY	NC	OR	PA	WA
Herbicides									
2,4-D	P	*	*	P	P	*	P	P	P
2,4-D, Dimeth. salt	P			P	P	*	*	P	P
2,4-DP, Dimeth. salt	*	*							*
Dinoseb	*								*
Diuron	P	*		P	P	*	P	P	P
Glufosinate-ammonium	P		*						*
Glyphosate	P	P	P	P	P	P	P	P	P
Glyphosate, is. salt	*							*	
Hexazinone	*								*
MCPA	*				*				
Napropamide	*	*							*
Norflurazon	P	*		P	P	*	*	P	P
Oryzalin	P		*	*	*		*		P
Oxyfluorfen	*	*					*		P
Paraquat	P	P	*	P	P	*	P	P	P
Pendimethalin	P	*					*	*	*
Pronamide	*								*
Prosulfuron	*								*
Simazine	P	P		P	P	P	P	P	P
Sulfosate	P			*	P			*	P
Terbacil	P			P	*	*	*	P	*
Thiazopyr	*			*					*

See footnote(s) at end of table.

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**Apples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States								
	ALL	CA	KS	MI	NY	NC	OR	PA	WA
Insecticides									
Abamectin	P	P		P	*		P	P	*
Azadirachtin	P			*			*		P
Azinphos-methyl	P	P	P	P	P	P	P	P	P
Benzoic acid	P			P		*	*	P	P
Bt (Bacillus thur.)	P	*		P	P	*	P		P
Carbaryl	P	P	P	P	P	P	P	P	P
Carbophenothion	*								*
Chlorpyrifos	P	P	P	P	P	P	P	P	P
Clofentezine	P		*	P	P	*		P	P
Cyd-X Granulo. Virus	P						*		*
Cyfluthrin	*		*						
Diazinon	P	P	*	*		*	P	P	P
Dicofol	P	P	*				*	*	*
Dimethoate	P	*		P	P	*	P	P	P
Endosulfan	P		*	P	P	P	*	P	P
Esfenvalerate	P	P	*	P	P	P	P	P	*
Ethion	*								*
Ethyl parathion	*								*
Fenamiphos	*	*							
Fenbutatin-oxide	P	*	*	*	*		*		P
Fenpropathrin	P	*		P	P	P		P	*
Formetanate hydro.	P	*					*	*	P
Hexythiazox	P	*		P	*	*	*	P	*
Imidacloprid	P	P		P	P	P	P	P	P
Indoxacarb	P			P		P	*	P	*
Kaolin	P	*	*		*		P		P
Malathion	P		*	*	*	*	*		P
Methidathion	P	P			*			*	*
Methomyl	P			P	P	*		P	*
Methoxychlor	P		*	*			*		*
Methyl parathion	*		*	*		*		*	
Oxamyl	P	*	*	*	*	*		P	*
Oxythioquinox	*							*	*
Permethrin	P	*	*	P	*	*	*	*	*
Petroleum distillate	P	P	P	P	P	P	P	P	P
Petroleum oil	*						*		
Phosmet	P	P	P	P	P	P	P	P	P
Phosphamidon	*								*
Potassium salts	*			*					*
Propargite	*	*	*				*		
Pyrethrins	P				*	*			*
Pyridaben	P	P	*	P	P	P	*	P	P
Pyriproxyfen	P	*		*			*	*	P
Rotenone	*				*	*			
Spinosad	P	*		*	P		P	P	P
Tebufenozide	P	P	*	P	P	P	P	P	*
Thiamethoxam	P			*					*

See footnote(s) at end of table.

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**Apples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States								
	ALL	CA	KS	MI	NY	NC	OR	PA	WA
Fungicides									
Azoxystrobin	*								*
Bacillus subtilus	P	*		*		*	*		
Bas copper zinc sulf	P			*		*	*		
Basic copper sulfate	P			P	P	*	P	P	
Benomyl	P	P	P	P	P	P	*	P	*
Calcium polysulfide	P	P	*	P		*	*		P
Captan	P	*	P	P	P	P	P	P	*
Chlorothalonil	*			*					
Copper chloride hyd.	P			*					*
Copper hydroxide	P	P	*	P	P	*	P	P	P
Copper oxide	*	*							
Copper oxychlo. sul.	P			P	P	P	P	P	
Copper oxychloride	P			P	P	*	*	P	
Copper resinate	*							*	
Copper sulfate	P	*	*	P	*	P	P	*	*
Cyprodinil	P	*		P		*	*	P	*
Dichlone	*								*
Dodine	P			P	*	P	P	P	*
Fenarimol	P	P		P	P	P	P	P	P
Fenbuconazole	*			*	*				
Ferbam	P		P	*				*	
Fludioxonil	*						*		
Fosetyl-al	P	*		*	*		*	*	P
Glyodin	*						*		
Iprodione	*				*		*	*	
Kresoxim-methyl	P	P		P	P	P	P	P	P
Mancozeb	P	P	P	P	P	P	P	P	P
Maneb	P		*	*		*	*	*	*
Mefenoxam	P			*			*		P
Metalaxyl	*		*						
Metiram	P			P	P	P	P	P	
Myclobutanil	P	P	P	P	P	P	P	P	P
Oxytetracycline	P			P	*		P	*	P
Potassium bicarbon.	*								*
Propiconazole	*								*
Pseudomonas fluores.	P	*							*
Streptomycin	P	P	*	P	P	P	P	P	*
Sulfur	P	P	*	P	P	P	P	*	P
Tebuconazole	*			*					*
Thiophanate-methyl	P		P	*	P	P		P	*
Thiram	P			P	P	*	P	P	*
Triadimefon	P		*	P	*	*	P	*	P
Trifloxystrobin	P	P		P	P	P	P	P	P
Triflumizole	P	*		*	P		P	P	P
Triforine	*						*		
Vinclozolin	*								*
Ziram	P	*	*	P	P	P	P	P	P

See footnote(s) at end of table.

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**Apples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States								
	ALL	CA	KS	MI	NY	NC	OR	PA	WA
Other Chemicals									
Aluminum phosphide	P	*							*
Benzyladenine	P	P	*	P	P	*	P	P	P
Butenoic Acid Hydro.	P			P	P	P	P	P	P
Chlorophacinone	P	*			*				P
Chloropicrin	*								*
Cytokinins	P						*	*	P
Dichloropropene	*								*
Diphacinone	*				*		*		*
Dodecadien-1-ol	P	P					P		P
Dodecanol	P	P					P		P
E-8-Dodecenyl acetat	P	*					*		*
Ethephon	P	P		*	P	*	P	P	P
Garlic oil	*			*					*
Gibberellic acid	P			P		*	*	P	P
Gibberellins A4A7	P	P	*	P	P	*	P	P	P
Gossypure	*								*
Harpin protein	P			*	*		*		*
Indolebutyric acid	*								*
Lactic acid	*								*
Metam-sodium	*								*
Monocarbamide dihyd.	P						P		P
NAA	P	P	P	P	P	P	P	P	P
NAA, Potassium salt	P			*	*		P	P	P
NAD	P	P		*			P	*	P
Pelargonic acid	P								P
Prohexadione calcium	P	*		P	P		*	P	P
Strychnine	P	*							*
Tetradecanol	P	P					P		P
Tetradecen-1-OL (Z)	P			*					*
Tetradecen-1-yl (E)	*								*
Z-8-Dodecanol	P	*					*		*
Z-8-Dodecen acetate	P	*					*		*
Zinc phosphide	P	*		*	P	*		*	P

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Apples: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide <sup>2</sup>		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	30,000	33	16.1	70	709.7	52	81.6	25	1.3
KS	400	21	*	84	4.1	78	3.2	26	*
MI	44,500	41	30.3	98	531.2	98	1,201.0	40	2.0
NY	55,000	66	99.5	98	681.5	98	1,002.0	54	1.8
NC	8,000	8	5.4	89	237.2	89	225.5	5	*
OR	8,700	54	9.8	91	228.9	86	67.5	56	1.8
PA	23,000	61	23.9	96	422.4	95	235.0	56	1.8
WA	168,000	54	287.5	98	6,284.0	82	1,606.6	86	157.4
Total	337,600	52	472.4	95	9,100.0	85	4,422.8	65	166.4

\* Total applied is less than 50 pounds.

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Apples: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
2,4-D	5	1.1	0.91	1.00	16.3
2,4-D, Dimeth. salt	8	1.2	0.52	0.65	16.9
Diuron	8	1.0	1.06	1.12	31.3
Glufosinate-ammonium	*	1.2	0.45	0.58	1.9
Glyphosate	34	1.4	0.95	1.34	153.4
Norflurazon	10	1.0	1.35	1.43	47.9
Oryzalin	3	1.0	1.79	1.88	20.9
Paraquat	20	1.3	0.53	0.72	48.4
Pendimethalin	*	1.0	0.62	0.65	1.2
Simazine	14	1.0	1.41	1.48	71.5
Sulfosate	6	1.1	1.90	2.15	44.3
Terbacil	2	1.0	0.55	0.57	4.6

See footnote(s) at end of table.

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**Apples: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Insecticides					
Abamectin	6	1.1	0.01	0.01	0.2
Azadirachtin	*	1.1	0.01	0.01	( <sup>2</sup> )
Azinphos-methyl	72	2.9	0.66	1.93	466.9
Benzoic acid	19	1.8	0.16	0.29	18.1
Bt (Bacillus thur.) <sup>3</sup>	13	1.5			
Carbaryl	56	1.3	1.17	1.63	305.8
Chlorpyrifos	52	1.1	1.50	1.78	310.1
Clofentezine	8	1.1	0.13	0.14	3.7
Cyd-X Granulo. Viru <sup>3</sup>	1	2.6			
Diazinon	5	1.6	0.64	1.08	17.4
Dicofol	*	1.1	1.38	1.59	2.6
Dimethoate	3	1.7	0.77	1.33	12.6
Endosulfan	11	1.2	1.28	1.58	57.3
Esfenvalerate	15	1.6	0.03	0.05	2.5
Fenbutatin-oxide	3	1.0	0.80	0.86	9.6
Fenpropathrin	14	1.8	0.19	0.34	16.4
Formetanate hydro.	6	1.0	0.74	0.80	17.4
Hexythiazox	2	1.1	0.11	0.12	0.9
Imidacloprid	37	1.3	0.05	0.07	9.1
Indoxacarb	2	1.8	0.06	0.11	0.7
Kaolin	5	1.2	30.39	38.44	610.3
Malathion	*	1.4	0.72	1.01	2.4
Methidathion	2	1.1	0.91	1.06	5.8
Methomyl	7	1.8	0.40	0.76	18.0
Methoxychlor	*	1.2	0.74	0.90	1.7
Oxamyl	1	1.3	0.41	0.56	2.6
Permethrin	4	1.2	0.11	0.14	1.7
Petroleum distillate	61	1.6	20.06	32.69	6,769.4
Phosmet	35	2.2	1.47	3.37	398.4
Pyrethrins	*	1.6	0.03	0.04	0.1
Pyridaben	17	1.2	0.14	0.18	10.4
Pyriproxyfen	*	1.3	0.10	0.13	0.3
Spinosad	36	1.4	0.10	0.14	16.6
Tebufenozide	4	1.3	0.19	0.25	3.7
Thiamethoxam	4	1.0	0.06	0.06	0.8

See footnote(s) at end of table.

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**Apples: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Fungicides					
Bacillus subtilus <sup>3</sup>	*	1.5			
Bas copper zinc sulf	*	1.0	0.14	0.15	( <sup>2</sup> )
Basic copper sulfate	4	1.3	0.65	0.89	11.6
Benomyl	9	1.9	0.20	0.38	11.3
Calcium polysulfide	8	1.2	19.28	24.34	681.0
Captan	33	4.9	1.49	7.36	824.9
Copper chloride hyd.	*	1.7	3.60	6.45	11.2
Copper hydroxide	16	1.1	1.97	2.24	118.8
Copper oxychlo. sul.	3	1.2	2.50	3.05	33.4
Copper oxychloride	3	1.2	1.87	2.37	24.8
Copper sulfate	2	1.1	1.72	2.03	15.6
Cyprodinil	8	1.6	0.12	0.21	5.4
Dodine	1	1.4	0.80	1.20	4.7
Fenarimol	17	1.6	0.06	0.10	5.7
Ferbam	*	1.0	1.40	1.46	0.3
Fosetyl-al	4	1.2	1.58	1.95	23.4
Kresoxim-methyl	18	1.7	0.12	0.22	13.6
Mancozeb	33	2.9	2.08	6.11	679.3
Maneb	*	5.3	0.95	5.03	2.9
Mefenoxam	2	1.2	0.60	0.74	5.0
Metiram	11	3.6	1.88	6.80	251.4
Myclobutanil	37	2.0	0.09	0.19	23.6
Oxytetracycline	9	1.2	0.19	0.24	7.4
Pseudomonas fluores.	1	1.0	0.19	0.20	0.8
Streptomycin	19	1.7	0.18	0.31	20.0
Sulfur	36	2.1	4.94	10.38	1,274.3
Thiophanate-methyl	11	3.4	0.22	0.76	27.8
Thiram	4	3.2	1.35	4.35	61.4
Triadimefon	7	1.6	0.10	0.17	3.8
Trifloxystrobin	19	1.8	0.05	0.10	6.5
Triflumizole	24	1.5	0.23	0.36	29.5
Ziram	13	2.8	1.94	5.47	237.2

See footnote(s) at end of table.

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**Apples: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Other Chemicals					
Aluminum phosphide	1	1.0	0.42	0.43	1.9
Benzyladenine	20	1.1	0.03	0.03	2.3
Butenoic Acid Hydro.	5	1.0	0.09	0.10	1.6
Chlorophacinone	*	1.0	0.04	0.04	0.1
Cytokinins <sup>4</sup>	2	1.0			( <sup>2</sup> )
Dodecadien-1-ol	14	1.0	0.06	0.06	2.9
Dodecanol	11	1.0	0.03	0.04	1.3
E-8-Dodecenyl acetat	*	1.0	0.002	0.002	( <sup>2</sup> )
Ethephon	18	1.2	0.51	0.64	39.6
Gibberellic acid	3	1.5	0.02	0.03	0.3
Gibberellins A4A7	20	1.1	0.03	0.03	1.9
Harpin protein	*	1.1	0.003	0.003	( <sup>2</sup> )
Monocarbamide dihyd.	*	1.0	5.15	5.17	13.9
NAA	32	1.2	0.02	0.03	3.3
NAA, Potassium salt	7	1.1	0.03	0.04	0.9
NAD	8	1.1	0.05	0.06	1.5
Pelargonic acid	*	1.0	0.96	1.00	0.7
Prohexadione calcium	3	1.4	0.23	0.33	3.8
Strychnine	*	1.4	0.02	0.02	( <sup>2</sup> )
Tetradecanol	11	1.0	0.007	0.007	0.3
Tetradecen-1-OL (Z)	*	1.6	0.08	0.13	0.1
Z-8-Dodecanol <sup>4</sup>	*	1.0			( <sup>2</sup> )
Z-8-Dodecen acetate	*	1.0	0.03	0.03	0.1
Zinc phosphide	3	1.1	0.17	0.19	2.1

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 8 program states were 337,600 acres.  
States included are CA, KS, MI, NY, NC, OR, PA and WA.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.



**Apples: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	21	1.6	0.72	1.18	7.4
Paraquat	10	1.6	0.50	0.83	2.6
Simazine	6	1.2	0.75	0.91	1.6
<b>Insecticides</b>					
Abamectin	9	1.1	0.01	0.01	( <sup>2</sup> )
Azinphos-methyl	31	1.8	1.23	2.23	20.9
Carbaryl	26	1.5	1.49	2.26	17.3
Chlorpyrifos	24	1.2	1.79	2.19	15.7
Diazinon	6	1.2	1.48	1.82	3.2
Dicofol	3	1.1	1.59	1.83	1.9
Esfenvalerate	17	1.6	0.06	0.09	0.5
Imidacloprid	2	1.2	0.08	0.10	0.1
Methidathion	12	1.2	0.89	1.11	3.9
Petroleum distillate	46	1.4	25.73	37.00	515.8
Phosmet	20	1.9	2.90	5.71	35.0
Pyridaben	4	1.0	0.22	0.24	0.3
Tebufenozide	2	1.5	0.28	0.44	0.3
<b>Fungicides</b>					
Benomyl	2	1.1	0.38	0.45	0.3
Calcium polysulfide	5	1.1	21.51	25.40	34.6
Copper hydroxide	7	1.3	2.68	3.66	8.1
Fenarimol	5	1.3	0.07	0.09	0.1
Kresoxim-methyl	7	1.7	0.14	0.24	0.5
Mancozeb	8	1.3	2.71	3.75	8.7
Myclobutanil	15	1.6	0.12	0.19	0.9
Streptomycin	30	2.7	0.10	0.28	2.5
Sulfur	4	2.0	6.63	13.49	17.7
Trifloxystrobin	7	2.3	0.06	0.14	0.3
<b>Other Chemicals</b>					
Benzyladenine	5	1.0	0.03	0.03	( <sup>2</sup> )
Dodecadien-1-ol	7	1.1	0.07	0.08	0.2
Dodecanol	7	1.1	0.04	0.05	0.1
Ethephon	2	1.0	0.46	0.46	0.3
Gibberellins A4A7	5	1.0	0.03	0.03	( <sup>2</sup> )
NAA	7	1.1	0.06	0.07	0.1
NAD	9	1.1	0.04	0.05	0.1
Tetradecanol	7	1.1	0.008	0.009	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for California were 30,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
Kansas, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Glyphosate	18	1.1	0.30	0.33	( <sup>2</sup> )
Insecticides					
Azinphos-methyl	71	4.9	0.62	3.08	0.9
Carbaryl	50	2.2	1.04	2.32	0.5
Chlorpyrifos	7	3.2	0.21	0.69	( <sup>2</sup> )
Petroleum distillate	31	1.2	13.94	16.85	2.1
Phosmet	28	3.0	1.10	3.30	0.4
Fungicides					
Benomyl	9	5.4	0.12	0.63	( <sup>2</sup> )
Captan	73	5.0	1.04	5.26	1.5
Ferbam	3	1.7	0.57	0.98	( <sup>2</sup> )
Mancozeb	45	4.2	1.44	6.15	1.1
Myclobutanil	66	3.0	0.05	0.16	( <sup>2</sup> )
Thiophanate-methyl	31	4.5	0.41	1.85	0.2
Other Chemicals					
NAA	25	1.2	0.03	0.04	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for Kansas were 400 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	3	1.0	0.54	0.59	0.7
2,4-D, Dimeth. salt	14	1.3	0.53	0.69	4.2
Diuron	14	1.0	0.75	0.80	5.0
Glyphosate	29	1.5	0.48	0.73	9.4
Norflurazon	1	1.4	0.40	0.60	0.4
Paraquat	16	1.2	0.38	0.47	3.3
Simazine	10	1.0	1.03	1.11	4.9
Terbacil	10	1.0	0.26	0.27	1.3
<b>Insecticides</b>					
Abamectin	13	1.0	0.01	0.01	0.1
Azinphos-methyl	87	3.6	0.63	2.30	89.6
Benzoic acid	46	2.1	0.18	0.37	7.5
Bt (Bacillus thur.) <sup>2</sup>	14	1.9			
Carbaryl	39	1.5	0.90	1.35	23.5
Chlorpyrifos	61	1.2	1.02	1.29	34.7
Clofentezine	8	1.0	0.12	0.13	0.4
Dimethoate	6	2.9	0.67	1.97	5.4
Endosulfan	14	1.1	0.91	1.09	7.0
Esfenvalerate	43	1.3	0.03	0.05	0.9
Fenpropathrin	38	1.5	0.22	0.34	5.8
Hexythiazox	7	1.1	0.09	0.10	0.3
Imidacloprid	49	1.4	0.06	0.08	1.8
Indoxacarb	*	1.2	0.09	0.11	( <sup>3</sup> )
Methomyl	17	1.3	0.66	0.90	6.8
Permethrin	21	1.1	0.12	0.14	1.3
Petroleum distillate	26	1.2	15.31	19.46	225.0
Phosmet	76	2.8	1.18	3.41	115.6
Pyridaben	38	1.1	0.15	0.18	2.9
Tebufenozide	4	1.2	0.20	0.26	0.5

See footnote(s) at end of table.

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**Apples: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Basic copper sulfate	8	1.9	0.52	1.03	3.5
Benomyl	21	1.6	0.19	0.31	2.9
Calcium polysulfide	4	1.9	4.72	9.23	15.3
Captan	91	5.3	1.74	9.34	376.6
Copper hydroxide	22	1.2	1.71	2.07	20.2
Copper oxychloro. sul.	12	1.2	2.11	2.61	13.6
Copper oxychloride	7	1.4	2.17	3.19	9.6
Copper sulfate	10	1.3	1.64	2.14	9.4
Cyprodinil	22	1.6	0.14	0.22	2.1
Dodine	*	1.5	1.50	2.26	0.8
Fenarimol	14	2.4	0.05	0.12	0.7
Kresoxim-methyl	36	1.8	0.11	0.21	3.4
Mancozeb	66	3.6	2.41	8.78	257.7
Metiram	27	3.4	2.43	8.31	99.2
Myclobutanil	40	2.9	0.09	0.28	4.9
Oxytetracycline	3	2.5	0.25	0.63	0.9
Streptomycin	42	1.9	0.22	0.42	8.0
Sulfur	40	3.7	3.26	12.25	216.2
Thiram	10	2.4	1.88	4.53	20.4
Triadimefon	22	2.2	0.06	0.13	1.3
Trifloxystrobin	37	1.9	0.06	0.11	1.8
Ziram	45	2.6	2.40	6.39	128.4
<b>Other Chemicals</b>					
Benzyladenine	11	1.0	0.03	0.03	0.1
Butenoic Acid Hydro.	2	1.0	0.07	0.08	0.1
Gibberellic acid	6	1.3	0.02	0.02	( <sup>3</sup> )
Gibberellins A4A7	11	1.0	0.004	0.004	( <sup>3</sup> )
NAA	26	1.4	0.03	0.05	0.5
Prohexadione calcium	5	1.0	0.27	0.27	0.6

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Michigan were 44,500 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
New York, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.1	0.85	1.00	2.3
2,4-D, Dimeth. salt	7	1.3	0.96	1.26	4.8
Diuron	25	1.0	1.26	1.31	17.6
Glyphosate	33	1.1	0.85	0.96	17.5
Norflurazon	7	1.0	1.59	1.59	6.2
Paraquat	15	1.1	0.56	0.62	5.2
Simazine	32	1.0	1.15	1.18	20.8
Sulfosate	23	1.0	1.67	1.67	21.3
<b>Insecticides</b>					
Azinphos-methyl	77	3.3	0.50	1.67	70.6
Bt (Bacillus thur.) <sup>2</sup>	30	1.3			
Carbaryl	63	1.1	1.04	1.23	43.0
Chlorpyrifos	13	1.3	0.68	0.90	6.5
Clofentezine	6	1.2	0.11	0.13	0.4
Dimethoate	6	1.1	0.88	1.04	3.7
Endosulfan	30	1.2	1.10	1.35	22.5
Esfenvalerate	12	1.3	0.05	0.06	0.4
Fenpropathrin	42	1.9	0.19	0.37	8.6
Imidacloprid	39	1.4	0.05	0.07	1.5
Methomyl	13	1.4	0.61	0.91	6.6
Petroleum distillate	39	1.5	13.01	20.47	443.6
Phosmet	50	1.9	1.17	2.33	64.5
Pyridaben	31	1.1	0.14	0.17	2.9
Spinosad	50	1.6	0.08	0.12	3.4
Tebufozide	13	1.0	0.21	0.22	1.6
<b>Fungicides</b>					
Basic copper sulfate	12	1.0	0.61	0.61	4.1
Benomyl	29	2.0	0.21	0.42	6.7
Captan	87	4.4	1.52	6.82	326.4
Copper hydroxide	30	1.0	2.74	2.89	47.5
Copper oxychlo. sul.	4	1.0	4.24	4.24	8.8
Copper oxychloride	10	1.0	2.03	2.03	11.4
Fenarimol	31	1.9	0.05	0.10	1.7
Kresoxim-methyl	21	2.1	0.13	0.28	3.2
Mancozeb	76	2.9	1.93	5.66	235.8
Metiram	22	2.7	2.18	5.94	72.8
Myclobutanil	36	2.0	0.09	0.19	3.7
Streptomycin	36	1.4	0.17	0.26	5.0
Sulfur	34	3.2	3.80	12.53	236.9
Thiophanate-methyl	24	2.6	0.18	0.46	6.0
Thiram	3	1.8	1.68	3.18	4.6
Trifloxystrobin	46	1.9	0.06	0.12	3.0
Triflumizole	8	1.6	0.25	0.40	1.8
Ziram	11	1.2	2.23	2.82	17.0

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**Apples: Agricultural Chemical Applications,  
New York, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Other Chemicals					
Benzyladenine	4	1.0	0.05	0.05	0.1
Butenoic Acid Hydro.	1	1.0	0.06	0.06	0.1
Ethephon	3	1.0	0.14	0.14	0.2
Gibberellins A4A7	4	1.0	0.009	0.009	( <sup>3</sup> )
NAA	44	1.1	0.02	0.02	0.4
Prohexadione calcium	2	1.7	0.18	0.32	0.4
Zinc phosphide	5	1.2	0.15	0.18	0.5

<sup>1</sup> Bearing acres in 2001 for New York were 55,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
North Carolina, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	4	1.7	1.14	2.04	0.7
Simazine	4	1.8	2.05	3.73	1.3
<b>Insecticides</b>					
Azinphos-methyl	56	2.1	0.81	1.71	7.7
Carbaryl	8	1.1	0.77	0.88	0.6
Chlorpyrifos	20	1.4	0.73	1.03	1.6
Endosulfan	4	3.1	0.79	2.49	0.8
Esfenvalerate	62	2.6	0.03	0.08	0.4
Fenpropathrin	11	3.3	0.22	0.75	0.7
Imidacloprid	31	1.3	0.06	0.07	0.2
Indoxacarb	24	2.1	0.08	0.17	0.3
Petroleum distillate	81	1.0	30.43	32.89	211.9
Phosmet	33	3.0	1.46	4.46	11.7
Pyridaben	6	1.0	0.17	0.17	0.1
Tebufozide	17	1.6	0.24	0.40	0.5
<b>Fungicides</b>					
Benomyl	18	2.1	0.26	0.55	0.8
Captan	59	4.5	2.20	9.96	47.2
Copper oxychlo. sul.	17	1.0	3.00	3.00	4.2
Copper sulfate	26	1.0	1.64	1.64	3.4
Dodine	2	2.4	0.82	1.97	0.3
Fenarimol	27	2.5	0.06	0.15	0.3
Kresoxim-methyl	45	3.3	0.14	0.48	1.7
Mancozeb	46	3.9	2.95	11.70	42.8
Metiram	44	4.3	2.76	12.08	42.8
Myclobutanil	48	2.4	0.11	0.27	1.1
Streptomycin	36	1.6	0.29	0.49	1.4
Sulfur	20	3.2	5.95	19.49	31.4
Thiophanate-methyl	59	5.3	0.45	2.40	11.3
Trifloxystrobin	17	2.2	0.06	0.14	0.2
Ziram	39	3.6	3.06	11.17	35.3
<b>Other Chemicals</b>					
Butenoic Acid Hydro.	2	1.2	0.08	0.10	( <sup>2</sup> )
NAA	2	1.0	0.01	0.01	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for North Carolina were 8,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
Oregon, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	7	1.1	0.34	0.39	0.2
Diuron	7	1.0	1.11	1.11	0.7
Glyphosate	40	1.9	0.84	1.62	5.6
Paraquat	15	1.1	0.50	0.58	0.8
Simazine	18	1.0	1.00	1.06	1.7
<b>Insecticides</b>					
Abamectin	9	1.0	0.01	0.01	( <sup>2</sup> )
Azinphos-methyl	39	2.2	0.87	1.95	6.7
Bt (Bacillus thur.) <sup>3</sup>	5	1.5			
Carbaryl	43	1.5	0.82	1.28	4.8
Chlorpyrifos	58	1.0	1.87	1.90	9.6
Diazinon	21	1.1	0.63	0.69	1.3
Dimethoate	14	1.1	0.65	0.72	0.9
Esfenvalerate	21	1.0	0.02	0.03	( <sup>2</sup> )
Imidacloprid	28	1.2	0.06	0.07	0.2
Kaolin	3	1.5	22.51	35.03	9.3
Petroleum distillate	63	1.5	22.50	33.71	185.2
Phosmet	37	1.4	2.05	2.91	9.4
Spinosad	35	1.3	0.12	0.16	0.5
Tebufenozide	2	1.0	0.22	0.24	( <sup>2</sup> )
<b>Fungicides</b>					
Basic copper sulfate	2	1.0	3.93	3.93	0.7
Calcium polysulfide	8	1.1	21.11	23.84	17.0
Captan	20	1.1	1.28	1.44	2.5
Copper hydroxide	17	1.0	3.83	4.03	5.9
Copper oxychlor. sul.	3	1.2	4.95	6.05	1.6
Copper sulfate	2	1.0	1.62	1.62	0.3
Dodine	9	1.6	1.20	1.95	1.5
Fenarimol	11	1.5	0.06	0.09	0.1
Kresoxim-methyl	9	2.0	0.12	0.24	0.2
Mancozeb	25	1.4	3.15	4.58	9.8
Metiram	5	2.2	2.20	4.91	2.3
Myclobutanil	43	1.9	0.12	0.23	0.8
Oxytetracycline	3	1.0	0.16	0.16	( <sup>2</sup> )
Streptomycin	8	1.8	0.18	0.33	0.2
Sulfur	20	1.2	6.63	8.48	14.7
Thiram	9	1.1	3.70	4.19	3.3
Triadimefon	20	1.3	0.19	0.27	0.5
Trifloxystrobin	4	1.4	0.06	0.08	( <sup>2</sup> )
Triflumizole	16	1.0	0.31	0.33	0.5
Ziram	3	2.7	4.20	11.35	3.2

