WASHINGTON'S AGRICULTURAL FRUIT CHEMICAL USAGE, 2005

NATIONAL AGRICULTURAL STATISTICS SERVICE
United States Department of Agriculture
Washington Field Office • Olympia, WA 98507
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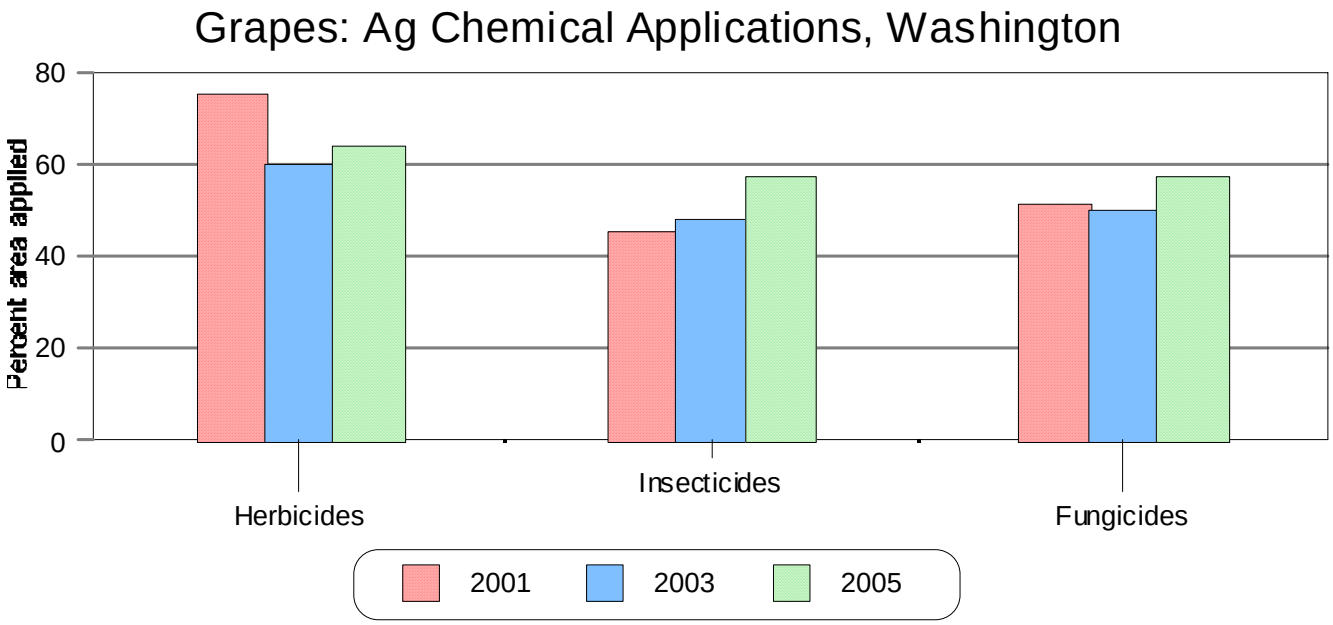
Grapes

Three states were surveyed for grapes in 2005: California, New York, and Washington. Surveyed acreage totaled 885,000 bearing acres. Washington was the second largest state behind California surveyed for grapes and accounted for 6 percent of the acreage.

Grapes, All: Pesticide Applications, Bearing Acreage and Percentage Receiving Applications, Major States and Total, 2003 and 2005

State	Bearing Acreage		Area Receiving 1/							
			Herbicide		Insecticide 2/		Fungicide 2/		Other Chemicals	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
	Acres		Percent							
California	882,000	800,000	45	56	39	41	68	77	9	16
Michigan 3/	12,600	-	41	-	90	-	91	-	4/	-
New York	31,000	31,000	77	61	82	76	96	92	4/	3
Washington	**52,000**	**54,000**	**60**	**64**	**48**	**57**	**50**	**57**	**4/**	**9**
TOTAL	**977,600**	**885,000**	**47**	**57**	**42**	**43**	**68**	**77**	**8**	**15**

1/ CA acreage includes nonbearing acres. Total applied may include applications of some active ingredients made only to non-bearing acres.
2/ Total applied excludes Bt's (Bacillus thuringiensis) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.
3/ Michigan was not surveyed in the Fruit Chemical Use Survey in 2005.
4/ Insufficient reports to publish data for one or more pesticide classes.



