

## 2021 AGRICULTURAL CHEMICAL USE SURVEY

# Cotton

### Nine states...

... accounted for 92.1% of U.S. acres planted to cotton in 2021.

### 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 cotton chemical use survey in the fall of 2021.

### Access the Data

Access 2021 and earlier cotton 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 "Cotton"
- 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 2021 Corn, Cotton, and Rice heading. For methodology information, click "Methodology."

The 2021 Agricultural Chemical Use Survey of cotton producers collected data about fertilizer and pesticide use as well as pest management practices for cotton production. NASS conducted the survey in nine states that accounted for 92.1% of the 11.2 million acres planted to cotton in the United States in 2021: Alabama, Arkansas, Georgia, Mississippi, Missouri, North Carolina, Oklahoma, Tennessee, and Texas. (Fig. 1)

The data are for the 2021 crop year, the one-year period beginning after the 2020 harvest and ending with the 2021 harvest. (Table 4)

**Fig. 1. States in the 2021 Cotton Chemical Use Survey**



## Fertilizer Use

Fertilizer refers to a soil-enriching input that contains one or more plant nutrients. For the 2021 crop year, farmers applied nitrogen to 71% of planted acres, at an average rate of 95 pounds per acre, for a total of 695.1 million pounds. They applied phosphate to 46% of planted acres, potash to 37%, and sulfur to 36% of planted acres. (Table 1)

**Table 1. Fertilizer Applied to Cotton Planted Acres, 2021 Crop Year**

	% of Acres with Nutrient <sup>a</sup>	Average Rate (lbs/acre)	Total Applied (mil lbs)
Nitrogen (N)	71	95	695.1
Phosphate (P <sub>2</sub> O <sub>5</sub> )	46	51	240.0
Potash (K <sub>2</sub> O)	37	77	293.3
Sulfur (S)	36	16	57.3

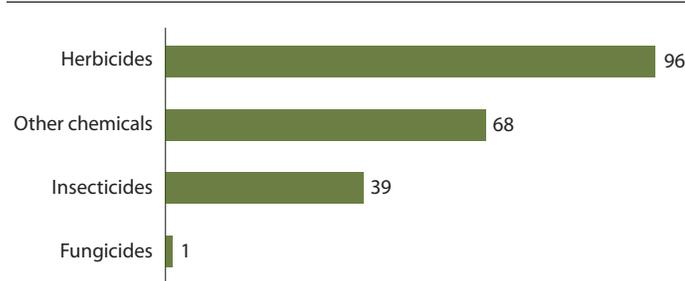
<sup>a</sup> Acres with multiple nutrients are counted in each category.

## Pesticide Use

The pesticide active ingredients used on cotton 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, applied to 96% of planted acres. Other chemicals were applied to 68% of planted acres, insecticides to 39%. (Fig. 2)

Among herbicides, two different forms of glyphosate were the most widely applied active ingredients. (Table 2).

**Fig. 2. Pesticides Applied to Cotton Planted Acres, 2021 Crop Year**  
(% of planted acres)



**Table 2. Top Herbicides Applied to Cotton Planted Acres, 2021 Crop Year**

Active Ingredient	% of Acres with Ingredient <sup>a</sup>	Average Rate (lbs/acre)	Total Applied (mil lbs)
Glyphosate isopropylamine salt	45	1.384 <sup>b</sup>	6.4 <sup>b</sup>
Glyphosate potassium salt	38	1.486 <sup>b</sup>	5.8 <sup>b</sup>
Paraquat	27	0.617	1.7
Dicamba diglycolamine salt	25	0.926 <sup>b</sup>	2.4 <sup>b</sup>
Diuron	22	0.370	0.9

<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. Cotton growers reported practices in four categories: prevention, avoidance, monitoring, and suppression.

- *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 cotton was cleaning equipment and implements after field work, used on 73% of planted acres. The top avoidance practice was rotating crops (65%). Scouting for weeds was the most widely used monitoring practice (94%) and using pesticides with different mechanisms of action was the top suppression practice (45%). (Table 3)

**Table 3. Top Practice in Pest Management Category, 2021**  
(% of cotton planted acres)

<i>Prevention</i> : Cleaned equipment and implements after field work	73
<i>Avoidance</i> : Rotated crops during last three years	65
<i>Monitoring</i> : Scouted for weeds (deliberately, or by general observations while performing other tasks)	94
<i>Suppression</i> : Used pesticides with different mechanisms of action to keep pests from becoming resistant to pesticides	45

**Table 4. U.S. and Surveyed States: Acres of Cotton Planted, 2021**

U.S. Total	Thousands of Acres	% of U.S.
	11,219.5	100
Texas	6,367	56.7
Georgia	1,170	10.4
Oklahoma	495	4.4
Arkansas	480	4.3
Mississippi	450	4.0
Alabama	405	3.6
North Carolina	375	3.3
Missouri	315	2.8
Tennessee	275	2.5
<b>Total, Surveyed States</b>	<b>10,332</b>	<b>92.1</b>

Numbers may not add due to rounding.