PRESS RELEASE

NATIONAL AGRICULTURAL STATISTICS SERVICE
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2015 Fruit Chemical Use Survey Results Available

The National Agricultural Statistics Service (NASS) collected data about fertilizer and pesticide use on 14 targeted fruit crops in the Northwest during the fall of 2015. Information was also collected about pest management practices and microbial food safety practices. Fruit growers in Oregon and Washington provided chemical usage data on bearing fruit acres for the 2015 crop year. The crop year was defined as the period starting immediately after harvest of the 2014 crop and ending at harvest of the 2015 crop.

Information was collected on bearing fruit acres for the following crops in each state:

Oregon

- Apples
- Sweet cherries
- Pears
- Raspberries
- Blueberries
- Blackberries

Washington

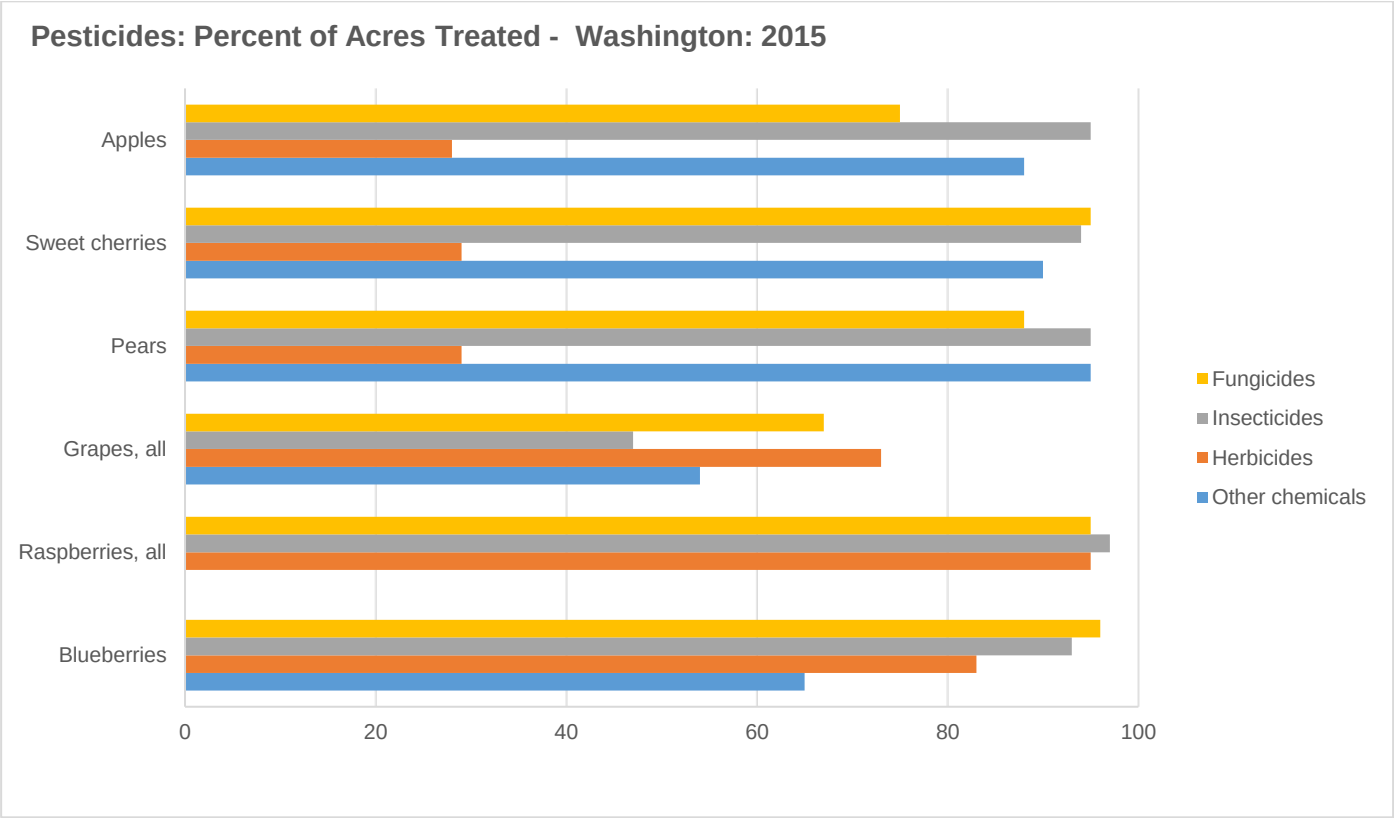
- Apples
- Sweet cherries
- Tart cherries
- Pears
- Wine grapes
- Juice grapes
- Raspberries
- Blueberries