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**Apples: Agricultural Chemical Applications,  
Oregon, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Other Chemicals					
Benzyladenine	17	1.1	0.03	0.03	( <sup>2</sup> )
Butenoic Acid Hydro.	10	1.0	0.07	0.07	0.1
Dodecadien-1-ol	5	1.3	0.04	0.05	( <sup>2</sup> )
Dodecanol	3	1.2	0.03	0.04	( <sup>2</sup> )
Ethephon	28	1.0	0.35	0.38	0.9
Gibberellins A4A7	17	1.1	0.03	0.03	( <sup>2</sup> )
Monocarbamide dihyd.	1	1.0	6.39	6.39	0.7
NAA	13	1.1	0.03	0.03	( <sup>2</sup> )
NAA, Potassium salt	10	1.5	0.06	0.10	0.1
NAD	11	1.1	0.03	0.03	( <sup>2</sup> )
Tetradecanol	3	1.2	0.006	0.007	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for Oregon were 8,700 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Apples: Agricultural Chemical Applications,  
Pennsylvania, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	19	1.1	0.52	0.58	2.6
2,4-D, Dimeth. salt	14	1.0	0.29	0.31	1.0
Diuron	25	1.0	0.78	0.83	4.7
Glyphosate	15	1.0	0.89	0.90	3.1
Norflurazon	11	1.0	0.71	0.71	1.9
Paraquat	47	1.5	0.21	0.33	3.6
Simazine	32	1.0	0.82	0.86	6.2
Terbacil	4	1.0	0.36	0.36	0.3
<b>Insecticides</b>					
Abamectin	17	1.4	0.006	0.009	( <sup>2</sup> )
Azinphos-methyl	87	6.4	0.23	1.46	29.3
Benzoic acid	58	2.7	0.08	0.22	2.9
Carbaryl	44	1.3	1.06	1.41	14.2
Chlorpyrifos	50	1.5	0.46	0.70	8.0
Clofentezine	15	1.4	0.05	0.07	0.2
Diazinon	40	2.0	0.36	0.72	6.7
Dimethoate	2	1.4	0.72	1.06	0.5
Endosulfan	7	1.3	0.35	0.48	0.8
Esfenvalerate	62	1.8	0.02	0.02	0.3
Fenpropathrin	24	1.7	0.09	0.15	0.8
Hexythiazox	2	1.5	0.05	0.08	( <sup>2</sup> )
Imidacloprid	58	1.9	0.02	0.04	0.5
Indoxacarb	13	1.8	0.04	0.07	0.2
Methomyl	38	2.6	0.19	0.51	4.4
Oxamyl	9	1.7	0.29	0.51	1.0
Petroleum distillate	64	2.1	10.53	22.39	327.4
Phosmet	63	3.1	0.51	1.62	23.4
Pyridaben	36	1.9	0.06	0.11	0.9
Spinosad	12	1.4	0.05	0.07	0.2
Tebufozide	10	2.3	0.08	0.18	0.4

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**Apples: Agricultural Chemical Applications,  
Pennsylvania, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Basic copper sulfate	9	1.6	0.44	0.73	1.5
Benomyl	11	2.2	0.10	0.22	0.5
Captan	67	6.0	0.69	4.20	65.1
Copper hydroxide	9	1.3	1.92	2.55	5.5
Copper oxychlo. sul.	9	1.5	1.67	2.62	5.2
Copper oxychloride	8	1.7	1.14	2.00	3.5
Cyprodinil	46	2.0	0.09	0.19	2.1
Dodine	3	1.7	0.30	0.53	0.4
Fenarimol	12	3.1	0.04	0.12	0.3
Kresoxim-methyl	18	2.2	0.07	0.15	0.6
Mancozeb	45	4.5	0.89	4.02	41.3
Metiram	38	4.8	0.81	3.91	34.4
Myclobutanil	53	4.1	0.04	0.18	2.2
Streptomycin	15	1.6	0.09	0.15	0.5
Thiophanate-methyl	62	4.0	0.14	0.57	8.1
Thiram	26	4.8	0.98	4.75	27.9
Trifloxystrobin	15	2.7	0.02	0.06	0.2
Triflumizole	17	5.4	0.07	0.38	1.5
Ziram	37	4.9	0.75	3.70	31.7
<b>Other Chemicals</b>					
Benzyladenine	10	1.1	0.03	0.04	0.1
Butenoic Acid Hydro.	*	1.0	0.11	0.12	( <sup>2</sup> )
Ethephon	19	1.9	0.14	0.28	1.2
Gibberellic acid	3	3.9	0.008	0.03	( <sup>2</sup> )
Gibberellins A4A7	10	1.1	0.01	0.01	( <sup>2</sup> )
NAA	13	1.6	0.009	0.02	( <sup>2</sup> )
NAA, Potassium salt	28	1.2	0.02	0.02	0.2
Prohexadione calcium	2	2.6	0.16	0.42	0.2

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Pennsylvania were 23,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Apples: Agricultural Chemical Applications,  
Washington, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.0	1.29	1.36	10.2
2,4-D, Dimeth. salt	7	1.2	0.38	0.48	5.9
Diuron	1	1.0	1.53	1.56	2.7
Glyphosate	41	1.4	1.08	1.58	109.7
Norflurazon	15	1.0	1.35	1.41	35.6
Oryzalin	6	1.0	1.78	1.88	20.2
Oxyfluorfen	5	1.0	1.05	1.14	9.0
Paraquat	22	1.3	0.68	0.89	32.6
Simazine	9	1.0	2.19	2.28	35.0
Sulfosate	4	1.3	2.20	3.01	22.6
<b>Insecticides</b>					
Azadirachtin	*	1.0	0.01	0.01	( <sup>2</sup> )
Azinphos-methyl	73	2.0	0.94	1.96	241.4
Benzoic acid	17	1.1	0.24	0.26	7.6
Bt (Bacillus thur.) <sup>3</sup>	12	1.6			
Carbaryl	67	1.4	1.25	1.78	201.9
Chlorpyrifos	68	1.1	1.81	2.04	234.0
Clofentezine	9	1.0	0.15	0.17	2.6
Diazinon	2	1.0	1.95	2.05	5.7
Dimethoate	*	1.1	1.27	1.44	1.8
Endosulfan	6	1.1	1.98	2.36	25.7
Fenbutatin-oxide	5	1.0	0.87	0.88	8.0
Formetanate hydro.	13	1.0	0.74	0.81	17.0
Imidacloprid	38	1.2	0.06	0.08	4.8
Kaolin	8	1.2	29.48	36.65	509.4
Malathion	1	1.1	0.75	0.84	1.6
Petroleum distillate	79	1.6	21.90	36.47	4,858.4
Phosmet	18	1.5	3.06	4.57	138.3
Pyridaben	7	1.2	0.22	0.27	3.3
Pyriproxyfen	*	1.2	0.11	0.14	0.2
Spinosad	50	1.3	0.10	0.14	12.0

See footnote(s) at end of table.

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**Apples: Agricultural Chemical Applications,  
Washington, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Calcium polysulfide	14	1.2	20.82	25.34	613.9
Copper hydroxide	13	1.1	1.33	1.50	31.5
Fenarimol	17	1.1	0.07	0.08	2.4
Fosetyl-al	6	1.2	1.51	1.88	19.7
Kresoxim-methyl	14	1.1	0.15	0.17	3.9
Mancozeb	13	1.2	3.18	3.82	82.1
Mefenoxam	4	1.2	0.63	0.76	4.8
Myclobutanil	36	1.3	0.12	0.16	9.9
Oxytetracycline	17	1.2	0.18	0.22	6.4
Sulfur	48	1.4	6.52	9.32	756.5
Triadimefon	6	1.0	0.18	0.18	1.9
Trifloxystrobin	9	1.2	0.06	0.07	1.1
Triflumizole	42	1.3	0.27	0.36	25.6
Ziram	3	1.0	3.86	4.10	21.0
<b>Other Chemicals</b>					
Benzyladenine	32	1.1	0.03	0.03	1.9
Butenoic Acid Hydro.	8	1.0	0.10	0.10	1.4
Chlorophacinone	1	1.0	0.06	0.06	0.1
Cytokinins <sup>4</sup>	3	1.0			( <sup>2</sup> )
Dodecadien-1-ol	26	1.0	0.06	0.06	2.8
Dodecanol	21	1.0	0.03	0.04	1.2
Ethephon	31	1.2	0.59	0.70	36.6
Gibberellic acid	3	1.2	0.03	0.04	0.2
Gibberellins A4A7	32	1.1	0.03	0.03	1.8
Monocarbamide dihyd.	2	1.0	5.10	5.12	13.3
NAA	40	1.2	0.03	0.03	2.1
NAA, Potassium salt	7	1.1	0.04	0.05	0.6
NAD	13	1.1	0.05	0.06	1.3
Pelargonic acid	*	1.0	0.96	1.00	0.7
Prohexadione calcium	5	1.4	0.24	0.34	2.6
Tetradecanol	21	1.0	0.007	0.007	0.2
Zinc phosphide	4	1.0	0.19	0.20	1.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Washington were 168,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Apricots: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
2,4-DP, Dimeth. salt	*
Glyphosate	P
Napropamide	*
Norflurazon	*
Oxyfluorfen	P
Paraquat	P
Sulfosate	*
Insecticides	
Azinphos-methyl	*
Bt (Bacillus thur.)	P
Carbaryl	*
Clofentezine	*
Diazinon	P
Esfenvalerate	P
Methidathion	*
Neem oil, clar. hyd.	*
Petroleum distillate	P
Phosmet	P
Spinosad	P
Fungicides	
Azoxystrobin	*
Basic copper sulfate	*
Benomyl	*
Captan	*
Chlorothalonil	P
Copper hydroxide	P
Copper oxide	P
Copper sulfate	*
Cyprodinil	P
Fenbuconazole	*
Iprodione	P
Myclobutanil	P
Propiconazole	P
Thiophanate-methyl	*
Ziram	P
Other Chemicals	
Chlorophacinone	*
Decenol	*
Decenyl acetate	*
E-8-Dodecenyl acetat	*
Z-8-Dodecanol	*
Z-8-Dodecen acetate	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Apricots: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	19,000	24	5.9	79	236.1	74	59.7	4	*

\* Total applied is less than 50 pounds.

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (Bacillus thuringiensis) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Apricots: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	17	1.2	0.67	0.85	2.8
Oxyfluorfen	4	1.2	0.22	0.26	0.2
Paraquat	6	1.8	0.37	0.70	0.8
<b>Insecticides</b>					
Bt (Bacillus thur.) <sup>2</sup>	19	1.4			
Diazinon	10	1.3	1.77	2.32	4.6
Esfenvalerate	49	1.7	0.04	0.07	0.7
Petroleum distillate	38	1.7	18.19	31.37	225.1
Phosmet	6	1.3	2.29	3.15	3.8
Spinosad	9	3.7	0.09	0.34	0.5
<b>Fungicides</b>					
Chlorothalonil	15	1.3	1.89	2.60	7.6
Copper hydroxide	13	1.5	2.84	4.41	11.1
Copper oxide	11	1.6	3.54	5.86	12.7
Cyprodinil	12	1.6	0.23	0.38	0.9
Iprodione	31	1.5	0.63	0.98	5.7
Myclobutanil	17	1.5	0.13	0.20	0.7
Propiconazole	13	1.4	0.09	0.13	0.3
Ziram	13	1.4	4.98	7.03	17.9

<sup>1</sup> Bearing acres in 2001 for California were 19,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Avocados: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
Glyphosate	*
Norflurazon	*
Simazine	*
Sulfosate	*
Insecticides	
Abamectin	P
Petroleum distillate	P
Sabadilla	*
Spinosad	*
Fungicides	
Fosetyl-al	*
Other Chemicals	
Aluminum phosphide	*
Chlorophacinone	*
Chloropicrin	*
Diphacinone	*
Metaldehyde	*
Methyl bromide	*
Strychnine	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.



**Avocados: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	60,000	24	46.9	44	1,059.6			6	1.3

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Avocados: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Insecticides					
Abamectin	23	3.7	0.02	0.06	0.8
Petroleum distillate	32	2.8	19.15	55.39	1,058.2

<sup>1</sup> Bearing acres in 2001 for California were 60,000 acres.

**Blackberries: Active Ingredients  
Publication Status**

Active Ingredient	OR
Herbicides	
Dichlobenil	*
Diuron	P
Glyphosate	P
Napropamide	*
Norflurazon	P
Oryzalin	*
Oxyfluorfen	P
Paraquat	P
Pronamide	*
Sethoxydim	*
Simazine	P
Terbacil	P
Insecticides	
Acephate	*
Azinphos-methyl	P
Bifenthrin	P
Bt (Bacillus thur.)	P
Carbaryl	P
Diazinon	P
Esfenvalerate	P
Malathion	P
Petroleum distillate	P
Potassium salts	*
Pyrethrins	*
Rotenone	*
Tebufenozide	*

See footnote(s) at end of table.

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**Blackberries: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	OR
Fungicides	
Basic copper sulfate	*
Benomyl	P
Calcium polysulfide	P
Captan	P
Copper chloride hyd.	*
Copper hydroxide	P
Copper oxychloride	*
Copper sulfate	P
Cyprodinil	P
Fenhexamid	*
Fludioxonil	P
Fosetyl-al	*
Iprodione	P
Mefenoxam	*
Myclobutanil	*
Propiconazole	*
Sulfur	P
Other Chemicals	
Gibberellic acid	*
Hydrogen peroxide	*
Zinc phosphide	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Blackberries: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Oregon, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide <sup>1</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
OR <sup>2</sup>	6,160	80	9.9	71	8.9	80	89.3		

<sup>1</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Blackberries: Agricultural Chemical Applications,  
Oregon, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	40	1.0	1.44	1.53	3.8
Glyphosate	2	1.0	0.57	0.57	0.1
Norflurazon	9	1.0	1.09	1.09	0.6
Oxyfluorfen	21	1.3	0.25	0.33	0.4
Paraquat	29	1.3	0.40	0.54	1.0
Simazine	34	1.0	1.41	1.49	3.1
Terbacil	7	1.0	1.21	1.21	0.5
<b>Insecticides</b>					
Azinphos-methyl	16	1.3	0.55	0.71	0.7
Bifenthrin	6	1.0	0.09	0.09	( <sup>2</sup> )
Bt ( <i>Bacillus thur.</i> ) <sup>3</sup>	12	1.5			
Carbaryl	32	1.1	1.25	1.41	2.8
Diazinon	7	1.0	1.71	1.71	0.8
Esfenvalerate	17	1.1	0.05	0.05	0.1
Malathion	2	1.0	1.77	1.77	0.2
Petroleum distillate	9	1.2	5.99	7.43	4.2
<b>Fungicides</b>					
Benomyl	16	1.0	0.35	0.35	0.3
Calcium polysulfide	66	1.3	13.55	17.57	71.3
Captan	22	1.2	1.76	2.17	2.9
Copper hydroxide	34	1.4	1.10	1.63	3.4
Copper sulfate	12	1.0	2.04	2.04	1.4
Cyprodinil	18	1.3	0.28	0.37	0.4
Fludioxonil	18	1.3	0.19	0.25	0.3
Iprodione	17	1.2	0.68	0.84	0.9
Sulfur	10	2.5	3.82	9.84	6.3

<sup>1</sup> Bearing acres in 2001 for Oregon were 6,160 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Blueberries: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	GA	MI	NJ	OR
Herbicides					
2,4-D	*				*
2,4-D, Dimeth. salt	*			*	*
Bromacil	*			*	
Dichlobenil	*	*			*
Diuron	P	P	P	P	P
Fluazifop-P-butyl	*	*			
Glufosinate-ammonium	*	*			
Glyphosate	P	P	P	P	P
Hexazinone	P	P	P		
Napropamide	P		*	*	*
Norflurazon	P	*	*	P	P
Oryzalin	P	P	*	*	P
Oxyfluorfen	*				*
Paraquat	P	*	P	*	P
Pendimethalin	*	*			
Pronamide	*				*
S-Metolachlor	*			*	
Sethoxydim	P	P	*	*	*
Simazine	P	P	P	*	*
Terbacil	P		*	P	*
Triclopyr	*				*
Insecticides					
Azadirachtin	*		*		
Azinphos-methyl	P		P	*	*
Bifenthrin	*				*
Bt (Bacillus thur.)	P		P	*	P
Carbaryl	P	*	P	P	*
Carbofuran	*		*		
Diazinon	P	P	*	*	P
Dimethoate	*				*
Esfenvalerate	P		P	*	*
Imidacloprid	P		P	P	
Kaolin	*		*		
Malathion	P	P	P	P	P
Methomyl	P		*	P	*
Neem oil, clar. hyd.	*				*
Permethrin	*				*
Petroleum distillate	P		*	*	P
Phosmet	P	*	P	P	*
Spinosad	P	P			
Tebufozide	P		*	*	

See footnote(s) at end of table.

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**Blueberries: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	GA	MI	NJ	OR
<b>Fungicides</b>					
Basic copper sulfate	*				*
Benomyl	P	P	P	P	P
Calcium polysulfide	P		*	*	P
Captan	P	P	P	P	P
Chlorothalonil	P		P	*	*
Copper hydroxide	P		*		*
Copper oxychloro. sul.	*				*
Copper oxychloride	*				*
Copper sulfate	P				P
Cyprodinil	*				*
Fenbuconazole	P	P	P	P	P
Fludioxonil	*				*
Fosetyl-al	P	*	P		*
Iprodione	P	*			*
Mancozeb	*	*		*	
Mefenoxam	P				P
Sulfur	*				*
Tebuconazole	*		*		*
Thiophanate-methyl	*				*
Thiram	*				*
Triforine	P	P	*		*
Ziram	P		P	P	P
<b>Other Chemicals</b>					
Cyanamid	*	*			
Cytokinins	*			*	
Garlic oil	*				*
Gibberellic acid	P	*	*	*	
Metaldehyde	*		*		

P Usage data are published for this active ingredient.  
\* Usage data are not published for this active ingredient.

**Blueberries: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide <sup>1</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
GA	4,600	79	10.0	65	6.9	83	22.0	56	0.9
MI <sup>2</sup>	17,400	71	18.3	98	95.2	90	155.7		
NJ <sup>2</sup>	7,400	43	12.4	95	24.5	88	55.5		
OR <sup>2</sup>	2,800	65	7.4	58	13.5	74	44.4		
Total	32,200	65	48.1	89	140.2	87	277.5	10	1.0

<sup>1</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Blueberries: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	30	1.1	0.87	1.03	9.9
Glyphosate	27	1.4	0.57	0.81	7.1
Hexazinone	3	1.0	0.44	0.44	0.5
Napropamide	*	1.0	1.44	1.44	0.3
Norflurazon	14	1.1	1.97	2.31	10.3
Oryzalin	6	1.2	1.54	1.95	3.6
Paraquat	10	1.3	0.28	0.37	1.2
Sethoxydim	2	1.2	0.14	0.18	0.1
Simazine	24	1.1	1.19	1.40	10.6
Terbacil	21	1.1	0.48	0.55	3.7
<b>Insecticides</b>					
Azinphos-methyl	47	1.9	0.52	1.03	15.6
Bt (Bacillus thur.) <sup>2</sup>	8	1.4			
Carbaryl	25	1.8	1.60	2.88	23.4
Diazinon	13	1.4	0.70	1.03	4.4
Esfenvalerate	9	1.3	0.04	0.06	0.2
Imidacloprid	10	1.3	0.05	0.07	0.2
Malathion	36	2.2	1.56	3.43	40.1
Methomyl	33	1.8	0.72	1.31	14.1
Petroleum distillate	2	1.1	16.04	18.01	9.8
Phosmet	52	2.1	0.82	1.73	29.1
Spinosad	*	1.1	0.06	0.07	( <sup>3</sup> )
Tebufozide	4	1.0	0.21	0.22	0.3
<b>Fungicides</b>					
Benomyl	61	1.8	0.47	0.85	16.9
Calcium polysulfide	3	1.7	19.51	33.82	30.5
Captan	63	2.9	1.99	5.84	118.4
Chlorothalonil	15	1.2	2.65	3.32	15.7
Copper hydroxide	4	1.5	2.13	3.37	3.8
Copper sulfate	1	1.7	1.82	3.23	1.3
Fenbuconazole	32	1.6	0.09	0.14	1.4
Fosetyl-al	5	1.9	3.36	6.63	10.1
Iprodione	4	1.5	0.65	1.01	1.3
Mefenoxam	*	1.0	0.53	0.56	0.1
Triforine	7	1.1	0.25	0.29	0.6
Ziram	45	2.1	2.41	5.14	75.3
<b>Other Chemicals</b>					
Gibberellic acid	8	2.3	0.04	0.10	0.3

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 4 program states were 32,200 acres.

States included are GA, MI, NJ and OR.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.



**Blueberries: Agricultural Chemical Applications,  
Georgia, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	33	1.1	0.89	1.02	1.5
Glyphosate	63	1.5	0.75	1.15	3.3
Hexazinone	5	1.0	0.54	0.54	0.1
Oryzalin	21	1.4	1.37	1.93	1.9
Sethoxydim	12	1.3	0.11	0.14	0.1
Simazine	34	1.3	1.09	1.48	2.3
<b>Insecticides</b>					
Diazinon	29	1.7	0.67	1.14	1.5
Malathion	53	2.2	0.90	2.02	5.0
Spinosad	6	1.1	0.06	0.07	( <sup>2</sup> )
<b>Fungicides</b>					
Benomyl	75	2.1	0.49	1.03	3.6
Captan	74	2.2	2.29	5.07	17.3
Fenbuconazole	57	1.6	0.09	0.14	0.4
Triforine	17	1.4	0.26	0.37	0.3

<sup>1</sup> Bearing acres in 2001 for Georgia were 4,600 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Blueberries: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	29	1.2	0.70	0.84	4.2
Glyphosate	29	1.3	0.41	0.56	2.8
Hexazinone	5	1.0	0.41	0.42	0.4
Paraquat	13	1.2	0.22	0.27	0.6
Simazine	28	1.1	1.20	1.37	6.6
<b>Insecticides</b>					
Azinphos-methyl	70	1.9	0.54	1.06	12.8
Bt (Bacillus thur.) <sup>2</sup>	6	1.4			
Carbaryl	35	1.9	1.56	3.09	18.8
Esfenvalerate	13	1.4	0.04	0.06	0.1
Imidacloprid	3	1.0	0.08	0.09	( <sup>3</sup> )
Malathion	42	2.2	1.81	4.15	30.3
Phosmet	73	2.2	0.84	1.91	24.5
<b>Fungicides</b>					
Benomyl	63	1.9	0.48	0.96	10.6
Captan	60	3.0	2.05	6.27	65.5
Chlorothalonil	26	1.2	2.68	3.36	15.2
Fenbuconazole	33	1.6	0.09	0.14	0.8
Fosetyl-al	7	2.1	3.48	7.50	8.8
Ziram	50	2.3	2.54	5.93	51.8

<sup>1</sup> Bearing acres in 2001 for Michigan were 17,400 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Blueberries: Agricultural Chemical Applications,  
New Jersey, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	31	1.1	1.08	1.29	2.9
Glyphosate	4	1.6	1.04	1.69	0.4
Norflurazon	35	1.1	2.16	2.52	6.6
Terbacil	28	1.2	0.51	0.62	1.3
<b>Insecticides</b>					
Carbaryl	23	1.2	2.03	2.53	4.2
Imidacloprid	34	1.4	0.05	0.07	0.2
Malathion	25	1.8	1.38	2.59	4.7
Methomyl	53	2.3	0.68	1.63	6.4
Phosmet	45	1.5	0.79	1.20	4.0
<b>Fungicides</b>					
Benomyl	64	1.2	0.36	0.46	2.2
Captan	66	3.4	1.79	6.12	30.0
Fenbuconazole	14	1.4	0.09	0.13	0.1
Ziram	69	1.8	2.16	4.06	20.7

<sup>1</sup> Bearing acres in 2001 for New Jersey were 7,400 acres.

**Blueberries: Agricultural Chemical Applications,  
Oregon, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	27	1.1	1.34	1.49	1.1
Glyphosate	25	1.3	0.62	0.85	0.6
Norflurazon	29	1.3	2.49	3.34	2.7
Oryzalin	20	1.0	1.70	1.77	1.0
Paraquat	21	1.4	0.38	0.53	0.3
<b>Insecticides</b>					
Bt (Bacillus thur.) <sup>2</sup>	22	2.2			
Diazinon	36	1.2	0.83	1.07	1.1
Malathion	5	1.0	1.40	1.40	0.2
Petroleum distillate	18	1.1	15.22	16.92	8.7
<b>Fungicides</b>					
Benomyl	22	1.8	0.52	0.97	0.6
Calcium polysulfide	15	2.5	23.67	60.21	25.7
Captan	55	2.0	1.80	3.69	5.7
Copper sulfate	14	1.7	1.82	3.23	1.3
Fenbuconazole	28	1.5	0.09	0.14	0.1
Mefenoxam	8	1.0	0.53	0.56	0.1
Ziram	29	1.6	2.09	3.49	2.8

<sup>1</sup> Bearing acres in 2001 for Oregon were 2,800 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cherries, Sweet: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	CA	MI	OR	WA
Herbicides					
2,4-D	P	P	*	P	*
2,4-D, Dimeth. salt	P		P	*	*
2,4-DP, Dimeth. salt	*	*			
Clethodim	*	*			
Diuron	*		*	*	*
Fluazifop-P-butyl	*	*			
Glyphosate	P	P	P	P	P
Napropamide	P	*			*
Norflurazon	P	P	*	*	*
Oryzalin	P	*	*	P	P
Oxyfluorfen	P	P		*	*
Paraquat	P	P	P	P	P
Pendimethalin	P	*	*		*
Prosulfuron	*				*
Simazine	P	*	P	*	
Sulfosate	P	*	*		*
Terbacil	*		*		

See footnote(s) at end of table.

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**Cherries, Sweet: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	CA	MI	OR	WA
Insecticides					
Abamectin	*			*	*
Azadirachtin	*			*	
Azinphos-methyl	P		P	P	P
Benzoic acid	*				*
Bt (Bacillus thur.)	P	P		P	P
Carbaryl	P	P	P	P	P
Chlorpyrifos	P		P	P	P
Clofentezine	P	*			*
Diazinon	P	P	*	*	P
Dicofol	*	*			
Diflubenzuron	*			*	
Dimethoate	P			P	P
Endosulfan	P		*	*	P
Esfenvalerate	P	*	P	*	
Ethion	*		*		
Ethyl parathion	*				*
Fenamiphos	*	*			
Fenbutatin-oxide	*				*
Formetanate hydro.	*				*
Hexythiazox	*	*			
Imidacloprid	*		*		*
Malathion	*	*		P	P
Methidathion	P	P			
Methoxychlor	*			*	
Oxythioquinox	*			*	
Permethrin	P	*	P	*	
Petroleum distillate	*	P	*	P	P
Petroleum oil	P			P	
Phosmet	P		*	P	*
Piperonyl butoxide	*				*
Potassium salts	*				*
Propargite	P	*			*
Pyrethrins	P			*	*
Pyridaben	P		*		*
Spinosad	*	*		P	P
Thiamethoxam	*				*

See footnote(s) at end of table.

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**Cherries, Sweet: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	CA	MI	OR	WA
Fungicides					
Azoxystrobin	P	*		*	P
Bas copper zinc sulf	*			*	*
Basic copper sulfate	P	*	*	P	P
Benomyl	P	*	P	P	*
Calcium polysulfide	P	*		*	P
Captan	P	*	P	P	*
Chlorothalonil	P		P	*	*
Copper amm. complex	*			*	*
Copper chloride hyd.	P		*	*	P
Copper hydroxide	P	P	P	P	P
Copper oxide	*	*			
Copper oxychlor. sul.	P	*	*	P	*
Copper oxychloride	*		*	*	
Copper resinate	*				*
Copper sulfate	P	*	*	P	P
Cresol	*				*
Cyprodinil	*	*			
Dodine	P		P	*	*
Fenarimol	P			*	*
Fenbuconazole	P	*	P	P	*
Ferbam	P		P		
Fosetyl-al	P		*		*
Iprodione	P	P	P	P	
Kresoxim-methyl	*				*
Mancozeb	P			*	*
Maneb	*				*
Mefenoxam	*				*
Metalaxyl	*			*	*
Myclobutanil	P	P	P	P	P
Oxytetracycline	*			*	*
PCNB	*			*	
Potassium bicarbon.	*				*
Propiconazole	P	*	*	P	P
Streptomycin	*				*
Sulfur	P	P	P	P	P
Tebuconazole	P	P	P	P	P
Thiophanate-methyl	P	*	*		*
Triadimefon	*			*	
Trifloxystrobin	*	*			
Triflumizole	*				*
Vinclozolin	*				*
Xylenol	*				*
Ziram	P		P	*	*

See footnote(s) at end of table.

