



AGRICULTURAL CHEMICAL USE

FRUIT CROPS 2011
(August 1, 2012)

The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture's official source of statistics about on-farm pesticide use and pest management practices.

In fall 2011, NASS collected data about pesticide use and pest management practices on 23 fruit crops planted for the 2011 crop year. The survey

was conducted in 12 states; results are based on 4,075 responses. For each commodity, the states surveyed account for the majority of U.S. acres of the crop (Table 1).

Respondents applied a total of 331 unique pesticide active ingredients to the surveyed crops in 2011, up 10 percent from 2009. The 331 active ingredients are categorized into four pesticide classes: insecticides (96), herbicides (80), fungicides (70), and other chemicals (85).

Table 1. 2011 Fruit Chemical Use Survey: Program States by Crop

	California	Florida	Georgia	Michigan	New Jersey	New York	N. Carolina	Oregon	Pennsylvania	S. Carolina	Texas	Washington	No. of States	% of U.S. Acreage*
Apples	X			X	X	X	X	X	X			X	7	82
Apricots	X												1	89
Avocados	X												1	87
Blackberries								X					1	100
Blueberries			X	X	X		X	X				X	6	82
Cherries, Sweet	X			X				X				X	4	97
Cherries, Tart				X		X						X	3	78
Dates	X												1	100
Figs	X												1	100
Grapefruit	X	X									X		3	100
Grapes, All	X					X						X	3	94
Kiwifruit	X												1	100
Lemons	X												1	80
Nectarines	X												1	95
Olives	X												1	100
Oranges, All	X	X											2	99
Peaches	X		X	X	X				X	X	X		7	81
Pears	X							X				X	3	95
Plums	X												1	100
Prunes	X												1	100
Raspberries								X				X	2	69
Tangelos		X											1	100
Tangerines	X	X											2	95

*Based on *Citrus Fruits: 2011 Summary* (NASS, September 2011) and *Noncitrus Fruits and Nuts: 2011 Summary* (NASS, July 2012).



This report highlights results for apples, blueberries, and peaches, which are each produced in at least six geographically diverse states. The seven states in which apple growers were surveyed represent 82 percent of the U.S. apple acreage. The six blueberry states surveyed make up 82 percent of the nation's blueberry acreage, and the seven peach states account for 81 percent of U.S. peach acres.

of peach acres. Herbicides and other chemicals were used less extensively.

Based on percent of planted acres treated, mancozeb was the most widely used fungicide on apples, applied to 40 percent of planted acres at an average rate of 10.117 pounds per acre for the crop year (Table 2). Sulfur ranked second, applied to 39 percent of planted acres.

Pesticide Use

The growers surveyed applied fungicides to 84 percent of their apple acres, 87 percent of blueberry acres, and 81 percent of peach acres (Figure 1). They applied insecticides to 84 percent of apple, 84 percent of blueberry, and 61 percent

For blueberries, fenbuconazole was the most widely used fungicide, applied to 55 percent of acres at an average rate of 0.218 pounds per acre for the crop year. This was followed closely by pyraclostrobin, applied to 50 percent of acres. For peaches the most widely applied fungicides were sulfur, propiconazole, and chlorothalonil, covering 56, 34, and 26 percent of the acreage, respectively.

Figure 1. Pesticides: Percent of Planted Acres Treated, 2011 Program States

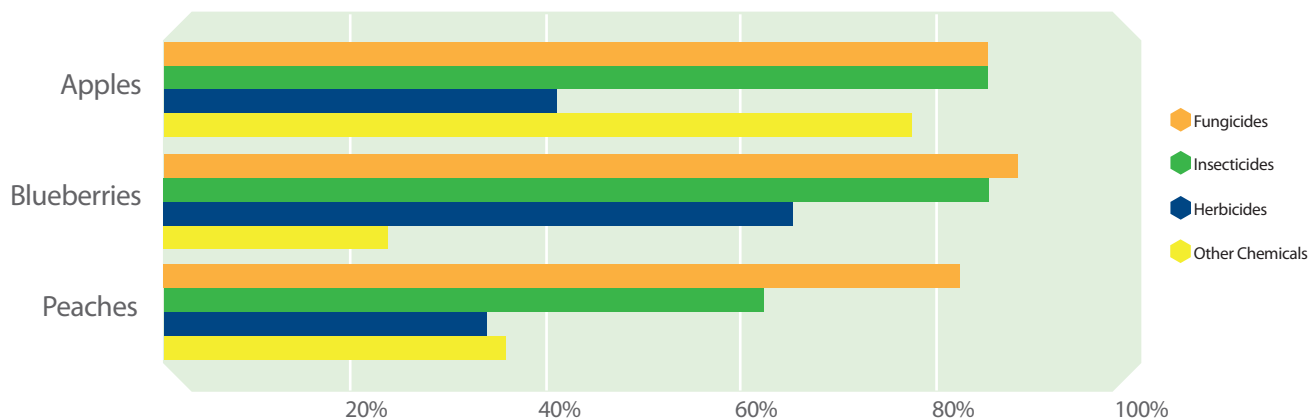


Table 2. Top Fungicides Used, by Percent of Planted Acres Treated, 2011 Program States

