



## 2022 AGRICULTURAL CHEMICAL USE SURVEY

# Wheat

### Twenty-two states . . .

. . . accounted for 93% of the 45.7 million U.S. acres planted to wheat in 2022.

### 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 wheat chemical use survey in the fall of 2022.

### Access the Data

Access 2022 and earlier wheat chemical use data through the Quick Stats database ([quickstats.nass.usda.gov](http://quickstats.nass.usda.gov)).

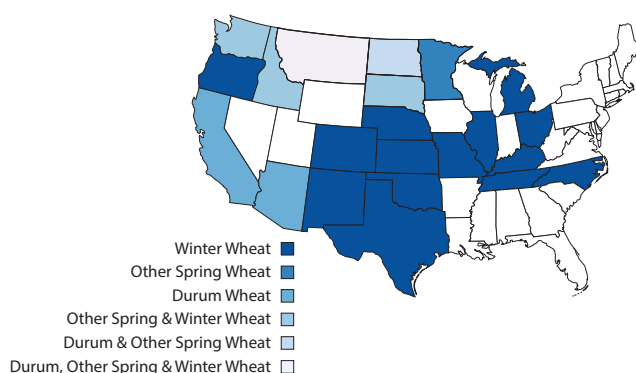
- In Program, select "Survey"
- In Sector, select "Environmental"
- In Group, select "Field Crops"
- In Commodity, select "Wheat"
- Select your category, data item, domain, geographic level, and year

For pre-defined Quick Stats queries, go to [bit.ly/AgChem](http://bit.ly/AgChem) and click "Data Tables" under the 2022 Potatoes and Wheat heading. For methodology information, click "Methodology."

The 2022 Agricultural Chemical Use Survey of wheat producers collected data about fertilizer and pesticide use as well as pest management practices in growing wheat. NASS conducted the survey in 22 states that together accounted for more than 93% of the 45.7 million acres planted to wheat in the United States in 2022, including 90% of winter wheat acres and 100% of other spring wheat and 99% Durum wheat acres. (Fig. 1 and Table 4)

The data are for the 2022 crop year, the one-year period beginning after the 2021 harvest and ending with the 2022 harvest.

**Fig. 1. States in the 2022 Wheat Chemical Use Survey**



### Fertilizer Use

Fertilizer refers to a soil-enriching input that contains one or more plant nutrients, primarily nitrogen (N), phosphate ( $P_2O_5$ ), and potash ( $K_2O$ ). For the 2022 crop year, farmers applied nitrogen to nearly all acres planted to other spring and Durum wheat. (Table 1)

**Table 1. Fertilizer Applied to Wheat Planted Acres, 2022 Crop Year**

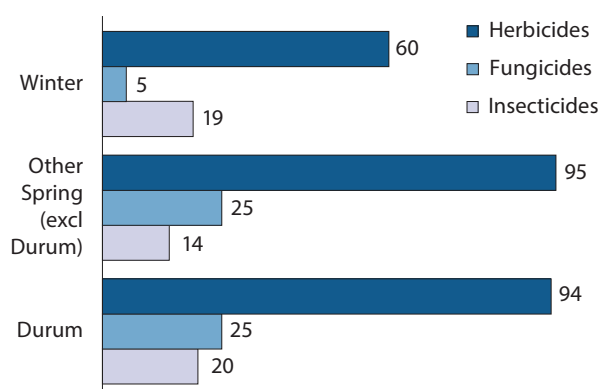
	% of Acres with Nutrient <sup>a</sup>	Avg. Rate for Year (lbs/acre)	Total Applied (mil lbs)
<b>Winter</b>			
Nitrogen (N)	80	72	1,732.4
Phosphate ( $P_2O_5$ )	60	33	594.1
Potash ( $K_2O$ )	19	52	305.3
<b>Other Spring (excl Durum)</b>			
Nitrogen (N)	96	80	836.7
Phosphate ( $P_2O_5$ )	82	34	299.9
Potash ( $K_2O$ )	12	19	24.5
<b>Durum</b>			
Nitrogen (N)	97	82	130.3
Phosphate ( $P_2O_5$ )	76	29	35.7
Potash ( $K_2O$ )	23	8	3.2

