WASHINGTON'S AGRICULTURAL FRUIT CHEMICAL USAGE, 2005

NATIONAL AGRICULTURAL STATISTICS SERVICE
United States Department of Agriculture
Washington Field Office • Olympia, WA 98507
www.usda.gov/nass/

September 2006

Contact: Chris Messer (360)902-1940
nass-wa@nass.usda.gov

Pears

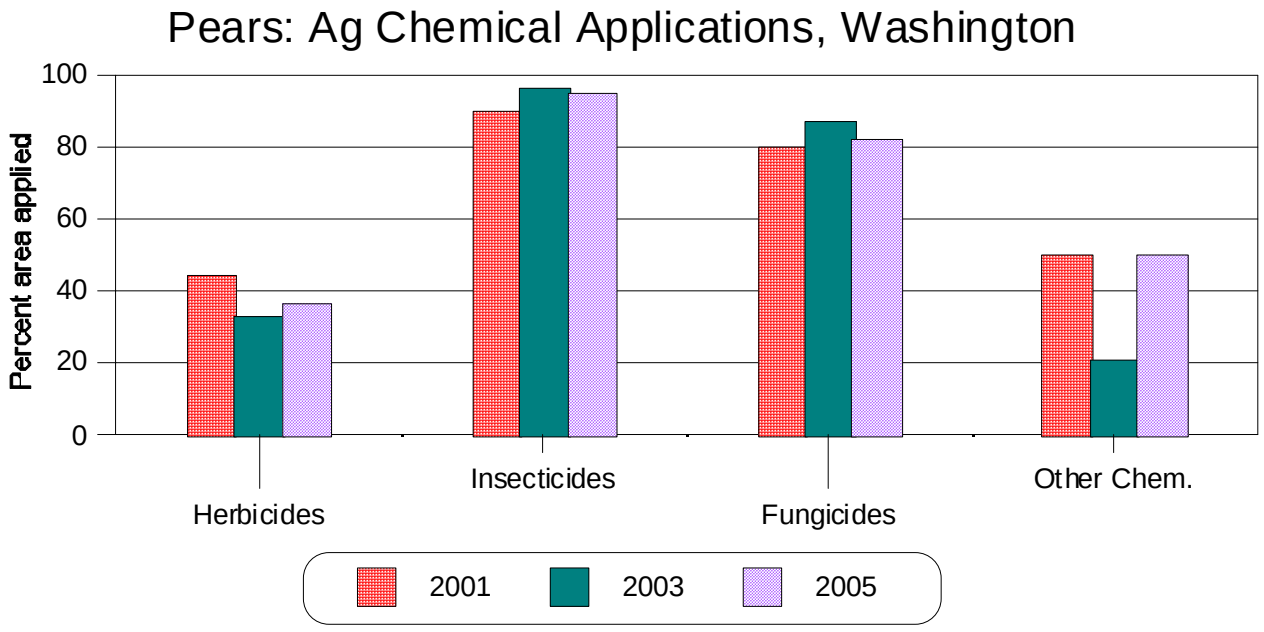
Three states were surveyed for pears in 2005: California, Oregon, and Washington. Surveyed acreage totaled 59,700 bearing acres. Washington was the largest state surveyed for pears and accounted for 44 percent of the acreage.

Pears: 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	19,000	16,000	33	59	70	82	69	81	18	61
Oregon	17,600	17,400	31	34	99	98	99	96	24	47
Washington	**24,800**	**26,300**	**33**	**36**	**96**	**95**	**87**	**82**	**21**	**50**
TOTAL	**61,400**	**59,700**	**32**	**42**	**89**	**92**	**85**	**86**	**20**	**52**