Grapes, All: Agricultural Chemical Applications, Washington, 2003 and 2005 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Herbicides:										
Carfentrazone-ethyl	-	5	-	1.6	-	0.028	-	0.046	-	0.1
Flumioxazin	-	5	-	6.3	-	0.194	-	1.222	-	3.4
Glyphosate iso. salt	48	54	1.6	1.6	0.79	0.986	1.28	1.596	31.7	46.7
Norflurazon	8	5	1.6	1.0	2.22	1.361	3.62	1.363	15.1	3.6
Oryzalin	5	3	1.0	1.1	2.14	2.347	2.28	2.497	5.7	4.4
Oxyfluorfen	20	-	1.3	-	0.70	-	0.94	-	9.5	-
Paraquat	27	29	1.8	2.3	0.62	0.794	1.12	1.800	15.6	28.0
Simazine	3	3	1.0	1.1	1.22	1.063	1.24	1.188	2.0	2.1
Insecticides:										
Bifenazate	11	-	1.1	-	0.35	-	0.40	-	2.4	-
Bifenthrin	-	4	-	1.0	-	0.085	-	0.085	-	0.2
Buprofezin	-	2	-	1.1	-	0.477	-	0.526	-	0.6
Carbaryl	6	2	1.0	1.0	0.91	1.072	0.91	1.073	2.6	1.3
Chlorpyrifos	-	5	-	1.1	-	1.592	-	1.679	-	4.2
Dimethoate	3	-	1.0	-	0.51	-	0.52	-	0.7	-
Fenpropathrin	5	28	1.0	1.0	0.18	0.210	0.19	0.218	0.5	3.3
Petroleum distillate	10	26	1.9	2.3	8.27	4.383	16.26	10.299	85.8	145.0
Propargite	5	-	1.0	-	0.80	-	0.84	-	2.3	-
Spinosad	-	3	-	1.1	-	0.096	-	0.107	-	0.2
Fungicides:										
Boscalid	-	20	-	1.1	-	0.010	-	0.011	-	0.1
Calcium polysulfide	2	4	3.3	1.3	0.80	12.675	2.69	16.291	2.8	35.0
Cyprodinil	-	7	-	1.5	-	0.393	-	0.594	-	2.2
Fenarimol	-	39	-	1.5	-	0.027	-	0.039	-	0.8
Fenhexamid	-	1	-	1.0	-	0.491	-	0.502	-	0.4
Kresoxim-methyl	14	7	1.0	1.5	0.08	0.076	0.08	0.113	0.6	0.4
Myclobutanil	14	14	1.4	1.3	0.09	0.103	0.13	0.137	0.9	1.0
Pyraclostrobin	-	20	-	1.1	-	0.001	-	0.001	-	**
Pyrimethanil	-	1	-	1.4	-	0.555	-	0.767	-	0.2
Quintec	-	30	-	1.0	-	0.084	-	0.087	-	1.4
Sulfur	35	24	2.0	2.0	2.90	3.602	5.96	7.081	107.4	93.6
Tebuconazole	6	12	1.1	1.0	0.12	0.138	0.13	0.139	0.4	0.9
Trifloxystrobin	31	37	1.0	1.1	0.05	0.059	0.06	0.067	0.9	1.3
Triflumizole	-	22	-	1.2	-	0.199	-	0.240	-	2.8

*Note: Data may not multiply across due to rounding. ** Total applied is less than 50 pounds.*

1/ Bearing acres in 2003 and 2005 for Washington were 52,000 acres and 54,000 acres respectively.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2003; Herbicides: 2,4-D, Diuron, Napropamide, Pendimethalin, Pronamide, Sethoxydim, Trifluralin. 2003; Insecticides: Abamectin, Acetamiprid, Azinphos-methyl, Buprofezin, Chlorpyrifos, Diazinon, Dicofol, Endosulfan, Fenamiphos, Fenbutatin-oxide, Imidacloprid, Kaolin, Phosmet, Potassium salts, Spinosad. 2003; Fungicides: Bacillus subtilus, Copper hydroxide, Cyprodinil, Dicloran, Dodine, Fenarimol, Fenhexamid, Iprodione, Potassium bicarbon., Triadimefon, Triflumizole. 2003; Other Chemical: Cytokinins, Zinc phosphide. 2005; Herbicides: 2,4-D, dimeth. salt, Atrazine, Butylate, Diuron, Glufosinate-ammonium, Glyphosate amm. salt, Oxyfluorfen. 2005; Insecticides: Abamectin, Acetamiprid, Aluminum phosphide, Azadirachtin, Azinphos-methyl, Bifenazate, Diazinon, Dimethoate, Dinotefuran, Fenbutatin-oxide, Fenpyroximate, Imidacloprid, Kaolin, Malathion, Methomyl, Permethrin, Petroleum oil, Phosmet, Potassium salts, Propargite. 2005; Fungicides: Azoxystrobin, Bacillus pumilus, Bacillus subtilus, Basic copper sulfate, Copper hydroxide, Copper oxychlo. sul. Dicloran, Mancozeb, Maneb, Potassium bicarbon. , Streptomycin, Vinclozolin. 2005; Other Chemicals: Benzyladenine, Capsaicin, Cytokinins, Ethephon, GABA, Gibberellic acid, Gibberellins A4A7, L-Glutamic acid, Metam-sodium, NAA, Potassium salt, Prohexadione calcium, Strychnine.

