WASHINGTON AGRICULTURAL CHEMICAL USAGE GRAPES 2003 Crop

WASHINGTON AGRICULTURAL STATISTICS SERVICE
U.S. Department of Agriculture
Washington Agricultural Statistics Service
P.O. Box 609, Olympia, WA 98507

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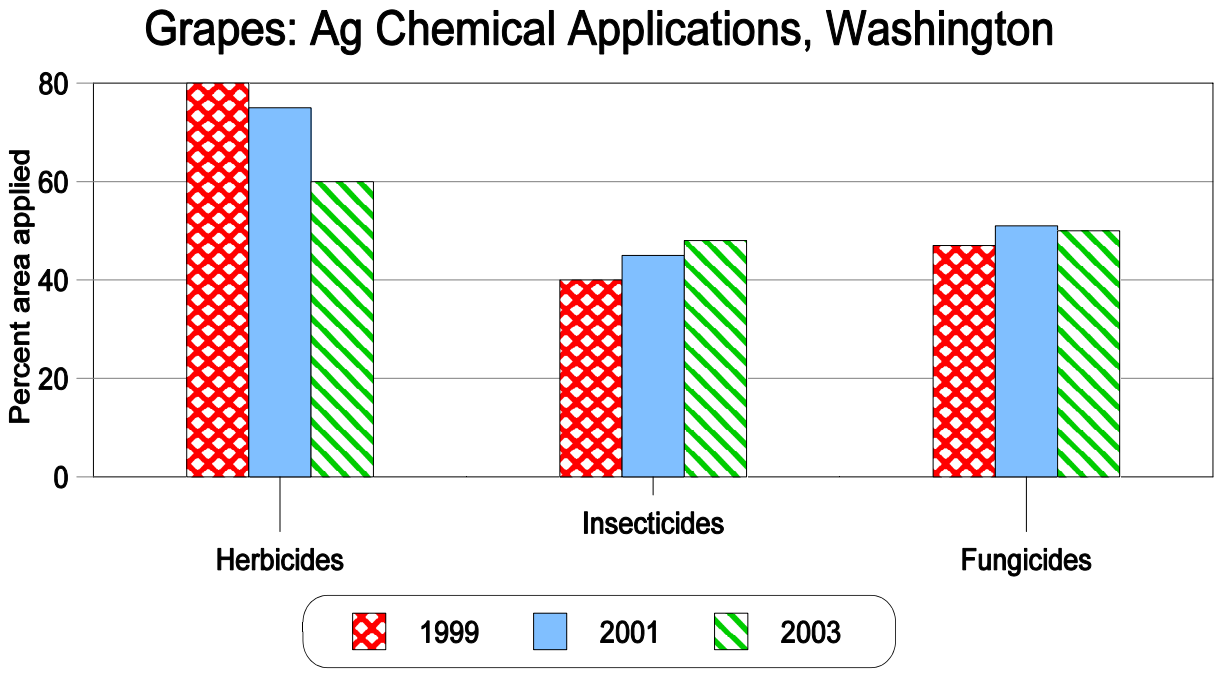
Grapes

Four states were surveyed for grapes in 2003: California, Michigan, New York, and Washington. Surveyed acreage totaled 977,600 bearing acres. Washington was the second largest state behind California surveyed for grapes and accounted for 5 percent of the acreage.

Grapes, All: Pesticide Applications, Bearing Acreage and Percentage Receiving Applications, Major States and Total, 2001 and 2003

State	Bearing Acreage		Area Receiving 1/							
			Herbicide		Insecticide 2/		Fungicide 2/		Other Chemicals	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Acres		Percent							
California	961,000	882,000	63	45	60	39	85	68	21	9
Kansas 3/	110	-	51	-	32	-	80	-	-	-
Michigan	12,300	12,600	92	41	97	90	99	91	4/	4/
New York	31,500	31,000	87	77	81	82	99	96	4/	4/
Washington	**48,000**	**52,000**	**75**	**60**	**45**	**48**	**51**	**50**	**4/**	**4/**
TOTAL	**1,052,910**	**977,600**	**65**	**47**	**60**	**42**	**84**	**68**	**19**	**8**

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/ Kansas was not surveyed in the Fruit Chemical Use Survey in 2003.
4/ Insufficient reports to publish data for one or more pesticide classes.