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

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



Pears: 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
Herbicides:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
2, 4-D	5	-	1.0	-	1.17	-	1.17	-	1.5	-
2,4-D, dimeth. salt	-	5	-	1.6	-	1.196	-	1.916	-	2.6
Diuron	-	3	-	1.1	-	2.116	-	2.233	-	1.5
Glyphosate iso. salt	29	33	1.8	1.5	1.40	0.990	2.57	1.508	18.5	13.2
Norflurazon	6	7	1.5	1.3	1.57	2.343	2.41	3.150	3.5	5.6
Paraquat	5	7	1.2	1.5	0.75	0.627	0.96	0.923	1.2	1.7
Simazine	9	5	1.6	1.2	1.30	2.291	2.18	2.660	5.1	3.5
Insecticides:										
Abamectin	69	73	1.2	1.3	0.02	0.021	0.03	0.027	0.5	0.5
Acetamiprid	47	52	1.5	1.7	0.13	0.129	0.21	0.218	2.4	3.0
Azadirachtin	-	16	-	2.0	-	0.024	-	0.048	-	0.2
Azinphos-methyl	57	42	2.0	1.7	0.99	1.000	2.04	1.710	28.7	18.7
Benzoic acid	18	16	1.2	1.1	0.24	0.230	0.30	0.258	1.3	1.1
Bifenazate	13	10	1.1	1.1	0.43	0.448	0.48	0.478	1.6	1.3
Bt (Bacillus thur.)	6	-	1.5	-	4/	-	4/	-	4/	-
Bt subsp. kurstaki	-	4	-	1.4	-	3/	-	3/	-	**
Buprofezin	-	2	-	1.3	-	2.735	-	3.517	-	2.2
Carbaryl	2	5	1.2	1.3	3.05	1.353	3.71	1.725	2.0	2.4
Chlorpyrifos	42	22	1.0	1.0	1.96	2.180	2.07	2.263	21.6	13.2
Clofentezine	-	6	-	1.0	-	0.224	-	0.226	-	0.3
Clothianidin	-	13	-	1.1	-	0.177	-	0.201	-	0.7
Cyd-X Granulo. Virus 4/	-	6	-	1.7	-		-		-	
Diazinon	-	1	-	1.0	-	0.325	-	0.336	-	0.1
Endosulfan	40	45	1.1	1.2	2.02	1.961	2.22	2.283	22.0	27.3
Esfenvalerate	15	3	1.0	1.2	0.07	0.093	0.08	0.109	0.3	0.1
Fenpyroximate	-	25	-	1.2	-	0.091	-	0.109	-	0.7
Formetanate hydro.	11	17	1.0	1.2	0.50	0.545	0.51	0.681	1.4	3.0
Imidacloprid	7	7	1.3	1.5	0.13	0.130	0.18	0.196	0.3	0.4
Kaolin	42	51	2.2	2.1	46.60	48.390	106.81	103.276	1,102.6	1,394.9
Lambda-cyhalothrin	-	31	-	1.2	-	0.037	-	0.044	-	0.4
Petroleum distillate	79	86	4.0	4.8	14.70	13.400	59.74	63.784	1,171.7	1,436.7
Phosmet	18	15	1.4	1.2	2.97	3.066	4.27	3.728	18.8	14.9
Piperonyl butoxide	-	8	-	1.1	-	1.383	-	1.471	-	3.1
Pyridaben	25	15	1.3	1.2	0.22	0.258	0.28	0.309	1.8	1.2
Pyriproxyfen	-	38	-	1.2	-	0.105	-	0.123	-	1.2
Spinosad	14	18	1.1	1.2	0.09	0.114	0.11	0.137	0.4	0.7
Thiamethoxam	56	62	1.2	1.2	0.07	0.075	0.09	0.094	1.2	1.5
Fungicides:										
Basic copper sulfate	4	4	1.0	1.1	1.00	0.906	1.00	0.999	0.9	1.1
Boscalid	-	5	-	1.2	-	0.018	-	0.021	-	**
Calcium polysulfide	9	9	1.1	1.2	30.50	23.148	34.37	27.994	79.4	68.4
Copper hydroxide	23	31	1.4	1.2	1.76	2.385	2.49	2.855	14.0	23.2
Copper oxide	-	2	-	1.1	-	3.666	-	4.155	-	2.7
Copper sulfate	7	3	1.1	1.1	1.47	1.734	1.63	1.845	2.7	1.2
Dodine	4	-	1.3	-	0.83	-	1.15	-	1.2	-
Fenarimol	3	3	1.3	1.7	0.07	0.081	0.10	0.140	0.1	0.1
Fosetyl-al	-	2	-	1.4	-	3.084	-	4.192	-	2.4
Kresoxim-methyl	2	3	1.0	1.0	0.17	0.179	0.17	0.187	0.1	0.1
Mancozeb	16	15	1.1	1.2	5.60	5.099	6.35	6.300	24.6	25.0
Myclobutanil	-	2	-	1.1	-	0.124	-	0.137	-	0.1
Oxytetracycline	23	34	1.8	1.9	0.20	0.167	0.36	0.325	2.1	2.9
Pyraclostrobin	-	5	-	1.2	-	0.001	-	0.001	-	**
Streptomycin	5	1	1.3	1.0	0.26	0.227	0.36	0.229	0.4	0.1
Sulfur	38	45	1.3	1.4	9.30	10.085	12.63	14.277	118.5	169.4
Thiophanate-methyl	-	5	-	1.0	-	0.766	-	0.774	-	1.0