Active ingredients were categorized into four pesticide classes: insecticides, herbicides, fungicides, and other chemicals. This report highlights the top active ingredients for several of the crops summarized from the survey. Complete information on all chemical use data is available through the Quick Stats 2.0 database.

To access the Quick Stats 2.0 database information

- Go to: http://quickstats.nass.usda.gov
- Under Sector select "Environmental"
- Under Group select "Fruit & Tree Nuts"
- Select the fruit commodity, category, geographic level, and year you are interested in

The Northwest Regional Field Office of NASS would like to thank all the respondents who participated in the survey and made this report possible.



The growers surveyed in Washington applied fungicides to 75 percent of apples acres, 95 percent of the sweet cherry acres, and 88 percent of the pear acres. Fungicides were also applied to most of the raspberry and blueberry acres, with 95 and 96 percent coverage, respectively. All grape acres, which included wine and juice grapes, had 67 percent of the crop acres receive fungicides.

Insecticides were used on over 90 percent of all the targeted fruit crops surveyed except grapes. This included 95 percent of the apple and pear acres, 94 percent of the sweet cherry acres, 97 percent of the raspberry acres, and 93 percent of the blueberry acres. All grape acres had insecticides applied to 47 percent of the crop.

Herbicides were used on a higher percentage of the raspberry and blueberry acres, with herbicides covering 95 percent of the raspberry acres and 83 percent of the blueberry acres. Herbicides were used on 73 percent of the grape acres, 29 percent of the sweet cherry and pear acres, and 28 percent of the apple acres.

Other chemicals were used on 95 percent of the pear acres, 90 percent of the sweet cherry acres, 88 percent of the apple acres, and 54 percent of the all grape acres. Other chemicals were also used on 65 percent of the blueberry acres. The other chemical usage on raspberries was not published to avoid disclosing any individual operations.

Top Fungicides Used, by Percent of Bearing Acres Treated — Washington: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Sulfur	39	48	12.327	9.775	704,400	689,000
Calcium polysulfide	37	39	29.237	21.477	1,607,800	1,221,300
Trifloxystrobin	36	24	0.104	0.078	5,500	2,700
Triflumizole	32	49	0.512	0.459	24,400	32,800
Penthiopyrad	27	(NA)	0.297	(NA)	11,800	(NA)
Sweet cherries						
Pyraclostrobin	78	62	0.257	0.225	7,000	4,700
Boscalid	77	58	0.476	0.390	12,800	7,700
Quinoline	70	54	0.245	0.188	6,000	3,500
Triflumizole	66	46	0.948	0.695	21,800	10,900
Sulfur	49	46	19.218	17.675	332,300	275,600
Pears						
Sulfur	56	30	13.028	13.187	151,000	84,500
Triflumizole	49	44	0.468	0.431	4,700	4,100
Copper hydroxide	38	28	2.972	4.551	23,600	27,700
Mancozeb	27	15	14.386	7.333	81,200	24,000
Thiophanate-methyl	25	28	0.806	0.889	4,200	5,300
Grapes, all						
Sulfur	52	21	12.393	6.840	452,400	97,400
Quinoline	49	26	0.594	0.118	20,200	2,100
Boscalid	37	25	1.359	0.245	35,500	4,100
Pyraclostrobin	37	25	0.691	0.125	18,000	2,100
Fluopyram	27	(NA)	0.844	(NA)	15,900	(NA)
Raspberries, all						
Fludioxonil	89	85	0.310	0.334	2,600	2,800
Cyprodinil	89	85	0.464	0.501	4,000	4,100
Calcium polysulfide	62	26	10.063	7.044	60,600	18,000
Boscalid	58	60	0.332	0.345	1,900	2,000
Pyraclostrobin	58	60	0.169	0.179	900	1,100
Blueberries						
Captan	88	67	5.186	3.274	50,200	15,400
Fenbuconazole	74	71	0.199	0.111	1,600	600
Pyraclostrobin	45	62	0.196	0.242	1,000	1,000
Boscalid	45	62	0.386	0.477	1,900	2,100
Chlorothalonil	43	(D)	2.153	(D)	10,300	(D)