Grapes, All: Agricultural Chemical Applications, Major States, 2003 and 2005 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Herbicides:										
2, 4-D	3/	-	1.0	-	0.25	-	0.27	-	1.7	-
2, 4-D, Dimeth. salt	3/	-	1.0	-	0.01	-	0.01	-	0.1	-
Carfentrazone-ethyl	-	5	-	1.6	-	0.028	-	0.046	-	2.0
Diuron	4	5	1.1	1.1	1.09	0.817	1.20	0.895	42.2	36.9
Flumioxazin	-	4	-	1.6	-	0.148	-	0.240	-	7.5
Glufosinate-ammonium	3/	3	1.0	1.1	0.48	0.344	0.48	0.373	3.4	9.5
Glyphosate amm. salt	-	1	-	1.2	-	0.365	-	0.419	-	3.1
Glyphosate iso. salt	41	44	1.7	1.4	0.71	0.816	1.20	1.170	486.6	450.9
Norflurazon	2	3	1.2	1.1	1.94	0.851	2.32	0.946	38.0	21.0
Oryzalin	8	8	1.0	1.1	1.63	1.637	1.66	1.780	127.5	133.6
Oxyfluorfen	24	23	1.3	1.2	0.48	0.437	0.62	0.532	144.3	108.1
Paraquat	15	17	1.2	1.4	0.44	0.551	0.57	0.760	81.9	115.0
Pendimethalin	3/	-	1.0	-	1.20	-	1.21	-	1.5	-
Sethoxydim	3/	-	1.0	-	0.09	-	0.09	-	0.2	-
Simazine	15	20	1.1	1.1	1.19	1.177	1.34	1.321	195.0	229.2
Sulfosate	3/	-	1.1	-	0.78	-	0.86	-	6.6	-
Trifluralin	-	1	-	1.2	-	1.084	-	1.320	-	10.4
Insecticides:										
Abamectin	5	-	1.0	-	0.01	-	0.01	-	0.5	-
Acetamiprid	-	1	-	1.2	-	0.040	-	0.047	-	0.5
Azinphos-methyl	8	-	1.9	-	0.06	-	0.12	-	10.1	-
Benzoic acid	-	8	-	1.2	-	0.170	-	0.203	-	14.5
Bifenazate	2	5	1.1	1.1	0.35	0.436	0.42	0.499	8.4	22.1
Buprofezin	-	1	-	1.1	-	0.502	-	0.538	-	6.0
Carbaryl	3	2	1.3	1.3	1.55	1.591	2.04	2.003	51.5	31.5
Chlorpyrifos	4	5	1.1	1.2	1.74	1.913	2.01	2.387	69.5	110.7
Cryolite	8	4	1.3	1.2	4.80	5.261	6.69	6.483	543.2	255.3
Diazinon	1	-	1.0	-	0.93	-	0.98	-	12.9	-
Dicofol	3/	-	1.0	-	1.04	-	1.07	-	0.6	-
Dimethoate	1	1	1.0	1.2	1.28	0.990	1.29	1.176	12.6	11.1
Fenamiphos	-	1	-	1.3	-	1.887	-	2.361	-	21.0
Fenpropathrin	4	8	1.2	1.2	0.17	0.218	0.22	0.259	9.6	19.0
Imidacloprid	13	8	1.0	1.1	0.09	0.041	0.10	0.046	13.4	3.2
Kaolin	3/	-	1.1	-	17.57	-	20.25	-	10.8	-
Malathion	3/	*	1.0	1.9	1.95	1.178	2.06	2.240	1.2	5.1
Methomyl	3	-	1.1	-	0.67	-	0.75	-	18.9	-
Myrothecium verruc.	-	*	-	1.1	-	10.963	-	12.401	-	13.1
Petroleum distillate	9	9	1.4	1.8	12.15	5.753	17.54	10.491	1,462.0	844.2
Phosmet	3/	*	1.8	1.7	1.11	1.444	2.05	2.442	10.4	8.3
Propargite	4	-	1.0	-	1.35	-	1.47	-	51.0	-
Pyrethrins	-	1	-	2.0	-	0.029	-	0.059	-	0.5
Pyridaben	3	2	1.1	1.1	0.38	0.347	0.42	0.376	11.2	5.2
Spinosad	-	4	-	1.1	-	0.092	-	0.103	-	3.7
Tebufenozide	4	-	1.1	-	0.17	-	0.19	-	7.4	-