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**Cherries, Sweet: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States				
	ALL	CA	MI	OR	WA
Other Chemicals					
Aluminum phosphide	*	*			*
Benzyladenine	*	*			*
Butenoic Acid Hydro.	*				*
Chlorophacinone	*				*
Chloropicrin	*	*			
Cyanamid	P	P			
Cytokinins	P				P
Dichloropropene	*	*			
Diphacinone	*				*
Dodecadien-1-ol	*				*
Dodecanol	*				*
Ethephon	P		P	*	*
Garlic oil	*		*	*	*
Gibberellic acid	P	*	*	P	P
Gibberellins A4A7	*	*			*
Harpin protein	*				*
Indolebutyric acid	*				*
Lactic acid	*				*
Methyl anthranilate	P			*	*
Methyl bromide	*	*			
Monocarbamide dihyd.	*			*	*
NAA	*		*	*	*
NAD	*				*
Octadecadien (E,Z)	*		*		
Octadecadien (Z,Z)	*		*		
Prohexadione calcium	*				*
Sodium tetrathiocarb	*	*			
Strychnine	P	*			*
Tetradecanol	*				*
Zinc phosphide	P			*	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Cherries, Sweet: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	23,000	36	7.5	50	241.8	54	112.5	24	51.7
MI	7,400	60	5.9	99	20.4	99	190.3	70	2.9
OR	11,000	44	9.9	96	465.7	86	53.0	50	0.9
WA	22,000	37	29.3	94	625.8	93	404.3	62	2.5
Total	63,400	41	52.5	79	1,353.2	79	760.2	47	58.0

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Cherries, Sweet: Agricultural Chemical Applications,  
Program States, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.2	0.55	0.70	1.7
2,4-D, Dimeth. salt	4	1.2	0.96	1.22	3.1
Glyphosate	26	1.7	0.77	1.35	22.4
Napropamide	*	1.0	2.62	2.62	0.7
Norflurazon	1	1.3	1.50	1.96	1.8
Oryzalin	3	1.5	1.51	2.25	4.0
Oxyfluorfen	6	1.1	0.47	0.53	2.0
Paraquat	14	1.5	0.80	1.27	11.4
Pendimethalin	1	1.1	2.10	2.50	2.1
Simazine	2	1.0	1.30	1.33	1.9
Sulfosate	1	1.4	0.83	1.22	0.8
<b>Insecticides</b>					
Azinphos-methyl	37	2.1	0.67	1.40	32.8
Bt ( <i>Bacillus thur.</i> ) <sup>2</sup>	10	1.2			
Carbaryl	31	1.6	1.73	2.79	55.3
Chlorpyrifos	29	1.0	1.88	2.02	36.5
Clofentezine	3	1.0	0.15	0.16	0.3
Diazinon	8	1.1	1.61	1.88	9.7
Dimethoate	11	1.0	0.85	0.89	6.2
Endosulfan	5	1.2	1.69	2.07	6.1
Esfenvalerate	10	1.5	0.04	0.06	0.4
Methidathion	1	1.1	1.26	1.46	0.9
Permethrin	6	1.8	0.13	0.25	1.0
Petroleum oil	3	1.7	16.86	28.69	61.3
Phosmet	3	1.6	1.52	2.43	4.7
Propargite	*	1.0	1.80	1.80	1.0
Pyrethrins	*	6.3	0.07	0.07	( <sup>3</sup> )
Pyridaben	*	1.0	0.16	0.16	( <sup>3</sup> )

See footnote(s) at end of table.

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**Cherries, Sweet: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Azoxystrobin	4	1.2	0.20	0.23	0.5
Basic copper sulfate	2	1.1	5.62	6.39	7.1
Benomyl	6	1.3	0.66	0.90	3.3
Calcium polysulfide	6	1.2	28.09	35.87	146.6
Captan	5	1.6	1.73	2.85	8.5
Chlorothalonil	10	1.7	1.98	3.40	20.7
Copper chloride hyd.	1	2.1	5.39	11.49	7.9
Copper hydroxide	26	1.3	3.41	4.62	77.0
Copper oxychlo. sul.	1	1.1	3.85	4.46	4.0
Copper sulfate	3	1.3	1.96	2.55	4.4
Dodine	1	1.3	0.69	0.94	0.7
Fenarimol	11	1.3	0.07	0.09	0.7
Fenbuconazole	10	2.8	0.08	0.22	1.4
Ferbam	4	2.3	1.96	4.67	12.9
Fosetyl-al	*	1.3	1.57	2.07	1.2
Iprodione	15	1.1	0.71	0.84	7.8
Mancozeb	*	1.0	2.74	2.76	0.4
Myclobutanil	37	1.7	0.12	0.21	4.9
Propiconazole	25	1.6	0.11	0.18	2.9
Sulfur	36	2.9	6.42	19.02	429.3
Tebuconazole	26	1.9	0.17	0.33	5.5
Thiophanate-methyl	1	1.0	0.90	0.90	0.6
Ziram	3	1.9	2.12	4.14	8.5
<b>Other Chemicals</b>					
Cyanamid	3	1.1	1.26	1.47	2.5
Cytokinins <sup>4</sup>	*	1.1			( <sup>3</sup> )
Ethephon	9	1.1	0.45	0.50	2.8
Gibberellic acid	32	1.4	0.05	0.08	1.5
Methyl anthranilate	*	1.5	1.76	2.75	0.2
Strychnine	*	1.0	0.01	0.01	( <sup>3</sup> )
Zinc phosphide	*	1.3	0.08	0.11	0.1

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 4 program states were 63,400 acres.  
States included are CA, MI, OR and WA.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.



**Cherries, Sweet: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	6	1.2	0.57	0.69	1.0
Glyphosate	14	1.1	0.59	0.67	2.2
Norflurazon	2	1.0	0.75	0.80	0.4
Oxyfluorfen	11	1.2	0.41	0.50	1.2
Paraquat	13	1.2	0.48	0.57	1.7
<b>Insecticides</b>					
Bt (Bacillus thur.) <sup>2</sup>	10	1.2			
Carbaryl	3	1.1	1.94	2.23	1.3
Diazinon	13	1.2	1.58	1.93	5.7
Methidathion	3	1.1	1.26	1.46	0.9
Petroleum distillate	31	1.3	23.74	33.01	232.3
<b>Fungicides</b>					
Copper hydroxide	19	1.4	3.38	4.80	21.0
Iprodione	34	1.2	0.70	0.85	6.7
Myclobutanil	12	1.4	0.11	0.16	0.4
Sulfur	5	1.3	6.93	9.24	11.0
Tebuconazole	10	1.3	0.15	0.20	0.4
<b>Other Chemicals</b>					
Cyanamid	7	1.1	1.26	1.47	2.5

<sup>1</sup> Bearing acres in 2001 for California were 23,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cherries, Sweet: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D, Dimeth.	13	1.2	1.02	1.30	1.2
Glyphosate	40	1.1	0.66	0.74	2.2
Paraquat	21	1.2	0.34	0.42	0.7
Simazine	16	1.0	1.23	1.24	1.5
<b>Insecticides</b>					
Azinphos-methyl	89	3.1	0.50	1.59	10.4
Carbaryl	36	1.1	2.14	2.52	6.7
Chlorpyrifos	5	1.0	0.50	0.50	0.2
Esfenvalerate	50	1.6	0.03	0.05	0.2
Permethrin	37	2.1	0.12	0.25	0.7
<b>Fungicides</b>					
Benomyl	15	1.6	0.43	0.70	0.8
Captan	20	2.0	1.64	3.39	5.1
Chlorothalonil	72	1.8	1.94	3.54	18.9
Copper hydroxide	10	1.2	1.70	2.15	1.6
Dodine	3	1.5	0.53	0.83	0.2
Fenbuconazole	57	3.5	0.08	0.27	1.1
Ferbam	37	2.3	1.96	4.67	12.9
Iprodione	9	1.0	0.91	0.91	0.6
Myclobutanil	12	1.3	0.08	0.11	0.1
Sulfur	78	4.8	4.96	23.99	137.7
Tebuconazole	62	3.2	0.15	0.48	2.2
Ziram	24	2.0	2.11	4.40	7.7
<b>Other Chemicals</b>					
Ethephon	69	1.1	0.45	0.50	2.6

<sup>1</sup> Bearing acres in 2001 for Michigan were 7,400 acres.

**Cherries, Sweet: Agricultural Chemical Applications,  
Oregon, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	5	1.2	0.70	0.85	0.5
Glyphosate	42	2.4	0.54	1.34	6.2
Oryzalin	5	1.1	1.47	1.69	0.9
Paraquat	4	1.0	0.74	0.74	0.4
<b>Insecticides</b>					
Azinphos-methyl	9	1.2	0.72	0.88	0.9
Bt (Bacillus thur.) <sup>2</sup>	25	1.3			
Carbaryl	10	1.4	1.81	2.58	3.0
Chlorpyrifos	65	1.1	1.88	2.06	14.7
Dimethoate	29	1.0	0.70	0.71	2.3
Malathion	51	5.1	1.08	5.55	31.0
Petroleum distillate	69	1.6	28.36	46.57	350.9
Petroleum oil	19	1.7	16.86	28.69	61.3
Phosmet	5	1.0	1.09	1.09	0.6
Spinosad	18	1.2	0.11	0.14	0.3
<b>Fungicides</b>					
Basic copper sulfate	2	1.0	2.51	2.51	0.5
Benomyl	8	1.2	0.55	0.68	0.6
Captan	6	1.3	1.50	2.06	1.2
Copper hydroxide	12	1.6	3.13	5.02	6.4
Copper oxychlor. sul.	6	1.0	4.97	4.97	3.2
Copper sulfate	2	1.4	1.80	2.66	0.5
Fenbuconazole	17	1.5	0.09	0.14	0.3
Iprodione	7	1.0	0.64	0.69	0.6
Myclobutanil	28	1.2	0.11	0.14	0.4
Propiconazole	41	1.4	0.12	0.17	0.8
Sulfur	29	1.4	7.47	10.85	35.0
Tebuconazole	25	1.4	0.20	0.29	0.8
<b>Other Chemicals</b>					
Gibberellic acid	46	1.5	0.04	0.06	0.3

<sup>1</sup> Bearing acres in 2001 for Oregon were 11,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Cherries, Sweet: Agricultural Chemical Applications,  
Washington, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	26	1.7	1.15	2.03	11.8
Oryzalin	5	1.7	1.55	2.71	3.0
Paraquat	18	2.0	1.07	2.23	8.6
<b>Insecticides</b>					
Azinphos-methyl	72	1.6	0.80	1.35	21.6
Bt (Bacillus thur.) <sup>2</sup>	5	1.0			
Carbaryl	70	1.7	1.67	2.88	44.3
Chlorpyrifos	48	1.0	1.93	2.04	21.6
Diazinon	8	1.0	1.86	2.01	3.4
Dimethoate	17	1.0	0.98	1.04	4.0
Endosulfan	12	1.2	1.77	2.20	5.7
Malathion	40	1.9	1.07	2.07	18.3
Petroleum distillate	68	1.4	23.76	33.27	500.0
Spinosad	36	1.2	0.08	0.10	0.8
<b>Fungicides</b>					
Azoxystrobin	7	1.2	0.18	0.23	0.4
Basic copper sulfate	3	1.2	6.98	8.34	4.8
Calcium polysulfide	13	1.2	23.54	28.41	78.2
Copper chloride hyd.	3	2.2	5.45	12.01	7.8
Copper hydroxide	47	1.3	3.57	4.68	47.9
Copper sulfate	5	1.3	2.01	2.61	3.0
Myclobutanil	76	1.9	0.12	0.24	3.9
Propiconazole	44	1.5	0.12	0.18	1.8
Sulfur	56	2.6	7.62	19.79	245.6
Tebuconazole	32	1.3	0.21	0.28	2.0
<b>Other Chemicals</b>					
Cytokinins <sup>4</sup>	2	1.1			( <sup>3</sup> )
Gibberellic acid	54	1.3	0.06	0.08	0.9

<sup>1</sup> Bearing acres in 2001 for Washington were 22,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Cherries, Tart: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	MI	NY
<b>Herbicides</b>			
2,4-D	P	P	
2,4-D, Dimeth. salt	P	P	
Diuron	P	P	
Glyphosate	*	P	*
Norflurazon	*	*	*
Oryzalin	*	*	
Paraquat	P	P	P
Simazine	*	P	*
Sulfosate	*	*	
Terbacil	*	*	
<b>Insecticides</b>			
Azinphos-methyl	P	P	P
Bt (Bacillus thur.)	P		P
Carbaryl	P	P	P
Chlorpyrifos	P	P	
Clofentezine	*	*	
Endosulfan	*	*	
Esfenvalerate	P	*	*
Permethrin	P	P	P
Petroleum distillate	*	*	
Phosmet	P	P	P
Pyridaben	P	P	
Spinosad	*		*

See footnote(s) at end of table.

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**Cherries, Tart: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	MI	NY
<b>Fungicides</b>			
Basic copper sulfate	*	*	
Benomyl	P	P	
Calcium polysulfide	P	P	
Captafol	*	*	
Captan	P	P	P
Chlorothalonil	P	P	P
Copper chloride hyd.	*	*	
Copper hydroxide	P	*	*
Copper oxychlo. sul.	P	P	
Copper oxychloride	*	*	
Copper sulfate	P	*	*
Cyprodinil	*	*	
Dodine	*	P	*
Fenarimol	P	*	*
Fenbuconazole	P	P	P
Ferbam	P	*	*
Fosetyl-al	*	*	
Iprodione	P	*	*
Myclobutanil	P	P	
Propiconazole	P	*	*
Sulfur	P	P	P
Tebuconazole	*	P	*
Ziram	P	P	
<b>Other Chemicals</b>			
Benzyladenine	*	*	
Ethephon	P	P	P
Gibberellic acid	*	P	*
Gibberellins A4A7	*	*	
Methyl anthranilate	*		*
Octadecadien (E,Z)	*	*	
Octadecadien (Z,Z)	*	*	
Zinc phosphide	*		*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Cherries, Tart: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide <sup>1</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
MI	27,400	65	19.9	99	74.6	100	638.4	82	5.8
NY	2,200	25	1.0	94	9.0	94	39.7	69	0.4
Total	29,600	62	20.9	99	83.7	99	678.3	81	6.2

<sup>1</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Cherries, Tart: Agricultural Chemical Applications,  
Program States, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	*	1.1	0.59	0.68	0.2
2,4-D, Dimeth. salt	14	1.0	0.74	0.81	3.2
Diuron	2	1.1	0.97	1.13	0.7
Paraquat	23	1.0	0.28	0.29	2.0
<b>Insecticides</b>					
Azinphos-methyl	88	2.7	0.50	1.35	35.1
Bt (Bacillus thur.) <sup>2</sup>	2	1.7			
Carbaryl	9	1.3	1.79	2.37	6.3
Chlorpyrifos	8	1.1	0.69	0.82	1.8
Esfenvalerate	40	1.5	0.03	0.05	0.5
Permethrin	17	2.2	0.14	0.32	1.6
Phosmet	68	1.8	0.97	1.79	36.2
Pyridaben	2	1.0	0.20	0.20	0.1
<b>Fungicides</b>					
Benomyl	5	1.6	0.28	0.45	0.6
Calcium polysulfide	2	1.9	2.86	5.61	3.8
Captan	30	3.0	1.30	3.90	34.6
Chlorothalonil	96	2.3	1.77	4.09	115.9
Copper hydroxide	5	2.3	1.58	3.64	5.1
Copper oxychlor. sul.	4	2.1	1.83	3.95	5.0
Copper sulfate	2	2.2	1.25	2.75	1.7
Fenarimol	*	1.3	0.05	0.07	( <sup>3</sup> )
Fenbuconazole	49	2.3	0.08	0.19	2.8
Ferbam	5	1.4	2.19	3.11	4.9
Iprodione	3	1.0	0.79	0.86	0.7
Myclobutanil	27	2.2	0.07	0.15	1.2
Propiconazole	3	1.7	0.10	0.17	0.2
Sulfur	89	4.8	3.72	17.92	471.3
Ziram	5	2.7	2.45	6.70	9.2
<b>Other Chemicals</b>					
Ethephon	77	1.1	0.20	0.24	5.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 2 program states were 29,600 acres.  
States included are MI and NY.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.



**Cherries, Tart: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	1	1.1	0.59	0.68	0.2
2,4-D, Dimeth. salt	15	1.0	0.74	0.81	3.2
Diuron	2	1.1	0.97	1.13	0.7
Glyphosate	45	1.0	0.49	0.53	6.5
Paraquat	24	1.0	0.27	0.28	1.9
Simazine	35	1.0	0.69	0.72	6.9
<b>Insecticides</b>					
Azinphos-methyl	89	2.7	0.49	1.35	33.1
Carbaryl	7	1.2	1.53	1.88	3.6
Chlorpyrifos	8	1.1	0.69	0.82	1.8
Permethrin	17	2.3	0.14	0.33	1.5
Phosmet	70	1.7	0.96	1.67	31.9
Pyridaben	2	1.0	0.20	0.20	0.1
<b>Fungicides</b>					
Benomyl	5	1.6	0.28	0.45	0.6
Calcium polysulfide	2	1.9	2.86	5.61	3.8
Captan	26	3.0	1.15	3.46	25.1
Chlorothalonil	96	2.3	1.74	4.11	108.4
Copper oxychlo. sul.	5	2.1	1.83	3.95	5.0
Dodine	20	3.4	0.50	1.70	9.5
Fenbuconazole	46	2.4	0.08	0.19	2.4
Myclobutanil	30	2.2	0.07	0.15	1.2
Sulfur	90	4.9	3.69	18.25	450.1
Tebuconazole	83	3.4	0.12	0.41	9.2
Ziram	5	2.7	2.45	6.70	9.2
<b>Other Chemicals</b>					
Ethephon	78	1.1	0.20	0.24	5.1
Gibberellic acid	38	1.2	0.05	0.06	0.7

<sup>1</sup> Bearing acres in 2001 for Michigan were 27,400 acres.

**Cherries, Tart: Agricultural Chemical Applications,  
New York, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Paraquat	9	1.0	0.56	0.56	0.1
Insecticides					
Azinphos-methyl	69	2.0	0.66	1.34	2.0
Bt (Bacillus thur.) <sup>2</sup>	25	1.7			
Carbaryl	32	1.6	2.31	3.72	2.6
Permethrin	21	1.2	0.17	0.20	0.1
Phosmet	54	3.4	1.07	3.65	4.3
Fungicides					
Captan	73	3.0	1.95	5.88	9.5
Chlorothalonil	89	1.6	2.27	3.82	7.5
Fenbuconazole	82	2.0	0.10	0.20	0.4
Sulfur	75	2.7	4.73	12.87	21.2
Other Chemicals					
Ethephon	60	1.0	0.18	0.20	0.3

<sup>1</sup> Bearing acres in 2001 for New York were 2,200 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Dates: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides Glyphosate	*
Insecticides Hexythiazox Malathion Pyrethrins Rotenone	P P * *
Fungicides Sulfur	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Dates: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	5,000			18	3.8				

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Dates: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Insecticides					
Hexythiazox	10	1.3	0.08	0.12	0.1
Malathion	15	2.6	1.84	4.80	3.7

<sup>1</sup> Bearing acres in 2001 for California were 5,000 acres.

**Figs: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
Glyphosate	P
Oxyfluorfen	*
Paraquat	*
Insecticides	
Chlorpyrifos	*
Diazinon	*
Malathion	*
Fungicides	
Sulfur	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Figs: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	14,500	50	13.6	11	13.8				

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Figs: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Glyphosate	45	2.5	0.73	1.84	12.0

<sup>1</sup> Bearing acres in 2001 for California were 14,500 acres.

**Grapefruit: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Herbicides			
2,4-D	P	*	*
Bromacil	P	P	P
Diquat	*		*
Diuron	P	P	P
Glyphosate	P	P	P
Norflurazon	*	*	P
Paraquat	P	*	*
Pendimethalin	*	*	
Sethoxydim	*		*
Simazine	P	P	P
Sulfosate	P		P
Thiazopyr	*		*
Triclopyr	*		*
Trifluralin	*	*	
Insecticides			
Abamectin	*	*	P
Acephate	*		*
Aldicarb	P		P
Bt (Bacillus thur.)	*		*
Carbaryl	P	*	*
Carbofuran	*		*
Chlorpyrifos	P	P	P
Cryolite	*	*	
Cyfluthrin	*	*	
Dicofol	P		P
Diflubenzuron	P		P
Ethion	P		P
Fenbutatin-oxide	P		P
Fenoxycarb	*		*
Fenpropathrin	*		*
Imidacloprid	P	*	*
Malathion	*	*	
Methidathion	*	*	*
Neem oil, clar. hyd.	*		*
Petroleum distillate	P	P	P
Propargite	*		*
Pyridaben	P		P
S-Methoprene	*		*
Sabadilla	*	*	
Spinosad	P	*	*
Sulfur	*	*	P

See footnote(s) at end of table.

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**Grapefruit: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
<b>Fungicides</b>			
Azoxystrobin	P		P
Basic copper sulfate	P		P
Benomyl	P		P
Copper amm. complex	*		*
Copper chloride hyd.	P		P
Copper hydroxide	*	*	P
Copper oxide	*		*
Copper oxychlo. sul.	*		*
Copper oxychloride	*		*
Copper sulfate	P		P
Fenbuconazole	P		P
Ferbam	P		P
Flutolanil	*		*
Fosetyl-al	P		P
Maneb	*		*
Mefenoxam	P		P
Metalaxyl	*		*
Phosphorous acid	*		*
Streptomycin	*		*
<b>Other Chemicals</b>			
Bromadiolone	*	*	
Chlorophacinone	*	*	
Diphacinone	*	*	
Gibberellic acid	*	*	*
Harpin protein	*		*
Metaldehyde	*	*	
Metam-sodium	*	*	
Strychnine	*	*	
Zinc phosphide	*		*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Grapefruit: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>3</sup>	15,500	62	50.6	41	123.1				
FL <sup>3</sup>	107,800	94	544.8	97	7,233.1				
<b>Total</b>	<b>123,300</b>	<b>90</b>	<b>595.4</b>	<b>90</b>	<b>7,356.2</b>	<b>83</b>	<b>971.8</b>	<b>4</b>	<b>4.9</b>

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Insufficient reports to publish data for one or more pesticide classes.

**Grapefruit: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	11	1.8	0.18	0.32	4.5
Bromacil	21	1.6	0.94	1.54	39.8
Diuron	50	1.6	1.17	1.95	119.5
Glyphosate	85	2.8	0.93	2.61	274.8
Paraquat	2	1.0	0.33	0.34	0.8
Simazine	25	1.5	1.84	2.80	87.6
Sulfosate	1	1.1	1.59	1.88	3.0
<b>Insecticides</b>					
Aldicarb	8	1.0	3.03	3.08	28.9
Carbaryl	13	1.0	3.49	3.64	56.1
Chlorpyrifos	19	1.1	2.27	2.65	60.5
Dicofol	9	1.0	1.15	1.19	13.1
Diflubenzuron	19	1.0	0.35	0.35	8.4
Ethion	36	1.2	2.61	3.25	142.3
Fenbutatin-oxide	20	1.0	0.95	0.96	23.7
Imidacloprid	4	1.1	0.20	0.22	1.1
Petroleum distillate	78	1.9	27.56	53.31	5,156.0
Pyridaben	31	1.0	0.33	0.33	12.6
Spinosad	*	1.0	0.11	0.12	0.1
<b>Fungicides</b>					
Azoxystrobin	13	1.0	0.22	0.24	3.8
Basic copper sulfate	10	1.3	3.20	4.22	49.7
Benomyl	5	1.0	0.78	0.81	4.6
Copper chloride hyd.	10	1.4	5.05	7.46	91.9
Copper sulfate	6	2.7	0.78	2.11	16.3
Fenbuconazole	35	1.4	0.12	0.17	7.4
Ferbam	*	3.9	7.54	29.39	34.2
Fosetyl-al	3	1.0	3.09	3.25	11.1
Mefenoxam	3	1.4	0.94	1.32	5.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 2 program states were 123,300 acres.  
States included are CA and FL.



**Grapefruit: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Bromacil	26	1.6	1.23	2.03	8.3
Diuron	30	1.7	1.37	2.38	11.0
Glyphosate	45	2.2	0.45	1.00	7.0
Simazine	30	2.5	2.01	5.08	23.3
<b>Insecticides</b>					
Chlorpyrifos	13	1.0	1.35	1.36	2.7
Petroleum distillate	18	1.2	13.80	16.99	47.3

<sup>1</sup> Bearing acres in 2001 for California were 15,500 acres.

**Grapefruit: Agricultural Chemical Applications,  
Florida, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Bromacil	20	1.6	0.88	1.44	31.4
Diuron	53	1.6	1.15	1.92	108.5
Glyphosate	91	2.8	0.95	2.73	267.8
Norflurazon	26	1.7	1.36	2.31	63.7
Simazine	25	1.3	1.75	2.41	64.3
Sulfosate	1	1.1	1.59	1.88	3.0
<b>Insecticides</b>					
Abamectin	58	1.0	0.01	0.01	0.7
Aldicarb	9	1.0	3.03	3.08	28.9
Chlorpyrifos	19	1.1	2.35	2.78	57.8
Dicofol	10	1.0	1.15	1.19	13.1
Diflubenzuron	22	1.0	0.35	0.35	8.4
Ethion	41	1.2	2.61	3.25	142.3
Fenbutatin-oxide	23	1.0	0.95	0.96	23.7
Petroleum distillate	87	1.9	27.88	54.39	5,108.7
Pyridaben	36	1.0	0.33	0.33	12.6
Sulfur	45	1.9	19.10	36.46	1,771.0
<b>Fungicides</b>					
Azoxystrobin	15	1.0	0.22	0.24	3.8
Basic copper sulfate	11	1.3	3.20	4.22	49.7
Benomyl	5	1.0	0.78	0.81	4.6
Copper chloride hyd.	11	1.4	5.05	7.46	91.9
Copper hydroxide	72	3.6	2.27	8.29	645.0
Copper sulfate	7	2.7	0.78	2.11	16.3
Fenbuconazole	39	1.4	0.12	0.17	7.4
Ferbam	1	3.9	7.54	29.39	34.2
Fosetyl-al	3	1.0	3.09	3.25	11.1
Mefenoxam	4	1.4	0.94	1.32	5.4

<sup>1</sup> Bearing acres in 2001 for Florida were 107,800 acres.

**Grapes, All: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	KS	MI	NY	WA
Herbicides						
2,4-D	P	*				*
2,4-D, Dimeth. salt	*	*		*		
Clethodim	*	*				
Clopyralid	*					*
Diquat	*	*			*	
Diuron	P	P		*	P	*
EPTC	*			*		
Fluazifop-P-butyl	*	*				
Glufosinate-ammonium	P	*	*			*
Glyphosate	P	P	P	P	P	P
Isoxaben	*	*		*		
Napropamide	P	*				*
Norflurazon	P	P		*	P	*
Oryzalin	P	P	*	*	*	P
Oxyfluorfen	P	P			*	*
Paraquat	*	P	*	P	P	P
Pendimethalin	P	P			*	*
Sethoxydim	P	*				*
Simazine	P	P		P	P	P
Sulfosate	P	*			P	*
Thiazopyr	*	*				
Trifluralin	P	*				*

See footnote(s) at end of table.

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**Grapes, All: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	KS	MI	NY	WA
Insecticides						
Abamectin	P	P				P
Azinphos-methyl	P	*	P	P	*	
Beauveria bassiana	*	*				
Bt (Bacillus thur.)	P	P				*
Buprofezin	*		*			
Carbaryl	P	P	P	P	P	P
Carbofuran	P	P				
Chitin	*	*				
Chlorpyrifos	P	P		*	*	P
Cinnamaldehyde	*	*				
Cryolite	P	P				
Diazinon	P	P	*			*
Dicofol	P	P			*	*
Dimethoate	P	*			*	P
Endosulfan	P	*	*	*	*	*
Fenamiphos	P	*		*		
Fenbutatin-oxide	P	*			*	
Fenpropathrin	P	P		P	P	
Imidacloprid	P	P		*		*
Kaolin	*	*				
Malathion	P	*				*
Methomyl	P	P		*	*	
Methoxychlor	*			*		*
Methyl parathion	*				*	
Myrothecium verruc.	*	*				
Naled	*	*				
Neem oil, clar. hyd.	*	*				
Petroleum distillate	P	P	*		*	P
Phosmet	P	P	*	P	*	*
Potassium salts	P	P				
Propargite	P	P				P
Pyrethrins	*	*				
Pyridaben	P	P				
Rotenone	*	*				
Tebufenozide	P	P				

See footnote(s) at end of table.

