



Quick Guide to **Organic Cotton**





CELEBRATING

15

YEARS

Textile Exchange - 15 Years of Organic Cotton

[Textile Exchange](#) has been working alongside organic cotton stakeholders for 15 years. As a non-profit, Textile Exchange has played a lead role in reporting the supply and demand trends, the benefits and sustainability value addition of organic agriculture, as well as the challenges and barriers to growth. We have also helped supply chains manage content claims by producing a Chain of Custody standard (the [Organic Content Standard](#)) and we work closely with the industry to continuously improve product integrity.

As a result of our research, knowledge exchange and stakeholder relations within the textile industry, the cotton industry, and the organic food and fiber sector, we have carved out a position on organic cotton that reflects its unique place within these various networks.

Alongside the multiple “homes” in which organic cotton resides, the organic movement is continuously evolving. While the core principles of organic remain intact, the priorities have evolved as the organic movement matures from the beginning phase, of establishing the standard, to building the market for organic products through certification and labeling, which has been the focus in more recent years. Now, we are moving on to become more inclusive as a movement, accounting for impact, and factoring in continuous improvement, as this is being referred to as Organic 3.0. What remains the same are the principles underpinning organic:



Health

Farming methods (such as composting, mulching and crop rotation) build a “living soil” and eliminate toxic and harmful chemicals from the production system. This focus on soil health means it may take some years for the land to reach a state of optimal productivity but, once it has, yields are comparable with those achieved through synthetic fertilizers that support plant growth but do very little to improve soil fertility over the longer term. Soils rich in organic matter are also proven to hold water more efficiently than those with less organic matter.



Ecology

Organic farming methods work with nature to maintain ecosystem balance and biodiversity. Diversity in wild spaces and of native flora and fauna species is part of the equation, but the other important factor is crop and livestock diversity, which brings with it economic diversity and food security for farmers alongside benefits to soil fertility and biodiversity.



Fairness

Social justice, while not hard-coded into the organic standards or regulations, is nonetheless an intrinsic component to organic, ensuring that people are treated fairly and with respect, regardless of gender or race. Everyone involved has the right to maintain good health and safety, and to prosper from their investment in sustainable agriculture.



Care

This principle is concerned with the long-term sustainability of the planet, not just for current generations but also for generations to come.

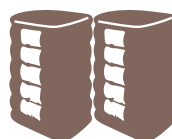


Numbers at a Glance



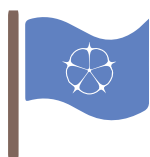
193,840

Farmers produced organic cotton in 2015



112,488

Metric tons of organic cotton were produced in 2015



19

Countries are producing organic cotton



US\$15.76bn

global sales of organic cotton products estimated in 2015



3,126

OCS certified facilities in 2015



3,814

GOTS certified facilities in 2015



When I used to apply chemicals, I often felt dizzy and nauseous, now I never feel like that. Working with a company like Bergman Rivera/ Ecotton has given me the opportunity to receive training in organic practices, but also in agricultural techniques that I didn't know. The compost and humus storehouse that they funded has helped my community get an additional income, by selling what we don't use.

Francisco Almeida, Peru
Bergman Rivera/Ecotton (El Carmen, Chincha, Ica, Peru)



With the organic farming our field has become more fertile; we learned how to organize proper crop rotation. Besides, the income from organic farming is higher in comparison with conventional farming. This year I started working as village bio inspector (VBI). The work is difficult but very interesting. I want to prove that a woman can also work as VBI.

Shamshieva Sonunai, Kyrgyzstan
Bio Farmer Coop (Shaidan village, Jalal-Abad County, Kyrgyzstan)





What is Organic Cotton?



