



**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/](http://www.usda.gov/nass/)



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## Apples

Eight states were surveyed for apples in 2005: California, Michigan, New York, North Carolina, Oregon, Pennsylvania, Washington, and Wisconsin. Surveyed acreage totaled 306,400 bearing acres. Washington was the largest state surveyed for apples and accounted for 51 percent of the acreage.

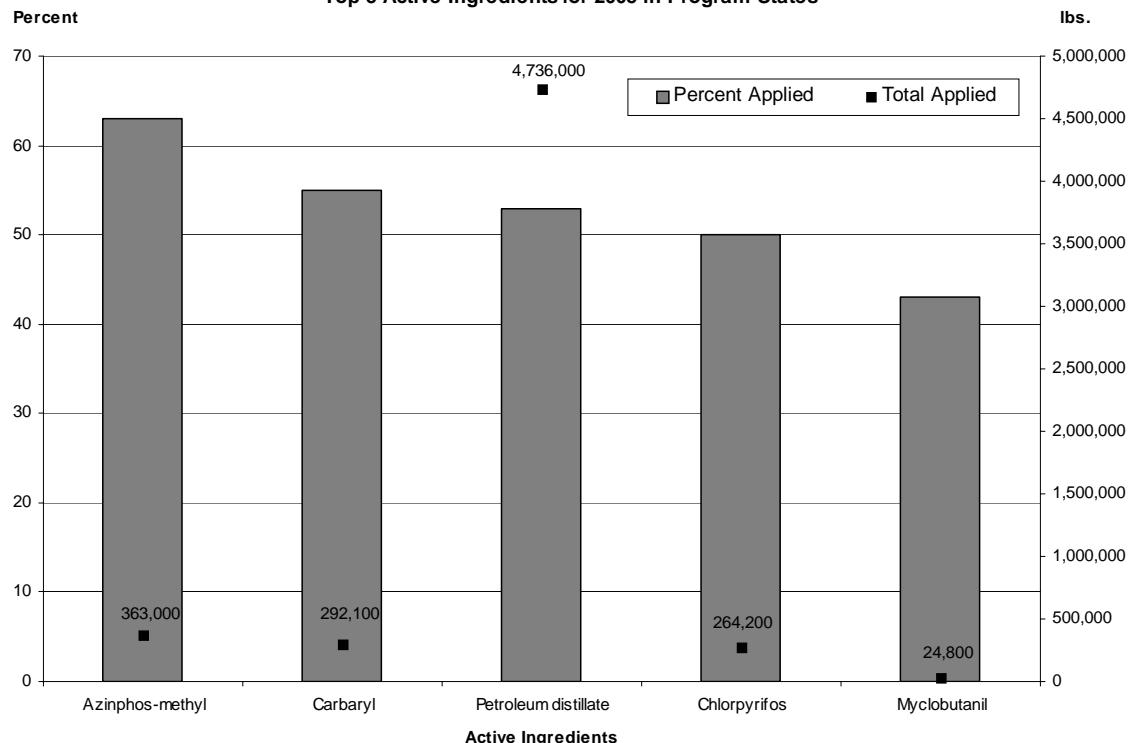
### Apples: Pesticide Applications, Bearing Acreage & Percentage Receiving Applications, Major States and Total, 2003 and 2005

State	Bearing Acreage		Area Receiving 1/							
			Herbicide		Insecticide 2/		Fungicide 2/		Other Chemicals	
	2003	2005	2003	2005	2003	2005	2003	2005	2003	2005
Acres										
California	27,000	25,000	35	40	73	69	71	57	7	19
Michigan	42,000	40,500	36	30	92	93	92	92	15	40
New York	41,000	45,000	61	55	97	93	97	95	19	63
North Carolina	7,000	6,800	2	11	99	93	98	93	2	16
Oregon	6,500	6,500	55	38	92	91	89	88	44	72
Pennsylvania	20,000	21,800	34	41	86	90	80	85	13	43
<b>Washington</b>	<b>162,000</b>	<b>155,000</b>	<b>42</b>	<b>45</b>	<b>99</b>	<b>96</b>	<b>92</b>	<b>86</b>	<b>23</b>	<b>68</b>
Wisconsin 3/	-	5,800	-	39	-	88	-	89	-	21
<b>TOTAL</b>	<b>305,500</b>	<b>306,400</b>	<b>42</b>	<b>43</b>	<b>94</b>	<b>92</b>	<b>90</b>	<b>86</b>	<b>20</b>	<b>56</b>

1/ 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/ Wisconsin was not surveyed in 2003.