Note: May not multiply across due to rounding. ** *Total applied is less than 50 pounds.* *--continued*

1/ Bearing acres in 2003 and 2005 in Washington were 24,800 acres and 26,300 acres respectively.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2003; Herbicides: Diuron, Glyphosate diam salt, Oryzalin, Oxyfluorfen, Pronamide. 2003; Insecticides: Amitraz, Azadirachtin, Clofentezine, Cyd-X Granulo. Virus, Diazinon, Dicofol, Diflubenzuron, Ethyl parathion, Fenbutatin-oxide, Fenpropathrin, Lambda-cyhalothrin, Malathion, Methidathion, Methyl parathion, Piperonyl butoxide, Potassium salts, Propargite, Pyriproxyfen, Tebufenozide. 2003; Fungicides: Bacillus subtilus, Copper chloride hyd., Copper oxychlo. Sul., Copper oxychloride, Fosetyl-al, Maneb, Myclobutanil, Potassium bicarbon., Propiconazole, Pseudomonas fluores., Trifloxystrobin. 2003; Other Chemicals: Benzyladenine, Butenoic Acid Hydro., Cytokinins, Dodecanol, Ethephon, Gibberellic acid, Gibberellins A4A7, Harpin protein, Lactic acid, NAD, Strychnine, Tetradecanol, Zinc phosphide. 2005; Herbicides: 2,4-D, Alachlor, Bromacil, Flumioxazin, Glyphosate amm. salt, MCPA, dimethyl. salt, Napropamide, Oryzalin, Oxyfluorfen, Pendimethalin, Sulfosate. 2005; Insecticides: Aluminum phosphide, Cyfluthrin, Dimethoate, Etoxazole, Fenbutatin-oxide, Hexythiazox, Malathion, Novaluron, Potassium salts, Pymetrozine, Pyrethrins, Thiacloprid. 2005; Fungicides: Bacillus pumilus, Bacillus subtilus, Chloroneb, Dodine, Maneb, Potassium bicarbon., Propiconazole, Pseudomonas fluores., Quintec, Streptomycin sulfate, Thiram. 2005; Other Chemicals: Benzyladenine, Chlorophacinone, Chloropicrin, Decenol, Decenyl acetate, Dichloropropene, Dodecanol, E-8-Dodecenyl acetat, Ethephon, Gibberellic acid, Gibberellins A4A7, Methyl anthranilate, NAD, Pelargonic acid, Strychnine, Tetradecanol, Z-8-Dodecanol, Z-8-Dodecen acetate.

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.

Pears: Agricultural Chemical Applications, Washington, 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
Fungicides:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Triadimefon	5	4	1.1	1.2	0.20	0.167	0.22	0.204	0.3	0.2
Trifloxystrobin	-	3	-	1.2	-	0.067	-	0.078	-	0.1
Triflumizole	40	50	1.4	1.3	0.25	0.264	0.36	0.333	3.6	4.4
Ziram	32	24	1.1	1.3	4.78	4.796	5.32	6.179	41.8	38.3
Other Chemicals:										
Butenoic Acid Hydro.	-	1	-	1.2	-	0.102	-	0.121	-	**
Cytokinins	-	5	-	1.3	-	3/	-	3/	-	**
Dodecadien-1-ol	16	5	1.0	1.0	0.05	0.106	0.05	0.110	0.2	0.2
NAA	43	26	1.1	1.2	0.05	0.051	0.05	0.060	0.6	0.4
NAA, Potassium salt	-	10	-	1.1	-	0.062	-	0.067	-	0.2
Octadecadien (E,Z)	-	6	-	1.2	-	0.104	-	0.124	-	0.2

See footnotes, at end of table, on previous page.