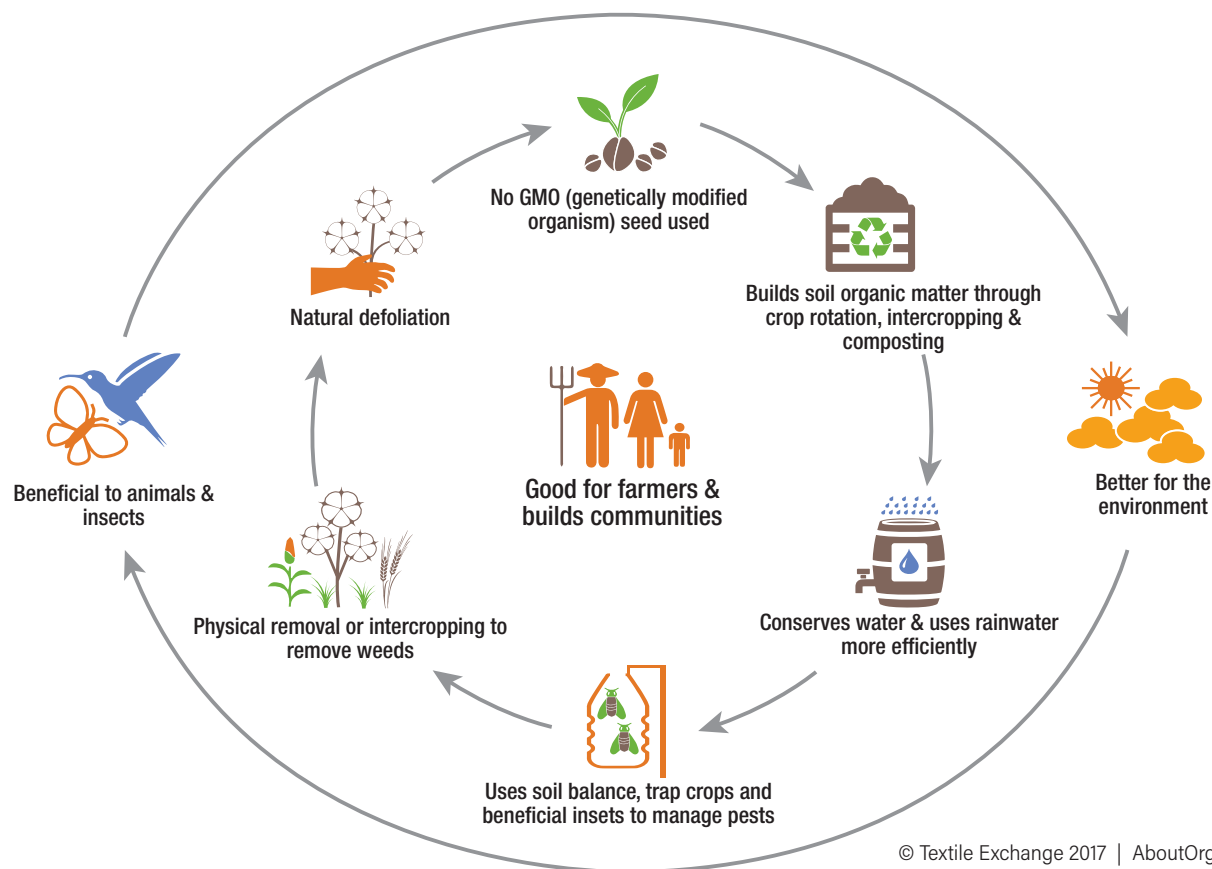
Organic Agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

IFOAM-Organics International

Organic cotton is grown using methods and materials that have a positive impact on the environment. Organic production systems replenish and maintain soil fertility, expand biologically diverse agriculture, and prohibit the use of synthetic toxic and persistent pesticides and fertilizers, as well as genetically engineered seed. Third-party certification organizations verify that organic producers meet strict federal regulations addressing methods and materials allowed in organic production.

Demand for organic cotton comes from two primary sources:

1. Consumers who are making a lifestyle choice to support organic food and fiber.
2. Brands and retailers that are making proactive decisions to reduce their carbon, water and chemical footprint by adopting the use of more sustainable fibers and materials. Organically grown cotton provides a positive solution.



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What is the Value of the Global Organic Cotton Market?



Global sales of organic cotton products reached an estimated \$15.76 billion in 2015. The Top 10 users of organic cotton in 2015 were C&A, H&M, Tchibo, Inditex, Nike, Decathlon, Carrefour, Lindex, Williams-Sonoma, and Stanley & Stella.¹