See footnotes at end of table (next page).

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Grapes, All: Agricultural Chemical Applications, Major States, 2003 and 2005 1/ (cont.)

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Fungicides:										
Azoxystrobin	8	3	1.2	1.4	0.19	0.200	0.24	0.273	20.1	7.7
Bacillus subtilus 4/	3/	2	2.1	1.2	4/		4/		4/	
Basic copper sulfate	4	*	1.8	2.1	1.20	1.286	2.22	2.671	83.6	6.4
Boscalid	-	20	-	1.3	-	0.011	-	0.015	-	2.6
Calcium polysulfide	4	3	1.1	1.1	16.64	7.630	19.51	8.647	803.5	204.3
Captan	2	2	1.3	1.3	1.60	1.606	2.16	2.088	34.7	38.1
Copper hydroxide	18	24	2.0	1.7	0.55	0.618	1.12	1.035	196.0	217.5
Copper oxide	5	10	1.2	1.8	0.82	0.755	1.02	1.386	48.6	125.5
Copper resinate	3/	-	1.7	-	0.13	-	0.22	-	0.5	-
Cyprodinil	9	9	1.4	1.2	0.45	0.423	0.64	0.504	58.5	40.1
Fenarimol	10	11	1.3	1.3	0.03	0.032	0.04	0.041	4.3	4.0
Fenhexamid	2	5	1.1	1.3	0.49	0.474	0.57	0.595	10.8	26.6
Ferbam	3/	-	1.8	-	0.09	-	0.16	-	1.5	-
Iprodione	3/	-	1.0	-	0.83	-	0.84	-	2.0	-
Kresoxim-methyl	6	6	1.0	1.2	0.14	0.123	0.15	0.145	9.4	8.1
Mancozeb	5	8	2.4	1.8	2.11	1.859	5.23	3.341	276.7	228.7
Maneb	3/	*	1.5	1.2	1.80	2.211	2.72	2.736	12.2	7.9
Mefenoxam	-	7	-	1.2	-	0.097	-	0.113	-	7.4
Metalaxyl	4	-	1.0	-	0.004	-	0.004	-	0.2	-
Myclobutanil	23	4	1.8	2.6	0.09	0.070	0.17	0.184	37.0	5.7
Phosphorous acid	2	5	1.2	2.1	0.05	1.398	0.06	2.910	1.4	117.9
Potassium Phosphate	-	14	-	1.4	-	5.641	-	8.072	-	1,004.1
Potassium bicarbon	5	7	1.2	1.4	2.94	2.871	3.65	3.880	168.4	255.9
Pyraclostrobin	-	20	-	1.3	-	0.001	-	0.001	-	0.1
Pyrimethanil	-	*	-	1.4	-	0.483	-	0.670	-	0.5
Quintec	-	9	-	1.2	-	0.085	-	0.104	-	8.1
Sulfur	62	69	5.9	5.5	10.24	8.691	60.57	47.935	36,781.9	29,120.9
Tebuconazole	16	17	1.2	1.4	0.11	0.112	0.13	0.161	20.4	23.9
Triadimefon	2	-	1.3	-	0.009	-	0.01	-	0.2	-
Trifloxystrobin	15	21	1.2	1.2	0.07	0.068	0.09	0.083	12.6	15.3
Triflumizole	6	8	1.3	1.2	0.15	0.170	0.20	0.206	11.6	15.0
Ziram	2	3	2.1	1.2	2.55	2.822	5.60	3.387	88.6	80.8
Other Chemicals:										
Cyanamid	-	1	-	1.1	-	14.152	-	15.954	-	90.0
Dichloropropene	-	*	-	1.0	-	295.338	-	299.902	-	1,102.5
Ethephon	3	-	1.2	-	0.22	-	0.27	-	8.0	-
Gibberellic acid	10	-	1.7	-	0.03	-	0.05	-	4.5	-
Harpin protein	3/	-	1.4	-	0.006	-	0.009	-	**	-
Sodium tetrathiocarb	-	1	-	1.3	-	30.682	-	40.245	-	483.1
Strychnine	4	-	1.3	-	0.01	-	0.02	-	0.6	-
Tetradecen-1-OL (Z)	-	1	-	1.4	-	0.002	-	0.002	-	**
Tetradecen-1-yl (E)	-	1	-	1.4	-	0.011	-	0.015	-	0.2

