

# Pesticides & Cotton Production

## Crop Protection and Agriculture

Without the use of pesticides, farmers would not be able to provide a nutritional, plentiful and affordable food supply for a rapidly growing global population. In fact, it's estimated that over 80% of the global cotton crop could be lost to insects, fungi and weeds<sup>1</sup> without them.

It's estimated that over 80% of the global cotton crop could be lost to insects, fungi and weeds without pesticides<sup>1</sup>.



## What is cotton's share of worldwide pesticide use?

Cotton is not the largest user of agricultural pesticides—it's actually one of the lowest, accounting for less than 5% of the world's total pesticide sales<sup>2</sup>, despite some erroneous claims.

## Global Pesticide Sales By Crop<sup>2</sup>

Crop	Share of Global Pesticides Sales
Fruit & Vegetables	25.7%
Cereals	16.2%
Soybean	14.5%
Other Crops	12.7%
Corn (Maize)	11.3%
Rice	10.2%
<b>Cotton</b>	<b>4.7%</b>
Canola	3.4%
Sugar Beets	1.3%

1: Oerke, E.-C., & Dehne, H.-W. (2004). Safeguarding production—losses in major crops and the role of crop protection. *Crop Protection*, 23(4), 275–285. <https://doi.org/10.1016/j.cropro.2003.10.001>

2: Phillips McDougall, (2017). World Pesticide Sales Data.

## How much pesticides are used per pound of cotton produced in the U.S.?

According to the USDA, in 2017 the following amounts of pesticides were applied to each acre of cotton:



The average acre in 2017 produced 905 pounds of cotton<sup>3</sup>. That means **less than one tenth of one ounce** of pesticides were used per pound of cotton produced. Or, to illustrate that in a more practical way, the same amount as about three packets of artificial sweetener.

Plus, with improvements in biotechnology, new cotton varieties, and Integrated Pest Management (IPM) programs, the number of insecticide applications has dropped more than 50% in the United States in the last 30 years<sup>4</sup>.

### Why is cotton regulated as a food crop?

Because cotton is much more than the fiber you're familiar with. There are many economically important by-products of cotton, such as cottonseed, cottonseed oil, cottonseed meal, and cotton linters. Since these are used in human and animal foodstuffs, cotton is treated just like other food crops such as soybeans, corn or wheat by the U.S. Food and Drug Administration<sup>5</sup>.

### What is Bt-cotton and why is it important to the cotton industry?

Bt, or *Bacillus thuringiensis*, is a soil dwelling bacteria that produces insecticidal proteins which are important for both organic and conventional cotton growers. Organic growers may apply the protein topically to their crops<sup>6</sup>. Conventional growers use cotton varieties that have been engineered to produce the Bt proteins internally, to bolster resistance to damaging insects.

### Does certified organic cotton production allow for pesticide use?

In short, yes. As an example in the U.S., there is an approved list of pesticides for organic production that are derived from both synthetic non-synthetic sources<sup>8</sup>. Organic cotton production allows for pesticides such as peracetic acid, copper oxychloride, or ferric phosphate<sup>9</sup> provided that other more preferred methods are insufficient to prevent or control the target pest<sup>6</sup>. When following product labels, both non-synthetic and synthetic pesticides can be used responsibly to minimize both human health and environmental impacts. By preserving yield, these products are critical for minimizing other impacts such as greenhouse gas emissions and water consumption while providing enough food and fiber to meet a growing global demand.

For more information about pesticide use in cotton, visit [cottontoday.cottoninc.com](http://cottontoday.cottoninc.com)

3: United States Department of Agriculture NASS QuickStats. (2020). Cotton Yield and Production Data. <https://quickstats.nass.usda.gov/>

4: National Cotton Council Beltwide Cotton Conference Proceedings 1987-2016 & Mississippi State University Cotton Insect Losses Reports.

5: Code of Federal Regulations (CFR). (2019). 21CFR172.894. FOOD ADDITIVES PERMITTED FOR DIRECT ADDITION TO FOOD FOR HUMAN CONSUMPTION. <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfCFR/CFRSearch.cfm?fr=172.894>

6: Electronic Code of Federal Regulations (eCFR). (2020). 205.206 Crop pest, weed, and disease management practice standard. [https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=46e48bfd5a4c6cf4c26ffcd68cbd48af&mc=true&n=pl7.3.205&r=PART&ty=HTML#se7.3.205\\_1206](https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=46e48bfd5a4c6cf4c26ffcd68cbd48af&mc=true&n=pl7.3.205&r=PART&ty=HTML#se7.3.205_1206)

8: Electronic Code of Federal Regulations (eCFR). (2020). 205.105 Allowed and prohibited substances, methods, and ingredients in organic production and handling. <https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=9874504b6f1025e60e6b67cadf9d3b40&r=div6&view=text&node=73.119.327&idno=7>