Grapes, All: Agricultural Chemical Applications, Washington, 2001 and 2003 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Fertilizers:										
Nitrogen	-	55	-	1.3	-	46	-	60	-	1,710
Phosphate	-	27	-	1.1	-	33	-	39	-	544
Potash	-	22	-	1.2	-	43	-	54	-	630
Herbicides:										
Glyphosate	66	48	1.3	1.6	0.64	0.79	0.86	1.28	27.1	31.7
Norflurazon	-	8	-	1.6	-	2.22	-	3.62	-	15.1
Oryzalin	7	5	1.1	1.0	1.38	2.14	1.60	2.28	5.3	5.7
Oxyfluorfen	-	20	-	1.3	-	0.70	-	0.94	-	9.5
Paraquat	45	27	1.6	1.8	0.46	0.62	0.76	1.12	16.2	15.6
Simazine	18	3	1.0	1.0	0.49	1.22	0.49	1.24	4.2	2.0
Insecticides:										
Abemectin	2	-	1.0	-	0.01	-	0.01	-	**	-
Bifenazate	-	11	-	1.1	-	0.35	-	0.40	-	2.4
Carbaryl	4	6	1.0	1.0	1.16	0.91	1.20	0.91	2.6	2.6
Chlorpyrifos	17	-	1.1	-	1.04	-	1.21	-	9.7	-
Dimethoate	6	3	1.2	1.0	0.70	0.51	0.86	0.52	2.5	0.7
Fenpropathrin	-	5	-	1.0	-	0.18	-	0.19	-	0.5
Petroleum distillate	18	10	1.1	1.9	6.98	8.27	7.73	16.26	66.7	85.8
Propargite	5	5	1.0	1.0	1.38	0.80	1.38	0.84	3.3	2.3
Fungicides:										
Calcium polysulfide	2	2	2.8	3.3	5.88	0.80	16.88	2.69	12.8	2.8
Cyprodinil	2	-	1.1	-	0.41	-	0.48	-	0.5	-
Fenhexamid	2	-	1.1	-	0.54	-	0.60	-	0.5	-
Kresoxin-methyl	12	14	1.0	1.0	0.08	0.08	0.09	0.08	0.5	0.6
Myclobutanil	17	14	1.2	1.4	0.11	0.09	0.14	0.13	1.1	0.9
Sulfur	44	35	3.0	2.0	2.98	2.90	9.20	5.96	193.6	107.4
Tebuconazole	4	6	1.2	1.1	0.13	0.12	0.16	0.13	0.3	0.4
Trifloxystrobin	25	31	1.1	1.0	0.05	0.05	0.06	0.06	0.7	0.9
Triflumizole	21	-	1.2	-	0.16	-	0.19	-	2.0	-

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

1/ Bearing acres in 2001 and 2003 for Washington were 48,000 acres and 52,000 acres respectively.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2001; Herbicides: 2,4-D, Clopyralid, Diuron, Glufosinate-ammonium, Napropamide, Norflurazon, Oxyfluorfen, Pendimethalin, Sethoxydim, Sulfosate, Trifluralin. 2001; Insecticides: Bt (Bacillus thur.), Diazinon, Dicofol, Endosulfan, Imidacloprid, Malathion, Methoxychlor, Phosmet. 2001; Fungicides: Azoxystrobin, Bacillus subtilus, Copper hydroxide, Dinocap, Fenarimol, Iprodione, Mancozeb, Metalaxyl, Triadimefon. 2001; Other Chemicals: Gibberellic acid, Strychnine. 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.