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Insecticides Used, by Percent of Bearing Acres Treated — Washington: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Chlorantraniliprole	59	47	0.134	0.114	11,600	7,900
Carbaryl	53	55	1.661	1.644	129,900	130,800
Chlorpyrifos	39	40	2.334	2.263	136,400	130,800
Acetamiprid	36	14	0.177	0.151	9,400	3,100
Imidaclorprid	34	41	0.122	0.115	6,200	6,800
Sweet cherries						
Spinosad	80	73	0.234	0.164	6,500	4,100
Imidacloprid	72	59	0.190	0.168	4,800	3,400
Chlorpyrifos	38	29	2.844	2.150	37,800	20,900
Lambda-cyhalothrin	33	4	0.093	0.045	1,100	100
Spinetoram	22	17	0.049	0.060	400	300
Pears						
Spirotetramat	72	58	0.222	0.193	3,300	2,400
Abamectin	68	56	0.038	0.028	500	300
Spinetoram	61	63	0.086	0.093	1,100	1,300
Spinetoram-L	61	63	0.086	0.093	1,100	1,300
Lambda-cyhalothrin	55	51	0.053	0.050	600	500
Grapes, all						
Bifenthrin	18	13	0.103	0.116	1,300	1,000
Abamectin	17	3	0.149	0.017	1,800	(Z)
Imidacloprid	9	7	0.196	0.255	1,200	1,100
Thiamethoxam	2	(D)	0.242	(D)	300	(D)
Raspberries, all						
Bifenthrin	94	79	0.179	0.125	1,600	1,000
Zeta-cypermethrin	82	(D)	0.047	(D)	400	(D)
Malathion	70	53	2.196	1.257	14,900	6,500
Imidacloprid	63	24	0.180	0.129	1,100	300
Bifenazate	11	(D)	0.468	(D)	500	(D)
Blueberries						
Zeta-cypermethrin	80	(D)	0.064	(D)	600	(D)
Malathion	75	32	2.022	1.577	16,600	3,500
Imidacloprid	68	24	0.109	0.079	800	100
Bifenthrin	67	7	0.125	0.119	900	100
Diazinon	47	34	0.585	0.938	3,000	2,200