**Apples - Percent of Acres Treated and Total Applied  
Top 5 Active Ingredients for 2005 in Program States**



# Apples: 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.	
<b>Herbicides:</b>										
2, 4-D	5	-	1.3	-	0.74	-	0.98	-	8.1	-
2, 4-D, dimeth. salt	2	9	1.1	1.5	0.79	0.948	0.89	1.379	3.2	18.5
Carfentrazone-ethyl	-	*	-	1.2	-	0.026	-	0.032	-	**
Diuron	3	2	1.0	1.6	1.05	1.501	1.06	2.379	4.8	8.1
Glufosinate-ammonium	-	1	-	1.1	-	0.843	-	0.908	-	1.3
Glyphosate iso. salt	39	37	1.8	1.8	1.07	0.997	1.94	1.752	122.8	101.1
Norflurazon	8	10	1.0	1.6	1.44	2.078	1.53	3.267	20.9	48.2
Oryzalin	*	1	1.2	1.2	1.80	2.778	2.16	3.376	1.2	6.6
Oxyfluorfen	2	2	1.1	1.0	1.14	0.832	1.30	0.838	4.3	2.3
Paraquat	12	17	1.3	1.2	0.67	0.833	0.89	0.984	17.2	26.5
Pendimethalin	*	1	2.3	1.0	1.29	2.136	3.05	2.158	0.7	1.9
Simazine	6	9	1.1	1.4	1.84	1.297	2.10	1.776	20.7	23.9
<b>Insecticides:</b>										
Abamectin	1	2	1.0	1.1	0.01	0.013	0.01	0.014	**	**
Acetamiprid	25	41	1.4	1.2	0.12	0.128	0.17	0.149	7.1	9.4
Azadirachtin	-	2	-	1.1	-	0.033	-	0.037	-	0.1
Azinphos-methyl	78	72	2.2	1.8	1.01	0.965	2.29	1.752	289.2	196.4
Benzoic acid	29	28	1.1	1.2	0.21	0.233	0.25	0.277	11.6	12.1
Bifenazate	3	6	1.0	1.0	0.37	0.408	0.40	0.419	1.7	3.8
Bt subsp. kurstaki	-	18	-	1.3	-	3/	-	3/	-	**
Bt (Bacillus thur.)	9	-	1.4	-	4/	-	4/	-	4/	-
Carbaryl	52	71	1.4	1.4	1.38	1.327	1.94	1.919	162.5	210.1
Chlorpyrifos	63	58	1.1	1.1	1.85	1.849	2.12	2.084	217.0	186.7
Clofentezine	2	10	1.0	1.0	0.12	0.173	0.13	0.179	0.4	2.7
Cyd-X Granulo. Virus 4/	-	9	-	1.5	-	-	-	-	-	-
Diazinon	2	5	1.2	1.0	1.59	1.577	1.98	1.636	5.1	13.3
Endosulfan	9	10	1.0	1.1	1.93	1.753	2.03	1.917	28.4	30.8
Etoxazole	-	1	-	1.0	-	0.084	-	0.087	-	0.2
Fenbutatin-oxide	1	1	1.0	1.1	0.76	0.665	0.78	0.722	1.6	1.4
Fenpropathrin	-	*	-	1.5	-	0.357	-	0.525	-	0.3
Fenpyroximate	-	3	-	1.0	-	0.072	-	0.075	-	0.4
Formetanate hydro.	14	13	1.0	1.1	0.83	0.722	0.87	0.772	20.0	15.6
Hexythiazox	-	4	-	1.0	-	0.147	-	0.148	-	1.0
Imidacloprid	45	36	1.4	1.4	0.05	0.059	0.08	0.081	5.8	4.6
Kaolin	11	10	1.4	1.3	37.04	32.032	54.59	40.430	973.6	597.2
Lambda-cyhalothrin	-	3	-	1.7	-	0.039	-	0.067	-	0.4
Novaluron	-	12	-	1.2	-	0.176	-	0.211	-	4.0
Petroleum distillate	80	64	2.0	2.2	18.90	14.329	38.02	31.548	4,946.7	3,133.6
Phosmet	12	15	1.2	1.4	2.90	2.775	3.50	3.758	70.7	87.1
Potassium salts	-	1	-	1.2	-	7.407	-	8.801	-	10.5
Pyrethrins	1	-	1.6	-	0.06	-	0.09	-	0.2	-
Pyridaben	8	15	1.0	1.5	0.25	0.252	0.26	0.380	3.2	8.6
Pyriproxyfen	*	4	1.0	1.1	0.08	0.086	0.08	0.091	0.1	0.6
Spinosad	40	62	1.4	1.3	0.10	0.113	0.15	0.152	9.5	14.6
Thiacloprid	-	2	-	1.1	-	0.192	-	0.217	-	0.6
Thiamethoxam	2	1	1.2	1.0	0.07	0.080	0.09	0.083	0.3	0.1
<b>Fungicides:</b>										
Bacillus pumilus	-	2	-	1.6	-	3/	-	3/	-	**
Bacillus subtilis	*	-	1.0	-	4/	-	4/	-	4/	-
Basic copper sulfate	2	-	1.2	-	0.39	-	0.47	-	1.4	-
Boscalid	-	16	-	1.0	-	0.013	-	0.013	-	0.3
Calcium polysulfide	22	33	1.3	1.4	19.42	17.302	26.84	24.420	938.2	1,235.8
Captan	*	1	1.1	1.2	2.69	3.605	3.04	4.447	4.4	9.8
Copper hydroxide	10	14	1.2	1.0	1.71	2.456	2.06	2.472	32.8	53.1
Copper oxide	-	*	-	2.5	-	3.577	-	8.989	-	4.4
Fenarimol	27	24	1.1	1.2	0.07	0.072	0.08	0.088	3.5	3.3
Fosetyl-al	3	4	1.3	1.1	2.34	2.421	3.14	2.591	17.5	14.5