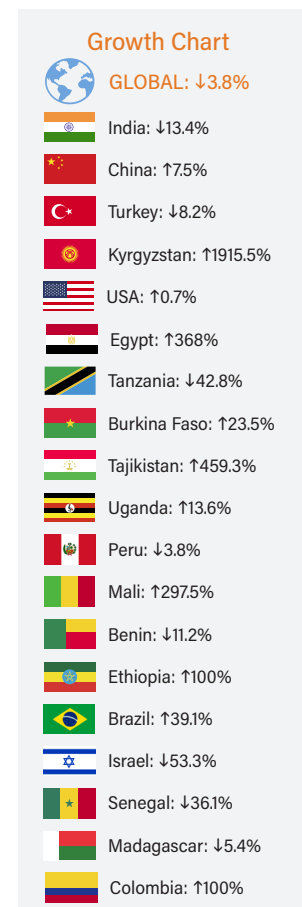
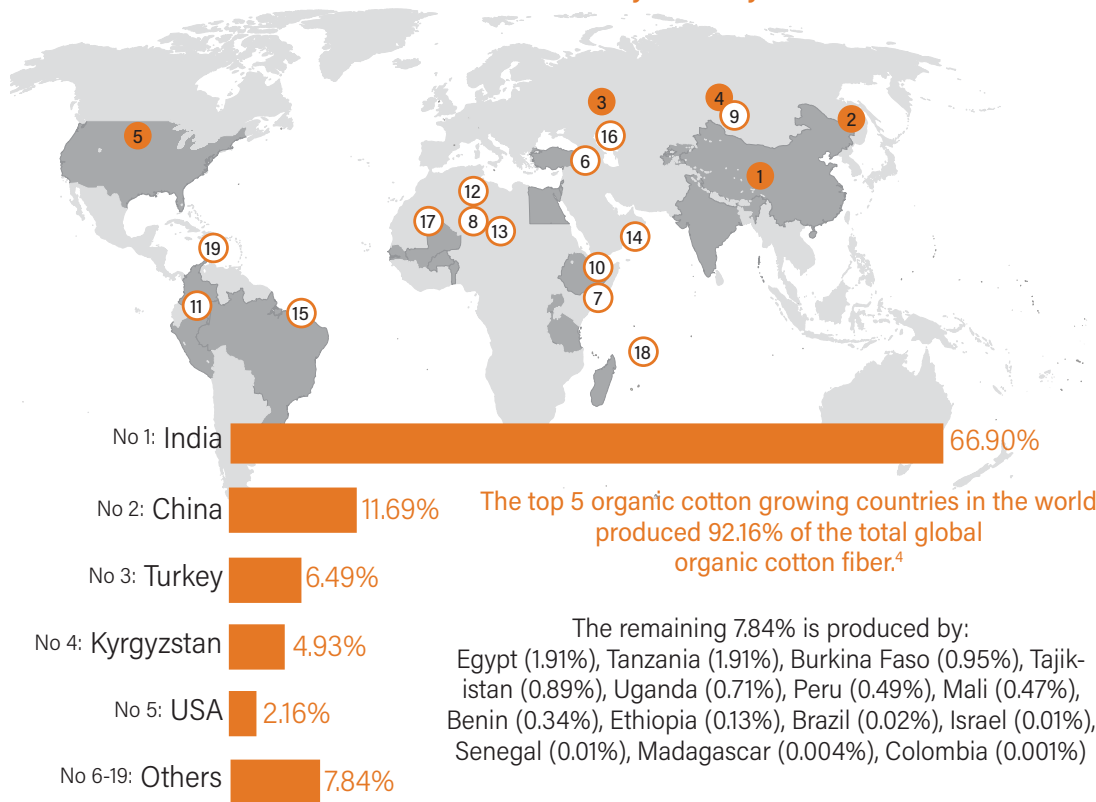
Companies are increasingly becoming certified to traceability standards such as the Textile Exchange Organic Content Standard (OCS), which verifies that the cotton is certified organic.²

How Much Organic Cotton is Grown Globally?

In 2014/2015, approximately 112,488 metric tons of organic cotton were grown by 193,840 farmers on 350,033 hectares of organic certified land in 19 countries. An additional 85,671 hectares of land are in conversion to organic.

Organic cotton production represented approximately 0.4% of global cotton production in 2014/2015.³

Breakdown Of Fiber Production By Country In 2104/15





Organic Cotton Production Practices

Organic agriculture protects the health of people and the planet by reducing overall exposure to toxic chemicals from synthetic pesticides that can end up in the ground, air, water and food supply, and that are associated with numerous health consequences, from asthma to cancer. Because organic agriculture doesn't use toxic and persistent pesticides, choosing organic products is an easy way to help protect you, your family and the farming communities that are growing cotton.