Pears: 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
Herbicides:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
2, 4-D	7	-	1.6	-	0.79	-	1.29	-	5.5	-
2, 4-D, dimeth. salt	3	4	1.4	1.5	0.28	0.995	0.41	1.445	0.9	3.6
Diuron	5	4	1.1	1.2	1.64	1.484	1.82	1.747	5.2	4.2
Glyphosate iso. salt	30	37	1.8	1.4	1.12	0.937	2.06	1.317	37.6	29.4
Norflurazon	3	3	1.4	1.3	1.56	2.224	2.24	2.882	4.1	5.9
Oryzalin	5	1	1.0	1.1	3.93	2.100	3.93	2.372	11.0	1.4
Oxyfluorfen	7	9	1.1	1.1	0.74	0.869	0.86	0.957	3.8	5.2
Paraquat	5	10	1.2	1.7	0.61	0.789	0.78	1.322	2.3	8.2
Simazine	8	10	1.3	1.1	1.50	2.498	2.07	2.653	9.9	15.8
Sulfosate	3	-	1.0	-	1.24	-	1.24	-	2.0	-
Insecticides:										
Abamectin	59	66	1.2	1.3	0.02	0.019	0.02	0.024	0.8	0.9
Acetamiprid	38	40	1.4	1.6	0.14	0.130	0.19	0.203	4.5	4.9
Amitraz	*	-	1.0	-	0.99	-	0.99	-	0.5	-
Azadirachtin	5	-	2.1	-	0.02	-	0.03	-	0.1	-
Azinphos-methyl	50	38	1.8	1.6	1.06	1.048	1.96	1.696	60.2	38.0
Benzoic acid	19	23	1.2	1.2	0.24	0.233	0.30	0.277	3.5	3.8
Bifenazate	16	15	1.1	1.2	0.45	0.444	0.51	0.521	5.0	4.7
Bt (Bacillus thur.)	3	-	1.5	-	4/	-	4/	-	4/	-
Carbaryl	2	5	1.4	1.1	1.40	1.689	1.97	1.889	2.3	6.1
Chlorpyrifos	24	16	1.0	1.0	1.88	2.021	2.02	2.114	29.9	20.2
Clofentezine	3	5	1.0	1.2	0.12	0.184	0.12	0.215	0.2	0.6
Clothianidin	-	12	-	1.1	-	0.178	-	0.193	-	1.4
Cyd-X Granulo. Viru 4/		8		1.4						
Diazinon	4	4	1.1	1.0	1.93	1.009	2.13	1.054	5.8	2.7
Diflubenzuron	*	-	1.4	-	0.18	-	0.27	-	0.1	-
Endosulfan	40	38	1.1	1.2	1.43	2.067	1.64	2.397	40.5	53.8
Esfenvalerate	26	19	1.0	1.2	0.07	0.057	0.08	0.068	1.2	0.8
Fenbutatin-oxide	6	7	1.0	1.1	0.58	0.848	0.62	0.894	2.3	3.5
Fenpropathrin	7	-	1.0	-	0.36	-	0.38	-	1.6	-
Fenpyroximate	-	21	-	1.1	-	0.093	-	0.106	-	1.3
Formetanate hydro.	5	8	1.0	1.2	0.50	0.524	0.51	0.636	1.5	3.2
Hexythiazox	7	1	1.0	1.0	0.10	0.172	0.10	0.180	0.4	0.1
Imidacloprid	7	5	1.2	1.4	0.11	0.131	0.14	0.190	0.6	0.6
Kaolin	24	29	2.3	2.3	39.60	41.748	92.03	94.338	1,362.9	1,626.4
Lambda-cyhalothrin	-	29	-	1.2	-	0.038	-	0.046	-	0.8
Malathion	-	1	-	1.3	-	10.573	-	13.402	-	5.0
Permethrin	4	-	1.2	-	0.11	-	0.14	-	0.3	-
Petroleum distillate	80	83	3.3	4.0	19.48	15.852	66.14	64.084	3,264.0	3,164.6
Petroleum oil	2	-	1.8	-	0.96	-	1.75	-	2.0	-
Phosmet	20	25	1.2	1.8	3.06	3.459	3.84	6.142	46.7	90.3
Piperonyl butoxide	-	8	-	1.1	-	1.383	-	1.471	-	6.9
Pyridaben	19	24	1.2	1.2	0.16	0.353	0.20	0.427	2.4	6.2
Pyriproxyfen	35	36	1.2	1.1	0.08	0.106	0.10	0.121	2.2	2.6
Spinosad	8	12	1.2	1.2	0.10	0.112	0.12	0.134	0.6	0.9
Tebufenozide	7	-	1.4	-	0.29	-	0.41	-	1.7	-
Thiamethoxam	36	34	1.2	1.2	0.07	0.076	0.09	0.094	2.0	1.9