See footnotes at end of table (next page).

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## Apples: Agricultural Chemical Applications, Washington, 2003 and 2005 1/ (continued)

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
<b>Fungicides (continued):</b>		<b>Percent</b>		<b>Number</b>		<b>Pounds Per Acre</b>		<b>1,000 Lbs.</b>		
Kresoxim-methyl	5	10	1.0	1.1	0.15	0.143	0.16	0.153	1.3	2.3
Mancozeb	13	20	1.3	1.2	3.70	3.848	5.07	4.495	106.0	139.4
Maneb	-	1	-	1.1	-	3.129	-	3.531	-	7.7
Mefenoxam	*	*	1.6	1.0	1.51	0.371	2.50	0.378	1.5	0.2
Myclobutanil	48	51	1.6	1.3	0.11	0.119	0.19	0.156	14.5	12.5
Oxytetracycline	9	20	1.3	1.1	0.18	0.184	0.24	0.211	3.4	6.4
PCNB	-	1	-	1.0	-	0.057	-	0.057	-	0.1
Potassium bicarbon	3	1	1.1	1.1	2.40	2.282	2.76	2.432	14.4	5.6
Pseudomonas fluores.	4	4	1.4	1.2	0.24	0.295	0.36	0.356	2.1	2.0
Pyraclostrobin	-	16	-	1.0	-	0.001	-	0.001	-	**
Streptomycin	3	3	1.6	1.0	0.21	0.222	0.34	0.226	1.7	1.2
Sulfur	33	47	1.4	1.3	7.70	7.030	10.88	8.995	578.5	656.2
Thiophanate-methyl	-	8	-	1.0	-	0.930	-	0.931	-	11.4
Thiram	4	1	1.0	1.3	3.28	3.741	3.43	4.861	23.9	10.4
Triadimefon	5	4	1.4	1.1	0.23	0.189	0.33	0.213	2.4	1.3
Trifloxystrobin	15	22	1.1	1.2	0.07	0.065	0.08	0.077	2.1	2.6
Triflumizole	37	57	1.3	1.4	0.24	0.286	0.33	0.415	19.5	36.5
Ziram	8	8	1.0	1.1	3.90	4.754	4.27	4.993	57.1	60.4
<b>Other Chemicals:</b>										
Benzyladenine	29	31	1.1	1.1	0.03	0.041	0.03	0.045	1.5	2.1
Butenoic Acid Hydro.	11	13	1.0	1.0	0.09	0.084	0.10	0.087	1.7	1.8
Cytokinins	3	3	1.2	1.4	3/	3/	3/	3/	**	**
Dodecadien-1-ol	34	4	1.0	1.3	0.05	0.199	0.06	0.264	3.2	1.8
Dodecanol	31	1	1.0	1.2	0.03	0.019	0.03	0.022	1.5	**
Ethephon	30	39	1.9	1.2	0.44	0.595	0.83	0.719	40.8	43.2
Gibberellic acid	1	2	1.1	1.1	0.02	0.023	0.02	0.026	**	0.1
Gibberellins A4A7	28	24	1.1	1.1	0.02	0.028	0.03	0.031	1.3	1.1
NAA	41	28	1.3	1.2	0.03	0.038	0.03	0.045	2.3	2.0
NAA, Potassium salt	-	19	-	1.1	-	0.024	-	0.027	-	0.8
NAD	13	13	1.1	1.1	0.06	0.048	0.07	0.050	1.5	1.0
Octadecadien (E,Z)	-	11	-	1.0	-	0.111	-	0.116	-	2.1
Octadecadien (Z,Z)	-	11	-	1.0	-	1.553	-	1.624	-	28.8
Prohexadione calcium	13	25	1.5	1.2	0.28	0.240	0.41	0.288	8.4	11.0
Tetradecanol	31	1	1.0	1.2	0.006	0.004	0.006	0.005	0.3	**
Zinc phosphide	3	3	1.0	1.8	0.11	0.089	0.11	0.160	0.6	0.6