*Note: Data may not multiply across due to rounding. * Area applied is less than 0.5 percent. ** Total applied is less than 50 pounds.*

1/ Acres in 2003 for the 4 major states were 977,600 acres. States included were CA, MI, NY, & WA. Acreage in California includes nonbearing acres. Bearing acres in 2005 for the 3 major states were 885,000 acres. States included were CA, NY, & WA. 2/ Insufficient reports to publish data for the following agricultural chemicals: 2003; Herbicides: 2, 4-DP, Dimeth. salt, Acifluorfen, Bentazon, Dichlobenil, Ethofumesate, Fluazifop-P-butyl, Isoxaben, Napropamide, Pronamide, Propanil, Prosulfuron, Triclopyr, Trifluralin. 2003; Insecticides: Acetamiprid, Azadirachtin, Beauveria bassiana, Bt (Bacillus thur.), Buprofezin, Carbofuran, Endosulfan, Esfenvalerate, Fenamiphos, Fenbutatin-oxide, Fonofos, Jojoba oil, Methoxychlor, Myrothecium verruc., Naled, Neem oil, clar. hyd., Piperonyl butoxide, Potassium salts, Pyrethrins, Spinosad. 2003; Fungicides: AQ-10 Biofungicide, Benomyl, Copper oxychlo. sul., Copper oxychloride, Copper sulfate, Dicloran, Dodine, Fosetyl-al, Mefenoxam, Thiophanate-methyl. 2003; Other Chemicals: Aluminum phosphide, Chlorophacinone, Cyanamid, Cytokinins, Dichloropropene, Diphacinone, Hydrogen peroxcide, Mepiquat chloride, Methyl bromide, Sodium hypochlorite, Tetradecen-1-OL (Z), Tetradecen-1-yl (E), Zinc phosphide. 2005; Herbicides: 2,4-D, dimeth. salt,Atrazine, Butylate, DCPA, Dicamba, Dimet. salt,Dichlobenil, Diquat dibromide, Fluazifop-P-butyl, Glyphosate, Isoxaben, Napropamide, Pendimethalin, Sethoxydim, Sulfosate, Thiazopyr. 2005; Insecticides: Abamectin, Aluminum phosphide, Azadirachtin, Azinphos-methyl, Bifenthrin, Boric acid, Bt subsp. kurstaki, Carbofuran, Clofentezine, Diazinon, Dicofol, Dinotefuran, Fenbutatin-oxide, Fenpyroximate, Kaolin, Lambda-cyhalothrin, Methomyl, Permethrin, Petroleum oil, Potassium salts, Propargite, Tebufenozide. 2005; Fungicides: Bacillus pumilus, Benomyl, Chlorothalonil, Copper oxychlo. sul., Copper oxychloride, Copper resinate, Copper sulfate, Cresol, Dicloran, Fenbuconazole, Fosetyl-al, Iprodione, Streptomycin, Thiophanate-methyl, Triadimefon, Vinclozolin, Xylenol. 2005; Other Chemicals: Benzyladenine, Capsaicin, Chlorophacinone, Cytokinins, Diphacinone, E-8-Dodecenyl acetat, Ethephon, Farnesol, GABA, Gibberellic acid, Gibberellins A4A7, Hydrogen peroxide, Iron phosphate, L-Glutamic acid, Mepiquat chloride, Metam-sodium, NAA, Potassium salt, Nerolidol, Prohexadione calcium, Strychnine, Z-8-Dodecanol, Z-8-Dodecen acetate, Zinc phosphide.

3/ Area applied is less than 0.005 lbs.

4/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.