See footnotes at end of table. *--continued*

Pears: 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
Fungicides:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Bacillus subtilus 4/	*	1	1.1	1.1	4/		4/		4/	
Basic copper sulfate	2	5	1.1	1.0	1.95	0.722	2.18	0.750	2.5	2.2
Boscalid	-	5	-	1.2	-	0.018	-	0.021	-	0.1
Calcium polysulfide	15	19	1.4	1.4	26.38	22.408	37.68	30.557	337.0	341.6
Copper hydroxide	25	28	1.3	1.3	2.48	2.288	3.36	2.937	50.6	49.0
Copper oxide	-	5	-	1.1	-	3.842	-	4.409	-	13.2
Copper oxychlo. sul.	6	-	1.0	-	1.52	-	1.60	-	6.2	-
Copper oxychloride	2	-	1.0	-	2.29	-	2.29	-	2.1	-
Copper sulfate	4	2	1.0	1.0	1.13	2.011	1.22	2.098	3.2	2.0
Cyprodinil	13	-	-	-	-	-	-	-	-	-
Dodine	-	9	1.7	1.6	1.23	0.730	2.17	1.141	17.5	6.3
Fenarimol	2	7	1.2	1.5	0.07	0.078	0.09	0.114	0.1	0.5
Fosetyl-al	2	2	1.2	1.3	2.16	3.401	2.78	4.377	2.6	4.2
Kresoxim-methyl	2	3	1.2	1.4	0.15	0.137	0.19	0.195	0.3	0.3
Mancozeb	46	40	2.0	2.2	3.44	3.753	7.17	8.078	201.8	191.3
Maneb	2	-	-	-	-	-	-	-	-	-
Myclobutanil	-	2	2.2	1.2	0.07	0.125	0.16	0.152	0.2	0.1
Oxytetracycline	32	34	2.4	3.3	0.15	0.129	0.37	0.421	7.2	8.4
Pseudomonas fluores.	9	5	2.8	2.4	0.11	0.133	0.32	0.313	1.7	1.0
Pyraclostrobin	-	5	-	1.2	-	0.001	-	0.001	-	**
Streptomycin	24	16	1.8	2.6	0.11	0.095	0.20	0.243	2.9	2.3
Streptomycin sulfate	17	-	3.7	-	0.04	-	0.15	-	1.6	-
Sulfur	37	40	1.4	1.5	10.77	10.829	15.69	16.066	360.5	380.9
Thiophanate-methyl	-	8	-	1.0	-	0.732	-	0.763	-	3.6
Triadimefon	7	4	1.0	1.1	0.15	0.202	0.16	0.226	0.7	0.5
Trifloxystrobin	14	29	1.7	1.6	0.06	0.068	0.11	0.109	0.9	1.9
Triflumizole	48	40	1.6	1.6	0.17	0.260	0.28	0.405	8.3	9.7
Ziram	33	27	1.1	1.6	5.14	4.700	6.05	7.425	122.0	121.6
Other Chemicals:										
Butenoic Acid Hydro.	-	1	-	1.2	-	0.102	-	0.121	-	0.1
Cytokinins	9	9	1.3	1.4	3/	4/	3/	4/	**	**
Dodecadien-1-ol	17	18	1.2	1.1	0.05	0.088	0.06	0.100	0.6	1.1
Dodecanol	9	-	1.0	-	0.03	-	0.03	-	0.2	-
NAA	39	29	1.1	1.2	0.06	0.065	0.07	0.081	1.6	1.4
NAA, Potassium salt	-	8	-	1.1	-	0.061	-	0.064	-	0.3
NAD	*	-	1.0	-	0.02	-	0.02	-	**	-
Tetradecanol	9	-	1.0	-	0.005	-	0.006	-	**	-
Zinc phosphide	*	-	1.4	-	0.07	-	0.10	-	**	-

