

## 2019 AGRICULTURAL CHEMICAL USE SURVEY

# Barley

### Fourteen states . . .

. . . accounted for 94.9 percent of U.S. acres planted to barley in 2019.

### 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 field crop agricultural chemical use surveys in cooperation with USDA's Economic Research Service as part of the Agricultural Resource Management Survey. NASS conducted the barley chemical use survey in the fall of 2019.

### Access the Data

Access 2019 and earlier barley chemical use data through the Quick Stats database (<http://quickstats.nass.usda.gov>).

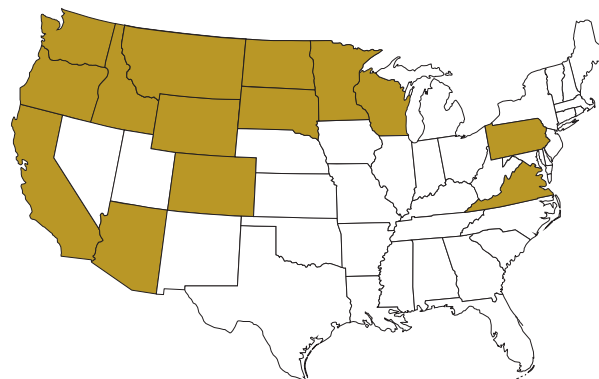
- In Program, select "Survey"
- In Sector, select "Environmental"
- In Group, select "Field Crops"
- In Commodity, select "Barley"
- Select your category, data item, geographic level, and year

For pre-defined Quick Stats queries, go to <http://bit.ly/AgChem> and click "Data Tables" under the 2019 Barley, Cotton, Sorghum, and Wheat heading. For methodology information, click "Methodology."

The 2019 Agricultural Chemical Use Survey of barley producers collected data about fertilizer and pesticide use as well as pest management practices in growing barley. NASS conducted the survey among barley producers in 14 states that together accounted for 94.9 percent of the 2.7 million acres planted to barley in the United States in 2019: Arizona, California, Colorado, Idaho, Minnesota, Montana, North Dakota, Oregon, Pennsylvania, South Dakota, Virginia, Washington, Wisconsin, and Wyoming. (Fig. 1 and box on p. 2)

The data are for the 2019 crop year, the one-year period beginning after the 2018 harvest and ending after the 2019 harvest.

**Fig. 1. States in the 2019 Barley Chemical Use Survey**



## Fertilizer Use

Fertilizer refers to a soil-enriching input that contains one or more plant nutrients. For the 2019 crop year, farmers applied nitrogen to 86 percent of planted acres, at an average rate of 67 pounds per acre, for a total of 150.3 million pounds.

They applied phosphate to 72 percent of barley planted acres and potash to 26 percent of acres. (Table 1)

**Table 1. Fertilizer Applied to Barley Planted Acres, 2019 Crop Year**

	% of Acres with Nutrient <sup>a</sup>	Avg. Rate for Year (lbs/acre)	Total Applied (mil lbs)
Nitrogen (N)	86	67	150.3
Phosphate (P <sub>2</sub> O <sub>5</sub> )	72	33	60.8
Potash (K <sub>2</sub> O)	26	22	15.1
Sulfur (S)	48	13	15.7

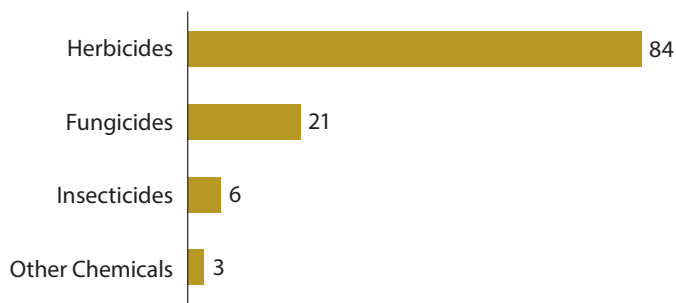
<sup>a</sup> Acres with multiple nutrients are counted in each category.

## Pesticide Use

The pesticide active ingredients used on barley are classified in this report 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). Herbicides were used most extensively, with application to 84 percent of planted acres. Fungicides were applied to 21 percent of the acres, while insecticides and other chemicals were applied to fewer acres. (Fig. 2)

Among herbicides, fluroxypyr 1-mhe was the most widely used active ingredient (applied to 42 percent of planted acres), followed by pinoxaden (28 percent) and mcpa; 2-ethylhexyl (25 percent). (Table 2)

**Fig. 2. Pesticides Applied to Barley Planted Acres, 2019 Crop Year**  
(% of planted acres)



**Table 2. Top Herbicides Applied to Barley Planted Acres, 2019 Crop Year**

Active Ingredient	% of Acres with Ingredient <sup>a</sup>	Avg. Rate for Year (lbs/acre)	Total Applied (lbs)
Fluroxypyr 1-MHE	42	0.099	106,000
Pinoxaden	28	0.052	37,000
MCPA; 2-ethylhexyl	25	0.288	183,000 <sup>b</sup>
Thifensulfuron	24	0.012	7,000
Tribenuron-methyl	24	0.006	4,000

<sup>a</sup> Acres with multiple ingredients are counted in each category.

## Pest Management Practices

The survey asked growers to report on the practices they used to manage pests, defined as weeds, insects, or diseases. Barley growers reported practices in four categories: prevention, avoidance, monitoring, and

suppression (PAMS).

- *Prevention* practices involve actions to keep a pest population from infesting a crop or field.
- *Avoidance* practices use cultural measures to mitigate or eliminate the detrimental effects of pests.
- *Monitoring* practices observe or detect pests by systematic sampling, counting, or other forms of scouting.
- *Suppression* practices involve controlling or reducing existing pest populations to mitigate crop damage.

The most widely used prevention practice in growing barley was no-till or minimum till, used on 64 percent of planted acres. The top avoidance practice was rotating crops (77 percent). Scouting for weeds was the most widely used monitoring practice (87 percent), and maintaining ground cover, mulching, or using other physical barriers was the top suppression practice (46 percent). (Table 3)

**Table 3. Top Practice in Pest Management Category, 2019**  
(% of barley planted acres)

<i>Prevention</i> : Used no-till or minimum till	64
<i>Avoidance</i> : Rotated crops during past three years	77
<i>Monitoring</i> : Scouted for weeds (deliberately, or by general observations while performing other tasks)	87
<i>Suppression</i> : Maintained ground covers, mulches, or other physical barriers	46

**Surveyed States: Acres of Barley Planted, 2019**

	thousands of acres	% of U.S. 100
<b>U.S. Total</b>	<b>2,721</b>	
Montana	920	33.8
North Dakota	580	21.3
Idaho	540	19.8
Washington	95	3.5
Wyoming	81	3.0
Minnesota	70	2.6
California	60	2.2
Colorado	54	2.0
Oregon	40	1.5
South Dakota	37	1.4
Pennsylvania	35	1.3
Virginia	30	1.1
Wisconsin	24	0.9
Arizona	17	0.6
<b>Total, Surveyed States</b>	<b>2,583</b>	<b>94.9</b>

Numbers may not add due to rounding.