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**Grapes, All: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	KS	MI	NY	WA
Fungicides						
AQ-10 Biofungicide	*	*				
Anilazine	*	*				
Azoxystrobin	P	P	*	P	P	*
Bacillus subtilis	P	P				*
Basic copper sulfate	P	*			*	
Benomyl	P	P	P	*	*	
Calcium polysulfide	P	P	*	*	*	P
Captan	P	P	P	P	P	
Chlorothalonil	*			*		
Copper amm. complex	*				*	
Copper hydroxide	P	P		P	*	*
Copper oxide	P	P				
Copper oxychloro. sul.	P	P		*	*	
Copper oxychloride	*	*			*	
Copper resinate	P	*			*	
Copper sulfate	*	*		*	*	
Cyprodinil	P	P		P	P	P
Dicloran	P	*			*	
Dinocap	*					*
Fenarimol	P	P		*	P	*
Fenhexamid	P	P			P	P
Ferbam	P		*	*	*	
Iprodione	P	P	*	P	P	*
Kresoxim-methyl	P	P	*	*	P	P
Mancozeb	P	*	P	P	P	*
Maneb	P		*	*	P	
Mefenoxam	*	*		*		
Metalaxyl	P			P	*	*
Myclobutanil	P	P	P	P	P	P
Potassium bicarbon.	P	P				
Streptomycin	*	*				
Sulfur	P	P	*	*	P	P
Tebuconazole	P	P		P	P	P
Thiophanate-methyl	*		*		*	
Triadimefon	P	*	P	P		*
Trifloxystrobin	*	P		*		P
Triflumizole	P	P				P
Ziram	P	P		P	P	

See footnote(s) at end of table.

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**Grapes, All: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	KS	MI	NY	WA
Other Chemicals						
Aluminum phosphide	*	*				
Capsaicin	*	*				
Carbon	*	*				
Chlorophacinone	*	*				
Cyanamid	P	P				
Dichloropropene	P	P				
Diphacinone	*	*				
Ethephon	P	*		*		
Forchlorfenuron	P	P				
Gibberellic acid	P	*				*
Harpin protein	*	*				
Mepiquat chloride	*				*	
Metaldehyde	P	P				
Metam-sodium	*	*				
Pelargonic acid	*	*				
Sodium nitrate	*	*				
Sodium tetrathiocarb	*	*				
Strychnine	P	*				*
Tetradecen-1-OL (Z)	P	P				
Tetradecen-1-yl (E)	P	P				

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Grapes, All: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide <sup>2</sup>		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	961,000	63	1,016.1	60	2,880.6	85	40,574.4	21	580.2
KS	110	51	0.1	32	0.2	80	0.5		
MI <sup>3</sup>	12,300	92	20.6	97	28.0	99	150.5		
NY <sup>3</sup>	31,500	87	103.6	81	56.5	99	208.7		
WA <sup>3</sup>	48,000	75	66.0	45	87.3	51	213.4		
Total	1,052,910	65	1,206.6	60	3,053.1	84	41,147.6	19	580.3

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Insufficient reports to publish data for one or more pesticide classes.

**Grapes, All: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	1	1.3	0.38	0.50	5.5
Diuron	9	1.1	1.06	1.24	111.2
Glufosinate-ammonium	*	1.5	0.32	0.49	0.9
Glyphosate	45	1.5	0.64	0.97	459.5
Napropamide	1	1.1	2.30	2.53	32.8
Norflurazon	3	1.1	0.95	1.10	40.3
Oryzalin	1	1.0	1.40	1.52	22.5
Oxyfluorfen	19	1.3	0.54	0.71	140.1
Pendimethalin	*	1.0	1.65	1.66	8.5
Sethoxydim	*	1.1	0.23	0.26	2.0
Simazine	19	1.2	1.00	1.23	251.0
Sulfosate	2	1.1	0.90	1.07	26.3
Trifluralin	1	1.0	1.62	1.73	18.3
<b>Insecticides</b>					
Abamectin	6	1.3	0.01	0.01	0.9
Azinphos-methyl	*	1.4	0.59	0.86	4.9
Bt (Bacillus thur.) <sup>2</sup>	10	1.4			
Carbaryl	4	1.5	1.36	2.07	77.8
Carbofuran	*	1.1	2.16	2.56	18.8
Chlorpyrifos	3	1.1	0.53	0.63	21.6
Cryolite	17	1.4	5.31	7.72	1,420.2
Diazinon	*	1.2	0.96	1.18	5.1
Dicofol	*	1.1	1.06	1.22	6.6
Dimethoate	2	1.4	1.32	1.85	33.7
Endosulfan	*	1.0	0.74	0.75	0.3
Fenamiphos	1	1.5	1.60	2.51	28.3
Fenbutatin-oxide	*	1.1	0.97	1.13	7.9
Fenpropathrin	3	1.2	0.16	0.20	6.8
Imidacloprid	24	1.2	0.05	0.06	15.8
Malathion	*	1.0	1.05	1.15	3.6
Methomyl	4	1.3	0.67	0.93	37.5
Petroleum distillate	4	1.4	5.94	8.43	346.6
Phosmet	*	1.3	1.22	1.59	13.0
Potassium salts	*	2.0	1.39	2.77	16.7
Propargite	9	1.2	1.68	2.03	181.8
Pyridaben	6	1.1	0.28	0.33	22.4
Tebufenozide	6	1.3	0.17	0.22	13.6

See footnote(s) at end of table.

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**Grapes, All: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Azoxystrobin	9	1.4	0.19	0.28	26.8
Bacillus subtilus <sup>2</sup>	*	1.0			
Basic copper sulfate	1	1.8	0.48	0.90	12.7
Benomyl	2	1.3	0.35	0.48	10.3
Calcium polysulfide	2	1.6	21.11	34.80	636.5
Captan	1	1.6	1.60	2.66	38.1
Copper hydroxide	32	1.6	0.56	0.93	317.1
Copper oxide	8	1.0	0.90	0.92	80.4
Copper oxychlo. sul.	3	1.8	2.44	4.56	145.2
Copper resinate	*	1.2	0.16	0.21	0.8
Cyprodinil	9	1.3	0.43	0.57	55.5
Dicloran	2	1.1	1.99	2.20	46.1
Fenarimol	17	1.4	0.03	0.04	7.9
Fenhexamid	3	1.2	0.48	0.61	21.5
Ferbam	*	1.4	2.14	3.16	2.3
Iprodione	4	1.3	0.57	0.77	29.9
Kresoxim-methyl	4	1.5	0.12	0.18	7.0
Mancozeb	8	2.0	1.83	3.68	310.0
Maneb	*	1.7	2.15	3.65	7.3
Metalaxyl	*	1.8	0.10	0.19	0.5
Myclobutanil	25	1.8	0.10	0.18	46.6
Potassium bicarbon.	13	1.6	1.68	2.71	364.3
Sulfur	79	5.9	7.93	46.92	38,787.5
Tebuconazole	20	1.5	0.11	0.16	33.7
Triadimefon	*	1.6	0.14	0.22	0.6
Triflumizole	10	2.1	0.15	0.32	34.8
Ziram	2	1.8	2.19	4.01	97.9
<b>Other Chemicals</b>					
Cyanamid	*	1.1	12.88	14.40	61.5
Dichloropropene	*	1.0	314.79	319.23	327.1
Ethephon	3	1.2	0.25	0.31	9.2
Forchlorfenuron	*	1.0	0.01	0.01	( <sup>3</sup> )
Gibberellic acid	15	2.1	0.04	0.09	14.5
Metaldehyde	*	1.9	0.50	0.94	3.3
Strychnine	1	1.5	0.02	0.02	0.3
Tetradecen-1-OL (Z)	*	1.0	0.001	0.001	( <sup>3</sup> )
Tetradecen-1-yl (E)	*	1.0	0.004	0.004	( <sup>3</sup> )

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 5 program states were 1.05 million acres.  
States included are CA, KS, MI, NY and WA.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.



**Grapes, All: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	7	1.2	0.84	1.05	69.2
Glyphosate	44	1.5	0.63	0.98	413.7
Norflurazon	3	1.2	0.85	1.04	26.6
Oryzalin	1	1.0	1.24	1.32	13.5
Oxyfluorfen	19	1.3	0.55	0.72	133.2
Paraquat	9	1.6	0.43	0.70	57.9
Pendimethalin	*	1.0	1.65	1.66	8.3
Simazine	18	1.2	0.96	1.21	213.8
<b>Insecticides</b>					
Abamectin	6	1.3	0.01	0.01	0.8
Bt (Bacillus thur.) <sup>2</sup>	10	1.4			
Carbaryl	1	1.2	0.96	1.17	12.4
Carbofuran	*	1.1	2.16	2.56	18.8
Chlorpyrifos	3	1.2	0.38	0.45	11.5
Cryolite	19	1.4	5.31	7.72	1,420.2
Diazinon	*	1.2	0.95	1.19	4.6
Dicofol	*	1.0	1.13	1.18	4.6
Fenpropathrin	2	1.0	0.17	0.18	3.7
Imidacloprid	25	1.2	0.05	0.06	15.5
Methomyl	4	1.3	0.68	0.92	36.9
Petroleum distillate	3	1.5	5.65	8.47	273.2
Phosmet	*	1.2	1.34	1.66	8.3
Potassium salts	*	2.0	1.39	2.77	16.7
Propargite	9	1.2	1.69	2.05	178.5
Pyridaben	7	1.1	0.28	0.33	22.4
Tebufenozide	6	1.3	0.17	0.22	13.6

See footnote(s) at end of table.

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**Grapes, All: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Azoxystrobin	7	1.4	0.20	0.28	18.9
Bacillus subtilus <sup>2</sup>	*	1.0			
Benomyl	2	1.3	0.36	0.48	10.3
Calcium polysulfide	2	1.6	22.72	36.37	622.4
Captan	*	1.5	1.65	2.63	23.9
Copper hydroxide	35	1.6	0.56	0.93	313.8
Copper oxide	9	1.0	0.90	0.92	80.4
Copper oxychlo. sul.	3	1.8	2.52	4.64	143.1
Cyprodinil	10	1.3	0.43	0.57	53.6
Fenarimol	15	1.5	0.03	0.04	6.4
Fenhexamid	3	1.2	0.49	0.60	19.8
Iprodione	4	1.3	0.56	0.76	28.5
Kresoxim-methyl	3	1.6	0.12	0.20	6.0
Myclobutanil	25	1.9	0.09	0.18	43.6
Potassium bicarbon.	14	1.6	1.68	2.71	364.3
Sulfur	83	6.0	7.98	48.16	38,547.6
Tebuconazole	20	1.4	0.11	0.16	31.4
Trifloxystrobin	23	1.4	0.06	0.09	19.3
Triflumizole	10	2.3	0.15	0.34	32.8
Ziram	1	1.4	1.76	2.49	27.0
<b>Other Chemicals</b>					
Cyanamid	*	1.1	12.88	14.40	61.5
Dichloropropene	*	1.0	314.79	319.23	327.1
Forchlorfenuron	*	1.0	0.01	0.01	( <sup>3</sup> )
Metaldehyde	*	1.9	0.50	0.94	3.3
Tetradecen-1-OL (Z)	*	1.0	0.001	0.001	( <sup>3</sup> )
Tetradecen-1-yl (E)	*	1.0	0.004	0.004	( <sup>3</sup> )

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 961,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Grapes, All: Agricultural Chemical Applications,  
Kansas, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Glyphosate	40	2.6	1.29	3.40	0.1
Insecticides					
Azinphos-methyl	15	1.2	0.68	0.83	( <sup>2</sup> )
Carbaryl	27	4.1	1.21	5.03	0.2
Fungicides					
Benomyl	20	1.0	0.41	0.42	( <sup>2</sup> )
Captan	56	3.1	0.85	2.71	0.2
Mancozeb	47	2.3	1.34	3.11	0.2
Myclobutanil	43	2.9	0.07	0.21	( <sup>2</sup> )
Triadimefon	27	1.3	0.10	0.13	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for Kansas were 110 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Grapes, All: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Glyphosate	78	1.1	0.56	0.66	6.3
Paraquat	71	1.4	0.35	0.50	4.4
Simazine	38	1.2	0.81	0.99	4.6
Insecticides					
Azinphos-methyl	41	1.5	0.60	0.90	4.5
Carbaryl	58	2.2	1.11	2.50	17.8
Fenprothrin	52	1.7	0.16	0.28	1.8
Phosmet	17	1.5	1.10	1.75	3.6
Fungicides					
Azoxystrobin	28	1.2	0.20	0.26	0.9
Captan	3	2.2	1.66	3.67	1.3
Copper hydroxide	12	1.0	0.66	0.70	1.0
Cyprodinil	2	1.2	0.46	0.58	0.1
Iprodione	3	2.1	0.84	1.77	0.5
Mancozeb	95	3.0	2.24	6.71	78.4
Metalaxyl	16	1.2	0.14	0.18	0.4
Myclobutanil	33	1.9	0.09	0.17	0.7
Tebuconazole	55	2.0	0.11	0.22	1.5
Triadimefon	6	1.5	0.11	0.16	0.1
Ziram	85	2.3	2.51	5.83	60.6

<sup>1</sup> Bearing acres in 2001 for Michigan were 12,300 acres.

**Grapes, All: Agricultural Chemical Applications,  
New York, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	55	1.0	2.12	2.12	36.6
Glyphosate	42	1.2	0.77	0.93	12.2
Norflurazon	12	1.0	2.07	2.23	8.7
Paraquat	36	1.1	0.59	0.70	7.9
Simazine	45	1.0	1.88	2.01	28.4
Sulfosate	15	1.0	1.30	1.30	6.1
<b>Insecticides</b>					
Carbaryl	56	1.4	1.79	2.54	44.8
Fenpropathrin	22	1.2	0.16	0.19	1.3
<b>Fungicides</b>					
Azoxystrobin	67	1.7	0.18	0.31	6.5
Captan	15	1.7	1.55	2.64	12.7
Cyprodinil	6	1.7	0.38	0.67	1.3
Fenarimol	53	1.3	0.03	0.04	0.7
Fenhexamid	5	1.9	0.46	0.89	1.3
Iprodione	2	1.4	0.96	1.41	0.8
Kresoxim-methyl	7	1.4	0.12	0.18	0.4
Mancozeb	77	2.0	2.30	4.70	114.5
Maneb	5	1.4	2.34	3.37	5.6
Myclobutanil	18	1.8	0.10	0.19	1.1
Sulfur	16	3.1	2.85	8.93	44.0
Tebuconazole	12	1.5	0.09	0.14	0.5
Ziram	10	1.3	2.51	3.27	10.3

<sup>1</sup> Bearing acres in 2001 for New York were 31,500 acres.

**Grapes, All: Agricultural Chemical Applications,  
Washington, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	66	1.3	0.64	0.86	27.1
Oryzalin	7	1.1	1.38	1.60	5.3
Paraquat	45	1.6	0.46	0.76	16.2
Simazine	18	1.0	0.49	0.49	4.2
<b>Insecticides</b>					
Abamectin	2	1.0	0.01	0.01	( <sup>2</sup> )
Carbaryl	4	1.0	1.16	1.20	2.6
Chlorpyrifos	17	1.1	1.04	1.21	9.7
Dimethoate	6	1.2	0.70	0.86	2.5
Petroleum distillate	18	1.1	6.98	7.73	66.7
Propargite	5	1.0	1.38	1.38	3.3
<b>Fungicides</b>					
Calcium polysulfide	2	2.8	5.88	16.88	12.8
Cyprodinil	2	1.1	0.41	0.48	0.5
Fenhexamid	2	1.1	0.54	0.60	0.5
Kresoxim-methyl	12	1.0	0.08	0.09	0.5
Myclobutanil	17	1.2	0.11	0.14	1.1
Sulfur	44	3.0	2.98	9.20	193.6
Tebuconazole	4	1.2	0.13	0.16	0.3
Trifloxystrobin	25	1.1	0.05	0.06	0.7
Triflumizole	21	1.2	0.16	0.19	2.0

<sup>1</sup> Bearing acres in 2001 for Washington were 48,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Grapes, Non-bearing: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
Diuron	*
Glyphosate	*
Oxyfluorfen	*
Paraquat	*
Pendimethalin	*
Simazine	*
Insecticides	
Abamectin	*
Cryolite	*
Propargite	*
Fungicides	
Benomyl	*
Captan	*
Sulfur	*
Other Chemicals	
Gibberellic acid	*

P Usage data are published for this active ingredient.  
\* Usage data are not published for this active ingredient.

**Grapes, Non-bearing: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	110,000	2	11.0						

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Grapes, Raisin: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
Diuron	P
Fluazifop-P-butyl	*
Glyphosate	P
Napropamide	*
Norflurazon	P
Oryzalin	*
Oxyfluorfen	P
Paraquat	P
Sethoxydim	*
Simazine	P
Sulfosate	*
Trifluralin	*
Insecticides	
Abamectin	P
Bt (Bacillus thur.)	P
Chlorpyrifos	*
Cryolite	P
Diazinon	*
Dicofol	*
Dimethoate	*
Fenamiphos	*
Fenbutatin-oxide	*
Fenpropathrin	P
Imidacloprid	P
Petroleum distillate	*
Phosmet	*
Propargite	P
Pyridaben	*
Tebufenozide	P

See footnote(s) at end of table.

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**Grapes, Raisin: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Fungicides	
Basic copper sulfate	*
Benomyl	*
Captan	*
Copper hydroxide	P
Copper oxide	*
Copper oxychloro. sul.	*
Copper oxychloride	*
Cyprodinil	*
Fenarimol	P
Iprodione	*
Kresoxim-methyl	*
Myclobutanil	P
Sulfur	P
Tebuconazole	P
Trifloxystrobin	*
Triflumizole	P
Ziram	P
Other Chemicals	
Aluminum phosphide	*
Ethephon	*
Forchlorfenuron	*
Gibberellic acid	*
Strychnine	*
Tetradecen-1-OL (Z)	*
Tetradecen-1-yl (E)	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.



**Grapes, Raisin: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	212,000	59	194.4	59	835.5	78	7,313.9	26	2.6

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Grapes, Raisin: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	11	1.1	0.47	0.53	12.9
Glyphosate	38	1.5	0.50	0.78	62.8
Norflurazon	5	1.1	0.61	0.69	7.4
Oxyfluorfen	17	1.2	0.19	0.23	8.6
Paraquat	8	1.5	0.35	0.56	9.2
Simazine	35	1.2	0.86	1.04	77.9
<b>Insecticides</b>					
Abamectin	4	1.3	0.009	0.01	0.1
Bt ( <i>Bacillus thur.</i> ) <sup>2</sup>	3	2.5			
Cryolite	42	1.4	5.32	7.93	713.1
Fenpropathrin	4	1.0	0.18	0.19	1.6
Imidacloprid	21	1.1	0.02	0.03	1.2
Propargite	21	1.2	1.68	2.12	96.5
Tebufozate	7	1.5	0.16	0.25	3.9
<b>Fungicides</b>					
Copper hydroxide	19	1.4	0.72	1.05	41.5
Fenarimol	12	1.6	0.03	0.05	1.2
Myclobutanil	11	1.8	0.10	0.18	4.3
Sulfur	78	5.3	8.16	44.03	7,233.6
Tebuconazole	10	1.5	0.11	0.18	3.9
Triflumizole	7	2.0	0.15	0.31	5.0
Ziram	2	1.4	2.25	3.20	11.3

<sup>1</sup> Bearing acres in 2001 for California were 212,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Grapes, Table: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
2,4-D, Dimeth. salt	*
Diuron	P
Fluazifop-P-butyl	*
Glyphosate	P
Napropamide	*
Norflurazon	*
Oryzalin	P
Oxyfluorfen	P
Paraquat	P
Pendimethalin	P
Sethoxydim	*
Simazine	P
Sulfosate	*
Trifluralin	*
Insecticides	
Abamectin	P
Bt (Bacillus thur.)	P
Carbaryl	*
Chlorpyrifos	P
Cryolite	P
Diazinon	*
Dicofol	*
Dimethoate	*
Fenamiphos	*
Fenbutatin-oxide	*
Fenpropathrin	*
Imidacloprid	P
Kaolin	*
Malathion	*
Methomyl	P
Naled	*
Petroleum distillate	P
Phosmet	*
Potassium salts	*
Propargite	P
Pyridaben	P
Tebufenozide	P

See footnote(s) at end of table.

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**Grapes, Table: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Fungicides	
Azoxystrobin	P
Basic copper sulfate	*
Benomyl	P
Calcium polysulfide	P
Captan	P
Copper hydroxide	P
Copper oxide	*
Copper oxychlo. sul.	P
Copper oxychloride	*
Copper resinate	*
Cyprodinil	P
Dicloran	*
Fenarimol	P
Fenhexamid	*
Iprodione	P
Kresoxim-methyl	P
Mancozeb	*
Mefenoxam	*
Myclobutanil	P
Potassium bicarbon.	*
Streptomycin	*
Sulfur	P
Tebuconazole	P
Triadimefon	*
Trifloxystrobin	P
Triflumizole	P
Ziram	*
Other Chemicals	
Cyanamid	P
Ethephon	*
Forchlorfenuron	*
Gibberellic acid	*
Metaldehyde	*
Sodium tetrathiocarb	*
Strychnine	*
Tetradecen-1-OL (Z)	*
Tetradecen-1-yl (E)	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Grapes, Table: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	109,000	75	158.2	80	502.0	96	4,615.6	76	137.0

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Grapes, Table: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	12	1.6	0.91	1.45	19.3
Glyphosate	47	1.4	0.71	1.00	51.1
Oryzalin	4	1.1	1.20	1.38	5.6
Oxyfluorfen	18	1.6	0.65	1.06	20.4
Paraquat	19	1.1	0.57	0.68	13.9
Pendimethalin	*	1.0	2.75	2.75	0.9
Simazine	14	1.3	0.74	0.99	15.4
<b>Insecticides</b>					
Abamectin	14	1.4	0.02	0.02	0.3
Bt (Bacillus thur.) <sup>2</sup>	25	1.5			
Chlorpyrifos	16	1.1	0.29	0.33	5.8
Cryolite	41	1.3	5.38	7.14	321.4
Imidacloprid	49	1.3	0.10	0.14	7.5
Methomyl	27	1.3	0.66	0.90	26.9
Petroleum distillate	7	1.0	8.91	9.14	71.8
Propargite	3	1.1	2.00	2.32	7.7
Pyridaben	2	1.5	0.28	0.42	1.0
Tebufenozide	9	1.3	0.18	0.24	2.5
<b>Fungicides</b>					
Azoxystrobin	31	1.5	0.21	0.32	10.8
Benomyl	4	1.2	0.57	0.74	3.4
Calcium polysulfide	5	2.3	30.12	70.95	363.5
Captan	5	1.3	1.77	2.39	14.2
Copper hydroxide	65	1.5	0.58	0.91	64.1
Copper oxychlo. sul.	20	2.1	2.53	5.31	116.2
Cyprodinil	37	1.5	0.46	0.70	28.2
Fenarimol	2	1.5	0.03	0.04	0.1
Iprodione	23	1.4	0.62	0.88	22.1
Kresoxim-methyl	6	1.2	0.12	0.15	0.9
Myclobutanil	63	2.4	0.10	0.25	16.9
Sulfur	96	7.1	5.27	37.58	3,911.9
Tebuconazole	44	2.1	0.11	0.25	11.8
Trifloxystrobin	29	1.6	0.05	0.08	2.6
Triflumizole	5	1.1	0.14	0.17	0.9
<b>Other Chemicals</b>					
Cyanamid	4	1.1	12.88	14.40	61.5

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 109,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Grapes, Wine: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
Clethodim	*
Diquat	*
Diuron	P
Glufosinate-ammonium	*
Glyphosate	P
Isoxaben	*
Napropamide	P
Norflurazon	P
Oryzalin	P
Oxyfluorfen	P
Paraquat	P
Pendimethalin	P
Sethoxydim	*
Simazine	P
Sulfosate	*
Thiazopyr	*
Trifluralin	*

See footnote(s) at end of table.

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**Grapes, Wine: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Insecticides	
Abamectin	P
Azinphos-methyl	*
Beauveria bassiana	*
Bt (Bacillus thur.)	P
Carbaryl	P
Carbofuran	P
Chitin	*
Chlorpyrifos	P
Cinnamaldehyde	*
Cryolite	P
Diazinon	P
Dicofol	P
Dimethoate	*
Endosulfan	*
Fenamiphos	*
Fenbutatin-oxide	*
Fenprothrin	P
Imidacloprid	P
Kaolin	*
Malathion	*
Methomyl	P
Myrothecium verruc.	*
Naled	*
Neem oil, clar. hyd.	*
Petroleum distillate	P
Phosmet	P
Potassium salts	P
Propargite	P
Pyrethrins	*
Pyridaben	P
Rotenone	*
Tebufenozide	P

See footnote(s) at end of table.

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**Grapes, Wine: Active Ingredients  
Publication Status  
By Program States, 2001 (continued)**

Active Ingredient	CA
Fungicides	
AQ-10 Biofungicide	*
Anilazine	*
Azoxystrobin	P
Bacillus subtilis	P
Basic copper sulfate	*
Benomyl	P
Calcium polysulfide	P
Captan	*
Copper hydroxide	P
Copper oxide	*
Copper oxychlo. sul.	P
Copper resinate	*
Copper sulfate	*
Cyprodinil	P
Dicloran	*
Fenarimol	P
Fenhexamid	P
Iprodione	P
Kresoxim-methyl	P
Mancozeb	*
Myclobutanil	P
Potassium bicarbon.	P
Streptomycin	*
Sulfur	P
Tebuconazole	P
Triadimefon	*
Trifloxystrobin	P
Triflumizole	P
Ziram	P

See footnote(s) at end of table.

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**Grapes, Wine: Active Ingredients  
Publication Status  
By Program States, 2001 (continued)**

Active Ingredient	CA
Other Chemicals	
Aluminum phosphide	*
Capsaicin	*
Carbon	*
Chlorophacinone	*
Dichloropropene	*
Diphacinone	*
Ethephon	*
Forchlorfenuron	*
Gibberellic acid	*
Harpin protein	*
Metaldehyde	*
Metam-sodium	*
Pelargonic acid	*
Sodium nitrate	*
Sodium tetrathiocarb	*
Strychnine	*
Tetradecen-1-OL (Z)	*
Tetradecen-1-yl (E)	*

P Usage data are published for this active ingredient.  
\* Usage data are not published for this active ingredient.

**Grapes, Wine: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide <sup>2</sup>		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	530,000	65	566.4	58	1,236.0	87	24,602.8	9	396.3

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (Bacillus thuringiensis) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Grapes, Wine: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	4	1.2	1.16	1.39	30.6
Glyphosate	47	1.5	0.66	1.04	260.3
Napropamide	1	1.0	1.96	2.11	15.2
Norflurazon	2	1.3	1.07	1.41	14.0
Oryzalin	*	1.0	1.38	1.39	6.8
Oxyfluorfen	21	1.2	0.66	0.84	92.4
Paraquat	7	1.8	0.41	0.78	29.9
Pendimethalin	*	1.0	1.56	1.57	6.5
Simazine	13	1.3	1.11	1.44	96.4
<b>Insecticides</b>					
Abamectin	5	1.3	0.01	0.01	0.4
Bt (Bacillus thur.) <sup>2</sup>	11	1.2			
Carbaryl	2	1.2	0.99	1.24	10.5
Carbofuran	1	1.1	2.16	2.56	16.9
Chlorpyrifos	1	1.1	0.46	0.55	3.5
Cryolite	5	1.4	5.10	7.62	215.1
Diazinon	*	1.1	0.87	0.98	0.7
Dicofol	*	1.0	1.19	1.26	3.0
Fenpropathrin	1	1.0	0.18	0.19	1.5
Imidacloprid	23	1.2	0.04	0.05	6.0
Methomyl	2	1.3	0.74	0.99	9.0
Petroleum distillate	4	1.6	4.89	8.08	172.1
Phosmet	*	1.2	1.36	1.74	6.5
Potassium salts	*	1.4	3.02	4.35	13.8
Propargite	5	1.1	1.64	1.87	49.5
Pyridaben	11	1.1	0.28	0.33	18.5
Tebufenozide	5	1.1	0.17	0.20	5.9

See footnote(s) at end of table.

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**Grapes, Wine: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Fungicides					
Azoxystrobin	6	1.2	0.19	0.24	7.2
Bacillus subtilis <sup>2</sup>	*	1.0			
Benomyl	3	1.3	0.29	0.40	5.7
Calcium polysulfide	2	1.2	16.89	21.58	232.9
Copper hydroxide	37	1.7	0.53	0.91	181.1
Copper oxychlor. sul.	2	1.2	2.52	3.02	24.1
Cyprodinil	9	1.1	0.40	0.47	22.7
Fenarimol	19	1.4	0.03	0.04	4.4
Fenhexamid	6	1.2	0.49	0.60	17.8
Iprodione	2	1.2	0.35	0.43	3.5
Kresoxim-methyl	4	1.7	0.12	0.22	4.6
Myclobutanil	25	1.6	0.09	0.15	19.6
Potassium bicarbon.	23	1.6	1.68	2.71	327.8
Sulfur	85	6.0	8.57	52.03	23,496.4
Tebuconazole	21	1.1	0.11	0.12	13.6
Trifloxystrobin	32	1.4	0.06	0.09	14.9
Triflumizole	13	2.4	0.14	0.35	23.5
Ziram	1	1.3	1.27	1.67	8.8

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 530,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Kiwifruit: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
Glyphosate	P
Napropamide	*
Oryzalin	*
Oxyfluorfen	*
Paraquat	*
Insecticides	
Cryolite	*
Methidathion	*
Petroleum distillate	*
Other Chemicals	
Cyanamid	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Kiwifruit: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	5,600	28	5.3	19	20.2				

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Kiwifruit: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Glyphosate	28	3.4	0.75	2.59	4.1

<sup>1</sup> Bearing acres in 2001 for California were 5,600 acres.