Organic farmers have an alternative approach to managing pests such as insects and weeds. This includes natural (or "non-synthetic") materials that are derived from mineral, plant, or animal matter and do not undergo a synthetic process⁵ such as garlic, hydrogen peroxide, neem oil, and vinegar.⁶ Organic farmers in the U.S. do have restricted access to 25 synthetic active pest control products (over 900 are registered for use in conventional farming.)⁷ These materials must be on the USDA National List of Allowed and Prohibited Substances.⁸

According to the Texas Organic Cotton Marketing Cooperative, which grows the majority of the organic cotton in the U.S., its growers do not use any inputs for weed control, preferring to use mechanical tillage and hand weeding. They very rarely use anything for insect control, preferring to create resilient crops by building healthy soils and using inputs such as neem oil only as a last resort.

Organic farming methods also use natural fertilizers, such as compost and animal manure, which recycle the nitrogen already in the soil rather than adding more. This reduces both pollution and N₂O emissions.⁹ Such methods also sequester and reduce carbon emissions. Instead of synthetic fertilizer, most farmers in the Texas Organic Cotton Marketing Cooperative use compost, and a few use manure or natural biological products.¹⁰



Intercropping & Crop Rotation

Composting & Soil Management

Seed Treatment

Natural & Biological Insecticides

Water Not Polluted by Chemicals

Women's Self Help Group



Benefits of Organic Cotton

Textile Exchange produced a peer-reviewed Organic Cotton Life Cycle Assessment (LCA) in 2014¹¹ using the LCA produced by Cotton Inc. in 2012¹² as a baseline from which to draw comparisons between organic and chemically grown cotton. Textile Exchange used the same organization ([thinkstep](#) - previously known as PE International) and the same methodology used by Cotton Inc. to ensure the results were consistent and comparable. Textile Exchange's LCA indicated that growing cotton organically rather than conventionally has the potential to create a number of environmental savings, outlined below. In addition, the use of genetic engineering is prohibited in organic agriculture.¹³

Potential Environmental Savings of:



Furthermore, Organic Cotton ensures that:



There's no use of GMO seeds

&

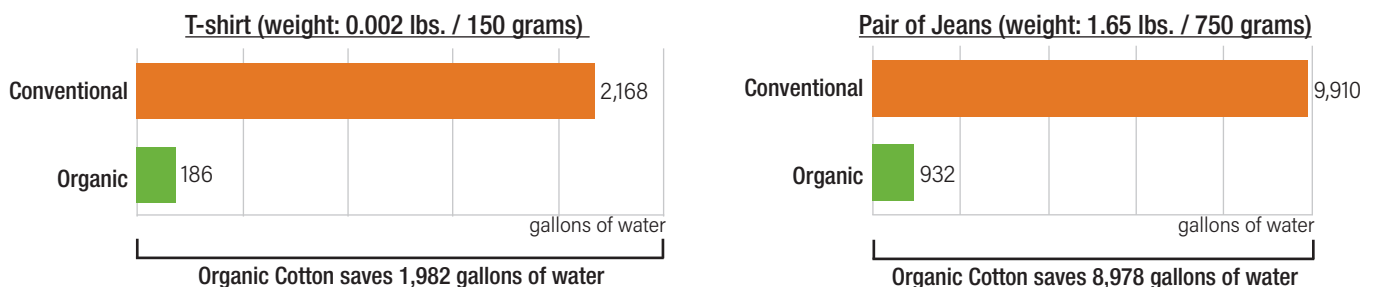


There's no use of toxic chemicals

To date, Cotton Inc. has not provided toxicity results for chemically grown cotton. Textile Exchange is undertaking a Pesticide Footprint Analysis beginning 2017 with results expected in 2018.

Comparison of Water Usage between Organic and Conventional (Chemical) Cotton

The graphic below shows the difference in water use for an average sized t-shirt and pair of jeans, calculated using the data from Cotton Inc.'s 2012 LCA for chemical cotton (the latest for which the methodology is available) and Textile Exchange's 2014 LCA for organic cotton¹⁴. Until the methodology behind Cotton Inc.'s more recent LCA becomes available, this comparison remains the most accurate available.