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

## Pesticide Use

In the surveyed states, farmers used 96 different pesticide active ingredients on winter wheat acres, 68 different ingredients on other spring (excluding Durum) wheat acres, and 24 on Durum wheat acres. These pesticide active ingredients are classified as herbicides (targeting weeds), insecticides (targeting insects), fungicides (targeting fungal disease), and other. Herbicides were used most extensively, applied to 60% of winter wheat planted acres, 95% of other spring (excluding Durum) wheat acres, and 94% of Durum wheat acres. (Fig. 2) Table 2 shows the most widely applied herbicides for each wheat type.

**Fig. 2. Pesticides Applied to Wheat Planted Acres, 2022 Crop Year**  
(% of planted acres)



**Table 2. Top Herbicides Applied to Wheat Planted Acres, 2022 Crop Year**

Active Ingredient	% of Acres with Ingredient <sup>a</sup>	Avg. Rate for Year (lbs/acre)	Total Applied (lbs)
<b>Winter</b>			
Glyphosate isopropylamine salt	19	1.019	5,839,000 <sup>b</sup>
Metsulfuron-methyl	14	0.005	23,000
<b>Other Spring</b>			
Fluroxypyr 1-MHE	48	0.095	492,000
Bromoxynil octanoate	45	0.158	774,000
<b>Durum</b>			
Glyphosate isopropylamine salt	57	0.628	583,000 <sup>b</sup>
Fluroxypyr 1-MHE	42	0.092	63,000

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

<sup>b</sup> Expressed in acid equivalent.

## Pest Management Practices

The survey asked growers to report on the practices they used to manage pests, defined as weeds, insects, or diseases. Wheat growers reported practices in four categories: prevention, avoidance, monitoring, and suppression (PAMS). Table 3 shows the most widely used practice in each category.

- *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.

**Table 3. Top Practice in Pest Management Category, 2022**  
(% of wheat planted acres)

	Winter	Other Spring*	Durum
<i>Prevention: Cleaned equipment and implements after field work</i>	54		
<i>Prevention: Used no till or minimum till</i>		70	87
<i>Avoidance: Rotated crops during last three years</i>	44	73	68
<i>Monitoring: Scouted for pests (by deliberately going to the crop acres)</i>	51	78	
<i>Monitoring: Used weather data to assist with making pesticide applications</i>			66
<i>Suppression: Maintained ground covers, mulches, or other physical barriers</i>	36	46	62

\*Excluding Durum

**Table 4. Surveyed States: Acres of Wheat Planted, 2022**

	Winter	Other Spring*	Durum
<b>U.S. Total (thousands of acres)</b>	<b>30,085.0</b>	<b>10,835.0</b>	<b>1,625.0</b>
	(percent of total)		
Arizona			5.2
California			2.5
Colorado	5.9		
Idaho	2.3	3.5	
Illinois	2.0		
Kansas	21.9		
Kentucky	1.6		
Michigan	1.4		
Minnesota		11.5	
Missouri	1.9		
Montana	6.2	24.9	43.7
Nebraska	2.9		
New Mexico	1.1		
North Carolina	1.4		
North Dakota		48.9	48.6
Ohio	1.5		
Oklahoma	12.9		
Oregon	2.2		
South Dakota	2.5	6.7	
Tennessee	1.2		
Texas	15.9		
Washington	5.6	4.4	
<b>Total, Surveyed States</b>	<b>90.4</b>	<b>100.0</b>	<b>99.6</b>
(percent of U.S. Total)	(18 states)	(6 states)	(4 states)

Numbers may not add due to rounding.

\*Excluding Durum



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