**Lemons: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
Bromacil	P
Diuron	P
Glyphosate	P
MSMA	*
Norflurazon	*
Oxyfluorfen	*
Paraquat	*
Pendimethalin	*
Simazine	P
Sulfosate	*
Trifluralin	*
Insecticides	
Abamectin	P
Azinphos-methyl	*
Carbaryl	*
Chlorpyrifos	P
Cyfluthrin	*
Dicofol	*
Dimethoate	*
Fenamiphos	*
Imidacloprid	*
Malathion	*
Methidathion	*
Petroleum distillate	P
Phosmet	*
Pyriproxyfen	*
Sabadilla	*
Spinosad	*
Sulfur	*
Fungicides	
Basic copper sulfate	P
Copper hydroxide	P
Copper sulfate	*
Fosetyl-al	P
Mefenoxam	*

See footnote(s) at end of table.

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**Lemons: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Other Chemicals	
Aluminum phosphide	*
Chlorophacinone	*
Chloropicrin	*
Dichloropropene	*
Diphacinone	P
Gibberellic acid	P
Metaldehyde	P
Methyl bromide	*
Sodium tetrathiocarb	P
Strychnine	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Lemons: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	52,000	51	126.0	55	2,696.2	25	58.1	26	203.7

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

**Lemons: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Bromacil	9	2.2	1.22	2.71	12.3
Diuron	15	2.0	1.58	3.28	25.1
Glyphosate	42	3.4	1.08	3.72	80.7
Simazine	4	1.2	1.66	2.07	4.8
<b>Insecticides</b>					
Abamectin	26	1.8	0.02	0.02	0.3
Chlorpyrifos	19	1.3	3.26	4.47	44.0
Petroleum distillate	46	2.0	52.20	107.82	2,582.9
<b>Fungicides</b>					
Basic copper sulfate	15	1.2	3.16	4.09	31.2
Copper hydroxide	9	2.0	1.63	3.35	14.8
Fosetyl-al	4	2.1	2.32	5.02	10.9
<b>Other Chemicals</b>					
Diphacinone <sup>3</sup>	6	1.8			( <sup>2</sup> )
Gibberellic acid	4	1.5	0.04	0.07	0.1
Metaldehyde	21	2.6	0.48	1.28	13.9
Sodium tetrathiocarb	*	1.0	38.86	40.07	9.6

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 52,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Nectarines: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	P
2,4-DP, Dimeth. salt	*
Acetic acid	*
Glyphosate	P
Napropamide	*
Norflurazon	P
Oryzalin	P
Oxyfluorfen	P
Paraquat	P
Pendimethalin	P
Simazine	P
Sulfosate	*
Insecticides	
Azinphos-methyl	P
Bt (Bacillus thur.)	P
Carbaryl	P
Chlorpyrifos	P
Cinnamaldehyde	*
Clofentezine	P
Diazinon	P
Dicofol	P
Esfenvalerate	P
Fenamiphos	*
Fenbutatin-oxide	P
Formetanate hydro.	P
Hexythiazox	P
Methidathion	*
Methomyl	P
Neem oil	*
Neem oil, clar. hyd.	*
Petroleum distillate	P
Phosmet	P
Propargite	P
Pyrethrins	*
Pyridaben	P
Pyriproxyfen	*
Spinosad	P

See footnote(s) at end of table.

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**Nectarines: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Fungicides	
Azoxystrobin	*
Basic copper sulfate	*
Benomyl	P
Captan	*
Chlorothalonil	P
Copper hydroxide	P
Copper oxide	P
Copper sulfate	*
Cyprodinil	P
Fenbuconazole	P
Iprodione	P
Myclobutanil	P
Propiconazole	P
Sulfur	P
Tebuconazole	P
Thiophanate-methyl	*
Ziram	P
Other Chemicals	
Aluminum phosphide	*
Chlorophacinone	*
Chloropicrin	*
Decenol	*
Decenyl acetate	*
Diphacinone	*
E-8-Dodecenyl acetat	P
Farnesol	*
Methyl bromide	*
Nerolidol	*
Strychnine	P
Z-8-Dodecanol	P
Z-8-Dodecen acetate	P

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Nectarines: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	41,500	70	84.5	87	1,542.6	89	334.1	23	2.3

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Nectarines: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	3	1.0	0.58	0.60	0.7
Glyphosate	46	2.5	0.90	2.33	44.5
Norflurazon	10	1.4	1.26	1.83	7.4
Oryzalin	6	1.0	0.82	0.88	2.1
Oxyfluorfen	34	1.4	0.44	0.61	8.7
Paraquat	23	1.3	0.57	0.74	7.0
Pendimethalin	3	1.2	1.02	1.23	1.5
Simazine	25	1.3	0.71	0.94	9.9
<b>Insecticides</b>					
Azinphos-methyl	3	1.4	1.86	2.62	3.4
Bt (Bacillus thur.) <sup>2</sup>	23	1.5			
Carbaryl	3	1.1	3.92	4.41	4.8
Chlorpyrifos	20	1.3	1.75	2.30	19.4
Clofentezine	7	1.1	0.12	0.14	0.4
Diazinon	24	1.5	1.75	2.68	26.7
Dicofol	4	1.1	1.13	1.26	2.2
Esfenvalerate	59	1.3	0.04	0.05	1.3
Fenbutatin-oxide	10	1.4	0.73	1.06	4.5
Formetanate hydro.	36	1.1	1.01	1.19	17.9
Hexythiazox	3	1.0	0.11	0.11	0.1
Methomyl	7	1.5	0.74	1.17	3.2
Petroleum distillate	68	1.4	33.81	49.05	1,385.0
Phosmet	39	1.4	2.15	3.18	51.1
Propargite	18	1.1	1.91	2.14	15.8
Pyridaben	9	1.3	0.22	0.29	1.0
Spinosad	31	1.3	0.09	0.12	1.6
<b>Fungicides</b>					
Benomyl	2	1.0	0.67	0.69	0.5
Chlorothalonil	1	1.0	2.46	2.60	1.5
Copper hydroxide	53	1.2	3.82	4.87	108.0
Copper oxide	7	1.2	5.08	6.07	18.7
Cyprodinil	10	1.2	0.22	0.28	1.2
Fenbuconazole	21	1.4	0.09	0.13	1.2
Iprodione	32	1.1	0.58	0.68	9.1
Myclobutanil	8	1.2	0.12	0.15	0.5
Propiconazole	25	1.5	0.10	0.16	1.7
Sulfur	37	1.3	5.80	7.58	117.3
Tebuconazole	22	1.3	0.16	0.22	2.0
Ziram	23	1.3	5.21	6.84	66.4
<b>Other Chemicals</b>					
E-8-Dodecenyl acetat	18	1.5	0.002	0.003	( <sup>3</sup> )
Strychnine	4	1.4	0.005	0.008	( <sup>3</sup> )
Z-8-Dodecanol <sup>4</sup>	18	1.5			( <sup>3</sup> )
Z-8-Dodecen acetate	18	1.5	0.03	0.04	0.3

<sup>1</sup> Bearing acres in 2001 for California were 41,500 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Olives: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
Diuron	P
Glyphosate	P
Napropamide	*
Oxyfluorfen	P
Paraquat	P
Simazine	P
Sulfosate	*
Insecticides	
Carbaryl	P
Petroleum distillate	P
Spinosad	P
Fungicides	
Basic copper sulfate	*
Copper hydroxide	P
Copper sulfate	*
Other Chemicals	
Diphacinone	*
NAA	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Olives: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	37,500	38	20.9	31	18.1	6	10.0	5	*

\* Total applied is less than 50 pounds.

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

**Olives: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	4	1.2	0.85	1.05	1.6
Glyphosate	33	2.0	0.62	1.24	15.2
Oxyfluorfen	5	1.6	0.14	0.24	0.5
Paraquat	5	1.2	0.45	0.55	1.0
Simazine	5	1.3	0.74	0.98	1.8
<b>Insecticides</b>					
Carbaryl	2	1.1	5.49	6.43	5.4
Petroleum distillate	1	1.1	27.37	31.91	12.7
Spinosad <sup>3</sup>	30	4.2			( <sup>2</sup> )
<b>Fungicides</b>					
Copper hydroxide	5	1.1	3.87	4.45	9.2

<sup>1</sup> Bearing acres in 2001 for California were 37,500 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Oranges excluding Temples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Herbicides			
2,4-D	P	P	P
2,4-D, Dimeth. salt	*		*
Bromacil	P	P	P
Diquat	*		*
Diuron	P	P	P
Glyphosate	P	P	P
Glyphosate diam salt	*		*
MSMA	*	*	
Norflurazon	P	P	P
Oryzalin	*	*	*
Oxyfluorfen	P	P	
Paraquat	P	P	P
Pendimethalin	*	*	*
Sethoxydim	P		P
Simazine	P	P	P
Sulfosate	P		P
Thiazopyr	P	*	*
Triclopyr	*		*
Trifluralin	*	*	

See footnote(s) at end of table.

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**Oranges excluding Temples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Insecticides			
Abamectin	P	P	P
Acephate	*	*	*
Aldicarb	P		P
Azinphos-methyl	*	*	
Bifenthrin	*		*
Bt (Bacillus thur.)	P	P	*
Carbaryl	P	P	P
Chlorpyrifos	P	P	P
Cryolite	*	*	
Cyfluthrin	P	P	
Dicofol	P	P	P
Diflubenzuron	P		P
Dimethoate	P	P	
Ethion	P		P
Fenamiphos	P	P	
Fenbutatin-oxide	P	*	*
Fenoxycarb	*		*
Fenpropathrin	P	P	P
Formetanate hydro.	P	P	
Imidacloprid	P	*	*
Kaolin	*	*	
Malathion	P	P	
Methidathion	P	*	*
Methomyl	*	*	
Naled	*	*	
Neem oil, clar. hyd.	*		*
Oxamyl	*		*
Oxythioquinox	*	*	
Petroleum distillate	P	P	P
Piperonyl butoxide	*	*	
Propargite	P	*	*
Pyrethrins	*	*	
Pyridaben	P	P	P
Pyriproxyfen	P	P	
S-Methoprene	P		P
Sabadilla	*	*	
Spinosad	P	*	*
Sulfur	P	P	P

See footnote(s) at end of table.

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**Oranges excluding Temples: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
<b>Fungicides</b>			
Azoxystrobin	P		P
Bas copper zinc sulf	*		*
Basic copper sulfate	P	P	P
Benomyl	P		P
Copper amm. complex	*		*
Copper chloride hyd.	*		*
Copper hydroxide	P	P	P
Copper oxychlo. sul.	*		*
Copper oxychloride	*		*
Copper sulfate	P	*	*
Fenbuconazole	P		P
Ferbam	*		*
Fosetyl-al	P	*	*
Iprodione	*		*
Maneb	*		*
Mefenoxam	P	P	P
Metalaxyl	*	*	*
Phosphorous acid	*		*
<b>Other Chemicals</b>			
Aluminum phosphide	*	*	
Ammonium soap	*		*
Carbon	*	*	
Chlorophacinone	*	*	
Diphacinone	P	P	
Gibberellic acid	P	*	*
Harpin protein	*		*
Metaldehyde	P	P	
NAA	*		*
PT807-HCl	*		*
Sodium nitrate	*	*	
Strychnine	*	*	

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.



**Oranges excluding Temples: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	201,500	56	375.8	57	2,410.2	10	35.5	9	3.0
FL	605,000	95	3,153.1	91	43,668.9	61	1,289.5	1	1.2
Total	806,500	85	3,528.9	82	46,078.9	48	1,325.1	3	4.1

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Oranges excluding Temples: Agricultural Chemical Applications,  
Program States, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	3	1.5	0.20	0.30	8.3
Bromacil	20	1.5	1.02	1.59	260.3
Diuron	49	1.6	1.34	2.20	875.0
Glyphosate	76	2.6	0.90	2.39	1,466.1
Norflurazon	13	1.5	1.25	1.88	202.9
Oxyfluorfen	*	1.3	0.26	0.35	1.0
Paraquat	8	1.0	0.44	0.48	32.8
Sethoxydim	5	1.0	0.29	0.29	12.6
Simazine	29	1.3	1.91	2.49	575.5
Sulfosate	2	2.4	1.61	3.97	56.2
Thiazopyr	2	1.0	0.30	0.30	3.9
<b>Insecticides</b>					
Abamectin	14	1.1	0.009	0.01	1.1
Aldicarb	10	1.0	2.78	2.78	234.7
Bt (Bacillus thur.) <sup>2</sup>	*	1.1			
Carbaryl	7	1.5	2.99	4.56	244.9
Chlorpyrifos	9	1.7	1.40	2.38	164.8
Cyfluthrin	4	1.1	0.06	0.07	2.2
Dicofol	10	1.0	1.41	1.41	114.1
Diflubenzuron	7	1.1	0.25	0.29	16.8
Dimethoate	*	1.5	0.43	0.67	3.4
Ethion	7	1.0	2.61	2.71	151.7
Fenamiphos	*	1.0	2.05	2.09	14.8
Fenbutatin-oxide	2	1.0	0.95	0.99	17.9
Fenpropathrin	*	1.0	0.36	0.39	2.6
Formetanate hydro.	*	1.0	0.96	0.96	5.3
Imidacloprid	*	1.0	0.23	0.23	1.3
Malathion	*	1.1	0.44	0.52	1.0
Methidathion	*	1.2	2.04	2.63	9.6
Petroleum distillate	70	2.1	35.58	77.36	43,895.9
Propargite	2	1.0	2.47	2.48	35.3
Pyridaben	4	1.1	0.27	0.31	10.3
Pyriproxyfen	*	1.1	0.10	0.12	1.0
S-Methoprene	6	1.0	0.006	0.006	0.3
Spinosad	6	1.1	0.09	0.11	5.1
Sulfur	10	1.1	11.53	13.52	1,069.2

**Oranges excluding Temples: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Fungicides					
Azoxystrobin	*	1.1	0.12	0.15	0.5
Basic copper sulfate	4	1.2	2.32	2.96	91.9
Benomyl	*	1.0	0.84	0.86	2.1
Copper hydroxide	34	1.8	1.92	3.60	981.3
Copper sulfate	3	2.0	0.93	1.87	45.8
Fenbuconazole	1	1.0	0.41	0.43	5.1
Fosetyl-al	3	1.4	2.68	3.93	106.3
Mefenoxam	2	1.5	0.69	1.06	13.0
Other Chemicals					
Diphacinone <sup>4</sup>	1	2.4			( <sup>3</sup> )
Gibberellic acid	*	1.0	0.06	0.06	0.4
Metaldehyde	*	1.4	0.69	0.99	2.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 2 program states were 806,500 acres.  
States included are CA and FL.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Oranges excluding Temples: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.4	0.21	0.30	2.2
Bromacil	8	1.2	1.19	1.48	22.6
Diuron	25	1.2	1.85	2.32	118.4
Glyphosate	40	2.4	0.63	1.54	124.5
Norflurazon	2	1.3	0.81	1.09	4.0
Oxyfluorfen	1	1.3	0.26	0.35	1.0
Paraquat	1	1.1	0.44	0.51	1.4
Simazine	17	1.1	2.19	2.61	91.6
<b>Insecticides</b>					
Abamectin	2	1.0	0.01	0.01	( <sup>2</sup> )
Bt (Bacillus thur.) <sup>3</sup>	3	1.0			
Carbaryl	3	1.0	8.83	8.84	57.8
Chlorpyrifos	15	1.1	2.93	3.48	103.7
Cyfluthrin	16	1.1	0.06	0.07	2.2
Dicofol	1	1.0	2.06	2.19	4.6
Dimethoate	3	1.5	0.43	0.67	3.4
Fenamiphos	4	1.0	2.05	2.09	14.8
Fenpropathrin	3	1.0	0.38	0.40	2.3
Formetanate hydro.	3	1.0	0.96	0.96	5.3
Malathion	*	1.1	0.44	0.52	1.0
Petroleum distillate	30	1.3	25.21	33.54	2,057.0
Pyridaben	1	1.0	0.31	0.32	0.9
Pyriproxyfen	4	1.1	0.10	0.12	1.0
Sulfur	3	1.1	10.66	12.73	67.2
<b>Fungicides</b>					
Basic copper sulfate	3	1.0	2.06	2.15	11.1
Copper hydroxide	2	1.5	1.81	2.86	12.6
Mefenoxam	*	1.0	0.13	0.14	0.2
<b>Other Chemicals</b>					
Diphacinone <sup>4</sup>	4	2.4			( <sup>2</sup> )
Metaldehyde	1	1.4	0.69	0.99	2.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 201,500 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Oranges excluding Temples: Agricultural Chemical Applications,  
Florida, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	3	1.5	0.20	0.31	6.1
Bromacil	24	1.5	1.01	1.61	237.6
Diuron	57	1.6	1.30	2.18	756.6
Glyphosate	88	2.6	0.94	2.52	1,341.6
Norflurazon	17	1.5	1.27	1.91	198.9
Paraquat	11	1.0	0.45	0.48	31.5
Sethoxydim	7	1.0	0.29	0.29	12.6
Simazine	32	1.3	1.87	2.47	483.9
Sulfosate	2	2.4	1.61	3.97	56.2
<b>Insecticides</b>					
Abamectin	19	1.1	0.009	0.01	1.1
Aldicarb	14	1.0	2.78	2.78	234.7
Carbaryl	8	1.5	2.51	3.96	187.2
Chlorpyrifos	7	1.9	0.78	1.55	61.1
Dicofol	13	1.0	1.39	1.39	109.6
Diflubenzuron	10	1.1	0.25	0.29	16.8
Ethion	9	1.0	2.61	2.71	151.7
Fenpropathrin	*	1.1	0.29	0.34	0.3
Petroleum distillate	84	2.2	36.71	82.67	41,838.9
Pyridaben	5	1.1	0.27	0.31	9.4
S-Methoprene	8	1.0	0.006	0.006	0.3
Sulfur	12	1.1	11.59	13.57	1,002.1
<b>Fungicides</b>					
Azoxystrobin	*	1.1	0.12	0.15	0.5
Basic copper sulfate	4	1.3	2.38	3.13	80.7
Benomyl	*	1.0	0.84	0.86	2.1
Copper hydroxide	44	1.8	1.92	3.61	968.7
Fenbuconazole	2	1.0	0.41	0.43	5.1
Mefenoxam	2	1.5	0.75	1.19	12.8

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Florida were 605,000 acres.

**Peaches: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	GA	MI	NJ	SC
Herbicides						
2,4-D	P	P	*	*	*	P
2,4-D, Dimeth. salt	P		*	P	*	*
2,4-DP, Dimeth. salt	*	*				
Acetic acid	*				*	
Alachlor	*					*
Clethodim	*		*			
Cyanazine	*	*				
Diuron	P		*	P	P	*
Fluazifop-P-butyl	*	*	*		*	*
Glyphosate	P	P	P	P	P	P
Napropamide	P	*			*	
Norflurazon	P	P		*	P	*
Oryzalin	P	P		*	*	*
Oxyfluorfen	P	*			*	
Paraquat	P	P	P	P	P	P
Pendimethalin	P	P		*	*	*
S-Metolachlor	*				*	
Sethoxydim	*		*			*
Simazine	P	P	P	P	P	P
Sulfosate	*	*				
Terbacil	P		*	P	P	*

See footnote(s) at end of table.

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**Peaches: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	GA	MI	NJ	SC
Insecticides						
Azadirachtin	*	*				
Azinphos-methyl	P	*	*	P	P	P
Bt (Bacillus thur.)	P	P			*	
Carbaryl	P	P	P	P	P	P
Carbofuran	*				*	*
Chlorpyrifos	P	P	P	P	P	P
Cinnamaldehyde	*	*				
Clofentezine	P	P		*	*	
Cryolite	*	*				
Diazinon	P	P	*		*	
Dicofol	P	P				
Dimethoate	*					
Endosulfan	P	*	P	P	P	*
Esfenvalerate	P	P	*	P	P	*
Fenamiphos	P	*			*	*
Fenbutatin-oxide	P	*			*	
Formetanate hydro.	P	*			*	
Hexythiazox	P	*			*	
Imidacloprid	P			*	*	
Lindane	*				*	
Malathion	P		P		*	*
Methidathion	P	P				
Methomyl	P	*	*	P	P	*
Methoxychlor	P		*		*	
Methyl parathion	*		*		*	*
Myrothecium verruc.	*	*				
Neem oil	*	*				*
Neem oil, clar. hyd.	*	*				
Permethrin	P	P	*	P	*	P
Petroleum distillate	P	P	P	*	P	*
Phosmet	P	P	P	P	P	P
Potassium salts	*	*				
Propargite	P	P				
Pyridaben	P	P		*	*	
Pyriproxyfen	*	*				
Spinosad	P	P				

See footnote(s) at end of table.

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**Peaches: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	GA	MI	NJ	SC
Fungicides						
Azoxystrobin	P	P	*		*	P
Basic copper sulfate	P	P		P	*	*
Benomyl	P	P	P	P	P	P
Calcium polysulfide	P	*	*	*		*
Captan	P	P	P	P	P	P
Chlorothalonil	P	P	P	P	P	P
Copper amm. complex	*					*
Copper chloride hyd.	*			*		
Copper hydroxide	P	P	*	P	*	P
Copper oxide	P	P				
Copper oxychlo. sul.	P	*		P		*
Copper oxychloride	P			P	*	*
Copper resinate	P				P	
Copper sulfate	P	*	*	P	*	
Cyprodinil	P	P			*	*
Dodine	P			*	*	
Fenbuconazole	P	P	P	P	P	P
Ferbam	P		*	P	*	
Fosetyl-al	*	*		*		
Iprodione	P	P		*	*	
Mefenoxam	*				*	
Metalaxyl	*				*	
Metiram	*			*	*	
Myclobutanil	P	*		P	P	*
Oxytetracycline	P		*	P	*	P
Propiconazole	P	P	P	P	P	P
Pseudomonas fluores.	*	*				*
Streptomycin	*					
Sulfur	P	P	P	P	P	P
Tebuconazole	P	P		P	*	*
Thiophanate-methyl	P			P	*	*
Thiram	*					*
Triforine	*	*				*
Ziram	P	P	P	P	P	P

See footnote(s) at end of table.

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**Peaches: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States					
	ALL	CA	GA	MI	NJ	SC
Other Chemicals						
Aluminum phosphide	*	*				
Butenoic Acid Hydro.	*			*		
Decenol	*	*				
Decenyl acetate	*	*				
Dichloropropene	*	*				
Diphacinone	*	*				
Dodecadien-1-ol	*	*				
Dodecanol	*	*				
E-8-Dodecenyl acetat	P	P		P		
Ethephon	*				*	
Farnesol	*	*				
Gibberellic acid	*			*		
Monocarbamide dihyd.	*				*	
Nerolidol	*	*				
Octadecadien (E,Z)	P			P		
Octadecadien (Z,Z)	P			P		
Strychnine	P	P				
Tetradecanol	*	*				
Z-8-Dodecanol	P	P		P		
Z-8-Dodecen acetate	P	P		P		

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Peaches: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	76,000	51	94.9	88	1,751.4	88	1,353.6	18	13.0
GA	15,000	95	25.2	100	136.7	99	608.5		
MI	4,500	59	3.1	99	19.8	100	118.3		
NJ <sup>4</sup>	8,000	45	17.0	98	64.9	98	369.8		
SC	16,000	69	87.7	95	132.5	97	997.4		
Total	119,500	59	227.9	91	2,105.6	92	3,447.8	12	13.4

\* Total applied is less than 50 pounds.

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>4</sup> Insufficient reports to publish data for one or more pesticide classes.

**Peaches: Agricultural Chemical Applications,  
Program Stats, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	9	1.1	0.85	0.93	9.7
2,4-D, Dimeth. salt	*	1.6	0.76	1.28	1.2
Diuron	9	1.0	1.02	1.08	11.8
Glyphosate	41	1.9	0.71	1.38	68.0
Napropamide	*	1.1	2.22	2.61	2.5
Norflurazon	5	1.1	1.39	1.56	9.1
Oryzalin	1	1.1	1.15	1.27	1.7
Oxyfluorfen	13	1.3	0.49	0.64	10.1
Paraquat	28	1.9	0.53	1.04	35.3
Pendimethalin	3	1.0	1.85	1.95	7.4
Simazine	29	1.1	1.24	1.46	50.5
Terbacil	2	1.0	0.42	0.46	1.2
<b>Insecticides</b>					
Azinphos-methyl	18	4.4	0.62	2.74	57.4
Bt (Bacillus thur.) <sup>2</sup>	12	1.5			
Carbaryl	12	1.7	2.11	3.68	53.9
Chlorpyrifos	20	1.2	1.20	1.51	35.3
Clofentezine	8	1.1	0.12	0.14	1.3
Diazinon	11	1.4	1.65	2.43	32.0
Dicofol	5	1.3	1.12	1.52	9.0
Endosulfan	3	2.1	0.78	1.64	6.2
Esfenvalerate	35	1.9	0.04	0.07	3.1
Fenamiphos	*	1.0	2.61	2.64	0.9
Fenbutatin-oxide	13	1.3	0.69	0.91	14.0
Formetanate hydro.	*	1.2	0.56	0.69	0.2
Hexythiazox	3	1.0	0.11	0.12	0.4
Imidacloprid	*	2.1	0.06	0.13	0.1
Malathion	*	3.9	2.12	8.33	0.3
Methidathion	2	1.3	1.40	1.82	5.2
Methomyl	3	3.2	0.59	1.93	7.4
Methoxychlor	*	3.8	2.64	10.22	0.3
Permethrin	23	2.5	0.22	0.57	15.6
Petroleum distillate	33	1.4	28.58	41.30	1,605.6
Phosmet	45	3.7	1.23	4.62	249.5
Propargite	*	1.2	1.54	1.99	1.1
Pyridaben	2	1.2	0.29	0.36	1.0
Spinosad	5	1.2	0.09	0.12	0.7

See footnote(s) at end of table.