(D) Withheld to avoid disclosing data for individual operations.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Herbicides Used, by Percent of Bearing Acres Treated — Washington: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Glyphosate iso. salt	16	33	2.309	1.689	55,300	82,200
Paraquat	13	15	1.235	1.117	24,200	25,000
Pyraflufen-ethyl	8	(D)	0.004	(D)	(Z)	(D)
Rimsulfuron	6	5	0.079	0.070	700	600
Glyphosate amm. salt	6	4	0.320	0.105	2,800	500
Sweet cherries						
Glyphosate iso. salt	18	20	2.517	1.776	16,100	12,300
Paraquat	9	7	1.199	1.474	3,700	3,600
Rimsulfuron	7	4	0.068	0.111	200	200
Oryzalin	3	(D)	3.453	(D)	3,800	(D)
Pyraflufen-ethyl	3	(D)	0.005	(D)	(Z)	(D)
Pears						
Glyphosate iso.salt	24	28	2.157	1.859	11,000	11,300
Rimsulfuron	10	6	0.076	0.064	200	100
Oxyfluorfen	4	(D)	1.404	(D)	1,200	(D)
Grapes, all						
Glyphosate iso. salt	63	38	3.700	1.437	163,100	37,000
Paraquat	52	23	1.056	1.046	38,500	16,400
Carfentrazone-ethyl	29	11	0.040	0.034	800	200
Oryzalin	12	(D)	5.388	(D)	44,600	(D)
Diquat dibromide	6	(NA)	0.052	(NA)	200	(NA)
Raspberries, all						
Carfentrazone-ethyl	89	73	0.031	0.025	300	200
Paraquat	88	81	0.654	1.255	5,600	9,900
Simazine	86	47	0.889	1.722	7,400	7,900
Diuron	37	29	1.262	1.126	4,500	3,300
Blueberries						
Paraquat	55	45	0.901	1.322	5,400	4,200
Carfentrazone-ethyl	49	26	0.033	0.027	200	(Z)
Glufosinate-ammonium	39	(D)	0.697	(D)	3,000	(D)
Mesotrione	28	(D)	0.106	(D)	300	(D)
Flumioxazin	23	(D)	0.103	(D)	300	(D)

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Other Chemicals Used, by Percent of Bearing Acres Treated — Washington: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Mineral oil	78	77	35.838	36.225	4,148,400	4,066,000
Flutriafol	36	16	0.129	0.115	6,800	2,600
Gibberellins A4A7	33	34	0.065	0.064	3,200	3,200
Benzyladenine	29	32	0.047	0.046	2,000	2,200
Ethephon	28	31	0.675	0.622	27,700	28,600
Sweet cherries						
Mineral oil	68	58	40.100	33.978	957,600	666,600
Gibberellic acid	60	43	0.055	0.051	1,200	700
Cytokinins	33	29	0.001	0.001	(Z)	(Z)
Spirodiclofen	9	(D)	0.677	(D)	2,200	(D)
Indaziflam	8	(D)	0.073	(D)	200	(D)
Pears						
Mineral oil	83	78	70.479	53.233	1,216,800	893,900
NAA, potassium salt	32	20	0.081	0.056	500	200
Oxytetracycline hydrochloride	17	6	0.558	0.208	2,000	300
Indaziflam	12	(NA)	0.063	(NA)	200	(NA)
Dodecadien-1-OL	10	23	0.041	0.066	100	300
Grapes, all						
Mineral oil	34	37	44.115	20.557	1,055,200	508,600
Metrafenone	33	17	1.992	0.327	46,500	3,700
Blueberries						
Cuprammonium acetate	48	34	0.346	2.555	1,800	6,200

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Fertilizer Used by Fruit Crop — Washington: 2009 and 2015

