



2024 AGRICULTURAL CHEMICAL USE SURVEY

Vegetable 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 agricultural chemical use surveys as part of the Agricultural Resource Management Survey. NASS conducted the vegetable chemical use survey in fall 2024.

Access the Data

Access 2024 and earlier vegetable chemical use data through the Quick Stats database (quickstats.nass.usda.gov).

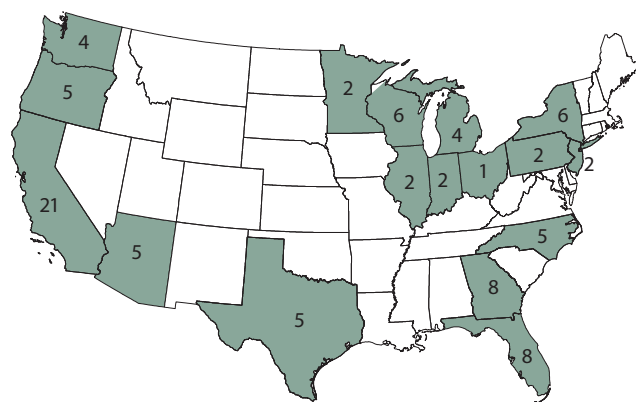
- In Program, select "Survey"
- In Sector, select "Environmental"
- In Group, select "Vegetables"
- In Commodity, select the vegetable(s) you want data for
- Select your category, data item, geographic level, and year

For pre-defined Quick Stats queries that take you to data for a particular vegetable, go to bit.ly/AgChem and click "Data Tables" under the 2024 Vegetables heading. For survey methodology information, click "Methodology."

The 2024 Agricultural Chemical Use Survey of vegetable producers collected data about fertilizer and pesticide use as well as pest management practices on acres planted to 22 different vegetable crops. NASS conducted the survey among producers in 17 states, focusing on the states that were major producers for the surveyed crops. (Fig. 1)

Data are for the 2024 crop year, the one-year period beginning after the 2023 harvest and ending after the 2024 harvest. Detailed data are available online for all 22 vegetable crops (see sidebar for how to access). This document highlights three vegetables: snap beans, squash, and sweet corn.

Fig. 1. States in the 2024 Vegetable Chemical Use Survey
(number of crops surveyed in state)

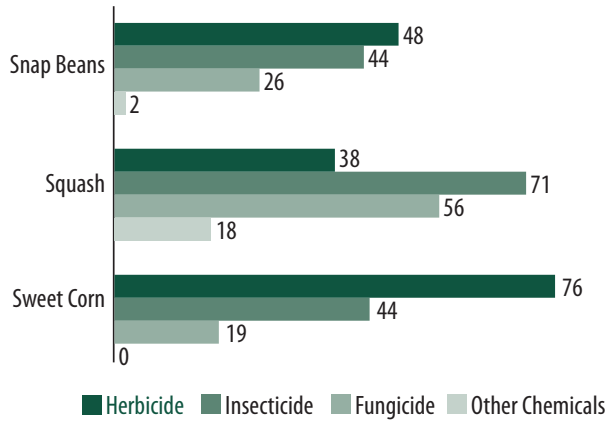


Pesticide Use

The pesticide active ingredients used on vegetables 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).

Snap bean growers applied herbicides to more acres (48% of planted acres) than insecticides or fungicides (44% and 26% of planted acres, respectively). Squash growers, on the other hand, applied insecticides and fungicides to 71% and 56% of the planted acres, respectively. Sweet corn growers applied herbicides to 76% of planted acres, but insecticides and fungicides to fewer acres. (Fig. 2)

Fig. 2. Pesticides Applied to Vegetable Planted Acres, 2024 Crop Year
(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. Vegetable growers reported practices in four categories of pest management strategy, widely referred to as PAMS – 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 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.*

The most widely used prevention practices were cleaning equipment and implements after field and chopping, spraying, mowing, plowing or burning field edges, ditches or fence lines both used on 78% of planted acres. The top avoidance practice was rotating crops (78%). Scouting for diseases and weeds were the most widely reported monitoring practices, used on 98% of vegetable planted acres. Maintaining ground cover, mulching, or using other physical barriers was the top suppression practice used on 59% of the acres. (Table 4)

Table 2. Top Pesticides Applied to Selected Vegetables, 2024 Crop Year (percent of planted acres, 22 vegetables)

| Active Ingredient | % of Planted Acres | Average Rate (lbs/acre) | Total Applied (lbs) |
|---------------------|--------------------|-------------------------|---------------------|
| Herbicides | | | |
| Snap Beans | | | |
| Bentazon | 33 | 0.598 | 27,200 |
| S- Metolachlor | 30 | 1.272 | 54,000 |
| Squash | | | |
| Clomazone | 21 | 0.195 | 1,500 |
| Ethalfualin | 23 | 0.781 | 7,800 |
| Sweet Corn | | | |
| Atrazine | 45 | 0.749 | 113,200 |
| Tembotrione | 33 | 0.079 | 8,700 |
| Insecticides | | | |
| Snap Beans | | | |
| Bifenthrin | 15 | 0.068 | 1,400 |
| Lambda-cyhalothrin | 16 | 0.031 | 700 |
| Squash | | | |
| Lambda-cyhalothrin | 13 | 0.071 | 400 |
| Zeta-cypermethrin | 24 | 0.020 | 200 |
| Sweet Corn | | | |
| Bifenthrin | 27 | 0.114 | 10,100 |
| Lambda-cyhalothrin | 18 | 0.072 | 4,400 |
| Fungicides | | | |
| Snap Beans | | | |
| Chlorothalonil | 8 | 3.533 | 39,000 |
| Thiophanate-methyl | 14 | 1.379 | 26,500 |
| Squash | | | |
| Chlorothalonil | 35 | 4.540 | 58,100 |
| Oxathiapiprolin | 16 | 0.038 | 200 |
| Sweet Corn | | | |
| Azoxystrobin | 17 | 0.133 | 7,700 |
| Propiconazole | 16 | 0.108 | 6,000 |

Table 4. Top Practice in Pest Management Category, 2024
(percent of vegetable planted acres)

| | |
|---|----|
| <i>Prevention: Equipment and implements cleaned after field work</i> | 78 |
| <i>Prevention: Chopped, sprayed, mowed, plowed, or burned field edges, ditches or fence lines</i> | 78 |
| <i>Avoidance: Rotated crops during past 3 years</i> | 78 |
| <i>Monitoring: Scouted for diseases (deliberately, or by general observations while performing other tasks)</i> | 98 |
| <i>Monitoring: Scouted for weeds (deliberately, or by general observations while performing other tasks)</i> | 98 |
| <i>Suppression: Maintained ground covers, mulches, or other physical barriers</i> | 59 |