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**Peaches: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Azoxystrobin	3	1.3	0.16	0.20	0.8
Basic copper sulfate	6	1.2	8.94	11.04	76.6
Benomyl	9	1.4	0.38	0.53	5.6
Calcium polysulfide	*	2.3	0.98	2.28	2.6
Captan	24	3.4	1.52	5.21	149.6
Chlorothalonil	13	1.2	1.78	2.20	35.5
Copper hydroxide	22	1.4	3.13	4.58	119.0
Copper oxide	5	1.4	4.89	6.98	41.8
Copper oxychlo. sul.	3	2.3	1.52	3.57	11.8
Copper oxychloride	*	1.0	2.04	2.04	0.8
Copper resinate	6	11.1	0.02	0.23	1.5
Copper sulfate	1	1.0	1.25	1.29	2.3
Cyprodinil	13	1.4	0.22	0.32	5.1
Dodine	1	4.1	0.32	1.33	2.1
Fenbuconazole	21	1.7	0.09	0.17	4.2
Ferbam	*	1.1	2.04	2.42	1.7
Iprodione	19	1.4	0.62	0.86	19.5
Myclobutanil	8	2.8	0.07	0.21	2.1
Oxytetracycline	4	4.7	0.10	0.46	2.4
Propiconazole	34	1.8	0.10	0.19	7.7
Sulfur	62	4.9	7.66	37.65	2,802.9
Tebuconazole	12	1.5	0.14	0.21	2.9
Thiophanate-methyl	*	2.0	0.74	1.52	1.7
Ziram	19	1.5	4.31	6.46	145.1
<b>Other Chemicals</b>					
E-8-Dodecenyl acetat	11	1.6	0.002	0.003	( <sup>3</sup> )
Octadecadien (E,Z) <sup>4</sup>	*	1.1			( <sup>3</sup> )
Octadecadien (Z,Z)	*	1.1	0.006	0.006	( <sup>3</sup> )
Strychnine	*	1.2	0.005	0.006	( <sup>3</sup> )
Z-8-Dodecanol <sup>4</sup>	11	1.6			( <sup>3</sup> )
Z-8-Dodecen acetate	11	1.6	0.03	0.05	0.6

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 5 program states were 119,500 acres.  
States included are CA, GA, MI, NJ and SC.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Peaches: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	2	1.3	0.54	0.71	1.2
Glyphosate	35	2.2	0.92	2.07	54.6
Norflurazon	4	1.2	0.96	1.17	3.7
Oryzalin	1	1.1	0.90	1.01	1.1
Paraquat	15	1.1	0.55	0.63	7.3
Pendimethalin	3	1.1	1.08	1.19	2.5
Simazine	18	1.2	0.67	0.82	11.1
<b>Insecticides</b>					
Bt (Bacillus thur.) <sup>2</sup>	19	1.5			
Carbaryl	3	1.4	3.93	5.58	14.2
Chlorpyrifos	12	1.3	1.86	2.48	22.9
Clofentezine	12	1.1	0.12	0.14	1.2
Diazinon	16	1.5	1.72	2.61	31.7
Dicofol	8	1.3	1.12	1.52	9.0
Esfenvalerate	46	1.6	0.04	0.07	2.4
Methidathion	4	1.3	1.40	1.82	5.2
Permethrin	17	1.8	0.25	0.47	6.0
Petroleum distillate	46	1.4	30.02	44.39	1,556.5
Phosmet	29	1.3	2.40	3.23	70.9
Propargite	*	1.2	1.54	1.99	1.1
Pyridaben	4	1.2	0.29	0.37	1.0
Spinosad	7	1.2	0.09	0.12	0.7
<b>Fungicides</b>					
Azoxystrobin	4	1.3	0.18	0.23	0.7
Basic copper sulfate	9	1.2	9.41	11.78	76.2
Benomyl	*	1.0	0.69	0.75	0.2
Captan	3	1.6	2.79	4.56	11.0
Chlorothalonil	*	1.0	2.15	2.28	1.2
Copper hydroxide	30	1.4	3.48	4.98	112.6
Copper oxide	8	1.4	4.89	6.98	41.8
Cyprodinil	20	1.4	0.23	0.33	4.9
Fenbuconazole	14	1.1	0.10	0.11	1.2
Iprodione	29	1.3	0.61	0.85	19.1
Propiconazole	21	1.5	0.11	0.17	2.6
Sulfur	45	2.5	11.31	28.75	977.8
Tebuconazole	15	1.4	0.14	0.21	2.5
Ziram	18	1.2	5.50	6.94	97.4
<b>Other Chemicals</b>					
E-8-Dodecenyl acetat	16	1.7	0.002	0.003	( <sup>3</sup> )
Strychnine	*	1.2	0.005	0.006	( <sup>3</sup> )
Z-8-Dodecanol <sup>4</sup>	16	1.7			( <sup>3</sup> )
Z-8-Dodecen acetate	16	1.7	0.03	0.05	0.6

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 76,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Peaches: Agricultural Chemical Applications,  
Georgia, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	79	1.7	0.26	0.47	5.6
Paraquat	57	1.1	0.25	0.29	2.5
Simazine	72	1.0	1.36	1.38	14.8
<b>Insecticides</b>					
Carbaryl	23	1.4	1.88	2.67	9.3
Chlorpyrifos	19	1.1	0.87	1.01	2.9
Endosulfan	3	3.2	0.41	1.30	0.6
Malathion	*	3.4	1.48	5.12	( <sup>2</sup> )
Petroleum distillate	17	1.0	8.37	8.52	21.9
Phosmet	97	6.7	1.04	7.00	101.6
<b>Fungicides</b>					
Benomyl	8	1.5	0.45	0.72	0.8
Captan	34	1.3	1.93	2.61	13.1
Chlorothalonil	65	1.0	2.05	2.11	20.5
Fenbuconazole	8	1.1	0.09	0.11	0.1
Propiconazole	83	1.4	0.11	0.17	2.1
Sulfur	99	5.9	6.34	37.90	561.9
Ziram	17	1.2	2.66	3.27	8.2

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Georgia were 15,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Peaches: Agricultural Chemical Applications,  
Michigan, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D, Dimeth. salt	6	1.1	0.31	0.37	0.1
Diuron	17	1.1	0.75	0.87	0.7
Glyphosate	21	1.3	0.48	0.63	0.6
Paraquat	43	1.1	0.29	0.34	0.7
Simazine	9	1.0	0.98	1.00	0.4
Terbacil	18	1.0	0.28	0.28	0.2
<b>Insecticides</b>					
Azinphos-methyl	48	2.8	0.68	1.93	4.1
Carbaryl	41	1.9	1.47	2.89	5.3
Chlorpyrifos	12	1.2	2.53	3.06	1.6
Endosulfan	40	1.8	0.77	1.43	2.6
Esfenvalerate	79	2.5	0.04	0.09	0.3
Methomyl	17	1.8	0.45	0.81	0.6
Permethrin	34	2.5	0.11	0.29	0.5
Phosmet	40	1.9	1.05	2.04	3.7
<b>Fungicides</b>					
Basic copper sulfate	5	1.0	0.96	0.96	0.2
Benomyl	8	2.0	0.30	0.62	0.2
Captan	45	2.9	1.69	5.02	10.2
Chlorothalonil	16	1.3	2.04	2.78	2.0
Copper hydroxide	8	1.1	1.77	2.02	0.7
Copper oxychlo. sul.	16	1.0	2.73	2.91	2.1
Copper oxychloride	4	1.0	2.25	2.25	0.4
Copper sulfate	7	1.1	1.77	2.09	0.7
Fenbuconazole	82	2.9	0.09	0.27	1.0
Ferbam	7	1.0	3.58	3.82	1.3
Myclobutanil	12	2.2	0.09	0.20	0.1
Oxytetracycline	28	2.5	0.16	0.40	0.5
Propiconazole	27	1.7	0.10	0.18	0.2
Sulfur	78	4.6	5.72	26.45	92.3
Tebuconazole	11	3.3	0.15	0.50	0.3
Thiophanate-methyl	8	1.0	0.51	0.55	0.2
Ziram	16	1.1	3.37	3.93	2.9
<b>Other Chemicals</b>					
E-8-Dodecenyl acetat	12	1.0	0.001	0.001	( <sup>2</sup> )
Octadecadien (E,Z) <sup>3</sup>	11	1.1			( <sup>2</sup> )
Octadecadien (Z,Z)	11	1.1	0.006	0.006	( <sup>2</sup> )
Z-8-Dodecanol <sup>3</sup>	12	1.0			( <sup>2</sup> )
Z-8-Dodecen acetate	12	1.0	0.01	0.01	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for Michigan were 4,500 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are too small.

**Peaches: Agricultural Chemical Applications,  
New Jersey, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	34	1.0	1.09	1.16	3.1
Glyphosate	17	1.0	1.02	1.07	1.5
Norflurazon	26	1.0	2.29	2.29	4.8
Paraquat	19	1.1	0.64	0.75	1.1
Simazine	13	1.0	1.25	1.25	1.3
Terbacil	22	1.1	0.47	0.53	0.9
<b>Insecticides</b>					
Azinphos-methyl	88	8.1	0.44	3.61	25.5
Carbaryl	9	1.9	1.00	1.96	1.3
Chlorpyrifos	15	1.1	0.83	0.92	1.1
Endosulfan	4	2.4	1.38	3.40	1.0
Esfenvalerate	26	5.1	0.02	0.08	0.2
Methomyl	27	4.6	0.59	2.76	5.9
Petroleum distillate	9	1.6	14.90	24.17	16.7
Phosmet	59	2.8	0.84	2.41	11.4
<b>Fungicides</b>					
Benomyl	6	3.1	0.34	1.06	0.5
Captan	76	6.0	1.39	8.43	51.4
Chlorothalonil	49	1.6	1.34	2.21	8.7
Copper resinate	85	11.1	0.02	0.23	1.5
Fenbuconazole	13	2.7	0.07	0.20	0.2
Myclobutanil	52	4.7	0.06	0.27	1.1
Propiconazole	82	3.2	0.08	0.26	1.7
Sulfur	93	8.6	4.46	38.76	289.1
Ziram	45	1.0	2.85	2.89	10.4

<sup>1</sup> Bearing acres in 2001 for New Jersey were 8,000 acres.



**Peaches: Agricultural Chemical Applications,  
South Carolina, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	47	1.0	1.02	1.02	7.7
Glyphosate	56	1.4	0.44	0.64	5.8
Paraquat	65	3.9	0.58	2.29	23.7
Simazine	54	1.3	1.90	2.61	22.8
<b>Insecticides</b>					
Azinphos-methyl	55	2.5	0.93	2.35	20.8
Carbaryl	38	1.9	1.95	3.89	23.8
Chlorpyrifos	60	1.2	0.56	0.70	6.7
Permethrin	80	3.3	0.21	0.72	9.1
Phosmet	68	4.9	1.14	5.66	61.9
<b>Fungicides</b>					
Azoxystrobin	4	1.0	0.13	0.13	0.1
Benomyl	51	1.2	0.37	0.46	3.8
Captan	82	3.4	1.42	4.85	63.8
Chlorothalonil	7	1.7	1.50	2.59	3.0
Copper hydroxide	13	1.8	1.08	2.05	4.1
Fenbuconazole	54	1.9	0.10	0.19	1.7
Oxytetracycline	7	3.0	0.13	0.38	0.4
Propiconazole	26	2.2	0.11	0.24	1.0
Sulfur	92	7.4	8.09	60.13	881.7
Ziram	10	5.5	2.92	16.31	26.2

<sup>1</sup> Bearing acres in 2001 for South Carolina were 16,000 acres.

**Pears: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States			
	ALL	CA	OR	WA
Herbicides				
2,4-D	P	*	*	P
2,4-D, Dimeth. salt	P	*	P	*
2,4-DP, Dimeth. salt	P	P		
Atrazine	*			*
Diuron	P	P	P	P
Fluazifop-P-butyl	*	*		
Glyphosate	P	P	P	P
Norflurazon	P	*	*	P
Oryzalin	*	*		*
Oxyfluorfen	P	P	*	*
Paraquat	P	P	P	P
Pendimethalin	*		*	
Prosulfuron	*		*	
Sethoxydim	*		*	
Simazine	P	P	P	P
Sulfosate	P	*	*	*

See footnote(s) at end of table.

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**Pears: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States			
	ALL	CA	OR	WA
Insecticides				
Abamectin	P	P	P	P
Amitraz	P		*	*
Azadirachtin	P		*	*
Azinphos-methyl	P	P	P	P
Benzoic acid	P		P	P
Bifenazate	P		P	P
Bt (Bacillus thur.)	P	P	*	P
Carbaryl	P			P
Chlorpyrifos	P	P	P	P
Clofentezine	P	P		P
Cryolite	*		*	
Cyd-X Granulo. Virus	*			*
Diazinon	P	*	*	P
Dicofol	*		*	*
Dimethoate	P	*	*	*
Endosulfan	*	*	P	P
Esfenvalerate	P	P	P	P
Ethyl parathion	*			*
Fenbutatin-oxide	P	*	*	*
Fenpropathrin	P	*	*	
Fenvalerate	*			*
Formetanate hydro.	P	*	*	P
Hexythiazox	P	*	P	*
Imidacloprid	P	*	*	P
Indoxacarb	*	*		*
Kaolin	P		P	P
Methodathion	P	*	*	P
Methyl parathion	*		*	*
Neem oil, clar. hyd.	*			*
Oxamyl	*		*	
Oxythioquinox	*			*
Permethrin	P	P	*	*
Petroleum distillate	P	P	P	P
Petroleum oil	P		P	
Phosmet	P	P	P	P
Piperonyl butoxide	*			*
Potassium salts	*			*
Pyrethrins	*			*
Pyridaben	P	*	*	P
Pyriproxyfen	*	*	P	P
Rotenone	*			*
Silicon dioxide	*			*
Spinosad	*			*
Tebufenozide	P	*	*	
Thiamethoxam	P		P	P

See footnote(s) at end of table.

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**Pears: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States			
	ALL	CA	OR	WA
Fungicides				
Agrobacterium radio.	*		*	
Bacillus subtilis	*	*	*	*
Bas copper zinc sulf	*		*	*
Basic copper sulfate	P	*	P	*
Benomyl	P	P		
Calcium polysulfide	P	P	P	P
Captan	*		*	
Carboxin	*		*	
Chlorothalonil	*			*
Copper chloride hyd.	P		*	*
Copper hydroxide	P	P	P	P
Copper oxide	*	*		
Copper oxychlo. sul.	P	*	P	*
Copper oxychloride	P		P	
Copper sulfate	P		P	P
Cyprodinil	P	P		
Dodine	P	*	P	*
Fenarimol	P	*	*	P
Fosetyl-al	P	P	*	*
Iprodione	*	*		
Kresoxim-methyl	P		P	P
Mancozeb	P	P	P	P
Maneb	P		*	*
Metiram	*			*
Myclobutanil	P		*	*
Oxytetracycline	P	P	P	P
Potassium bicarbon.	*			*
Propiconazole	*			*
Pseudomonas fluores.	P	P	*	*
Streptomycin	P	P	P	P
Sulfur	P	P	P	P
Triadimefon	P		*	*
Trifloxystrobin	P	P	P	P
Triflumizole	P		P	P
Ziram	P	P	P	P

See footnote(s) at end of table.

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**Pears: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States			
	ALL	CA	OR	WA
Other Chemicals				
Aluminum phosphide	*	*		*
Benzyladenine	*			*
Butenoic Acid Hydro.	P		*	*
Chlorophacinone	*			*
Chloropicrin	*			*
Cytokinins	P		*	*
Dichloropropene	*			*
Diphacinone	*		*	*
Dodecadien-1-ol	P	P	P	P
Dodecanol	P	P	P	P
E-8-Dodecenyl acetat	*		*	*
Ethephon	*			*
Garlic oil	*			*
Gibberellic acid	*		*	*
Gibberellins A4A7	*			*
Gossyplure	*			*
Monocarbamide dihyd.	*		*	*
NAA	P	P	P	P
NAA, Potassium salt	P		P	P
NAD	*			*
Prohexadione calcium	*			*
Strychnine	P	*		*
Tetradecanol	P	P	P	P
Z-8-Dodecanol	*		*	*
Z-8-Dodecen acetate	*		*	*
Zinc phosphide	P		*	*

P Usage data are published for this active ingredient.  
\* Usage data are not published for this active ingredient.

**Pears: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide <sup>2</sup>		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	19,000	60	22.1	87	1,055.5	81	171.9	62	1.5
OR	17,000	44	34.0	97	1,253.6	96	494.2	57	1.3
WA	24,800	44	34.0	90	1,576.4	80	329.8	50	4.5
Total	60,800	49	90.1	91	3,885.3	85	995.8	56	7.6

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Pears: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.2	0.84	1.02	2.5
2,4-D, Dimeth. salt	5	1.1	1.17	1.36	4.3
2,4-DP, Dimeth. salt	2	1.6	0.46	0.77	1.1
Diuron	10	1.3	1.21	1.63	9.7
Glyphosate	40	1.7	0.82	1.40	34.1
Norflurazon	8	1.1	2.02	2.23	10.3
Oxyfluorfen	6	1.2	0.30	0.37	1.2
Paraquat	12	1.4	0.42	0.62	4.7
Simazine	12	1.3	1.26	1.66	12.4
Sulfosate	5	1.0	2.25	2.35	7.5
<b>Insecticides</b>					
Abamectin	60	1.3	0.02	0.03	0.9
Amitraz	4	1.0	1.24	1.28	3.2
Azadirachtin	4	1.8	0.03	0.05	0.1
Azinphos-methyl	44	1.7	1.05	1.88	50.6
Benzoic acid	8	1.2	0.23	0.28	1.3
Bifenazate	6	1.0	0.47	0.48	1.7
Bt (Bacillus thur.) <sup>2</sup>	4	1.5			
Carbaryl	2	1.1	1.84	2.09	3.1
Chlorpyrifos	28	1.1	1.78	2.05	34.9
Clofentezine	2	1.1	0.16	0.17	0.2
Diazinon	3	1.0	1.82	1.83	3.8
Dimethoate	3	1.0	0.43	0.43	0.7
Esfenvalerate	24	1.1	0.07	0.08	1.2
Fenbutatin-oxide	*	1.0	0.65	0.66	0.2
Fenpropathrin	1	1.0	0.32	0.34	0.2
Formetanate hydro.	1	1.0	0.72	0.72	0.4
Hexythiazox	4	1.0	0.13	0.14	0.4
Imidacloprid	15	1.2	0.15	0.19	1.7
Kaolin	14	2.1	31.55	67.51	576.1
Methidathion	1	1.0	1.44	1.50	1.3
Permethrin	4	1.4	0.17	0.25	0.6
Petroleum distillate	86	3.4	16.86	58.32	3,040.9
Petroleum oil	4	1.4	9.62	14.12	33.3
Phosmet	32	1.4	3.00	4.33	83.3
Pyridaben	11	1.1	0.32	0.37	2.4
Tebufenozide	5	1.4	0.27	0.38	1.1
Thiamethoxam	16	1.1	0.08	0.09	0.9

See footnote(s) at end of table.

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**Pears: Agricultural Chemical Applications,  
Program States, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Fungicides</b>					
Basic copper sulfate	3	1.1	2.81	3.33	5.7
Benomyl	3	1.3	0.53	0.70	1.3
Calcium polysulfide	17	1.3	20.67	26.87	275.8
Copper chloride hyd.	*	1.6	0.50	0.81	0.2
Copper hydroxide	25	1.7	1.71	2.99	46.2
Copper oxychloro. sul.	8	1.5	1.54	2.43	11.5
Copper oxychloride	*	1.0	4.60	4.60	2.2
Copper sulfate	4	1.3	0.59	0.78	1.7
Cyprodinil	1	1.1	0.18	0.21	0.1
Dodine	8	1.7	1.01	1.76	8.1
Fenarimol	1	1.2	0.07	0.09	0.1
Fosetyl-al	2	1.4	2.18	3.17	3.8
Kresoxim-methyl	2	1.2	0.13	0.16	0.2
Mancozeb	34	1.7	3.92	6.82	139.3
Maneb	*	1.2	6.01	7.26	3.7
Myclobutanil	2	1.0	0.10	0.10	0.1
Oxytetracycline	42	3.2	0.14	0.45	11.5
Pseudomonas fluores.	6	2.8	0.10	0.29	1.1
Streptomycin	27	2.3	0.09	0.22	3.6
Sulfur	38	1.4	10.34	15.22	352.6
Triadimefon	5	1.1	0.24	0.28	0.8
Trifloxystrobin	18	1.6	0.07	0.11	1.1
Triflumizole	30	1.3	0.25	0.34	6.0
Ziram	33	1.2	4.64	5.97	118.4
<b>Other Chemicals</b>					
Butenoic Acid Hydro.	*	1.0	0.10	0.11	( <sup>3</sup> )
Cytokinins <sup>4</sup>	1	1.0			( <sup>3</sup> )
Dodecadien-1-ol	17	1.1	0.06	0.07	0.8
Dodecanol	11	1.0	0.03	0.04	0.3
NAA	31	1.2	0.06	0.08	1.5
NAA, Potassium salt	12	1.1	0.05	0.06	0.4
Strychnine	*	1.0	0.01	0.01	( <sup>3</sup> )
Tetradecanol	11	1.0	0.007	0.007	0.1
Zinc phosphide	2	1.0	0.12	0.12	0.1

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 3 program states were 60,800 acres.

States included are CA, OR and WA.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

<sup>4</sup> Rates and total applied are not available because amounts of active ingredient are too small.



**Pears: Agricultural Chemical Applications,  
California, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-DP, Dimeth. salt	8	1.6	0.46	0.77	1.1
Diuron	6	1.4	1.47	2.07	2.5
Glyphosate	46	1.6	0.54	0.90	7.9
Oxyfluorfen	10	1.4	0.29	0.42	0.8
Paraquat	15	1.6	0.60	1.00	2.8
Simazine	11	1.2	1.54	1.94	4.2
<b>Insecticides</b>					
Abamectin	38	1.5	0.02	0.02	0.2
Azinphos-methyl	53	1.5	1.19	1.84	18.4
Bt (Bacillus thur.) <sup>2</sup>	5	1.6			
Chlorpyrifos	18	1.5	1.31	2.04	7.0
Clofentezine	3	1.0	0.10	0.10	0.1
Esfenvalerate	28	1.2	0.06	0.07	0.4
Permethrin	9	1.5	0.16	0.24	0.4
Petroleum distillate	78	2.9	23.35	68.21	1,004.4
Phosmet	22	1.4	3.68	5.14	21.3
<b>Fungicides</b>					
Benomyl	9	1.3	0.53	0.70	1.3
Calcium polysulfide	10	1.2	13.56	16.69	31.2
Copper hydroxide	25	1.8	0.46	0.85	4.1
Cyprodinil	3	1.1	0.18	0.21	0.1
Fosetyl-al	4	1.2	2.46	3.03	2.2
Mancozeb	21	1.5	2.87	4.56	18.3
Oxytetracycline	60	5.2	0.12	0.63	7.1
Pseudomonas fluores.	17	3.2	0.10	0.32	1.0
Streptomycin	53	3.0	0.08	0.24	2.4
Sulfur	23	1.3	10.43	14.53	64.9
Trifloxystrobin	28	2.0	0.06	0.13	0.7
Ziram	21	1.7	4.73	8.26	32.7
<b>Other Chemicals</b>					
Dodecadien-1-ol	24	1.3	0.06	0.08	0.4
Dodecanol	13	1.2	0.04	0.05	0.1
NAA	52	1.3	0.07	0.10	1.0
Tetradecanol	13	1.2	0.008	0.01	( <sup>3</sup> )

<sup>1</sup> Bearing acres in 2001 for California were 19,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Pears: Agricultural Chemical Applications,  
Oregon, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D, Dimeth. salt	16	1.1	1.24	1.39	3.7
Diuron	17	1.5	1.06	1.63	4.6
Glyphosate	35	1.7	0.62	1.09	6.5
Paraquat	18	1.4	0.16	0.22	0.7
Simazine	18	1.5	1.02	1.57	4.9
<b>Insecticides</b>					
Abamectin	71	1.0	0.02	0.02	0.3
Azinphos-methyl	33	1.6	0.99	1.67	9.3
Benzoic acid	15	1.0	0.25	0.27	0.7
Bifenazate	14	1.0	0.45	0.45	1.1
Chlorpyrifos	31	1.0	1.93	2.01	10.7
Endosulfan	24	1.0	2.14	2.30	9.5
Esfenvalerate	32	1.0	0.08	0.09	0.5
Hexythiazox	11	1.0	0.15	0.15	0.3
Kaolin	28	1.8	22.88	42.72	206.0
Petroleum distillate	95	3.4	16.95	58.00	940.9
Petroleum oil	14	1.4	9.62	14.12	33.3
Phosmet	49	1.4	2.68	3.90	32.2
Pyriproxyfen	51	1.3	0.10	0.14	1.2
Thiamethoxam	20	1.0	0.08	0.08	0.3
<b>Fungicides</b>					
Basic copper sulfate	7	1.1	3.49	3.98	5.0
Calcium polysulfide	35	1.2	21.61	26.36	156.1
Copper hydroxide	19	1.2	2.78	3.49	11.5
Copper oxychlo. sul.	8	1.2	4.31	5.40	7.8
Copper oxychloride	3	1.0	4.60	4.60	2.2
Copper sulfate	8	1.1	0.52	0.59	0.8
Dodine	16	1.2	1.19	1.46	3.9
Kresoxim-methyl	4	1.1	0.13	0.14	0.1
Mancozeb	73	1.7	4.04	7.24	90.1
Oxytetracycline	34	1.1	0.25	0.27	1.6
Streptomycin	28	1.3	0.14	0.19	0.9
Sulfur	55	1.4	11.48	16.06	150.8
Trifloxystrobin	30	1.2	0.07	0.08	0.4
Triflumizole	57	1.3	0.26	0.35	3.3
Ziram	60	1.1	4.95	5.61	57.7
<b>Other Chemicals</b>					
Dodecadien-1-ol	12	1.0	0.09	0.09	0.2
Dodecanol	6	1.0	0.03	0.03	( <sup>2</sup> )
NAA	15	1.0	0.05	0.05	0.1
NAA, Potassium salt	33	1.0	0.05	0.05	0.3
Tetradecanol	6	1.0	0.007	0.007	( <sup>2</sup> )

<sup>1</sup> Bearing acres in 2001 for Oregon were 17,000 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Pears: Agricultural Chemical Applications,  
Washington, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	4	1.2	0.89	1.07	0.9
Diuron	8	1.0	1.34	1.35	2.6
Glyphosate	39	1.7	1.18	2.04	19.7
Norflurazon	9	1.1	1.50	1.65	3.7
Paraquat	7	1.3	0.56	0.75	1.2
Simazine	9	1.0	1.43	1.51	3.3
<b>Insecticides</b>					
Abamectin	68	1.5	0.02	0.03	0.5
Azinphos-methyl	46	2.0	1.00	2.02	22.8
Benzoic acid	9	1.3	0.21	0.29	0.7
Bifenazate	5	1.1	0.49	0.54	0.6
Bt (Bacillus thur.) <sup>2</sup>	6	1.3			
Carbaryl	6	1.1	1.84	2.09	3.1
Chlorpyrifos	33	1.0	1.94	2.09	17.1
Clofentezine	2	1.2	0.21	0.25	0.1
Diazinon	7	1.0	1.70	1.70	2.9
Endosulfan	45	1.1	1.94	2.26	25.2
Esfenvalerate	16	1.0	0.07	0.08	0.3
Formetanate hydro.	1	1.0	0.51	0.51	0.2
Imidacloprid	23	1.3	0.14	0.19	1.1
Kaolin	15	2.5	39.75	99.72	370.1
Methidathion	1	1.0	1.50	1.50	0.5
Petroleum distillate	85	3.8	13.49	51.69	1,095.6
Phosmet	28	1.4	3.00	4.37	29.9
Pyridaben	15	1.1	0.31	0.37	1.3
Pyriproxyfen	33	1.1	0.10	0.12	1.0
Thiamethoxam	26	1.2	0.08	0.09	0.6
<b>Fungicides</b>					
Calcium polysulfide	10	1.5	23.13	35.75	88.5
Copper hydroxide	30	1.9	2.17	4.16	30.6
Copper sulfate	4	1.6	0.66	1.05	0.9
Fenarimol	2	1.4	0.07	0.10	( <sup>3</sup> )
Kresoxim-methyl	1	1.5	0.14	0.21	0.1
Mancozeb	16	1.7	4.58	7.77	30.9
Oxytetracycline	35	2.3	0.14	0.33	2.9
Streptomycin	7	1.1	0.19	0.21	0.4
Sulfur	38	1.5	9.29	14.70	136.9
Trifloxystrobin	1	1.0	0.06	0.06	( <sup>3</sup> )
Triflumizole	33	1.3	0.25	0.33	2.7
Ziram	23	1.2	3.90	5.00	28.0

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**Pears: Agricultural Chemical Applications,  
Washington, 2001<sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Other Chemicals					
Dodecadien-1-ol	15	1.0	0.05	0.05	0.2
Dodecanol	14	1.0	0.03	0.03	0.1
NAA	26	1.0	0.05	0.05	0.3
NAA, Potassium salt	7	1.5	0.05	0.07	0.1
Tetradecanol	14	1.0	0.006	0.006	( <sup>3</sup> )

<sup>1</sup> Bearing acres in 2001 for Washington were 24,800 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Total applied is less than 50 lbs.

**Plums: Active Ingredients  
Publication Status**

Active Ingredient	CA
Herbicides	
2,4-D	*
Glyphosate	P
Napropamide	P
Norflurazon	P
Oryzalin	P
Oxyfluorfen	P
Paraquat	P
Pendimethalin	P
Simazine	P
Trifluralin	*
Insecticides	
Azinphos-methyl	*
Bt (Bacillus thur.)	P
Carbaryl	P
Chlorpyrifos	P
Diazinon	P
Dicofol	P
Endosulfan	*
Esfenvalerate	P
Fenbutatin-oxide	P
Formetanate hydro.	*
Hexythiazox	*
Methidathion	P
Petroleum distillate	P
Phosmet	P
Propargite	*
Pyridaben	P
Pyriproxyfen	P
Spinosad	P

See footnote(s) at end of table.

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**Plums: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	CA
Fungicides	
Azoxystrobin	*
Basic copper sulfate	*
Benomyl	*
Captan	P
Chlorothalonil	P
Copper hydroxide	P
Copper oxide	P
Cyprodinil	P
Fenbuconazole	*
Iprodione	P
Myclobutanil	P
Propiconazole	P
Sulfur	P
Other Chemicals	
Aluminum phosphide	*
Chlorophacinone	*
Decenol	*
Decenyl acetate	*
E-8-Dodecenyl acetat	*
Farnesol	*
Nerolidol	*
Sodium tetrathiocarb	*
Strychnine	*
Z-8-Dodecanol	*
Z-8-Dodecen acetate	*

P Usage data are published for this active ingredient.  
\* Usage data are not published for this active ingredient.