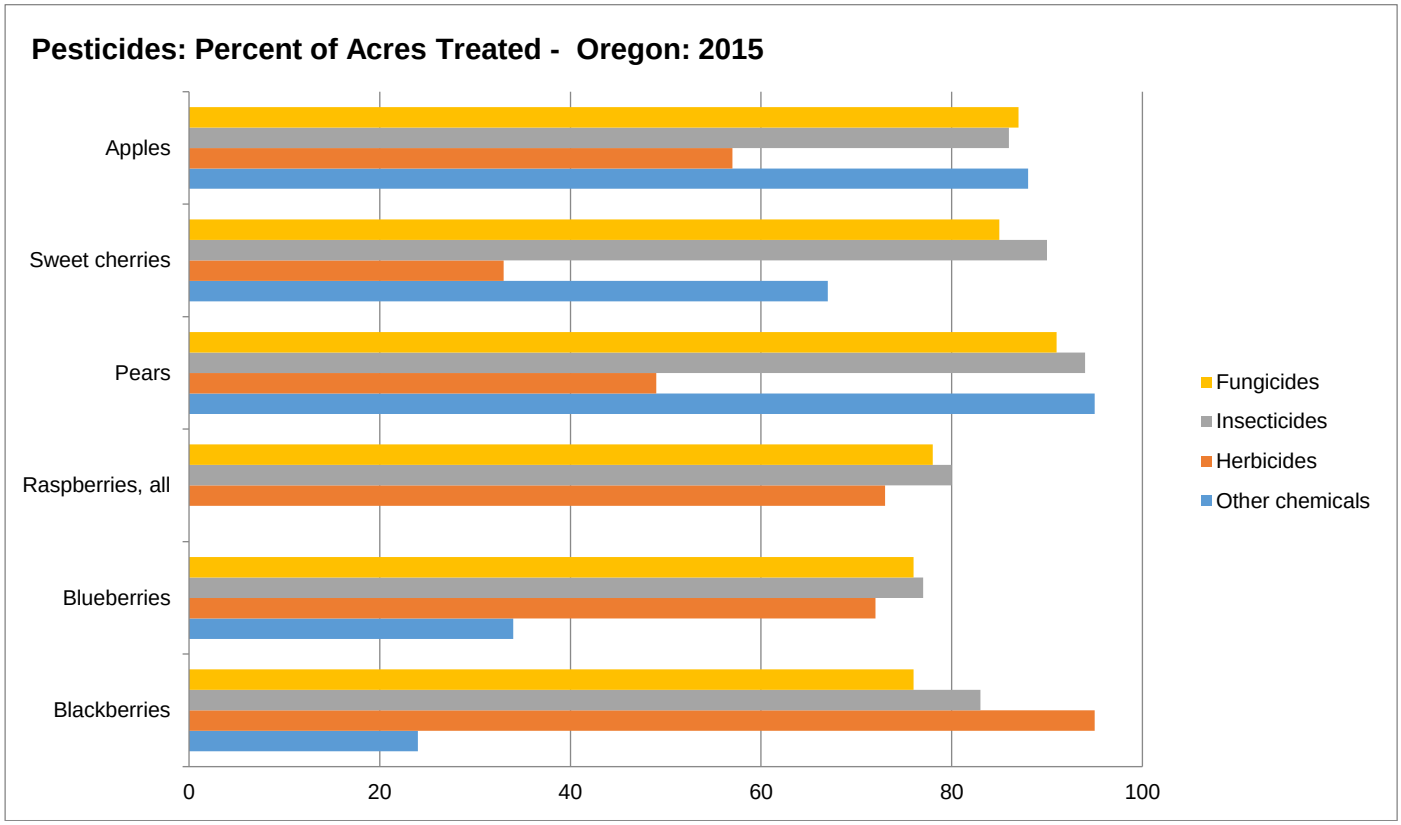
[Fertilizer data was last collected in 2009 prior to the 2015 survey]

Crop and fertilizer component	Percent of acres treated [1]		Crop year average rate [2]		Total applied	
	2015	2009	2015	2009	2015	2009
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(1,000 pounds)	(1,000 pounds)
Apples						
Nitrogen	64	75	28	33	2,405	3,664
Phosphate	53	38	13	12	923	642
Potash	46	27	15	24	915	949
Sulfur	28	(D)	9	(D)	332	462
Sweet cherries						
Nitrogen	77	79	31	45	741	1,216
Phosphate	52	53	20	17	317	300
Potash	48	51	18	16	278	282
Sulfur	(D)	(D)	(D)	(D)	(D)	79
Pears						
Nitrogen	52	67	46	70	391	987
Phosphate	34	28	15	25	84	147
Potash	22	15	17	40	63	125
Sulfur	(D)	(D)	(D)	(D)	(D)	86
Grapes, all						
Nitrogen	55	56	30	34	728	1,059
Phosphate	37	32	31	15	508	275
Potash	50	36	58	18	1,276	375
Sulfur	(D)	(D)	(D)	(D)	(D)	239
Raspberries, all						
Nitrogen	76	43	93	62	682	244
Phosphate	99	42	93	62	891	243
Potash	99	42	96	55	915	212
Sulfur	(D)	(D)	(D)	(D)	(D)	15
Blueberries						
Nitrogen	87	86	62	41	557	164
Phosphate	93	68	67	41	648	131
Potash	92	83	73	30	702	116
Sulfur	33	(D)	(D)	(D)	(D)	(D)

(D) Withheld to avoid disclosing data for individual operations.

