



2021 AGRICULTURAL CHEMICAL USE

Fruit Crops

About the Survey

The Agricultural Chemical Use Program of USDA's National Agricultural Statistics Service (NASS) is the federal government's official source of statistics about on-farm and post-harvest commercial fertilizer and pesticide use and pest management practices. NASS conducts chemical use surveys as part of the Agricultural Resource Management Survey. NASS conducted the fruit chemical use survey in fall 2021.

Access the Data

Access 2021 and earlier fruit chemical use data through the Quick Stats database (<http://quickstats.nass.usda.gov>).

- In Program, select "Survey"
- In Sector, select "Environmental"
- In Group, select "Fruit"
- In Commodity, select the fruit(s) you want data for
- Select your category, data item, geographic level, and year

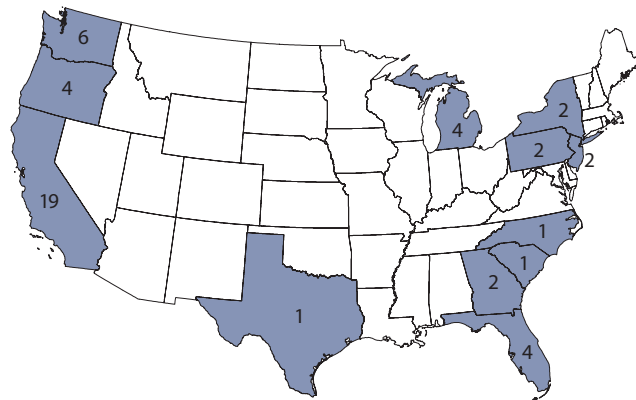
For pre-defined Quick Stats queries that take you to data for a particular fruit, go to <http://bit.ly/AgChem> and click "Data Tables" under the 2021 Fruit heading. For survey methodology information, click "Methodology."

The 2021 Agricultural Chemical Use Survey of fruit producers collected data about pesticide use as well as pest management practices on acres planted to 20 different fruit crops. NASS conducted the survey among producers in 12 states, focusing on the states that were major producers of the surveyed crops. (Fig. 1)

Data are for the 2021 crop year, the one-year period beginning after the 2020 harvest and ending with the 2021 harvest. Data are available online for all 20 fruit crops (see sidebar for how to access).

This document highlights three fruits – apples, blueberries, and peaches, each produced in at least six geographically diverse states.

Fig. 1. States Included in the 2021 Fruit Chemical Use Survey
(number of crops surveyed in state)

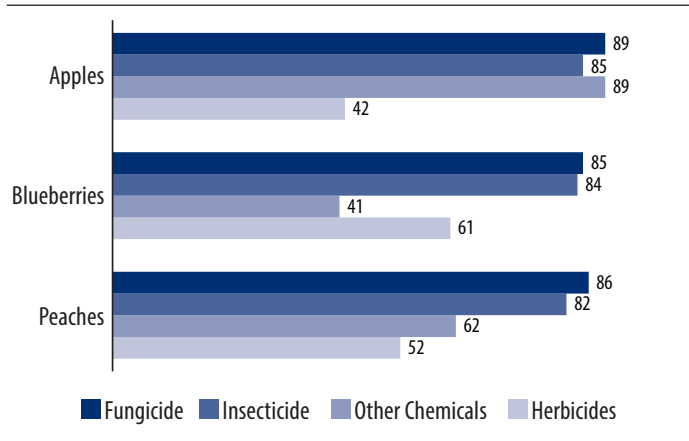


Pesticide Use

The pesticide active ingredients used on fruit are classified as *herbicides* (targeting weeds), *insecticides* (targeting insects), *fungicides* (targeting fungal disease), and *other chemicals* (targeting all other pests and other materials, including extraneous crop foliage).

Apple growers applied both fungicides and other chemicals equally to 89% of the acres. Peach and blueberry growers applied fungicides to 86% and 85% of acres, respectively. Growers applied insecticides to 85% of apple acres, 84% of blueberry acres, and 82% of peach acres. Herbicides were used less extensively. (Fig. 2). Further detail on the top pesticides can be found in Table 1.

Fig. 2. Pesticides Applied to Selected Fruits, 2021 Crop Year
(percent of planted acres)



Percent of acres treated.

Pest Management Practices

The survey asked growers to report on the practices they used to manage pests, including weeds, insects, and diseases. Fruit growers reported practices in three categories. Table 2 shows the top practices in each category.

- *Prevention* practices involve actions to 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* practices involve controlling or reducing existing pest populations to mitigate crop damage.

Table 2. Top Practices in Pest Management Category, 2021 Crop Year
(percent of planted acres, 20 fruits)

<i>Prevention</i> : Crop acres irrigated	94
<i>Prevention</i> : Cleaned equipment and implements after field work	81
<i>Monitoring</i> : Scouted for insects and mites	97
<i>Monitoring</i> : Scouted for diseases	97
<i>Suppression</i> : Maintained ground covers, mulches, or other physical barriers	68
<i>Suppression</i> : Used pesticides with different mechanisms of action to keep pest from becoming resistant to pesticides	59

Table 1. Top Pesticides, by Percent of Planted Acres, Selected Fruits, 2021 Crop Year

Active Ingredient	% of Acres with Ingredient Applied ^a	Avg. Rate for Year (lbs/acre)	Total Applied (lbs)
Fungicides			
Apples			
Copper hydroxide	49	2.572	353,500
Calcium polysulfide	46	36.310	4,669,600
Blueberries			
Captan	50	5.245	226,200
Fludioxonil	38	0.306	9,900
Peaches			
Sulfur	46	39.783	1,283,100
Propiconazole	39	0.180	5,000
Insecticides			
Apples			
Chlorantraniliprole	50	0.122	17,000
Carbaryl	43	1.403	168,700
Blueberries			
Zeta-cypermethrin	44	0.056	2,200
Bifenthrin	32	0.183	5,100
Peaches			
Esfenvalerate	36	0.093	2,300
Beta-cyfluthrin	27	0.043	800
Herbicides			
Apples			
Paraquat	19	1.099	58,800
Glyphosate isopropylamine salt	18	1.499 ^b	77,600 ^b
Pyraflufen-ethyl	18	0.006	300
Rimsulfuron	18	0.065	3,300
Blueberries			
Glufosinate-ammonium	26	1.724 ^b	38,600 ^b
Mesotrione	20	0.177	3,000
Peaches			
Glyphosate isopropylamine salt	29	1.478 ^b	29,700 ^b
2,4-D, dimethylamine salt	20	0.936 ^b	13,100 ^b
Other Chemicals			
Apples			
Mineral oil	61	38.275	6,596,100
Prohexadione calcium	31	0.299	26,400
Blueberries			
Mineral oil	11	13.240	124,300
Hydrogen peroxide	10	2.074	17,900
Peaches			
Mineral oil	48	25.837	882,600
E-8-Dodecenyl acetate	14	0.033	300
Z-8-Dodecen acetate	14	0.159	1,600
Z-8-Dodecanol	14	0.011	100

^aAcres with multiple ingredients are counted in each category.

^bExpressed in acid equivalent.