**Plums: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA	40,000	60	61.2	85	1,252.5	66	113.0	7	2.9

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

**Plums: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Glyphosate	43	3.2	0.58	1.90	32.9
Napropamide	4	1.1	1.89	2.24	3.5
Norflurazon	7	1.4	0.65	0.92	2.4
Oryzalin	1	1.4	1.22	1.73	1.0
Oxyfluorfen	28	1.9	0.35	0.67	7.6
Paraquat	18	3.8	0.36	1.38	10.2
Pendimethalin	1	1.2	2.88	3.45	1.8
Simazine	4	1.0	0.86	0.90	1.4
<b>Insecticides</b>					
Bt ( <i>Bacillus thur.</i> ) <sup>2</sup>	15	1.7			
Carbaryl	2	1.4	4.42	6.39	4.1
Chlorpyrifos	21	1.4	1.98	2.88	24.3
Diazinon	14	1.1	1.91	2.23	12.7
Dicofol	1	1.4	1.34	1.90	0.9
Esfenvalerate	41	1.6	0.04	0.06	1.0
Fenbutatin-oxide	5	1.7	0.60	1.06	2.0
Methidathion	3	1.3	1.71	2.36	2.6
Petroleum distillate	60	1.5	30.77	48.60	1,172.6
Phosmet	14	2.3	2.34	5.47	30.5
Pyridaben	2	1.2	0.34	0.42	0.4
Pyriproxyfen	3	1.2	0.09	0.10	0.1
Spinosad	10	1.5	0.10	0.14	0.6
<b>Fungicides</b>					
Captan	1	1.0	2.65	2.66	1.1
Chlorothalonil	*	1.2	3.29	4.12	1.3
Copper hydroxide	25	2.5	2.71	6.92	70.1
Copper oxide	1	1.4	5.27	7.40	4.0
Cyprodinil	5	1.0	0.24	0.27	0.5
Iprodione	17	2.0	0.52	1.07	7.2
Myclobutanil	10	1.2	0.13	0.16	0.6
Propiconazole	26	1.1	0.11	0.12	1.2
Sulfur	14	1.1	4.08	4.62	25.5

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 40,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Prunes: Active Ingredients  
Publication Status**

Active Ingredient	CA
<b>Herbicides</b>	
2,4-D	P
2,4-D, Dimeth. salt	*
Diuron	*
Fluazifop-P-butyl	*
Glyphosate	P
Napropamide	*
Norflurazon	P
Oryzalin	P
Oxyfluorfen	P
Paraquat	P
Pendimethalin	*
Sulfosate	*
<b>Insecticides</b>	
Azinphos-methyl	*
Bt (Bacillus thur.)	P
Carbaryl	*
Chlorpyrifos	*
Diazinon	P
Dicofol	P
Endosulfan	*
Esfenvalerate	P
Fenbutatin-oxide	P
Methidathion	*
Petroleum distillate	P
Pyridaben	*
<b>Fungicides</b>	
Azoxystrobin	*
Basic copper sulfate	*
Captan	P
Chlorothalonil	*
Copper hydroxide	P
Copper oxide	*
Cyprodinil	P
Iprodione	P
Maneb	*
Myclobutanil	*
Propiconazole	P
Sulfur	P
<b>Other Chemicals</b>	
Chlorophacinone	*
Strychnine	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.



**Prunes: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
California, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide <sup>2</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>3</sup>	100,000	34	40.3	58	1,158.6	36	222.8		

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>3</sup> Insufficient reports to publish data for one or more pesticide classes.

**Prunes: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	6	1.3	0.56	0.75	4.3
Glyphosate	28	1.6	0.64	1.05	29.8
Norflurazon	1	1.0	1.15	1.16	1.4
Oryzalin	*	1.0	2.19	2.39	0.8
Oxyfluorfen	6	1.2	0.17	0.20	1.1
Paraquat	2	1.5	0.45	0.67	1.4
<b>Insecticides</b>					
Bt ( <i>Bacillus thur.</i> ) <sup>2</sup>	3	1.2			
Diazinon	12	1.1	1.50	1.73	21.0
Dicofol	2	1.3	1.26	1.63	2.9
Esfenvalerate	22	1.2	0.05	0.06	1.3
Fenbutatin-oxide	7	1.1	0.64	0.73	5.1
Petroleum distillate	43	1.1	22.07	26.09	1,123.5
<b>Fungicides</b>					
Captan	18	1.2	2.56	3.19	57.6
Copper hydroxide	5	1.1	3.36	3.92	20.4
Cyprodinil	6	1.1	0.21	0.24	1.5
Iprodione	3	1.0	0.51	0.54	1.8
Propiconazole	5	1.2	0.10	0.12	0.5
Sulfur	11	1.2	10.27	13.08	138.7

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for California were 100,000 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Raspberries: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	OR	WA
<b>Herbicides</b>			
2,4-D	*		*
Clethodim	*	*	
Dichlobenil	*	*	*
Diuron	P	P	P
Glyphosate	*	*	*
Isoxaben	*	*	
Napropamide	*	*	
Norflurazon	P	P	P
Oryzalin	P	P	P
Oxyfluorfen	P	P	P
Paraquat	P	P	P
Pendimethalin	*	*	
Pronamide	*	*	
Sethoxydim	*	*	*
Simazine	P	P	P
Terbacil	P	P	
Triclopyr	*		*
<b>Insecticides</b>			
Azadirachtin	*		*
Azinphos-methyl	P	*	*
Bifenthrin	P	P	P
Bt (Bacillus thur.)	P	P	P
Carbaryl	*	*	
Carbofuran	*	*	
Clofentezine	*	*	
Diazinon	P	P	P
Dicofol	*		*
Esfenvalerate	*	*	*
Fenamiphos	*	*	*
Fenbutatin-oxide	P	*	*
Malathion	P	P	P
Methomyl	*		*
Petroleum distillate	P	*	*

See footnote(s) at end of table.

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**Raspberries: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	OR	WA
Fungicides			
Benomyl	P	P	P
Calcium polysulfide	P	P	P
Captan	P	P	P
Copper hydroxide	P	P	P
Copper sulfate	P	*	*
Cyprodinil	P	P	P
Fenhexamid	*	*	*
Fludioxonil	P	P	P
Fosetyl-al	P	*	*
Iprodione	P	P	P
Mefenoxam	P	P	P
Metalaxyl	P	*	*
Myclobutanil	P	*	*
Propiconazole	*	*	*
Sulfur	*	*	*
Vinclozolin	*	*	
Other Chemicals			
Gibberellic acid	*	*	
Harpin protein	*		*
Metaldehyde	*		*
Monocarbamide dihyd.	*	*	

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Raspberries: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide <sup>1</sup>		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
OR <sup>2</sup>	3,900	85	8.4	57	15.1	85	41.8		
WA <sup>2</sup>	9,500	91	14.2	90	15.8	98	103.5		
Total	13,400	89	22.6	81	30.9	94	145.5	16	16.5

<sup>1</sup> Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Raspberries: Agricultural Chemical Applications,  
Program States, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	24	1.0	0.85	0.87	2.8
Norflurazon	8	1.0	1.01	1.04	1.1
Oryzalin	11	1.0	1.85	1.93	2.9
Oxyfluorfen	57	1.1	0.11	0.13	1.0
Paraquat	65	1.8	0.39	0.72	6.2
Simazine	47	1.1	1.02	1.16	7.3
Terbacil	2	1.0	0.21	0.21	0.1
<b>Insecticides</b>					
Azinphos-methyl	3	1.0	0.50	0.50	0.2
Bifenthrin	64	1.3	0.11	0.14	1.2
Bt ( <i>Bacillus thur.</i> ) <sup>2</sup>	38	2.6			
Diazinon	50	1.1	1.18	1.37	9.3
Fenbutatin-oxide	5	1.0	0.75	0.75	0.5
Malathion	37	1.3	1.21	1.65	8.2
Petroleum distillate	6	3.0	3.07	9.20	7.3
<b>Fungicides</b>					
Benomyl	22	1.0	0.45	0.49	1.5
Calcium polysulfide	33	1.3	8.73	11.62	50.9
Captan	76	3.9	1.52	5.94	60.6
Copper hydroxide	42	1.4	0.97	1.37	7.7
Copper sulfate	22	1.0	1.93	1.93	5.6
Cyprodinil	71	2.5	0.29	0.72	6.8
Fludioxonil	71	2.5	0.19	0.48	4.6
Fosetyl-al	2	1.0	2.20	2.20	0.6
Iprodione	13	1.9	0.85	1.68	2.8
Mefenoxam	16	1.7	0.71	1.22	2.6
Metalaxyl	4	1.0	0.30	0.30	0.2
Myclobutanil	28	1.6	0.03	0.06	0.2

<sup>1</sup> Bearing acres in 2001 for the 2 program states were 13,400 acres.

States included are OR and WA.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Raspberries: Agricultural Chemical Applications,  
Oregon, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	19	1.1	1.02	1.12	0.8
Norflurazon	15	1.0	1.16	1.22	0.7
Oryzalin	17	1.0	2.01	2.01	1.4
Oxyfluorfen	6	1.1	0.22	0.24	0.1
Paraquat	46	1.4	0.34	0.51	0.9
Simazine	43	1.3	1.64	2.14	3.6
Terbacil	7	1.0	0.21	0.21	0.1
<b>Insecticides</b>					
Bifenthrin	17	1.0	0.06	0.06	( <sup>2</sup> )
Bt (Bacillus thur.) <sup>3</sup>	25	3.8			
Diazinon	17	2.3	2.00	4.66	3.1
Malathion	21	1.5	2.07	3.13	2.6
<b>Fungicides</b>					
Benomyl	28	1.2	0.38	0.47	0.5
Calcium polysulfide	45	1.7	9.32	16.36	28.7
Captan	36	1.0	1.91	2.05	2.9
Copper hydroxide	27	2.2	1.36	3.00	3.1
Cyprodinil	50	1.4	0.30	0.42	0.8
Fludioxonil	50	1.4	0.20	0.28	0.6
Iprodione	23	2.8	0.92	2.59	2.3
Mefenoxam	35	1.9	0.67	1.29	1.8

<sup>1</sup> Bearing acres in 2001 for Oregon were 3,900 acres.

<sup>2</sup> Total applied is less than 50 lbs.

<sup>3</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Raspberries: Agricultural Chemical Applications,  
Washington, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Diuron	26	1.0	0.79	0.80	2.0
Norflurazon	5	1.0	0.83	0.83	0.4
Oryzalin	9	1.0	1.73	1.85	1.5
Oxyfluorfen	78	1.1	0.11	0.12	0.9
Paraquat	72	1.9	0.40	0.78	5.3
Simazine	49	1.0	0.74	0.81	3.7
<b>Insecticides</b>					
Bifenthrin	84	1.3	0.11	0.15	1.2
Bt (Bacillus thur.) <sup>2</sup>	44	2.3			
Diazinon	64	1.0	0.98	1.01	6.2
Malathion	44	1.3	1.02	1.35	5.6
<b>Fungicides</b>					
Benomyl	20	1.0	0.50	0.50	1.0
Calcium polysulfide	28	1.0	8.10	8.45	22.2
Captan	93	4.3	1.50	6.56	57.7
Copper hydroxide	48	1.2	0.81	1.00	4.5
Cyprodinil	79	2.8	0.28	0.80	6.0
Fludioxonil	79	2.8	0.19	0.53	4.0
Iprodione	8	1.0	0.63	0.63	0.5
Mefenoxam	8	1.4	0.78	1.11	0.8

<sup>1</sup> Bearing acres in 2001 for Washington were 9,500 acres.

<sup>2</sup> Rates and total applied are not available because amounts of active ingredient are not comparable between products.

**Tangelos: Active Ingredients  
Publication Status**

Active Ingredient	FL
Herbicides	
2,4-D	*
Bromacil	P
Diuron	P
Glyphosate	P
Norflurazon	P
Oryzalin	*
Paraquat	P
Simazine	P
Sulfosate	*
Thiazopyr	*
Insecticides	
Abamectin	P
Aldicarb	*
Carbaryl	P
Chlorpyrifos	P
Dicofol	P
Diflubenzuron	P
Ethion	P
Fenbutatin-oxide	P
Fenpropathrin	*
Imidacloprid	*
Neem oil, clar. hyd.	*
Petroleum distillate	P
Propargite	*
Pyridaben	P
S-Methoprene	*
Sulfur	P

See footnote(s) at end of table.

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**Tangelos: Active Ingredients  
Publication Status  
By Program States, 2001**

Active Ingredient	FL
Fungicides	
Azoxystrobin	P
Basic copper sulfate	P
Benomyl	*
Copper amm. complex	*
Copper chloride hyd.	*
Copper hydroxide	P
Copper oxide	*
Copper oxychlo. sul.	*
Copper sulfate	P
Fenbuconazole	*
Ferbam	*
Fosetyl-al	*
Mancozeb	*
Maneb	*
Mefenoxam	*
Phosphorous acid	*
Other Chemicals	
Gibberellic acid	*
Harpin protein	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.



**Tangelos: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Florida, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
FL	10,800	79	47.9	86	553.7	71	44.2	18	0.4

**Tangelos: Agricultural Chemical Applications,  
Florida, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Bromacil	12	1.3	1.14	1.54	2.1
Diuron	43	1.8	1.42	2.55	11.8
Glyphosate	77	2.6	1.11	2.89	24.0
Norflurazon	23	1.6	1.36	2.31	5.7
Paraquat	12	1.0	0.33	0.33	0.4
Simazine	12	1.3	2.18	2.89	3.7
<b>Insecticides</b>					
Abamectin	39	1.0	0.01	0.01	( <sup>2</sup> )
Carbaryl	3	1.0	2.17	2.17	0.7
Chlorpyrifos	10	1.4	1.41	1.99	2.1
Dicofol	8	1.0	1.21	1.21	1.1
Diflubenzuron	15	1.0	0.32	0.33	0.5
Ethion	39	1.2	2.28	2.80	11.7
Fenbutatin-oxide	25	1.0	0.99	1.07	2.9
Petroleum distillate	70	1.9	31.96	62.92	476.0
Pyridaben	20	1.3	0.32	0.42	0.9
Sulfur	11	2.3	20.09	47.20	53.9
<b>Fungicides</b>					
Azoxystrobin	12	1.0	0.21	0.23	0.3
Basic copper sulfate	3	2.7	1.30	3.56	1.1
Copper hydroxide	53	2.4	1.82	4.44	25.4
Copper sulfate	10	1.8	1.00	1.87	2.0

<sup>1</sup> Bearing acres in 2001 for Florida were 10,800 acres.

<sup>2</sup> Total applied is less than 50 lbs.

**Tangerines: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Herbicides			
2,4-D	P		P
Bromacil	*	*	P
Diquat	*		*
Diuron	P	P	P
Glyphosate	P	P	P
MSMA	*	*	
Norflurazon	*	*	P
Oryzalin	*		*
Oxyfluorfen	*	*	
Paraquat	P		P
Simazine	*	*	P
Sulfosate	P		P
Thiazopyr	*		*
Trifluralin	*	*	

See footnote(s) at end of table.

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**Tangerines: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Insecticides			
Abamectin	*	*	P
Aldicarb	*		*
Carbaryl	P	*	*
Carbofuran	*		*
Chlorpyrifos	P	P	P
Cryolite	*	*	
Cyfluthrin	*	*	
Dicofol	P	*	*
Diflubenzuron	P		P
Dimethoate	*	*	
Ethion	P		P
Fenbutatin-oxide	P		P
Fenpropathrin	P	*	*
Formetanate hydro.	*	*	
Imidacloprid	P	*	*
Lindane	*		*
Malathion	*	*	
Methidathion	*	*	*
Neem oil, clar. hyd.	*		*
Petroleum distillate	*	*	P
Piperonyl butoxide	*	*	
Propargite	*		*
Pyrethrins	*	*	
Pyridaben	P		P
Pyriproxyfen	*	*	
S-Methoprene	*		*
Sabadilla	*	*	
Spinosad	*	*	
Sulfur	*	*	P

See footnote(s) at end of table.

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**Tangerines: Active Ingredients and  
Publication Status  
By Program States, 2001**

Active Ingredient	Program States		
	ALL	CA	FL
Fungicides			
Azoxystrobin	P		P
Basic copper sulfate	P	*	*
Benomyl	*		*
Copper amm. complex	*		*
Copper chloride hyd.	*		*
Copper hydroxide	*	*	P
Copper oxychlo. sul.	*		*
Copper sulfate	P		P
Fenbuconazole	P		P
Ferbam	P		P
Fosetyl-al	P		P
Maneb	*		*
Mefenoxam	P	*	*
Phosphorous acid	*		*
Other Chemicals			
Diphacinone	*	*	
Gibberellic acid	P	*	*
Harpin protein	*		*
Strychnine	*	*	

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Tangerines: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Program States and Total, 2001**

State	Bearing Acreage	Area Receiving and Total Applied <sup>1</sup>							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
CA <sup>2</sup>	11,000	47	15.5	42	17.6				
FL <sup>2</sup>	25,500	95	126.5	94	1,341.1				
Total	36,500	80	142.1	78	1,359.0	62	104.9	14	0.4

<sup>1</sup> Acreage in California includes nonbearing acres. Total applied may include applications of some active ingredients made only to nonbearing acres.

<sup>2</sup> Insufficient reports to publish data for one or more pesticide classes.

**Tangerines: Agricultural Chemical Applications,  
Program States, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Appli-cations	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
2,4-D	1	1.9	0.16	0.31	0.1
Diuron	41	1.5	1.49	2.30	34.7
Glyphosate	78	2.4	0.92	2.23	63.1
Paraquat	9	1.0	0.36	0.37	1.3
Sulfosate	1	1.1	2.37	2.71	1.1
<b>Insecticides</b>					
Carbaryl	11	1.0	2.86	2.99	12.4
Chlorpyrifos	9	1.1	1.12	1.34	4.5
Dicofol	14	1.0	1.81	1.81	9.1
Diflubenzuron	16	1.1	0.25	0.29	1.7
Ethion	25	1.0	2.49	2.62	23.6
Fenbutatin-oxide	21	1.0	1.00	1.06	8.0
Fenpropathrin	1	1.0	0.33	0.33	0.2
Imidacloprid	9	1.6	0.09	0.14	0.5
Pyridaben	20	1.1	0.30	0.34	2.4
<b>Fungicides</b>					
Azoxystrobin	9	1.4	0.21	0.30	0.9
Basic copper sulfate	8	2.0	2.82	5.84	16.3
Copper sulfate	9	1.5	0.86	1.33	4.5
Fenbuconazole	2	1.0	0.10	0.11	0.1
Ferbam	*	1.3	6.82	8.91	2.2
Fosetyl-al	1	1.0	2.44	2.44	1.2
Mefenoxam	8	1.1	0.56	0.63	1.8
<b>Other Chemicals</b>					
Gibberellic acid	12	1.3	0.07	0.09	0.4

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for the 2 program states were 36,500 acres. States included are CA and FL.

**Tangerines: Agricultural Chemical Applications,  
California, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
Diuron	11	1.1	1.41	1.55	1.8
Glyphosate	45	2.7	0.76	2.07	10.3
Insecticides					
Chlorpyrifos	25	1.1	0.95	1.07	2.9

<sup>1</sup> Bearing acres in 2001 for California were 11,000 acres.

**Tangerines: Agricultural Chemical Applications,  
Florida, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
Herbicides					
2,4-D	2	1.9	0.16	0.31	0.1
Bromacil	26	1.1	1.45	1.69	11.0
Diuron	54	1.5	1.51	2.37	32.8
Glyphosate	91	2.3	0.95	2.26	52.8
Norflurazon	30	1.4	1.59	2.26	17.5
Paraquat	13	1.0	0.36	0.37	1.3
Simazine	15	1.1	2.29	2.59	9.8
Sulfosate	2	1.1	2.37	2.71	1.1
Insecticides					
Abamectin	60	1.0	0.01	0.01	0.2
Chlorpyrifos	3	1.3	1.83	2.49	1.6
Diflubenzuron	23	1.1	0.25	0.29	1.7
Ethion	35	1.0	2.49	2.62	23.6
Fenbutatin-oxide	30	1.0	1.00	1.06	8.0
Petroleum distillate	68	2.1	32.23	70.36	1,217.7
Pyridaben	28	1.1	0.30	0.34	2.4
Sulfur	14	1.5	11.19	17.34	61.5
Fungicides					
Azoxystrobin	12	1.4	0.21	0.30	0.9
Copper hydroxide	64	2.3	1.78	4.26	70.1
Copper sulfate	13	1.5	0.86	1.33	4.5
Fenbuconazole	2	1.0	0.10	0.11	0.1
Ferbam	*	1.3	6.82	8.91	2.2
Fosetyl-al	2	1.0	2.44	2.44	1.2

\* Area applied is less than one percent.

<sup>1</sup> Bearing acres in 2001 for Florida were 25,500 acres.

**Temples: Active Ingredients  
Publication Status**

Active Ingredient	FL
Herbicides	
2,4-D	*
Bromacil	P
Clopyralid	*
Diuron	P
Glyphosate	P
MCPA	*
Norflurazon	P
Oryzalin	*
Paraquat	*
Simazine	P
Sulfosate	P
Thiazopyr	*
Insecticides	
Abamectin	P
Aldicarb	*
Carbaryl	*
Chlorpyrifos	P
Dicofol	*
Diflubenzuron	P
Ethion	P
Fenbutatin-oxide	P
Fenpropathrin	*
Imidacloprid	*
Petroleum distillate	P
Propargite	*
Pyridaben	P
S-Methoprene	*
Sulfur	P
Fungicides	
Azoxystrobin	P
Basic copper sulfate	*
Benomyl	P
Copper chloride hyd.	*
Copper hydroxide	P
Copper oxychlor. sul.	*
Copper sulfate	*
Fenbuconazole	*
Ferbam	P
Maneb	*
Mefenoxam	*
Other Chemicals	
Gibberellic acid	*

P Usage data are published for this active ingredient.

\* Usage data are not published for this active ingredient.

**Temples: Pesticide, Bearing Acreage,  
Percent of Area Receiving Applications and Total Applied,  
Florida, 2001**

State	Bearing Acreage	Area Receiving and Total Applied							
		Herbicide		Insecticide		Fungicide		Other Chemicals	
	<i>Acres</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>	<i>Pct</i>	<i>1,000 Lbs</i>
FL <sup>1</sup>	5,500	93	25.0	98	322.8	66	26.4		

<sup>1</sup> Insufficient reports to publish data for one or more pesticide classes.

**Temples: Agricultural Chemical Applications,  
Florida, 2001 <sup>1</sup>**

Agricultural Chemical	Area Applied	Applications	Rate per Application	Rate per Crop Year	Total Applied
	<i>Percent</i>	<i>Number</i>	<i>Pounds per Acre</i>	<i>Pounds per Acre</i>	<i>1000 lbs</i>
<b>Herbicides</b>					
Bromacil	8	1.5	0.79	1.23	0.5
Diuron	33	1.9	2.33	4.48	8.1
Glyphosate	91	3.0	0.81	2.49	12.5
Norflurazon	8	1.8	1.45	2.66	1.2
Simazine	22	1.3	1.36	1.81	2.2
Sulfosate	2	1.5	1.58	2.52	0.2
<b>Insecticides</b>					
Abamectin	33	1.0	0.01	0.01	( <sup>2</sup> )
Chlorpyrifos	6	2.3	1.26	2.89	1.0
Diflubenzuron	5	1.2	0.33	0.41	0.1
Ethion	12	1.2	2.32	2.94	2.0
Fenbutatin-oxide	11	1.0	0.99	1.05	0.7
Petroleum distillate	76	2.2	29.15	64.01	268.7
Pyridaben	2	1.3	0.28	0.39	( <sup>2</sup> )
Sulfur	19	2.1	22.22	47.98	50.0
<b>Fungicides</b>					
Azoxystrobin	3	2.2	0.23	0.52	0.1
Benomyl	2	1.0	0.81	0.81	0.1
Copper hydroxide	58	2.9	2.35	6.83	21.8
Ferbam	3	1.0	7.71	7.71	1.2

<sup>1</sup> Bearing acres in 2001 for Florida were 5,500 acres.

<sup>2</sup> Total applied is less than 50 lbs.



## 2001 Fruit Crops Pest Management Practices

**Overview:** Prior to the 2001 crop year, fruit crop pest management practices data were collected and published separately from the Fruit Chemical Use Survey. The Pest Management Practices 2001 Summary is based on data compiled from respondents participating in the Fruit Chemical Use Survey (FCUS). Producers were first asked how many total acres of fruit crops they grew in 2001, followed by questions regarding the use of specific pest management practices, in a yes/no format. Pests were defined as weeds, insects, and diseases. If the respondent used a specific practice on any fruit crop, it was assumed that the practice was used on all acres of fruit crops. For example, if a producer had 500 acres of various fruit crops, and used field mapping of previous weed problems to assist in making weed management decisions, it was assumed that all 500 acres were mapped.

For this report, each question has been categorized into one of four pest management categories: prevention, avoidance, monitoring, and suppression. The actual questions used to collect these data are shown on pages 168-169.

The data are published in two tables: percent of acres receiving the specific pest management practice, and percent of farms using the specific pest management practice. These percentages are published at the Program States and State levels. For all the crops in this survey, the percentages refer only to farms and fruit acres (bearing and non-bearing included).

**Highlights:** The use of **Tillage/etc. to Manage Pests** was the most widespread pest management practice, used by 76 percent of the fruit farms on 83 percent of the acres. **Scouting for Pests** and **Alternating Pesticides** were used on 81 and 74 percent of the fruit acres, respectively. Fifty-four percent of the farms **Cleaned Implements after Fieldwork** as a prevention practice.

**Pest Management Practices,  
Percent of Acres Receiving Practice,  
All Fruit Crops, 2001**

Practice	States						
	CA	FL	GA	KS	MI	NJ	NY
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>
<b>Prevention Practices:</b>							
Tillage/etc. to manage pests	81	84	98	60	93	89	83
Remove or plow down crop residue	38	6	80	43	63	62	62
Clean implements after fieldwork	61	95	94	40	65	67	44
Water management practices	58	56	31	20	26	60	32
<b>Avoidance Practices:</b>							
Adjust planting/harvesting dates	9	8	30	18	21	20	12
Grow trap crop to control insects	20	1	1	*	5	3	6
<b>Monitoring Practices:</b>							
Scouted for pests	75	86	84	55	90	70	86
Records kept to track pests	69	55	49	14	74	63	61
Field mapping of weed problems	29	26	32	*	23	60	18
Soil analysis to detect pests	53	57	41	5	30	61	27
Pheromones to monitor pests	43	3	30	36	67	43	35
Weather monitoring	59	62	87	40	85	69	63
<b>Suppression Practices:</b>							
Scouting used to make decisions	54	48	55	33	65	71	68
Biological pesticides	41	15	*	10	22	32	25
Beneficial organisms	27	27	*	*	3	11	6
Maintain ground cover or physical barriers	51	22	44	34	59	59	42
Alternate pesticides	70	70	61	58	98	82	83
Pheromones to disrupt mating	27	*	37	10	28	45	6

\* Less than one percent.

**Pest Management Practices,  
Percent of Acres Receiving Practice,  
All Fruit Crops, 2001**

Practice	States					Program States 2001 Percent of Acres
	NC	OR	PA	SC	WA	
	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	<i>Percent of Acres</i>	
<b>Prevention Practices:</b>						
Tillage/etc. to manage pests	92	84	86	99	87	83
Remove or plow down crop residue	91	38	47	41	46	34
Clean implements after fieldwork	84	73	31	88	71	70
Water management practices	6	48	8	86	57	55
<b>Avoidance Practices:</b>						
Adjust planting/harvesting dates	51	23	17	56	17	11
Grow trap crop to control insects	1	5	2	*	10	12
<b>Monitoring Practices:</b>						
Scouted for pests	95	81	87	72	92	81
Records kept to track pests	74	58	68	40	76	66
Field mapping of weed problems	43	24	21	71	26	27
Soil analysis to detect pests	23	37	40	84	46	51
Pheromones to monitor pests	4	63	73	33	73	37
Weather monitoring	40	76	84	95	78	64
<b>Suppression Practices:</b>						
Scouting used to make decisions	54	63	76	85	73	56
Biological pesticides	3	45	38	*	49	34
Beneficial organisms	( <sup>1</sup> )	8	6	1	5	22
Maintain ground cover or physical barriers	75	60	51	85	64	46
Alternate pesticides	92	84	96	95	87	74
Pheromones to disrupt mating	1	36	24	5	62	24

\* Less than one percent.

<sup>1</sup> Practice not reported.

**Pest Management Practices,  
Percent of Farms Utilizing Practice,  
All Fruit Crops, 2001**

Practice	States						
	CA	FL	GA	KS	MI	NJ	NY
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>
<b>Prevention Practices:</b>							
Tillage/etc. to manage pests	73	68	71	68	85	76	76
Remove or plow down crop residue	31	3	47	50	46	46	52
Clean implements after fieldwork	49	75	42	33	69	62	30
Water management practices	39	29	12	23	13	35	20
<b>Avoidance Practices:</b>							
Adjust planting/harvesting dates	4	2	1	6	12	16	10
Grow trap crop to control insects	8	*	1	1	3	5	1
<b>Monitoring Practices:</b>							
Scouted for pests	58	58	41	52	72	44	63
Records kept to track pests	34	32	17	12	41	28	32
Field mapping of weed problems	13	24	5	1	10	24	15
Soil analysis to detect pests	27	36	12	4	12	27	10
Pheromones to monitor pests	19	1	7	14	35	23	11
Weather monitoring	31	38	27	25	50	47	46
<b>Suppression Practices:</b>							
Scouting used to make decisions	25	29	29	22	37	41	40
Biological pesticides	20	18	4	5	10	6	11
Beneficial organisms	14	7	1	2	2	4	6
Maintain ground cover or physical barriers	37	8	21	45	50	38	32
Alternate pesticides	40	39	35	36	85	49	62
Pheromones to disrupt mating	10	*	2	8	8	17	2

\* Less than one percent.