[1] Percent of bearing acres treated.

[2] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.



The growers surveyed in Oregon applied fungicides to 87 percent of apples acres, 85 percent of the sweet cherry acres, and 91 percent of the pear acres. Fungicides were also applied to a large portion of the raspberry, blueberry, and blackberry acres, with 78 percent of the raspberry acres receiving fungicides and 76 percent of the blueberry and blackberry acres covered.

Insecticides were used on over 90 percent of the sweet cherry and pear acres. Insecticides were applied to 86 percent of the apples acres, 80 percent of the raspberry acres, 77 percent of the blueberry acres, and 83 percent of blackberries.

Herbicides were used on a higher percentage of the raspberry, blueberry, and blackberry acres, with herbicides covering 95 percent of the blackberry acres, 73 percent of the raspberry acres, and 72 percent of blueberries. Herbicides were used on 57 percent of the apples acres, 49 percent of pear acres, and 33 percent of the sweet cherry acres.

Other chemicals were used on 95 percent of the pear acres, 88 percent of the apple acres, and 67 percent of the sweet cherry acres. Other chemicals were also used on 34 percent of the blueberry acres and 24 percent of the blackberry acres. The other chemical usage on raspberries was not published to avoid disclosing any individual operations.

Top Fungicides Used, by Percent of Bearing Acres Treated — Oregon: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Triflumizole	55	47	0.502	0.478	1,400	900
Sulfur	50	42	13.002	10.214	32,500	17,700
Penthiopyrad	41	(NA)	0.303	(NA)	600	(NA)
Myclobutanil	36	45	0.216	0.166	400	300
Copper hydroxide	36	(D)	3.100	(D)	5,500	(D)
Sweet cherries						
Quinoline	54	48	0.154	0.136	1,100	800
Triflumizole	48	62	0.621	0.496	3,800	3,900
Sulfur	47	43	16.117	13.871	98,600	74,800
Pyraclostrobin	44	68	0.134	0.151	800	1,300
Boscalid	32	46	0.268	0.285	1,100	1,600
Pears						
Mancozeb	84	93	10.143	8.538	124,400	128,500
Sulfur	77	41	27.075	15.698	304,200	103,700
Penthiopyrad	68	(NA)	0.368	(NA)	3,700	(NA)
Triflumizole	63	57	0.472	0.462	4,300	4,200
Pyraclostrobin	57	55	0.140	0.176	1,200	1,600
Raspberries, all						
Fludioxonil	58	48	0.327	0.220	400	200
Cyprodinil	58	48	0.491	0.331	600	400
Boscalid	47	36	0.550	0.366	600	300
Pyraclostrobin	47	36	0.280	0.186	300	200
Azoxystrobin	44	(D)	0.314	(D)	300	(D)
Blueberries						
Cyprodinil	54	47	0.582	0.602	3,100	2,200
Fludioxonil	54	47	0.388	0.401	2,100	1,500
Azoxystrobin	44	24	0.419	0.294	1,800	600
Copper hydroxide	40	34	1.180	3.848	4,700	10,200
Captan	39	42	2.647	2.581	10,400	8,500
Blackberries						
Calcium polysulfide	56	42	16.105	11.216	62,400	35,200
Fludioxonil	52	18	0.321	0.382	1,200	500
Cyprodinil	52	18	0.481	0.574	1,700	800
Azoxystrobin	40	8	0.289	0.164	800	100
Pyraclostrobin	27	61	0.177	0.175	300	800