Sustainable water management is a fundamental part of organic production. This involves the use of agronomic practices such as crop rotations and the use of green manure, catch and cover crops - shown to reduce nutrient leaching and run-off into water bodies.¹⁵ It is reported that soil organic matter holds 10 to 1,000 times more water and nutrients than the same amount of soil minerals,¹⁶ and one percent of organic matter in the top six inches of soil would hold approximately 27,000 gallons of water per acre.¹⁷



Organic Cotton's Impact on Climate Change

Using LCA data and 2014/15 production figures, organic cotton's climate change related impact savings are estimated at¹⁸:



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How does Producing Cotton Organically Impact the Yields?

Yields are often touted as the reason why organic and regenerative systems cannot be scaled up, but evidence suggests otherwise. Farming trials across the world have contrasted various forms of regenerative and conventional practices with special attention to crop yield, drought impact, and carbon sequestration. Some of these studies are in their third decade of data, such as [Rodale Institute's Farming Systems Trial](#), and the new Tropical Farming Systems Trial (TFST) on the Caribbean slope of Costa Rica. The TFST is exactly the type of research needed for us to understand the full sequestration potential of regenerative agriculture.

Importantly, yields under organic systems are likely to be more resilient to the extreme weather accompanying climate change. As found in the long-running Rodale Institute Farming System Trial, in drought years, yields were consistently higher in the organic systems. For instance, organic corn yields were 28% to 34% higher than conventional.¹⁹

A study in north-west Benin assessed the resilience of households to flooding, high-intensity rainfall or drought. It was found that the agricultural practices used in organic cotton production directly reduced the most frequent climatic risks that households faced, and indirectly contributed to reducing economic risks and to empowering women.²⁰



I farm 4000 acres of organic cotton in the middle of the world's largest cotton patch. My yields are equal to the conventional neighbors' cotton grown next to my organic fields. The premise that organic plants produce less is incorrect unless chemical drift retards their growth.

Carl Pepper, Farmer,
Texas Organic Cotton Marketing Cooperative



In a meta-analysis by Seufert et al.²¹ it is shown that yields in organic farming systems with good management practices can nearly match conventional yields. A study by FiBL²² in India found that, averaged across all crops, conventional farming systems achieved significantly higher gross margins in cycle 1 (+29%), whereas in cycle 2 gross margins in organic farming systems were significantly higher (+25%) due to lower variable production costs but similar yields.

As explained by Reganold²³, productivity is not the only goal that must be met in order for agriculture to be considered sustainable: The maintenance or enhancement of soil fertility and biodiversity, while minimizing detrimental effects on the environment and the contribution to the well-being of farmers and their communities are equally important as productivity goals.

Organic Cotton is A Holistic Approach to Farming

Organic Cotton is a holistic approach to farming cotton. Whilst the LCA benefits presented help us assess the inputs and impacts of farm production systems, it is important to understand this assessment is limited to a restricted set of criteria more suitable for a factory than a farm.

With agriculture, there is a strong reliance on natural resources: land, water, sunlight, nutrients, soil, and biodiversity, making modeling of these “open” systems difficult and ever-changing.

Current agricultural LCAs do not adequately account for the use of pesticides and other agrochemicals in farming systems. A number of methodologies are in use such as USEtox but are difficult to translate into agricultural LCAs. Until there is a reliable method for incorporating this important indicator of sustainability and the potential impact of agrochemicals on human health and the environment, there remains a significant gap in agricultural LCAs.

Organic production systems do not just reduce toxic and persistent pesticides; they eliminate their use. It is not only about the volume of water and the ability to retain water but also about the quality of water.

Other key impacts that are not captured in an LCA include increased biodiversity, food security, and socio-economic benefits. These impacts aren't easy to quantify, but to provide an insight into the benefits experienced by organic cotton farmers, Textile Exchange carried out a Sustainability Assessment²⁴. Findings included:



65%

Producer Groups have Fairtrade or decent work policies



88%

Producer Groups grow crops for additional income



96%

Producer Groups compost



97%

Producer Groups encourage women participation



96%

Producer Groups grow crops for own use



84%

Producer Groups report community benefits associated with organic cotton



Ave 9

Crop types grown by Producer Groups for cash or own use



96%

Producer Groups harvest rainwater



Strengthening Integrity in the Supply Network

Just because a garment is labeled as “green,” “sustainable” or “eco-friendly” does not make it organic. Cotton clothing is only organic if it is certified to an organic cotton standard.