Grapes, All: Agricultural Chemical Applications, Major States, 2001 and 2003 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Fertilizers:										
Nitrogen	-	66	-	1.6	-	26	-	43	-	27,648
Phosphate	-	18	-	1.6	-	31	-	50	-	8,831
Potash	-	42	-	1.8	-	61	-	115	-	47,543
Herbicides:										
2, 4-D	1	4/	1.3	1.0	0.38	0.25	0.50	0.27	5.5	1.7
2, 4-D, Dimeth. salt	-	4/	-	1.0	-	0.01	-	0.01	-	0.1
Diuron	9	4	1.1	1.1	1.06	1.09	1.24	1.20	111.2	42.2
Glufosinate-ammonium	*	4/	1.5	1.0	0.32	0.48	0.49	0.48	0.9	3.4
Glyphosate	45	41	1.5	1.7	0.64	0.71	0.97	1.20	459.5	486.6
Napropamide	1	-	1.1	-	2.30	-	2.53	-	32.8	-
Norflurazon	3	2	1.1	1.2	0.95	1.94	1.10	2.32	40.3	38.0
Oryzalin	1	8	1.0	1.0	1.40	1.63	1.52	1.66	22.5	127.5
Oxyfluorfen	19	24	1.3	1.3	0.54	0.48	0.71	0.62	140.1	144.3
Paraquat	-	15	-	1.2	-	0.44	-	0.57	-	81.9
Pendimethalin	*	4/	1.0	1.0	1.65	1.20	1.66	1.21	8.5	1.5
Sethoxydim	*	4/	1.1	1.0	0.23	0.09	0.26	0.09	2.0	0.2
Simazine	19	15	1.2	1.1	1.00	1.19	1.23	1.34	251.0	195.0
Sulfosate	2	4/	1.1	1.1	0.90	0.78	1.07	0.86	26.3	6.6
Trifluralin	1	-	1.0	-	1.62	-	1.73	-	18.3	-
Insecticides:										
Abamectin	6	5	1.3	1.0	0.01	0.01	0.01	0.01	0.9	0.5
Azinphos-methyl	*	8	1.4	1.9	0.59	0.06	0.86	0.12	4.9	10.1
Bifenazate	-	2	-	1.1	-	0.35	-	0.42	-	8.4
Bt (Bacillus thur.)	10	-	1.4	-	3/	-	3/	-	3/	-
Carbaryl	4	3	1.5	1.3	1.36	1.55	2.07	2.04	77.8	51.5
Carbofuran	*	-	1.1	-	2.16	-	2.56	-	18.8	-
Chlorpyrifos	3	4	1.1	1.1	0.53	1.74	0.63	2.01	21.6	69.5
Cryolite	17	8	1.4	1.3	5.31	4.80	7.72	6.69	1,420.2	543.2
Diazinon	*	1	1.2	1.0	0.96	0.93	1.18	0.98	5.1	12.9
Dicofol	*	4/	1.1	1.0	1.06	1.04	1.22	1.07	6.6	0.6
Dimethoate	2	1	1.4	1.0	1.32	1.28	1.85	1.29	33.7	12.6
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	4	1.2	1.2	0.16	0.17	0.20	0.22	6.8	9.6
Imidacloprid	24	13	1.2	1.0	0.05	0.09	0.06	0.10	15.8	13.4
Kaolin	-	4/	-	1.1	-	17.57	-	20.25	-	10.8
Malathion	*	4/	1.0	1.0	1.05	1.95	1.15	2.06	3.6	1.2
Methomyl	4	3	1.3	1.1	0.67	0.67	0.93	0.75	37.5	18.9
Petroleum distillate	4	9	1.4	1.4	5.94	12.15	8.43	17.54	346.6	1,462.0
Phosmet	*	4/	1.3	1.8	1.22	1.11	1.59	2.05	13.0	10.4
Potassium salts	*	-	2.0	-	1.39	-	2.77	-	16.7	-
Propargite	9	4	1.2	1.0	1.68	1.35	2.03	1.47	181.8	51.0
Pyridaben	6	3	1.1	1.1	0.28	0.38	0.33	0.42	22.4	11.2
Tebufenozide	6	4	1.3	1.1	0.17	0.17	0.22	0.19	13.6	7.4

See footnotes at end of table (next page).

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Grapes, All: Agricultural Chemical Applications, Major States, 2001 and 2003 1/ (cont.)