**Pest Management Practices,  
Percent of Farms Utilizing Practice,  
All Fruit Crops, 2001**

Practice	States					Program States 2001 Percent of Farms
	NC	OR	PA	SC	WA	
	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	<i>Percent of Farms</i>	
<b>Prevention Practices:</b>						
Tillage/etc. to manage pests	82	76	82	73	89	76
Remove or plow down crop residue	77	38	57	36	33	31
Clean implements after fieldwork	50	61	36	52	60	54
Water management practices	10	25	4	42	43	34
<b>Avoidance Practices:</b>						
Adjust planting/harvesting dates	50	7	19	7	11	6
Grow trap crop to control insects	2	3	9	2	6	6
<b>Monitoring Practices:</b>						
Scouted for pests	67	59	58	32	75	61
Records kept to track pests	39	34	29	16	45	35
Field mapping of weed problems	20	10	9	13	15	14
Soil analysis to detect pests	8	14	18	26	18	24
Pheromones to monitor pests	6	30	28	7	41	20
Weather monitoring	37	48	42	55	48	37
<b>Suppression Practices:</b>						
Scouting used to make decisions	33	28	40	28	41	30
Biological pesticides	3	17	12	1	28	19
Beneficial organisms	( <sup>1</sup> )	4	1	1	6	10
Maintain ground cover or physical barriers	63	38	49	46	51	36
Alternate pesticides	79	49	73	63	57	47
Pheromones to disrupt mating	2	13	4	4	32	11

\* Less than one percent.

<sup>1</sup> Practice not reported.

**Survey Procedures:** Large screening samples were drawn from the NASS List Sampling Frame. This extensive sampling frame covers all types of farms and accounts for about 82% of all land in farms in the U.S. The screening samples were selected in such a way as to insure that all farms on the list had a possibility of being selected. Farms that were more likely to be producers of crops of interest were more likely to be in the sample. The sampled farms were screened to determine the presence of all the crops of interest. From this subpopulation of operations identified as producing the crop of interest, a subsample of farms was selected in such a way as to insure that each identified producer had an opportunity to be selected. In general, larger farms were more likely to be selected than smaller farms.

**Estimation Procedures:** The chemical applications data, reported by product name or trade name are reviewed within state and across states for reasonableness and consistency. This review compares reported data with manufacturer's recommendations and with data from other farm operators using the same product. Following this review, product information are converted to an active ingredient level. The chemical usage estimates in this publication consist of survey estimates of those active ingredients.

Estimates of the total amount of active ingredient applied are based on the acreage estimates published in the annual NASS report "**Citrus Fruits - 2001 Summary**" [Fr Nt 3-1(01)] released on September 20, 2001 and "**Noncitrus Fruits and Nuts - 2001 Summary**" [Fr Nt 1-3 (01)] released on July 8, 2002. The estimates for total amount applied will not be revised even if there are subsequent revisions to acreage for a given crop.

Detailed data within a table may not multiply across or add down due to independent rounding of the published values.

**Reliability:** The probability nature of the survey provides expansion of data so that the estimates are statistically representative of chemical use on the targeted crops in the surveyed States. The reliability of these survey results are affected by non-sampling errors and sampling variability. The sampling variability, expressed as a percentage of the estimate, is referred to as the coefficient of variation (cv).

Non-sampling errors are errors that occur during a survey process, and unlike sampling variability, are difficult to measure. They may be caused by interviewers failing to follow instructions, poorly worded questions, non-response, problematic survey procedures, or data handling between collection and publication. In these surveys, all survey procedures and analysis were carried out in a consistent and orderly manner to minimize the occurrence of these types of errors.

Variability for estimates of acres treated will be higher than the variability for estimates of application rates. This is because application rates have a narrower range of responses, are recommended by the manufacturer of the product, and are generally followed.

Sampling variability of the estimates differed considerably by chemical and crop. In general, the more often the chemical was applied, the smaller the sampling variability. For example, estimates of use of a commonly used product, such as Carbaryl, exhibit less variability than a more rarely used product. For more commonly used chemicals, cv's will range from 1-30 percent at the U.S. level and 5-65 percent at the State level. Some rarer items will have cv's above 100 percent. These items have insufficient data for publication and these instances are noted.

## Terms and Definitions

**Active ingredient:** The active ingredient is the specific chemical which kills or controls the target pests. Usage data are reported by pesticide product and are converted to an amount of active ingredient. A single method of conversion has been chosen for active ingredients having more than one way of being converted. For example in this report, copper compounds are expressed in their metallic copper equivalent, and others such as 2,4-D and glyphosate are expressed in their acid equivalent.

**Allelopathic:** The release of chemical compounds from a plant that will inhibit the growth of another plant, such as weeds.

**Agricultural chemicals:** Refers to the active ingredients in fertilizers and pesticides.

**Application Rates:** Refer to the average number of pounds of a fertilizer primary nutrient or pesticide active ingredient applied to an acre of land. Rate per acre is the average number of pounds applied in one application. Rate per crop year is the average number of pounds applied counting multiple applications. Number of applications is the average number of times a treated acre receives a specific agricultural chemical.

**Area applied:** Represents the percentage of crop acres receiving one or more applications of a specific agricultural chemical. This report does not contain acre treatments. However, acre treatments can be calculated by multiplying the acres planted by the percent of area applied and the average number of applications.

**Avoidance:** May be practiced when pest populations exist in a field or site but the impact of the pest on the crop can be avoided through some cultural practice. Examples of avoidance tactics include crop rotation such that the crop of choice is not a host for the pest, choosing cultivars with genetic resistance to pests, using trap crops, choosing cultivars with maturity dates that may allow harvest before pest populations develop, fertilization programs to promote rapid crop development, and simply not planting certain areas of fields where pest populations are likely to cause crop failure. Some tactics for prevention and avoidance strategies may overlap.

The following questions were categorized as avoidance practices:

Did you adjust planting or harvesting dates to control pests?

Did you grow a trap crop to help control insects?

**Beneficial Insects:** Insects collected and introduced into locations because of their value in biologic control as prey on harmful insects and parasites.

## Terms and Definitions (continued)

**Chemigation:** Application of an agricultural chemical by injecting it into irrigation water.

**Common name:** An officially recognized name for an active ingredient. This report shows active ingredient by common name.

**Crop year:** Refers to the period immediately following harvest for the previous crop through harvest of the current crop.

**Cultivars:** A horticulturally or agriculturally derived variety of a plant, as distinguished from a natural variety.

**Fertilizer:** Refers to applications of the primary nutrients, nitrogen, phosphate, and potash.

**Fungi:** A lower form of parasitic plant life which often reduces crop production and/or lowers the grade quality of its host.

**Monitoring:** Includes proper identification of pests through surveys or scouting programs, including trapping, weather monitoring, and soil testing where appropriate.

The following questions were categorized as monitoring practices:

Was this crop scouted for pests (weeds, insects or disease) using a systematic method?

Did you use field mapping of previous weed problems to assist you in making weed management decisions?

Did you use soil analysis to detect the presence of soilborne pests or pathogens?

Did you use pheromones to monitor pests by trapping?

Did you use weather monitoring to predict the need for pesticide applications?

**Nematodes:** Microscopic, worm-shaped parasitic animals. Damage to many crops can be severe.

**Pesticides:** As defined by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), pesticides include any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

The four classes of pesticides presented in this report and the pests targeted are: herbicides - weeds, insecticides - insects, fungicides - fungi, and other chemicals - other forms of life. Miticides and nematicides are included as insecticides while soil fumigants, growth regulators, defoliants, and desiccants are included as other chemicals.



## Terms and Definitions (continued)

**Pheromone:** A chemical substance produced by an insect which serves as a stimulus to other individuals of the same species for one or more behavioral responses.

**Prevention:** Is the practice of keeping a pest population from infesting a crop or field. It includes such tactics as using pest-free seeds and transplants, preventing weeds from reproducing, choosing cultivars with genetic resistance to insects or disease, irrigation scheduling to avoid situations conducive to disease development, cleaning tillage and harvesting equipment between fields or operations, using field sanitation procedures, and eliminating alternate hosts or sites for insect pests and disease organisms.

The following questions were categorized as prevention practices:

Did you clean tillage or harvesting implements after completing fieldwork for the purpose of reducing the spread of weeds, diseases or other pests?

Did you remove or plow down crop residues to control pests?

Did you use practices such as tilling, mowing, burning, or chopping of field edges, lanes, ditches, roadways or fence lines to manage pests?

Did you use water management practices, such as controlled drainage or irrigation scheduling, excluding chemigation, to control pests?

**Suppression:** Tactics include cultural practices such as narrow row spacings or optimized in-row plant populations, alternative tillage approaches such as no-till or strip-till systems, cover crops or mulches, or using crops with allelopathic potential in the rotation. Physical suppression tactics may include cultivation or mowing for weed control, baited or pheromone traps for certain insects, and temperature management or exclusion devices for insect and disease management. Biological controls, including mating disruption for insects, could be considered as alternatives to conventional pesticides, especially where long-term control of an especially troublesome pest species can be obtained. Chemical pesticides are important and some use will remain necessary. However, pesticides should be applied as a last resort in suppression systems.

The following questions were categorized as suppression practices:

Did you use scouting data and compare it to university or extension guidelines for infestation thresholds to determine when to take measures to control pests?

Did you use beneficial organisms (insects, nematodes or fungi) to control pests?

Did you use topically applied biological pesticides such as Bt (*Bacillus thuringiensis*), insect growth regulators, neem or other natural products to control pests?

Did you maintain ground covers, mulch or physical barriers to reduce pest problems?

Did you alternate pesticides to keep pests from becoming resistant to pesticides (use pesticides with different mechanisms of action)?

Did you use pheromones to control pests by disrupting mating?

## Terms and Definitions (continued)

**Trade name:** A trademark name given to a specific formulation of a pesticide product. A formulation contains a specific concentration of the active ingredient, carrier materials, and other ingredients such as emulsifiers and wetting agents. Some formulation as in the case of pre-mixes, can contain more than one active ingredient.

**Active Ingredients Applied and Publication Status by Program States:** These tables are provided to show all active ingredients reported in the Program States. The Publication Status is determined by confidentiality rules. In order to publish data for an active ingredient, there must be a minimum of five reports for the specific active ingredient at the summary level (by crop, by State or all Program States). If there are five or more reports, then the active ingredient data are published and designated as a "P" in the table. In cases where there are not enough reports to publish usage data for a given active ingredient, an "\*" appears in the table. This means the active ingredient was reported, but there were not a sufficient number of reports. However, there are certain instances where the "Program States" data were suppressed so that a major active ingredient could then be published at an individual State level.

### Trade Name, Common Name, and Pesticide Class

The following is a list of the common name, associated class and trade name of active ingredients in the publication. The classes are herbicides (H), insecticides (I), fungicides (F), and other chemicals (O). This list is provided as an aid in reviewing pesticide data. Pre-mixes are not cataloged. The list is not complete for all pesticides used on fruit crops and NASS does not mean to imply the use of the specific trade name.

Class	Common Name	Trade Name
H	2,4-D	Several
H	2,4-D, Dimeth. salt	Saber, Weedar, Weedaxe
H	2,4-DP, Dimethylamine salt	2,4-D Amine
I	Abamectin	Agri-Mek, Clinch Ant Bait
I	Acephate	Orthene
H	Acetic acid	2,4-D/Esteron
F	Agrobacterium radiobacter	Galltrol
H	Alachlor	Lasso
I	Aldicarb	Temik
O	Aluminum phosphide	Aluminum Phosphide, Fumiphos, Gastoxin, Phostoxin
I	Amitraz	Mitac
O	Ammonium soap	Hinder
F	Ampelomyces quisquales isolate	AQ 10 Biofungicide
F	Anilazine	Dyrene
H	Atrazine	Atrazine
I	Azadirachtin	AZA-Direct, Ecozin, Margosan, Neemix
I	Azinphos-methyl	Azinphos-M, Guthion, Sniper
F	Azoxystrobin	ICIA5504, Abound, Quadris
F	Bacillus subtilus	Serenade
I	Bacillus thuringiensis	Agree, Biobit, Condor, Crymax, Cutlass, Deliver, Dipel, Javelin, Larvo-Bt, MVP, Xentari
F	Basic copper sulfate	Basic Copper Sulfate, Bonide Garden Dust, C-O-C-S, Cop-O-Zinc Nu-Cop, Nutra-Spray, Top Cop, Tri-Basic Copper
F	Basic cupric zinc sulfate comp	Zinc Coposil
I	Beauveria bassiana	Mycotrol
F	Benomyl	Benlate
I	Benzoic acid	Intrepid
O	Benzyladenine	Accel, Perlan, Promalin, Typy
I	Bifenazate	Acramite
I	Bifenthrin	Brigade, Capture
O	Brodifacoum	Talon
H	Bromacil	Hyvar X, Krovar
O	Bromadiolone	Maki Paraffinized Rat Bait
I	Buprofezin	Applaud
O	Butenoic acid hydrochloride	Retain
F	Calcium polysulfide	Lime Sulfur Solution, Orthorix Polysul, Sulforix

Class	Common Name	Trade Name
O	Capsaicin	Hot Sauce Animal Repellent
F	Captafol	Difolatan
F	Captan	Agway Fruit Tree Spray, Captan, Captec, Ortho Home Orchard Spray
I	Carbaryl	Agway Fruit Tree Spray, Carbaryl, Sevin
I	Carbofuran	Furadan
O	Carbon	Gas Cartridge Rodenticide, The Giant Destroyer
I	Carbophenothion	Trithion
F	Carboxin	Vitavax
I	Chitin	Clandosan
O	Chlorophacinone	Rozol
O	Chloropicrin	Chloropicrin, Telone, Tri-Clor
F	Chlorothalonil	Bravo, Echo
I	Chlorpyrifos	Chlorpyrifos, Dursban, Lorsban, Nufos
I	Cinnamaldehyde	Valero
H	Clethodim	Prism, Select
I	Clofentezine	Apollo
H	Clopyralid	Curtail, Stinger
F	Copper ammonium complex	Copper-Count-N
F	Copper chloride hydroxide	Agra-cop, Microperse
F	Copper hydroxide	Blue Shield, Champ, Champion, Kocide, Kop-Hydroxide, Mankocide, Nu-Cop, ProCop
F	Copper oxide	Nordox
F	Copper oxychloride	C-O-C-S, Microperse
F	Copper oxychloride sulfate	C-O-C-S, Copodust, Oxycop
F	Copper resinate	Tenn-Cop
F	Copper sulfate	Basicop, Bluestone Copper Sulfate
F	Cresol	Gallex
I	Cryolite	Cryolite, Kryocide
O	Cyanamid	Dormex
H	Cyanazine	Bladex
I	Cyd-X Granulovirus	Virosoft Bioinsecticide
I	Cyfluthrin	Baythroid
F	Cyprodinil	Switch, Vanguard
O	Cytokinins	Cytokin Bioregulator, Cyzer, Foliar Trigger
O	Decenol	Checkmate
O	Decenyl acetate	Checkmate
I	Diazinon	Diazinon, Spectracide Spectracide 25
H	Dichlobenil	Casoron

Class	Common Name	Trade Name
F	Dichlone	Dichlone
O	Dichloropropene	Telone
F	Dicloran	Botran
I	Dicofol	Dicofol, Kelthane
O	Diethyl-2-ethylamine	Ecolyst
I	Diflubenzuron	Dimilin, Micromite
I	Dimethoate	Cygon, Digon, Dimethoate
F	Dimethylphenol	Gallex
F	Dinocap	Karathane
H	Dinoseb	Dinitro
O	Diphacinone	Diphacinone, Ramik
H	Diquat	Diquat
H	Diuron	Direx, Karmex, Krovar
O	Dodecanol	Isomate
F	Dodine	Cyprex, Dodine, Syllit
O	Dodecadien-1-ol	Checkmate, Disrupt, Isomate, NoMate
O	E-8-Dodecenyl acetate	Checkmate, Consep, Isomate
H	EPTC	Eptam
I	Endosulfan	Endocide, Endosulfan, Phaser, Thiodan
I	Esfenvalerate	Asana
O	Ethephon	Ethephon, Ethrel
I	Ethion	Ethion
I	Ethyl parathion	Parathion
O	Farnesol	Stirrup
I	Fenamiphos	Nemacur
F	Fenarimol	Rubigan
F	Fenbuconazole	Enable, Indar
I	Fenbutatin-oxide	Vendex
F	Fenhexamid	Elevate
I	Fenoxycarb	Logic
I	Fenpropathrin	Danitol
I	Fenvalerate	Pydrin
F	Ferbam	Carbamate, Ferbam
H	Fluazifop-P-butyl	Fusilade
F	Fludioxonil	Switch
F	Flutolanil	Prostar
O	Forchlorfenuron	KT-30
I	Formetanate hydro.	Carzol
F	Fosetyl-al	Aliette
O	Garlic oil	Allityn, Envirepel, Garlic Barrier Guardian Spray Insect Repellent
O	Gibberellic acid	Falgro, GibGro, Gibbex, Pro-Gibb ProVide, RyzUp
O	Gibberellins A4A7	Accel, Perlan, Promalin, TypRus, Typy
H	Glufosinate-ammonium	Finale, Rely
F	Glyodin	Glyodin

Class	Common Name	Trade Name
H	Glyphosate	Engame, Glyfos, Glyphomax, Honcho, Landmaster, Mirage, Protocol, Rattler, Rodeo, Roundup
H	Glyphosate, diam. salt	Touchdown
H	Glyphosate, iso. salt	Roundup PRO
O	Harpin protein	Messenger
H	Hexazinone	Velpar
I	Hexythiazox	Savey
O	Hydrogen peroxide	Oxidate
I	Imidacloprid	Admire, Provado
O	Indole-3-butyric acid	Hormex Rooting Powder
I	Indoxacarb	Avaunt
F	Iprodione	Rovral
H	Isoxaben	Gallery
I	Kaolin	Kaolin, Surround
F	Kresoxim-methyl	Sovran
O	Lactic acid	Propel
I	Lindane	Isotox, Lindane
H	MCPA	Curtail, Weedar
H	MSMA	MSMA
I	Malathion	Agway Fruit Tree Spray, Cythion, Fyfanon, Malathion
F	Mancozeb	Dithane, Mancozeb, Manex, Mankocide, Manzate, Penncozeb, Ridomil Gold MZ
F	Maneb	AgSCO MN, Amazin, Dithane, Maneb, Manex
F	Mefenoxam	Ridomil, Subdue
O	Mepiquat chloride	Ponnax Growth Regulator
F	Metalaxyl	Ridomil
O	Metaldehyde	Deadline, Metaldehyde, Trail's End
O	Metam-sodium	Metam Sodium, Sectagon, Vapam
I	Methidathion	Supracide
I	Methomyl	Lannate
I	Methoxychlor	Agway Fruit Tree Spray, Methoxychlor
O	Methyl anthranilate	ReJex-it
O	Methyl bromide	Methyl Bromide
I	Methyl parathion	Methyl Parathion, PennCap
F	Metiram	Polyram
O	Monocarbamide dihyd.	Engame, Enquik, Wilthin
F	Myclobutanil	Laredo, Nova, RH-144228, Rally

Class	Common Name	Trade Name
I	Myrothecium verrucaria	Ditera
O	NAA	Alphaspra, Fruit-Fix, Fruitone Kling Tite, NAA, Stop Drop
O	NAA, Potassium salt	Fruit-Fix
O	NAD	Amid-Thin
I	Naled	Dibrom
H	Napropamide	Devrinol
I	Neem oil	NeemGard
I	Neem oil, clar. hyd.	Triact, Trilogy
O	Nerolidol	Stirrup
H	Norflurazon	Solicam
O	Octadecadien (E,Z)	Isomate
O	Octadecadien (Z,Z)	Isomate
H	Oryzalin	Surflan
I	Oxamyl	Vydate
H	Oxyfluorfen	Goal
F	Oxytetracycline	Mycoshield
I	Oxythioquinox	Morestan
H	Paraquat	Cyclone, Gramoxone
O	Pelargonic acid	Scythe, Thinnex
H	Pendimethalin	Pendimax, Prowl
F	PCNB	Defend
I	Permethrin	Ambush, LastCall, Pounce
I	Petroleum distillate	Citrus Oil, Damoil, Dinitro, Dormant Emulsion Oil, Gavicide, Oil, Saf-T-Side, Sunspray
I	Petroleum oil	Damoil Dormant Oil Spray
I	Phosmet	Imidan
I	Phosphamidon	Phosphamidon
F	Phosphorous acid	Phostrol
I	Piperonyl butoxide	Diatect, Evergreen, Pyrenone
F	Potassium bicarbonate	Armcarb, Kaligreen
I	Potassium salts	M-Pede, Safer Insecticidal Soap
O	Prohexadione calcium	Apogee
H	Pronamide	Kerb
I	Propargite	Comite, Omite, Ornamite
F	Propiconazole	Orbit
H	Prosulfuron	Peak
F	Pseudomonas fluorescens	Frostban
I	Pyrethrins	Bonide Garden Dust, Diatect, Evergreen, Pyrellin, Pyrenone
I	Pyridaben	Nexter, Pyramite, Sanmite
I	Pyriproxyfen	Esteem, Knack
I	Rotenone	Bonide Garden Dust, Pyrellin
I	S-Methoprene	Extinguish
H	S-Metolachlor	Dual Magnum

Class	Common Name	Trade Name
I	Sabadilla	Veratran
H	Sethoxydim	Poast, Torpedo
I	Silicon dioxide	Diatect
H	Simazine	Caliber, Princep, Sim-Trol, Simazine
O	Sodium nitrate	Gas Cartridge Rodenticide The Giant Destroyer
O	Sodium tetrathiocarb	Enzone
I	Spinosad	NAF-550 Fruit Fly Bait, SpinTor, Success
F	Streptomycin	Agri-Mycin, Streptomycin
O	Strychnine	Strychnine
H	Sulfosate	Touchdown
F	Sulfur	Ben-Sul, Bonide Garden Dust, Bravo S, C-O-C-S, CSC, Golden-Dew, Kocide, Kolodust, Kolospray, Microperse, Microthiol, RH-144228, Suffa, Sulfur, Super Six, Super-Sul, Thiolux
F	Tebuconazole	Elite
I	Tebufenozide	Confirm
H	Terbacil	Sinbar
O	Tetradecanol	Isomate
O	Tetradecen-1-OL (Z)	3M Pheromone-Mating Disruption Checkmate, Confuse, Isomate, NoMate
O	Tetradecen-1-yl (E)	Checkmate, Confuse, NoMate
I	Thiamethoxam	Actara
H	Thiazopyr	Mandate, Visor
I	Thiodicarb	Larvin
F	Thiophanate-methyl	Topsin
F	Thiram	Thiram
F	Triadimefon	Bayleton
H	Triclopyr	Crossbow, Remedy
F	Trifloxystrobin	Flint
F	Triflumizole	Procure
H	Trifluralin	Treflan, Trifluralin, Trilin
F	Triforine	Funginex
F	Vinclozolin	Ronilan
O	Z-8-Dodecanol	Checkmate, Consep, Isomate
O	Z-8-Dodecenyl acetate	Checkmate, Consep, Isomate
O	Zinc phosphide	Zinc Phosphide
F	Ziram	Ziram



Now I have some questions about pesticide and chemical applications to your bearing fruit acreage before harvest. Please consider all applications made to trees, vineyards or bushes which occurred **after last season's harvest**.

1. Since last year's (2000) harvest, did you use **herbicides** on any of your fruit acreage? .....  YES  NO
2. Since last year's (2000) harvest, did you use **insecticides, nematocides or mitocides** on any of your bearing fruit acreage? .....  YES  NO
3. Since last year's (2000) harvest, did you use any **fungicides** on any of your bearing fruit acreage? .....  YES  NO
4. Since last year's (2000) harvest, did you use any other chemicals such as .....  YES  NO
5. **[ENUMERATOR ACTION: Are items 1 - 4 all NO?]**

**YES** - [Go to Section D, page 10.]  **NO** -[Go to item 6, on next page.]

OFFICE USE LINES IN TABLE	T-TYPE	3	TABLE	001	LINE 99	399
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NOTES:	L I N E	1 CROP	2 CROP CODE	3 What products were applied to the [crop]?  [Enter product	4 Was this product bought in liquid or dry form?  [Enter L or D.]	5 [Enter line number of first product in the tank mix.]
		01		301	302	
	02		301	302		304
	03		301	302		304
	04		301	302		304
	05		301	302		304
	06		301	302		304
	07		301	302		304
	08		301	302		304
	09		301	302		304
	10		301	302		304

For pesticides not listed on card, specify

Line #	Pesticide Type <i>(Herb., Insect., Fung., etc.)</i>	Tradename & Formulation	Form Purchased EPA Number <i>(Liquid or Dry)</i>
_____	_____	_____	_____



Now I have some questions about pest management practices you may have used on any of the total fruit acres on this operation (including both target and non-target fruit crops grown).

T-	TABLE	LINE
0	000	00

By pests, we mean insects, weeds, and diseases.

- |     |  | CODE |
|-----|--|------|
| 1.  | Was any of your fruit acreage scouted for pests using a systematic method? . . . . . YES = 1   | 446  |
| 2.  | Were electronic or written records kept to track the activity or numbers of different pests? . . . . . YES = 1   | 447  |
| 3.  | Did you use scouting data and compare it to university or extension guidelines for infestation thresholds to determine when to take measures to control pests? . . . . . YES = 1               | 448  |
| 4.  | Did you use field mapping of previous weed problems to assist you in making weed management decisions? . . . . . YES = 1   | 449  |
| 5.  | Did you use soil analysis to detect the presence of soilborne pests or pathogens? . . . . . YES = 1  | 450  |
| 6.  | Did you use topically applied biological pesticides such as Bt ( <i>Bacillus thuringiensis</i> ), insect growth regulators, neem or other natural products to control pests? . . . . . YES = 1 | 452  |
| 7.  | Did you release beneficial organisms ( <i>insects, nematodes or fungi</i> ) to control pests? . . . . . YES = 1  | 453  |
| 8.  | Did you maintain ground covers, mulches or physical barriers to reduce pest problems? . . . . . YES = 1  | 454  |
| 9.  | Did you use practices such as tilling, mowing, burning, or chopping of field edges, lanes, ditches, roadways or fence lines to manage pests? . . . . . YES = 1                                 | 455  |
| 10. | Did you remove crop residues ( <i>including drops, rotting fruit, and/or debris</i> ) to control pests? . . . . . YES = 1  | 456  |
| 11. | Did you clean equipment and/or implements after completing field work for the purpose of reducing the spread of weeds, diseases or other pests? . . . . . YES = 1                              | 457  |
| 12. | Did you use water management practices, such as controlled drainage or irrigation scheduling, excluding chemigation, to control pests? . . . . . YES = 1                                       | 458  |
| 13. | Did you adjust planting or harvesting dates to control pests? . . . . . YES = 1  | 460  |

COMPLETION CODE for CHEMICAL EDIT

1	Incomplete/Refusal	300
3	Valid Zero	

COMPLETION CODE for PEST MANAGEMENT EDIT

1	Incomplete/Refusal	500
---	--------------------	-----

- |     |  | CODE |
|-----|--|------|
| 14. | <b>Did you alternate pesticides to keep pests from becoming resistant to pesticides</b> <i>(use pesticides with different mechanisms of action)?</i> . . . . . YES = 1 | 461  |
| 15. | <b>Did you grow a trap crop to help control insects?</b> . . . . . YES = 1   | 465  |
| 16. | <b>Did you use weather monitoring to predict the need for pesticide application?</b> . . . . . YES = 1   | 480  |
| 17. | <b>Did you use pheromones to monitor pests by trapping?</b> . . . . . YES = 1  | 481  |
| 18. | <b>Did you use pheromones to control pests by disrupting mating?</b> . . . . . YES = 1   | 482  |

*CONTINUE TO BACK PAGE*

**CHANGE IN OPERATION**

**ENUMERATOR NOTE:** *Complete this section only if items 1 through 4 on the face page are "NO".*

1. Is anyone else now operating the land you *[operation on face page]* formerly operated?

**NO** - *[Complete this questionnaire.]*

**YES** - *[Enter code 1, complete information to the right for new operator and read enumerator note below.]* . . . . .

CODE
023

Name	
Address	
Phone (_____)	
<b>POID</b> . . . . .	024

**[ENUMERATOR NOTE:** *If the operation on face page was in business any part of the 2001 crop year, complete this questionnaire for the part of the year during which the operation did business. If the operation was out of business for the entire 2001 crop year, conclude interview.]*

## Report Features

**Released August 2, 2002 by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Agricultural Chemical Usage" call (202) 720-6146, office hours 7:30 a.m. to 4:00 p.m. ET.**

The next "Agricultural Chemical Usage" report will be released October 2, 2002. This report will cover agricultural chemical use of restricted use pesticides for the 2001 crop year for field crops, fruit and dairy cattle in major states.

The next "Agricultural Chemical Usage" report for fruit crops will be released in July 2004. This report will cover agricultural chemical use for the 2003 crop year for major states.

Listed below are persons within the National Agricultural Statistics Service to contact for additional information.

Mark Aitken, Environmental Statistician	(202) 720-9525
Norman Bennett, Head, Environmental and Demographics Section	(202) 720-0684
Linda Hutton, Chief, Environmental, Economics and Demographics Branch	(202) 720-6146

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