The **Organic Content Standard (OCS)**²⁵ from Textile Exchange and the **Global Organic Textile Standard (GOTS)**²⁶ are both voluntary supply chain standards that maintain the identity of organic fiber/material content as it moves through production and into a final product. The key difference between the two is that GOTS places additional social and environmental requirements on the processing stages.



How do I make an Organic Product Claim?

Thousands of facilities have become certified to the Global Organic Textile Standard (GOTS). GOTS is a stringent voluntary global standard for the entire post-harvest processing (spinning, knitting, weaving, dyeing and manufacturing) of apparel and home textiles made with organic fiber. The standard prohibits the use of toxic inputs during the processing stages and includes strong labor provisions, including a prohibition on child labor.

In 2011, the U.S. Department of Agriculture issued a policy memorandum addressing labeling of textile products containing certified organic fibers including cotton, linen, and wool²⁷. According to the memo, products containing organically grown fibers that have been processed according to GOTS may now be marketed as organic.²⁸



Take Action - Get involved in the Organic Cotton Round Table, a global stakeholder platform that supports and brings together the organic cotton community to be inspired, mobilized, and equipped to act. Find more details: <http://textileexchange.org/organic-cotton-round-table>



References

1. Textile Exchange, "Organic Cotton Market Report 2016," July 2016. <http://textileexchange.org/2016-organic-cotton-market-report-overview/>
2. Textile Exchange, E-mail from Ashley Gill to Sandra Marquardt, June 2, 2017.
3. Textile Exchange, "Organic Cotton Market Report 2016," July 2016. <http://textileexchange.org/2016-organic-cotton-market-report-overview/> and Cotton Incorporated, Monthly Economic Letter, December 2016. <http://www.cottoninc.com/corporate/Market-Data/MonthlyEconomicLetter/pdfs/English-pdf-charts-and-tables/World-Cotton-Production-Bales.pdf>
4. Textile Exchange, "Organic Cotton Market Report 2016," July 2016. <http://textileexchange.org/2016-organic-cotton-market-report-overview/>
5. U.S. Department of Agriculture, "Guidance Materials for Organic Crop Production". <https://www.ams.usda.gov/sites/default/files/media/NOP-5034.pdf>
6. U.S. Department of Agriculture, Guidance for Organic Crop Production". <https://www.ams.usda.gov/sites/default/files/media/NOP-5034-1.pdf>
7. Organic Trade Association, "National List of Allowed and Prohibited Substances". <https://ota.com/advocacy/organic-standards/national-list-allowed-and-prohibited-substances>
8. U.S. Department of Agriculture, National List of Allowed and Prohibited Substances. <https://www.ams.usda.gov/rules-regulations/organic/national-list>. For OMRI's list of Brand and Product/Generic Materials lists, see <https://www.omri.org/>
9. Food and Agriculture Organization of the United Nations, Organic Agriculture FAQ. <http://www.fao.org/organicag/oa-faq/oa-faq6/en/>
10. Personal communication with Kelly Pepper, Texas Organic Cotton Marketing Cooperative, April 4, 2017.
11. Textile Exchange, Life Cycle Assessment (LCA) of Organic Cotton, PE International. 2014. http://farmhub.textileexchange.org/upload/library/Farm%20reports/LCA_of_Organic_Cotton%20Fiber-Summary_of%20Findings.pdf.
12. Cotton Inc., 2012, LCA https://cottoncultivated.cottoninc.com/wp-content/uploads/2015/06/LCA_Full_Report.pdf "In total around 2,740 m³ of water is used to produce 1,000 kg of cotton fiber; this consists of groundwater, river and surface water used for cotton irrigation. Approximately 80% of the water is used directly for irrigation. Cooling water evaporated during electricity production and other indirect uses are also included in the water use metric."
13. U.S. Department of Agriculture, Organic 101: Can GMOs Be Used In Organic Products? May 27, 2013. <https://www.usda.gov/media/blog/2013/05/17/organic-101-can-gmos-be-used-organic-products>
14. Potential savings in Blue Water Consumption (Irrigation i.e. water removed from, but not returned to the same drainage basin.) See THE LIFE CYCLE ASSESSMENT OF ORGANIC COTTON FIBER - SUMMARY OF FINDINGS, page 14-15 http://textileexchange.org/wp-content/uploads/2017/06/TE-LCA_of_Organic_Cotton-Fiber-Summary_of-Findings.pdf.
15. IFOAM-Organics International, "How is organic farming supporting sustainable water management?" <http://www.ifoam-eu.org/en/farm-food-environment/water>
16. USDA, Conservation Resource Brief: Soil Quality, Nr 0601, 2006. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023219.pdf
17. USDA, "Increase of soil water retention relative to organic matter content". https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1082147.pdf
18. Textile Exchange, "Organic Cotton Market Report 2016," July 2016. <http://textileexchange.org/2016-organic-cotton-market-report-overview/>
19. Rodale Institute, 2014, Regenerative Organic Agriculture and Climate Change - A Down-to-Earth Solution to Global Warming. <https://rodaleinstitute.org/assets/WhitePaper.pdf>.
20. Kloos, J, and Renaud, F (2014) Organic cotton production as an adaptation option in north-west Benin, Outlook Agriculture, (43 (2), pp.91-100 <http://journals.sagepub.com/doi/abs/10.5367/oa.2014.0166?journalCode=oaga>
21. Seufert V, Ramankutty N, Foley JA (2012) Comparing the yields of organic and conventional agriculture. Nature 485: 229-U113. <https://www.ncbi.nlm.nih.gov/pubmed/22535250>
22. Forster, D., Andres, C., Verma, R., Zundel, C., Messmer, M., Mader, P., (2013) FiBL Study: Yield and Economic Performance of Organic and Conventional Cotton-Based Farming Systems - Results from a Field Trial in India, Plos One, 8 (12) <https://doi.org/10.1371/journal.pone.0081039>
23. Reganold JP (2012) Agriculture Comparing apples with oranges. Nature 485: 176-176. <https://doi.org/10.1038/485176a>
24. Textile Exchange, 2014. Organic Cotton Sustainability Assessment Tool (OC-SAT): Summary of Findings. <http://textileexchange.org/wp-content/uploads/2017/05/OC-SAT-Summary-of-Findings.pdf>
25. Textile Exchange, Organic Content Standard <http://textileexchange.org/integrity/>.
26. Global Organic Textile Standard, Global Organic Textile Standard Version 4.0. 2014. www.global-standard.org
27. US Department of Agriculture, Labeling of Textiles That Contain Organic Ingredients, May 20, 2011. <https://www.ams.usda.gov/sites/default/files/media/OrganicTextilePolicyMemo.pdf>
28. Global Organic Textile Standard, "Number of GOTS Certified Facilities Increases 21% to 4,642 in 2016." May 2, 2017. <http://www.global-standard.org/information-centre/press-releases.html>.



