

Comparing Conventional & Organic Cotton Production



What Is the difference between organic and conventional cotton?

The distinction between organic and conventional cotton can often be misunderstood or misconstrued in sustainability conversations. In reality, the two productions systems are not that different with respect to growing practices.

One of the major differences between organic and conventional cotton is the origin of the seeds and the chemical technologies used to grow and protect the crops.

Organic cotton growers cannot use biotech (GMO) seeds and, in most cases, cannot apply synthetic pest deterrents unless other more preferred methods are insufficient to prevent or control the target pest^{1,7}. Technically, organic cotton must be grown on land that has been free of prohibited substances for three years³. In the U.S., organic cotton is subject to third party verification and is certified by the United States Department of Agriculture².

Conventional cotton growers have more latitude. They may plant biotech seeds or seeds from traditional breeding. They may use synthetic or natural nutrients and crop protectors, or a combination of natural and synthetic inputs.

Beyond the criteria mentioned above, U.S. growers of conventional and organic cotton are both subject to federal regulations and able to utilize the full range of farming best management practices.



Use GMO
technology



Use Soil Health
Building Practices
(such as regenerative agriculture)



Use Integrated
Pest
Management



Use Practices to
Increase Water Use
Efficiency



Use Crop Rotation
& Cover Crops

ORGANIC



CONVENTIONAL



1: Electronic Code of Federal Regulations (eCFR). (2020). National Organic Program, 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=9874504b6f1025eb0e6b67cadfd9d3b40&rgn=div6&view=text&node=7:3.1.1.9.32.7&idno=7>

2: Electronic Code of Federal Regulations (eCFR). (2020). National Organic Program, 205.670. Inspection and testing of agricultural products to be sold or labeled as "100 percent organic", "organic", or "made with organic (specified ingredients or food groups)". <https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=9874504b6f1025eb0e6b67cadfd9d3b40&rgn=div6&view=text&node=7:3.1.1.9.32.7&idno=7>

3: Electronic Code of Federal Regulations (eCFR). (2020). National Organic Program, 205.202. Land requirements. <https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=9874504b6f1025eb0e6b67cadfd9d3b40&rgn=div6&view=text&node=7:3.1.1.9.32.7&idno=7>

Does conventional cotton require more water than organic?

Typically, no. A crop's production system (organic or conventional) has no impact on its water requirements. Water requirements are dictated by the farming region and by the specific variety of cotton planted. Further, both production systems can benefit from soil health building practices (regenerative agriculture, use of cover crops, diverse crop rotations, etc.) which have shown to dramatically increase soil organic matter and water holding capacity⁴.

Do organic and conventional cotton have comparable fiber yields?

In general, no. Organic cotton typically yields less fiber per acre⁵. This is largely due to the difficulty of controlling insects and weeds at scale while adhering to organic guidelines⁶.

Is organically-grown cotton more sustainable than conventionally-grown cotton?

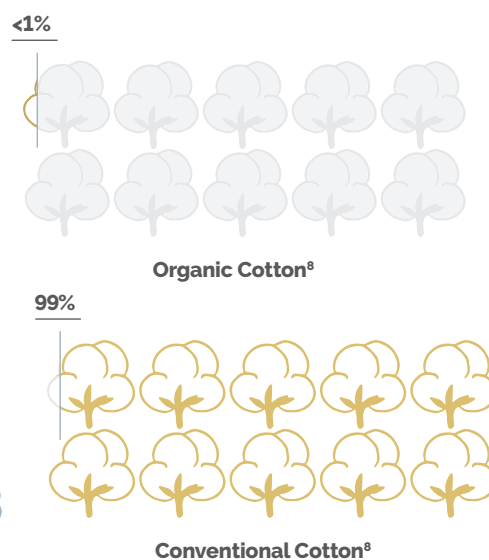
It depends on how sustainability is defined and measured. Both organic and conventional cotton when produced responsibly have the ability to reduce certain environmental impacts. However, depending on the criteria, neither is inherently more sustainable than the other.

Does organic cotton 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 and non-synthetic sources³. However, they are only allowed to be used provided that other more preferred methods are insufficient to prevent or control the target pest⁷. 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.

Less than **1%** of the world's cotton supply qualifies as **ORGANIC**⁸

99% of the world's cotton supply is considered **CONVENTIONAL**⁸



For more information on cotton production methods and sustainability visit cottontoday.cottoninc.com

4: Wall, D. H. (2012). Soil ecology and ecosystem services. Oxford University Press. <https://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199575923.001.0001/acprof-9780199575923>

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

6: 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>

7: 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-pt7.3.205&r=PART&ty=HTML#se7.3.205_1206

8: Organic Cotton Covering production trends and initiative updates from the 2017/18 harvest year. (2019). https://store.textileexchange.org/wp-content/uploads/woocommerce_uploads/2019/11/Textile-Exchange_Organic-Cotton-Market-Report_2019_3.pdf