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/ Bearing acres in 2003 in Washington were 162,000 acres and bearing acres in 2005 in Washington were 155,000 acres. 2/ Insufficient reports to publish data for the following agricultural chemicals 2003; **Herbicides:** Atrazine, Dichlobenil, Glufosinate-ammonium, Glyphosate diam salt, Napropamide, Prometryn, Pronamide, Sulfosate. **Insecticides:** Amitraz, Azadirachtin, Cyd-X Granulo. Virus, Dicofol, Diflubenzuron, Dimethoate, Esfenvalerate, Ethion, Ethyl parathion, Fenpropothrin, Hexythiazox, Indoxacarb, Lambda-cyhalothrin, Malathion, Methidathion, Methomyl, Methyl parathion, Oxamyl, Oxythioquinox, Permethrin, Phosphamidon, Piperonyl butoxide, Potassium salts, Rymania, Tebufenoziide. **Fungicides:** Copper chloride hyd., Copper sulfate, Cyprodinil, Maneb, Phosphorous acid, Propiconazole, Pyraclostrobin, Thiophanate-methyl, Vinclozolin. **Other Chemicals:** Aluminum phosphide, Chlorophacinone, Chloropicrin, DNOC, Decenol, Decenyl acetate, Dichloropropene, E-8-Dodecenyl acetat, Harpin protein, Monocarbamide dihyd., Strychnine, Tetradecen-1-OL (Z), Z-8-Dodecanol, Z-8 Dodecen acetate. 2005: **Herbicides:** 2,4-D, 2,4-D, dieth. sal, Alachlor, Atrazine, Cycloate, Dichlobenil, Flumioxazin, Glyphosate, Hexazinone, Isoxaben, MSMA, Napropamide, Picloram, K salt., **Insecticides:** Aluminum phosphide, Boric acid, Bt. (Berliner), Buprofezin, Clothianidin, Dimethoate, Disulfoton, Esfenvalerate, Ethyl parathion, Indoxacarb, Malathion, Methidathion, Methomyl, Methyl bromide, Methyl parathion, Neem oil, clar. hyd., Oxamyl, Permethrin, Petroleum oil, Piperonyl butoxide, Propargite, Pyrethrins. **Fungicides:** Bacillus subtilis, Basic copper sulfate, Benomyl, Butanone, Chlorothalonil, Copper sulfate, Cyprodinil, Dinocap, Dodine, Fenbuconazole, Ferbam, Metiram, Pyrimethanil, Quintec, Streptomycin sulfate, Tebuconazole, Trichoderma harz. Vinclozolin. **Other Chemicals:** Chlorophacinone, Chloropicrin, DNOC, Dichloropropene, Diphacinone, E-8-Dodecenyl acetat, Hexadecenal, Hexadecenyl acetate, Mepiquat pentaborate, Metam-sodium, Methyl anthranilate, Mineral oil, Monocarbamide dihyd., Spirodiclofen, Strychnine, Tetradecen-1-OL (Z), Tridecen-1-YL-Acetat, Tridecenyl acetate, Z-8-Dodecanol, Z-8-Dodecen acetate.

3/ Rate per acre is less than 0.0005 lbs.