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Insecticides Used, by Percent of Bearing Acres Treated — Oregon: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Chlorantraniliprole	58	47	0.117	0.117	300	200
Carbaryl	51	40	1.045	1.517	2,700	2,500
Methoxyfenozide	39	30	0.269	0.311	500	400
Spinetoram-L	31	12	0.075	0.053	100	(Z)
Spinetoram	31	12	0.075	0.053	100	(Z)
Sweet cherries						
Spinosad	47	51	0.149	0.158	900	1,000
Imidacloprid	44	57	0.162	0.128	900	900
Fenpropathrin	40	(NA)	0.422	(NA)	2,200	(NA)
Malathion	39	52	2.489	3.843	12,500	25,200
Lambda-cyhalothrin	38	(NA)	0.047	(NA)	200	(NA)
Pears						
Spirotetramat	82	70	0.294	0.189	3,500	2,100
Pyriproxyfen	71	40	0.152	0.145	1,600	900
Abamectin	67	64	0.031	0.025	300	300
Chlorantraniliprole	66	41	0.134	0.125	1,300	800
Spinetoram-L	48	46	0.089	0.069	600	500
Raspberries, all						
Zeta-cypermethrin	58	(D)	0.050	(D)	100	(D)
Bifenthrin	50	18	0.097	0.092	100	(Z)
Malathion	24	28	2.908	2.145	1,500	1,400
Spinetoram-L	10	(D)	0.075	(D)	(Z)	(D)
Spinetoram	10	(D)	0.075	(D)	(Z)	(D)
Blueberries						
Zeta-cypermethrin	61	39	0.079	0.050	500	200
Malathion	58	32	2.294	4.118	13,200	10,300
Thiamethoxam	27	(D)	0.125	(D)	300	(D)
Bifenthrin	23	(D)	0.119	(D)	300	(D)
Spinetoram	20	5	0.058	0.047	100	(Z)
Blackberries						
Zeta-cypermethrin	64	11	0.035	0.041	200	(Z)
Bifenthrin	44	30	0.106	0.086	300	200
Esfenvalerate	23	35	0.071	0.030	100	100
Carbaryl	21	18	1.934	1.202	2,800	1,600
Malathion	21	9	2.322	3.673	3,400	2,500

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Herbicides Used, by Percent of Bearing Acres Treated — Oregon: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Glyphosate iso. salt	49	17	1.964	3.748	4,800	2,500
Paraquat	6	(D)	1.117	(D)	300	(D)
Sweet cherries						
Glyphosate iso. salt	25	38	1.806	2.824	5,900	13,600
Pyraflufen-ethyl	7	(NA)	0.006	(NA)	(Z)	(NA)
Paraquat	7	5	0.862	0.928	800	600
Oxyfluorfen	5	5	1.166	0.985	800	600
Rimsulfuron	5	(D)	0.064	(D)	(Z)	(D)
Pears						
Glyphosate iso. salt	42	26	1.459	3.033	8,900	12,800
2,4 D, dimeth. salt	17	10	1.222	2.612	3,000	4,300
Paraquat	8	12	1.136	0.900	1,300	1,800
Diuron	7	(D)	2.165	(D)	2,100	(D)
Simazine	4	(D)	2.179	(D)	1,300	(D)
Raspberries, all						
Simazine	42	23	1.996	1.916	1,800	1,000
Paraquat	31	72	0.852	0.296	600	500
Diuron	16	31	1.055	0.917	400	700
Carfentrazone-ethyl	15	23	0.032	0.017	(Z)	(Z)
Blueberries						
Simazine	35	21	2.215	1.869	7,800	3,000
Diuron	34	36	1.404	1.273	4,800	3,600
Flumioxazin	32	10	0.296	0.240	1,000	200
Paraquat	23	16	0.450	0.648	1,000	800
Oryzalin	22	39	3.604	3.672	8,100	11,300
Blackberries						
Carfentrazone-ethyl	54	19	0.117	0.119	400	200
Simazine	53	33	1.906	1.347	7,000	3,300
Paraquat	49	46	0.688	1.191	2,300	4,100
Diuron	42	21	1.495	2.932	4,300	4,500
Oryzalin	5	4	1.870	1.404	600	400