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Fungicides:										
Azoxystrobin	9	8	1.4	1.2	0.19	0.19	0.28	0.24	26.8	20.1
Bacillus subtilus	*	4/	1.0	2.1	3/	3/	3/	3/	3/	3/
Basic copper sulfate	1	4	1.8	1.8	0.48	1.20	0.90	2.22	12.7	83.6
Benomyl	2	-	1.3	-	0.35	-	0.48	-	10.3	-
Calcium polysulfide	2	4	1.6	1.1	21.11	16.64	34.80	19.51	636.5	803.5
Captan	1	2	1.6	1.3	1.60	1.60	2.66	2.16	38.1	34.7
Copper hydroxide	32	18	1.6	2.0	0.56	0.55	0.93	1.12	317.1	196.0
Copper oxide	8	5	1.0	1.2	0.90	0.82	0.92	1.02	80.4	48.6
Copper oxychlo. sul.	3	-	1.8	-	2.44	-	4.56	-	145.2	-
Copper resinate	*	4/	1.2	1.7	0.16	0.13	0.21	0.22	0.8	0.5
Cyprodinil	9	9	1.3	1.4	0.43	0.45	0.57	0.64	55.5	58.5
Dicloran	2	-	1.1	-	1.99	-	2.20	-	46.1	-
Fenarimol	17	10	1.4	1.3	0.03	0.03	0.04	0.04	7.9	4.3
Fenhexamid	3	2	1.2	1.1	0.48	0.49	0.61	0.57	21.5	10.8
Ferbam	*	4/	1.4	1.8	2.14	0.09	3.16	0.16	2.3	1.5
Iprodione	4	4/	1.3	1.0	0.57	0.83	0.77	0.84	29.9	2.0
Kresoxim-methyl	4	6	1.5	1.0	0.12	0.14	0.18	0.15	7.0	9.4
Mancozeb	8	5	2.0	2.4	1.83	2.11	3.68	5.23	310.0	276.7
Maneb	*	4/	1.7	1.5	2.15	1.80	3.65	2.72	7.3	12.2
Metalaxyl	*	4	1.8	1.0	0.10	0.004	0.19	0.004	0.5	0.2
Myclobutanil	25	23	1.8	1.8	0.10	0.09	0.18	0.17	46.6	37.0
Phosphorous acid	-	2	-	1.2	-	0.05	-	0.06	-	1.4
Potassium bicarb.	13	5	1.6	1.2	1.68	2.94	2.71	3.65	364.3	168.4
Sulfur	79	62	5.9	5.9	7.93	10.24	46.92	60.57	38,787.5	36,781.9
Tebuconazole	20	16	1.5	1.2	0.11	0.11	0.16	0.13	33.7	20.4
Triadimefon	*	2	1.6	1.3	0.14	0.009	0.22	0.01	0.6	0.2
Trifloxystrobin	-	15	-	1.2	-	0.07	-	0.09	-	12.6
Triflumizole	10	6	2.1	1.3	0.15	0.15	0.32	0.20	34.8	11.6
Ziram	2	2	1.8	2.1	2.19	2.55	4.01	5.60	97.9	88.6
Other Chemicals:										
Cyanamid	*	-	1.1	-	12.88	-	14.40	-	61.5	-
Dichloropropene	*	-	1.0	-	314.79	-	319.23	-	327.1	-
Ethephon	3	3	1.2	1.2	0.25	0.22	0.31	0.27	9.2	8.0
Forchlorfenuron	*	-	1.0	-	0.01	-	0.01	-	**	-
Gibberellic acid	15	10	2.1	1.7	0.04	0.03	0.09	0.05	14.5	4.5
Harpin protein	-	4/	-	1.4	-	0.006	-	0.009	-	**
Metaldehyde	*	-	1.9	-	0.50	-	0.94	-	3.3	-
Strychnine	1	4	1.5	1.3	0.02	0.01	0.02	0.02	0.3	0.6
Tetradecen-1-OL (Z)	*	-	1.0	-	0.001	-	0.001	-	**	-
Tetradecen-1-yl (E)	*	-	1.0	-	0.004	-	0.004	-	**	-

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

1/ Bearing acres in 2001 for the 5 major states were 1,052,910 acres. States included were CA, KS, MI, NY, & WA. 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.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2001; Herbicides: 2,4-D, Dimeth. salt, Clethodim, Clopyralid, Diquat, EPTC, Fluazifop-P-butyl, Isoxaben, Paraquat, Thiazopyr. 2001; Insecticides: Bearveria bassiana, Buprofezin, Chitin, Cinnamaldehyde, Kaolin, Methoxychlor, Methyl parathion, Myrothecium verruc., Naled, Neem oil., clar. hyd., Pyrethrins, Rotenone. 2001; Fungicides: AQ-10 Biofungicide, Anilazine, Chlorothalonil, Copper amm. complex, Copper oxychloride, Copper sulfate, Dinocap, Mefenoxam, Streptomycin, Thiophanate-methyl, Trifloxystrobin. 2001; Other Chemicals: Aluminum phosphide, Capsaicin, Carbon, Chlorophacinone, Diphacinone, Harpin protein, Mepiquat chloride, Metam-sodium, Pelargonic acid, Sodium nitrate, Sodium tetrathiocarb. 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.

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

4/ Area applied is less than 0.5 percent.