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

# Apples: 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
<b>Herbicides:</b>	<b>Percent</b>		<b>Number</b>		<b>Pounds Per Acre</b>		<b>1,000 Lbs.</b>			
2, 4-D	6	-	1.2	-	0.74	-	0.92	-	17.8	-
2,4-D, BEE	-	1	-	1.0	-	0.338	-	0.338	-	0.9
2,4-D, dieth. sal	-	1	-	1.2	-	0.675	-	0.810	-	3.2
2, 4-D, dimeth. salt	5	11	1.1	1.3	0.82	0.838	0.91	1.062	13.9	37.1
Carfentrazone-ethyl	-	1	-	1.1	-	0.020	-	0.022	-	**
Diuron	7	6	1.1	1.2	1.09	1.363	1.22	1.626	27.6	29.4
Glufosinate-ammonium	*	1	1.1	1.2	0.44	0.662	0.49	0.774	0.6	2.8
Glyphosate iso. salt	32	33	1.6	1.6	1.06	0.938	1.74	1.499	172.1	153.4
Norflurazon	7	6	1.0	1.5	1.38	1.943	1.46	2.845	29.1	54.0
Oryzalin	*	1	1.1	1.2	1.80	2.555	2.00	3.036	2.4	10.2
Oxyfluorfen	4	3	1.1	1.1	0.50	0.731	0.55	0.813	7.1	6.4
Paraquat	13	14	1.3	1.2	0.64	0.717	0.85	0.881	33.9	39.0
Pendimethalin	*	1	1.4	1.0	1.60	1.569	2.35	1.579	2.2	2.6
Simazine	10	10	1.1	1.2	1.65	1.477	1.84	1.775	58.9	55.2
Sulfosate	1	3	1.2	1.3	1.86	1.396	2.25	1.810	10.0	17.3
Terbacil	4	3	1.0	1.1	0.26	0.519	0.26	0.575	3.3	4.7
<b>Insecticides:</b>										
Abamectin	5	4	1.2	1.3	0.01	0.013	0.01	0.017	0.2	0.2
Acetamiprid	18	31	1.4	1.4	0.10	0.111	0.14	0.153	7.7	14.4
Aluminum phosphide	-	1	-	2.0	-	0.706	-	1.396	-	5.1
Azadirachtin	*	-	1.0	-	0.02	-	0.02	-	2/	-
Azinphos-methyl	73	63	2.8	2.4	0.82	0.784	2.33	1.875	522.9	363.0
Benzoic acid	30	27	1.3	1.5	0.14	0.199	0.20	0.305	17.9	25.7
Bifenazate	5	4	1.1	1.1	0.36	0.433	0.42	0.459	6.2	6.1
Bt subsp. kurstaki	-	16	-	1.6	-	3/	-	3/	-	**
Bt (Bacillus thur.)	13	-	1.8	-	4/	-	4/	-	4/	-
Carbaryl	46	55	1.4	1.4	1.25	1.206	1.76	1.723	245.4	292.1
Chlorpyrifos	51	50	1.1	1.2	1.59	1.483	1.84	1.728	286.5	264.2
Clofentezine	4	6	1.1	1.1	0.11	0.161	0.12	0.170	1.6	3.1
Cyd-X-Granulo. Viru. 4/	3	9	1.4	1.8	4/	-	4/	-	4/	-
Diazinon	6	6	1.8	1.8	0.77	0.889	1.45	1.601	27.9	27.1
Dicofol	*	-	1.0	-	1.35	-	1.41	-	3.0	-
Dimethoate	2	1	1.6	1.5	0.77	0.640	1.27	0.946	7.3	3.8
Endosulfan	10	11	1.1	1.2	1.51	1.411	1.75	1.705	52.5	58.7
Esfenvalerate	11	11	1.5	1.6	0.04	0.038	0.06	0.060	1.9	2.1
Ethyl parathion	*	-	1.1	-	0.15	-	0.17	-	0.1	-
Etoxazole	-	10	-	1.3	-	0.078	-	0.098	-	3.0
Fenbutatin-oxide	*	2	1.1	1.1	0.72	0.739	0.81	0.786	2.4	4.2
Fenpropothrin	12	15	1.9	1.9	0.21	0.212	0.40	0.412	14.6	18.4
Fenpyroximate	-	3	-	1.0	-	0.067	-	0.069	-	0.6
Formetanate hydro.	12	10	1.0	1.1	0.53	0.719	0.56	0.769	20.7	23.7
Gamma-cyhalothrin	-	14	-	2.3	-	3/	-	3/	-	**
Hexythiazox	4	4	1.0	1.0	0.15	0.126	0.15	0.127	1.6	1.6
Imidacloprid	38	29	1.5	1.5	0.05	0.053	0.08	0.079	9.2	6.9
Indoxacarb	3	6	1.6	1.3	0.07	0.091	0.11	0.119	1.0	2.2
Kaolin	8	8	1.5	1.3	28.61	31.912	42.93	42.259	1,053.1	1,058.5
Lambda-cyhalothrin	8	8	2.0	1.6	0.03	0.043	0.05	0.068	1.3	1.7
Malathion	*	*	1.7	2.8	0.30	0.682	0.52	1.937	0.8	0.9
Methidathion	*	1	1.0	1.4	0.84	0.804	0.90	1.104	0.9	2.1
Methomyl	7	5	1.4	1.8	0.62	0.598	0.90	1.104	19.9	16.0
Methoxychlor	-	*	-	2.9	-	0.462	-	1.354	-	1.7
Methyl parathion	*	-	1.1	-	0.08	-	0.08	-	0.1	-
Novaluron	-	18	-	1.9	-	0.119	-	0.229	-	12.7
Oxamyl	*	1	1.1	2.2	0.39	0.300	0.46	0.673	0.8	1.9
Permethrin	3	3	1.4	1.2	0.10	0.174	0.14	0.215	1.3	2.1
Petroleum distillate	63	53	1.7	2.0	19.33	14.497	34.52	29.422	6,648.6	4,736.0
Petroleum oil	-	2	-	1.9	-	8.471	-	15.687	-	83.9
Phosmet	28	33	2.3	2.4	1.56	1.558	3.67	3.695	319.3	372.8
Pyrethrins	1	*	1.6	1.2	0.04	0.010	0.07	0.012	0.2	**
Pyridaben	11	16	1.1	1.3	0.17	0.234	0.19	0.300	6.5	14.4
Pyriproxyfen	1	7	1.0	1.1	0.07	0.096	0.07	0.105	0.2	2.3
Spinosad	31	39	1.4	1.3	0.10	0.109	0.14	0.142	13.1	17.0
Tebufenozide	2	-	1.3	-	0.24	-	0.33	-	1.7	-
Thiaclorpid	-	10	-	1.8	-	0.121	-	0.220	-	7.0
Thiamethoxam	6	3	1.1	1.1	0.06	0.070	0.07	0.074	1.3	0.6