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Top Other Chemicals Used, by Percent of Bearing Acres Treated — Oregon: 2011 and 2015

[Includes the top active ingredients by crop that can be published]

Crop and active ingredient	Percent of acres treated		Crop year average rate [1]		Total applied	
	2015	2011	2015	2011	2015	2011
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(pounds)	(pounds)
Apples						
Mineral oil	84	60	38.592	24.537	162,400	59,900
Benzyladenine	33	24	0.032	0.049	100	(Z)
Gibberellins A4A7	22	19	0.041	0.045	(Z)	(Z)
Dodecadien-1-OL	21	33	0.024	0.070	(Z)	100
Aureobasidium pullulans DSM 14941	18	(NA)	(NA)	(NA)	(NA)	(NA)
Sweet cherries						
Mineral oil	29	47	31.718	25.075	120,000	148,100
Reynoutria sachaline	8	(NA)	0.259	(NA)	300	(NA)
Methyl anthranilate	2	(D)	1.657	(D)	400	(D)
Pears						
Mineral oil	94	86	67.048	39.577	919,500	552,200
Oxytetracycline hydrochloride	36	3	0.443	0.513	2,300	200
NAA, potassium salt	36	21	0.126	0.073	700	300
Cytokinins	19	15	(Z)	(Z)	(Z)	(Z)
Dodecadien-1-OL	18	12	0.012	0.130	(Z)	300
Blueberries, all						
Mineral oil	17	8	11.487	13.270	19,200	8,600
Reynoutria sachaline	6	(D)	0.210	(D)	100	(D)
Blackberries						
Mineral oil	21	(D)	9.320	(D)	13,600	(D)

(D) Withheld to avoid disclosing data for individual operations.
(NA) Not available.
(Z) Less than half of the unit shown.
[1] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

Fertilizer Used by Fruit Crop — Oregon: 2009 and 2015

[Fertilizer data was last collected in 2009 prior to the 2015 survey]

Crop and fertilizer component	Percent of acres treated [1]		Crop year average rate [2]		Total applied	
	2015	2009	2015	2009	2015	2009
	(percent)	(percent)	(pounds per acre)	(pounds per acre)	(1,000 pounds)	(1,000 pounds)
Apples						
Nitrogen	75	71	22	44	82	128
Phosphate	50	35	16	21	40	32
Potash	53	54	6	22	15	50
Sulfur	17	(D)	11	(D)	9	37
Sweet cherries						
Nitrogen	83	85	38	64	406	652
Phosphate	60	47	11	31	89	172
Potash	62	50	10	18	81	109
Sulfur	23	(D)	8	(D)	23	30
Pears						
Nitrogen	86	87	58	144	727	1,994
Phosphate	65	38	22	37	208	221
Potash	70	59	17	20	172	185
Sulfur	58	(D)	12	(D)	101	98
Raspberries, all						
Nitrogen	49	95	121	80	119	111
Phosphate	90	81	31	69	57	81
Potash	90	86	76	70	137	88
Sulfur	(D)	(D)	(D)	(D)	(D)	24
Blueberries						
Nitrogen	67	93	63	136	379	671
Phosphate	76	66	24	47	165	166
Potash	82	77	43	53	314	216
Sulfur	44	(D)	63	(D)	250	79
Blackberries						
Nitrogen	54	78	82	76	294	408
Phosphate	71	67	69	56	327	256
Potash	79	67	72	58	377	268
Sulfur	26	(D)	20	(D)	34	52

(D) Withheld to avoid disclosing data for individual operations.
[1] Percent of bearing acres treated.
[2] The period starting immediately after harvest of previous year's crop and ending at harvest of the current year's crop.

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