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

1/ Bearing acres in 2003 for the 3 major states were 61,400 acres and in 2005 were 59,700 acres. States included were CA, OR, & WA. Acreage in California includes non-bearing acres.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2003; Herbicides: Fluazifop-P-butyl, Glyphosate diam salt, Napropamide, Pronamide. 2003; Insecticides: Acephate, Cyd-X Granulo. Virus, Dicofol, Dimethoate, Ethyl parathion, Indoxacarb, Lambda-cyhalothrin, Malathion, Methidathion, Methyl parathion, Oxamyl, Piperonyl butoxide, Potassium salts, Propargite, Pyrethrins, Rotenone, Soybean oil. 2003; Fungicides: Captan, Copper (metallic), Copper chloride hyd., Cyprodinil, Iprodione, Maneb, Phosphorous acid, Potassium bicarbon., Propiconazole, Thiophanate-methyl. 2003; Other Chemicals: Aluminum phosphide, Benzyladenine, Butenoic Acid Hydro. Chlorophacinone, Chloropicrin, Decenol, Decenyl acetate, E-8-Dodecenyl acetat, Ethephon, Gibberrellic acid, Gibberellins A4A7, Harpin protein, Lactic acid, Methyl bromide, Monocarbamide dihyd., Strychnine, Sulfaquinoxaline, Warfarin, Z-8-Dodecanol, Z-8Dodecen acetate. 2005; Herbicides: 2,4-D, 2,4-D, dieth sal, Acetochlor, Alachlor, Atrazine, Bromacil, Carfentrazone-ethyl, Flumioxazin, Glyphosate, Glyphosate amm. salt, MCPA, dimethyl. salt, Napropamide, Pendimethalin, Pronamide, Sulfosate. 2005; Insecticides: Aluminum phosphide, Azadirachtin, Bifenthrin, Bt subsp. kurstaki, Buprofezin, Clove oil, Cottonseed oil, Cyfluthrin, Dicofol, Dimethoate, Etoxazole, Fenpropathrin, Methidathion, Methyl parathion, Novaluron, Oxamyl, Permethrin, Petroleum oil, Potassium salts, Pymetrozine, Pyrethrins, Thiacloprid. 2005; Fungicides: Bacillus pumilus, Benomyl, Butanone, Captan, Chloroneb, Chlorothalonil, Copper (metallic), Copper chloride hyd., Copper oxychlo. sul, Copper oxychloride, Cyprodinil, Iprodione, Maneb, Phosphorous acid, Potassium bicarbon., Propiconazole, Quintec, Streptomycin sulfate, Thiram, Triphenyltin hydrox.. 2005; Other Chemicals: 2,4-D, isoprop ester, Acequinocyl, Benzyladenine, Chlorophacinone, Chloropicrin, Decenol, Decenyl acetate, Dichloropropene, Diphacinone, Dodecanol, E-8-Dodecenyl acetat, Ethephon, Garlic oil, Gibberellic acid, Gibberellins A4A7, Methyl anthranilate, Monocarbamide dihyd., NAD, Octadecadien (E,Z), Octadecadien (Z,Z), Pelargonic acid, Prohexadione calcium, Spirodiclofen, Strychnine, Tetradecanol, Tetradecen-1-OL (Z), Tetradecen-1-yl (E), Z-8-Dodecanol, Z-8-Dodecen acetate, Zinc phosphide.

3/ Rate per acre is less than 0.0005 lbs.

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