See footnotes at end of table (next page).

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## Apples: 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
<b>Fungicides:</b>	<b>Percent</b>		<b>Number</b>		<b>Pounds Per Acre</b>				<b>1,000 Lbs.</b>	
Bacillus pumilus	-	2	-	1.6	-	3/	-	3/	-	**
Bacillus subtilis 4/	*	1	1.0	1.2	4/		4/		4/	
Basic copper sulfate	6	3	1.2	1.1	0.77	0.865	0.93	0.970	17.9	10.1
Benomyl	1	1	2.6	1.2	0.07	0.614	0.19	0.742	0.6	3.4
Boscalid	-	12	-	1.1	-	0.015	-	0.016	-	0.6
Butanone	-	2	-	2.3	-	0.066	-	0.150	-	0.7
Calcium polysulfide	16	22	1.4	1.4	15.02	17.466	20.98	24.653	997.8	1,666.6
Captan	33	34	5.4	5.3	1.55	1.683	8.45	8.879	852.0	923.1
Chlorothalonil	1	*	2.3	1.3	0.53	1.399	1.25	1.761	4.6	2.3
Copper chloride hyd.	*	-	1.5	-	2.14	-	3.36	-	1.2	-
Copper hydroxide	13	17	1.2	1.1	1.95	2.169	2.42	2.424	94.2	127.9
Copper oxide	-	*	-	2.5	-	2.485	-	6.218	-	8.5
Copper oxychlo. sul.	2	8	1.2	1.0	0.21	2.590	0.25	2.663	1.2	63.6
Copper oxychloride	11	6	1.1	1.1	1.06	2.425	1.24	2.619	42.3	50.1
Copper resinate	-	1	-	1.1	-	0.221	-	0.238	-	0.9
Copper sulfate	2	1	1.4	1.0	1.04	1.089	1.49	1.139	7.1	3.9
Cyprodinil	4	3	1.4	1.5	0.15	0.122	0.22	0.186	2.9	1.7
Dodine	6	2	1.4	1.6	0.29	1.026	0.43	1.681	7.3	9.4
Fenarimol	22	16	1.6	1.5	0.06	0.064	0.10	0.093	7.0	4.6
Fenbuconazole	-	*	-	1.9	-	0.058	-	0.110	-	**
Ferbam	*	-	1.0	-	0.60	-	0.60	-	0.8	-
Fosetyl-al	2	3	1.4	1.1	1.99	2.472	2.86	2.718	19.8	22.5
Kresoxim-methyl	13	16	1.8	2.0	0.12	0.105	0.23	0.214	8.8	10.8
Mancozeb	32	40	3.3	3.2	2.39	2.488	7.96	7.999	786.3	991.0
Maneb	*	1	3.1	1.8	2.51	2.404	7.98	4.279	20.0	14.8
Mefenoxam	*	*	1.6	1.1	0.80	0.453	1.35	0.478	1.5	0.5
Metiram	25	11	3.5	3.3	0.79	2.510	2.78	8.296	210.8	291.4
Myclobutanil	44	43	2.1	1.7	0.10	0.109	0.22	0.187	29.1	24.8
Oxytetracycline	6	16	1.2	1.2	0.15	0.186	0.20	0.224	3.6	10.9
Potassium bicarbon.	3	1	1.1	1.2	1.64	2.125	1.89	2.465	14.7	11.3
Propiconazole	1	-	1.4	-	0.07	-	0.09	-	0.3	-
Pseudomonas fluores.	3	3	1.4	1.3	0.15	0.267	0.22	0.336	2.2	3.3
Pyraclostrobin	-	12	-	1.1	-	0.001	-	0.001	-	**
Pyrimethanil	-	4	-	1.5	-	0.193	-	0.283	-	3.6
