NASS *Highlights*

May 2020 • No. 2020-3

2019 AGRICULTURAL CHEMICAL USE SURVEY

Cotton

Thirteen states . . .

. . . accounted for 96.7 percent of U.S. acres planted to cotton 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 cotton chemical use survey in the fall of 2019.

Access the Data

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

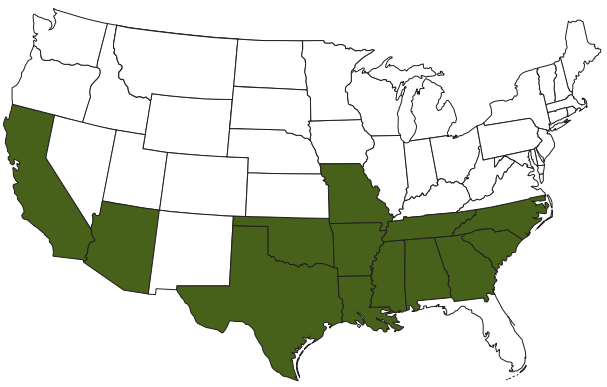
- In Program, select "Survey"
- In Sector, select "Environmental"
- In Group, select "Field Crops"
- In Commodity, select "Cotton"
- Select your category, data item, geographic level, and year

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

The 2019 Agricultural Chemical Use Survey of cotton producers collected data about fertilizer and pesticide use as well as pest management practices in growing cotton. NASS conducted the survey among cotton producers in 13 states that together accounted for 96.7 percent of the 13.7 million acres planted to cotton in the United States in 2019: Alabama, Arizona, Arkansas, California, Georgia, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. (Fig. 1)

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 Cotton 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 85 pounds per acre, for a total of 968.6 million pounds. They applied phosphate to 61 percent of cotton planted acres, potash to 48 percent of acres and sulfur to 41 percent of planted acres. (Table 1)

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

	% of Acres with Nutrient [a]	Avg. Rate for Year (lbs/acre)	Total Applied (mil lbs)
Nitrogen (N)	86	85	968.6
Phosphate (P_2O_5)	61	42	345.1
Potash (K_2O)	48	73	460.5
Sulfer (S)	41	14	75.2

[a] *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, with application to 93 percent of planted acres. Other chemicals were applied to 65 percent of planted acres, insecticides to 56 percent. (Fig. 2)

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

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

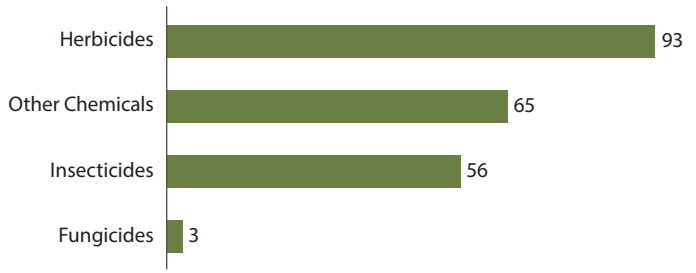


Table 2. Top Herbicides Applied to Cotton Planted Acres, 2019 Crop Year

Active Ingredient	% of Acres with Ingredient [a]	Avg. Rate for Year (lbs/acre)	Total Applied (mil lbs)
Glyphosate isopropylamine salt	55	1.740	12.8 [b]
Glyphosate potassium salt	32	2.138	9.2 [b]
Dicamba diglycolamine salt	21	1.180	3.2 [b]
Diuron	20	0.489	1.3
Trifluralin	16	0.934	2.0

[a] *Acres with multiple ingredients are counted in each category.*

[b] *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 (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 cotton was cleaning equipment and implements after field work, used on 61 percent of planted acres. The top avoidance practice was choosing crop or plant varieties for their resistance to specific pests (61 percent). Scouting for weeds was the most widely used monitoring practice (91 percent), and using pesticides with different mechanisms of action was the top suppression practice (45 percent). (Table 3)

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

Prevention: Cleaned equipment and implements after field work	61
Avoidance: Chose crop variety for specific pest resistance	61
Monitoring: Scouted for weeds (deliberately, or by general observations while performing other tasks)	91
Suppression: Used pesticides with different mechanisms of action to prevent pests from developing resistance	45

Surveyed States: Acres of Cotton Planted, 2019

	thousands of acres	% of U.S.
U.S. Total	**13,738**	**100**
Texas	7,062	51.4
Georgia	1,400	10.2
Mississippi	710	5.2
Oklahoma	640	4.7
Arkansas	620	4.5
Alabama	540	3.9
North Carolina	510	3.7
Tennessee	410	3.0
Missouri	380	2.8
South Carolina	300	2.2
Louisiana	280	2.0
California	260	1.9
Arizona	168	1.2
Total, Surveyed States	**13,280**	**96.7**

Numbers may not add due to rounding.