	Active Ingredient	% of Planted Acres Treated	Crop Year* Average Rate lbs/acre	Total Applied lbs
Apples	Mancozeb	40	10.117	1,097,300
	Sulfur	39	10.471	1,094,500
	Myclobutanil	35	0.198	18,700
Blueberries	Fenbuconazole	55	0.218	7,100
	Pyraclostrobin	50	0.296	8,800
	Captan	44	3.369	87,100
Peaches	Sulfur	56	40.128	2,014,800
	Propiconazole	34	0.236	7,200
	Chlorothalonil	26	3.495	82,800

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

Among insecticides, apple growers in the surveyed states applied carbaryl to 46 percent of the acreage (at an average rate of 1.566 pounds per acre for the crop year), chlorantraniliprole to 45 percent, and chlorpyrifos to 44 percent (Table 3). Blueberry growers applied phosmet on 38 percent of blueberry acres at an average rate of 1.683 pounds per acre for the crop year. Peach growers applied esfenvalerate to 31 percent of acres at an average rate of 0.114 pounds per acre.

For all three fruits, growers used herbicides less widely than fungicides or insecticides. On apples, growers applied glyphosate isopropylamine salt to 25 percent of acres at an average of 1.604 pounds per acre for the crop year (Table 4). Blueberry growers applied diuron to 19 percent of acres, followed closely by oryzalin (18 percent of acres) and paraquat (16 percent). Glyphosate isopropylamine salt and oxyfluorfen were each applied to 16 percent of peach acres.

Table 3. Top Insecticides Used, by Percent of Planted Acres Treated, 2011 Program States

	Active Ingredient	% of Planted Acres Treated	Crop Year* Average Rate lbs/acre	Total Applied lbs
Apples	Carbaryl	46	1.566	196,300
	Chlorantraniliprole	45	0.111	13,700
	Chlorpyrifos	44	1.759	211,100
Blueberries	Phosmet	38	1.683	37,300
	Zeta-cypermethrin	32	0.053	1,000
	Malathion	30	3.955	68,900
Peaches	Esfenvalerate	31	0.114	3,200
	Lambda-cyhalothrin	19	0.075	1,300
	Phosmet	13	4.663	56,300

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

Table 4. Top Herbicides Used, by Percent of Planted Acres Treated, 2011 Program States

	Active Ingredient	% of Planted Acres Treated	Crop Year* Average Rate lbs/acre	Total Applied lbs
Apples	Glyphosate isopropylamine salt	25	1.604	110,600
	Paraquat	15	1.016	41,100
	2,4-D, dimethylamine salt	10	0.909	25,100
Blueberries	Diuron	19	1.397	16,000
	Oryzalin	18	3.346	36,000
	Paraquat	16	0.969	9,100
Peaches	Glyphosate isopropylamine salt	16	1.193	17,400
	Oxyfluorfen	16	0.179	2,700
	2,4-D, dimethylamine salt	9	1.130	9,200

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

Pest Management Practices

The survey asked growers to report on the pest management practices they used on their operation's total fruit acres in 2011. Pests are defined as weeds, insects, or diseases. Fruit growers reported practices in three categories of pest management strategy: prevention, monitoring, and suppression. Prevention practices keep a pest population from infesting a crop or field. Monitoring practices involve observing or detecting pests through systematic sampling, counting, or other forms of scouting.

Suppression involves controlling or reducing existing pest populations in order to mitigate crop damage.

Irrigating crops was the most widely reported prevention practice, used on 93 percent of fruit acres (Table 5). Among monitoring practices, scouting for diseases and insects were both used on 96 percent of fruit acres. The most widely used pest suppression practice was alternating pesticides having different mechanisms of action, used on 74 percent of fruit acres.

Table 5. Top Pest Management Practices within Category, 2011 Total and Selected Program States*

	Top Practice	Total	California	Florida	Michigan
		% of fruit acres			
Prevention	Irrigated crop acres	93	99	99	44
	Chopped, mowed, plowed, or burned field edges, etc.	78	73	79	91
	Cleaned implements after fieldwork	74	72	85	74
Monitoring	Scouted for diseases	96	96	94	98
	Scouted for insects	96	96	94	99
	Scouted for weeds	95	95	92	93
Suppression	Alternated pesticides with different mechanisms of action	74	61	89	94
	Scouted for information to make decisions	54	40	62	86
	Maintained ground covers or other physical barriers	50	58	20	68

*Includes all fruits grown by respondents, not just surveyed crops.

For More Information

The 2011 agricultural chemical use data for fruit are available through the Quick Stats 2.0 database on the NASS website. To access the database, go to: <http://quickstats.nass.usda.gov>.

- ◆ Under Program, select "Survey"
- ◆ Under Sector, select "Environmental"
- ◆ Under Group, select "Fruit & Tree Nuts"
- ◆ Select the fruit commodity, category, geographic level, and year you are interested in

For assistance, call the Agricultural Statistics Hotline at (800) 727-9540. For information on the survey methodology, go to www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/index.asp and click "Methodology" under the 2011 Fruit heading.