Streptomycin	15	14	1.8	2.0	0.14	0.148	0.25	0.299	11.5	13.0
Streptomycin sulfate	1	2	3.2	1.7	0.06	0.242	0.21	0.413	0.7	2.4
Sulfur	28	35	2.2	1.7	6.69	5.652	14.79	9.790	1,282.5	1,038.0
Thiophanate-methyl	15	23	3.0	3.2	0.38	0.376	1.17	1.190	54.0	84.7
Thiram	7	5	2.2	2.9	2.06	1.916	4.54	5.561	98.0	88.0
Triadimefon	6	5	2.0	1.5	0.10	0.157	0.20	0.241	3.9	3.7
Trifloxystrobin	22	30	1.5	1.6	0.06	0.060	0.10	0.098	6.5	8.9
Triflumizole	26	36	1.4	1.5	0.19	0.284	0.28	0.414	21.8	45.1
Ziram	13	15	2.2	2.3	2.83	2.615	6.25	5.893	241.7	267.4

See footnotes at end of table (next page).

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## Apples: 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.	
<b>Other Chemicals:</b>										
Acequinocyl	-	2	-	1.0	-	0.243	-	0.250	-	1.8
Benzyladenine	18	19	1.1	1.1	0.03	0.041	0.03	0.046	1.8	2.7
Butenoic Acid Hydro.	7	9	1.0	1.0	0.08	0.078	0.09	0.081	2.0	2.2
Chlorophacinone	*	*	1.0	1.7	3/	0.001	3/	0.001	**	**
Cytokinins	2	-	1.2	-	3/	-	3/	-	**	-
Dodecadien-1-ol	25	4	1.1	1.3	0.04	0.174	0.04	0.225	3.4	2.5
Dodecanol	23	1	1.0	1.1	0.02	0.014	0.02	0.017	1.6	0.1
E-8-Dodecenyl acetat.	*	-	1.1	-	0.01	-	0.02	-	**	-
Ethephon	18	22	1.8	1.3	0.42	0.544	0.77	0.686	42.3	45.5
Gibberellic acid	2	2	1.4	1.3	0.02	0.018	0.03	0.023	0.2	0.1
Gibberellins A4A7	18	14	1.1	1.1	0.02	0.026	0.03	0.029	1.4	1.3
Monocarbamide dihyd.	*	-	1.0	-	7.34	-	7.80	-	21.5	-
NAA	34	29	1.3	1.3	0.02	0.023	0.03	0.030	3.1	2.7
NAA, Potassium salt	-	17	-	1.1	-	0.025	-	0.027	-	1.4
NAD	10	8	1.1	1.1	0.05	0.046	0.06	0.049	1.7	1.1
Octadecadien (E,Z)	-	13	-	1.0	-	0.388	-	0.403	-	16.0
Octadecadien (Z,Z)	-	13	-	1.0	-	5.430	-	5.640	-	223.7
Prohexadione calcium	10	16	1.6	1.3	0.23	0.198	0.37	0.259	11.5	12.3
Spirodiclofen	-	2	-	1.0	-	0.243	-	0.246	-	1.6
Strychnine	*	-	1.0	-	0.006	-	0.007	-	**	-
Tetradecanol	23	1	1.0	1.1	0.005	0.003	0.005	0.003	0.3	**
Tetradecen-1-OL (Z)	2	1	1.3	1.3	0.05	0.089	0.07	0.119	0.4	0.2
Z-8-Dodecanol	*	-	1.1	-	0.003	-	0.003	-	**	-
Z-8-Dodecen acetate	*	-	1.1	-	0.23	-	0.25	-	0.5	-
Zinc phosphide	4	3	1.0	1.4	0.09	0.118	0.09	0.161	1.1	1.6