This **Quick Guide to Organic Cotton** has been produced by [Textile Exchange](#) and is made possible by the support of [Textile Exchange Members](#). The purpose of the Quick Guide to Organic Cotton is to provide a resource based on solid data to help dispel misleading information. Textile Exchange collects data from over 250 different data points on an annual bases to provide the most comprehensive information on organic cotton. Data regarding 2016 production and market uptake of organic cotton is currently being collected and will be added to this document once it is available.

Some of the facts utilized in this document have been provided by the [Organic Trade Association](#) Organic Cotton Facts (© Organic Trade Association, March 2017.)

About Textile Exchange

Founded as Organic Exchange in 2002, Textile Exchange expanded from a focus solely on organic cotton in 2010 to include other preferred (sustainable) fibers such as lyocell and recycled polyester to promote a portfolio approach for brands and retailers to adopt at a strategic level. While the organization name changed to reflect the expanded remit, Textile Exchange continues to have a strong focus on expanding the use of organic fibers as a market-driven solution to address poverty, bio-diversity and food-security.

Textile Exchange is a global non-profit organization non-profit that works closely with our members to drive industry transformation in preferred fibers, integrity and standards, and responsible supply networks. We identify and share best practices regarding farming, materials, processing, traceability, and product end-of-life in order to create positive impacts on water, soil, air, animals, and the human population created around the world by the textile industry.

Textile Exchange has also developed several important industry standards, including the Organic Content Standard, the Responsible Down Standard, the Responsible Wool Standard, the Recycled Claim Standard, and the Global Recycled Standard.

A truly global organization, Textile Exchange is headquartered in the U.S. with Staff and Ambassadors located around the world. To learn more about Textile Exchange, visit: www.TextileExchange.org and follow us on Twitter at @TextileExchange.