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/ Bearing acres in 2003 for the seven major states were 305,500 acres. States included were CA, MI, NY, NC, OR, PA, & WA. Bearing acres in 2005 for the 8 major states were 306,400 acres. States included were CA, MI, NY, NC, OR, PA, WA, & WI. Applications of some active ingredients may refer only to nonbearing acres. 2/ Insufficient reports to publish data for the following agricultural chemicals: 2003; Herbicides: Acifluorfen, Atrazine, Dichlobenil, Difenzoquat, EPTC, Ethofumesate, Fenoxaprop, Glyphosate diam salt, Hexazinone, MCPA, Napropamide, Prometryn, Pronamide, Sethoxydim. 2003; Insecticides: Amitraz, Carbofuran, Cyfluthrin, Diflubenzuron, Ethion, Fenamiphos, Lindane, Methoxychlor, Oxythioquinox, Petroleum oil, Phosalone, Phosphamidon, Piperonyl butoxide, Potassium salts, Ryania, Trichlorfon. 2003; Fungicides: Carboxin, Copper resinate, Dicloran, Fenbuconazole, Flutolanil, Iprodione, Metalaxyl, Phosphorous acid, Pyraclostrobin, Tebuconazole, Vinclozolin, Zineb. 2003; Other Chemicals: Aluminum phosphide, Chloropicrin, DNOC, Decenol, Decenyl acetate, Dichloropropene, Harpin protein, Hydrogen peroxide, Lactic acid, Maleic hydrazide, Methyl bromide, Tetradecen-1-yl (E). 2005; Herbicides: 2,4-D, Alachlor, Atrazine, Cycloate, Dichlobenil, Diquat dibromide, Fenoxaprop-p-ethyl, Flumioxazin, Glyphosate, Glyphosate amm. salt, Hexazinone, Isoxaben, MSMA, Napropamide, Picloram, K salt, Rimsulfuron, Sethoxydim, Thifensulfuron, Trifluralin. 2005; Insecticides: Acephate, Azadirachtin, Bifenthrin, Boric acid, Bt. (Berliner), Buprofezin, Canola oil, Clothianidin, Cyfluthrin, Deltamethrin, Diflubenzuron, Disulfoton, Ethyl parathion, Fenamiphos, Methyl bromide, Methyl parathion, Naled, Neem oil, clar. hyd., Piperonyl butoxide, Potassium salts, Propargite, Rotenone, Tebufenozyd. 2005; Fungicides: Azoxystrobin, Borax Decahydrate, Copper amm. complex, Copper chloride hyd., Dinocap, Ferbam, Fludioxonil, PCNB, Phosphorous acid, Potassium Phosphate, Propiconazole, Quintec, Tebuconazole, Trichoderma harz., Vinclozolin. 2005; Other Chemicals: Capsaicin, Chloropicrin, Cytokinins, DNOC, Dichloropropene, Diphacinone, E-8-Dodecenyl acetat, Harpin protein, Hexadecenal, Hexadecenyl acetate, Hydrogen peroxide, Mepiquat pentaborate, Metaldehyde, Metam-sodium, Methyl anthranilate, Mineral oil, Monocarbamide dihyd., Strychnine, Tetradecen-1-YL (E), Tridecen-1-yl Acetat, Z-8-Dodecanol, Z-8-Dodecen acetate. 3/ Rates 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.