Thirsty for fashion?

How organic cotton delivers in a water-stressed world

Executive summary

This report highlights the devastating water impacts of non-organic cotton and demonstrates the positive alternative offered by organic.

A thirsty crop

Growing cotton accounts for 69% of the water footprint of textile fibre production; one kilogram of cotton takes as much as 10,000-20,000 litres of water to produce. The majority of cotton is grown in countries that are already facing severe water stress.

However, not all cotton is the same. Organic cotton is grown using techniques that save significant amounts of water - a life cycle analysis found that organic cotton reduces water consumption by 91% compared to conventionally grown cotton.

A dirty crop

Cotton production uses 2.5% of the world's cultivated land, yet it accounts for 16% of all insecticides sold globally. It also accounts for 4% of artificial nitrogen and phosphorus fertilisers used globally. It is estimated that growing cotton requires 200,000 tonnes of pesticides and 8 million tonnes of synthetic fertilisers every year.

The Grey Water Footprint (GWF) of conventional cotton production is significantly higher than that of organic cotton. Life cycle analyses have found that the GWF of conventional production can be between 5 and 22 times higher.

Most of the toxic chemicals that end up in rivers, lakes and the sea cannot be broken down or metabolised, and can remain present in water and soils for many years. These persistent toxins can bio-accumulate through the food chain leading to problems for both animals and humans. Chronic low-level exposure to pollutants in water can lead to serious illnesses, including cancer, birth defects and infertility.

Organic cotton is different

Organic farmers work with rather than against nature and use a range of natural techniques to support the growth of healthy crops. Organic farmers don't use toxic hazardous pesticides and artificial fertilisers, which helps keep waterways safe and clean. If all farming was organic, research suggests that pesticide use would drop by 98%.

Organic cotton benefits human health by eliminating hazardous toxic pesticides from water, soil and air, reducing incidences of poisoning, and illnesses arising from chronic exposure, particularly in low-income countries where access to healthcare is often limited.

Clean water is vital for other livelihoods beyond cotton farming, such as fishing and agriculture, which rely on plentiful and uncontaminated water sources. Organic cotton supports biodiversity and the wider environment by supporting healthy soils, mitigating the effects of climate change and by preventing toxic substances from polluting habitats.

Fashion to dye for

Dyeing and finishing of textiles, including cotton, can require as much as 200 tonnes of water for every tonne of textiles produced. Around 20% of all global water pollution results from the dyeing and finishing of textiles.

Long-term or chronic exposure to some of the chemicals and dyes used in the manufacture of cotton have been found to cause cancer and disrupt hormones in both humans and animals.

But it doesn't have to be this way. The Global Organic Textile Standard (GOTS) ensures factories have met strict social and environmental criteria. This means that only low impact chemicals are used, water and energy is monitored, and wastewater is treated properly before being released. Also, working conditions are safe and workers' rights are protected.

Improving practice

There are a number of initiatives attempting to reduce the impact of conventional cotton production. These aim to optimise water consumption and limit pollution through better management and the targeted use of pesticides and fertilisers. These initiatives are a good step in the right direction. But by taking a totally different approach, organic is the only system which eliminates highly toxic substances from the environment and instead works holistically, for the long term benefit of people and the planet.

Global cotton production

Growing cotton accounts for **69% of the water** footprint of textile fibre production

1kg = **20,000 litres**

One kilogram of cotton takes as much as **10,000-20,000 litres** of water to produce

Cotton production requires **200,000 tonnes of pesticides** and **8 million tonnes of synthetic fertilisers** every year

2.5%

Cotton production uses **2.5%** of the world's cultivated land, yet it accounts for **16% of all insecticides** sold globally

16%

Around **20% of all global water pollution** results from the dyeing and finishing of textiles

Organic cotton ...

Saves precious **water**

Combats **climate change**

Helps farmers **feed their families**

Gives **control** to farmers not GM companies

Eliminates hazardous synthetic **pesticides**

...Look for the GOTS or Soil Association logos

for products that have met all these PLUS strict social and environmental criteria.

- Working conditions are **safe**
- Workers' rights are **protected**
- Only **low impact** chemicals
- **Water and energy** monitored
- **Proper treatment** of wastewater

Introduction - why worry about water?

The world is facing a climate crisis. Man-made climate change has already seen an increase in the incidents of extreme weather events such as heatwaves, droughts, and flash flooding, all of which are having an effect on farming activities and livelihoods across the globe.

As a result, the World Economic Forum, has identified water scarcity as one of the top ten global risks to society over the next ten years[1]. If we continue on our current trajectory it is likely that two-thirds of the world's population will face water shortages by 2025[2].

In addition to the water we visibly consume on a day-to-day basis, from the water we drink to the water we use for washing our clothes, bathing, and washing the dishes, we also consume huge amounts of water in other more hidden ways.

The production of textiles uses around 93 billion cubic metres of water a year, accounting for 4% of global freshwater withdrawal[3]. Cotton production makes up 69% of this overall water footprint, with one kilogram of cotton taking as much as 10,000-20,000 litres of water to produce, depending on where in the world it is grown[4].

The majority of this water footprint comes from cotton farming, where water is not only needed to grow crops but also to dilute the large amounts of pesticides and fertilisers which are washed into waterways.

Processing of cotton into fabrics, garments and home furnishings also requires considerable quantities of water - as much as 200 tonnes of water for every tonne of textiles produced[5] - and it is estimated that 20% of industrial water pollution is attributable to the dyeing and treatment of textiles, including cotton[6].

With the earth's population predicted to reach 10 billion by 2050, there will be increasing pressure on already scarce freshwater supplies. The fashion industry is already competing for fresh water with domestic users and agriculture.

However, not all cotton is the same. Organic cotton relieves this pressure in a number of ways; its production requires significantly less water, it is far less polluting and leads to a number of other social, economic and environmental benefits.

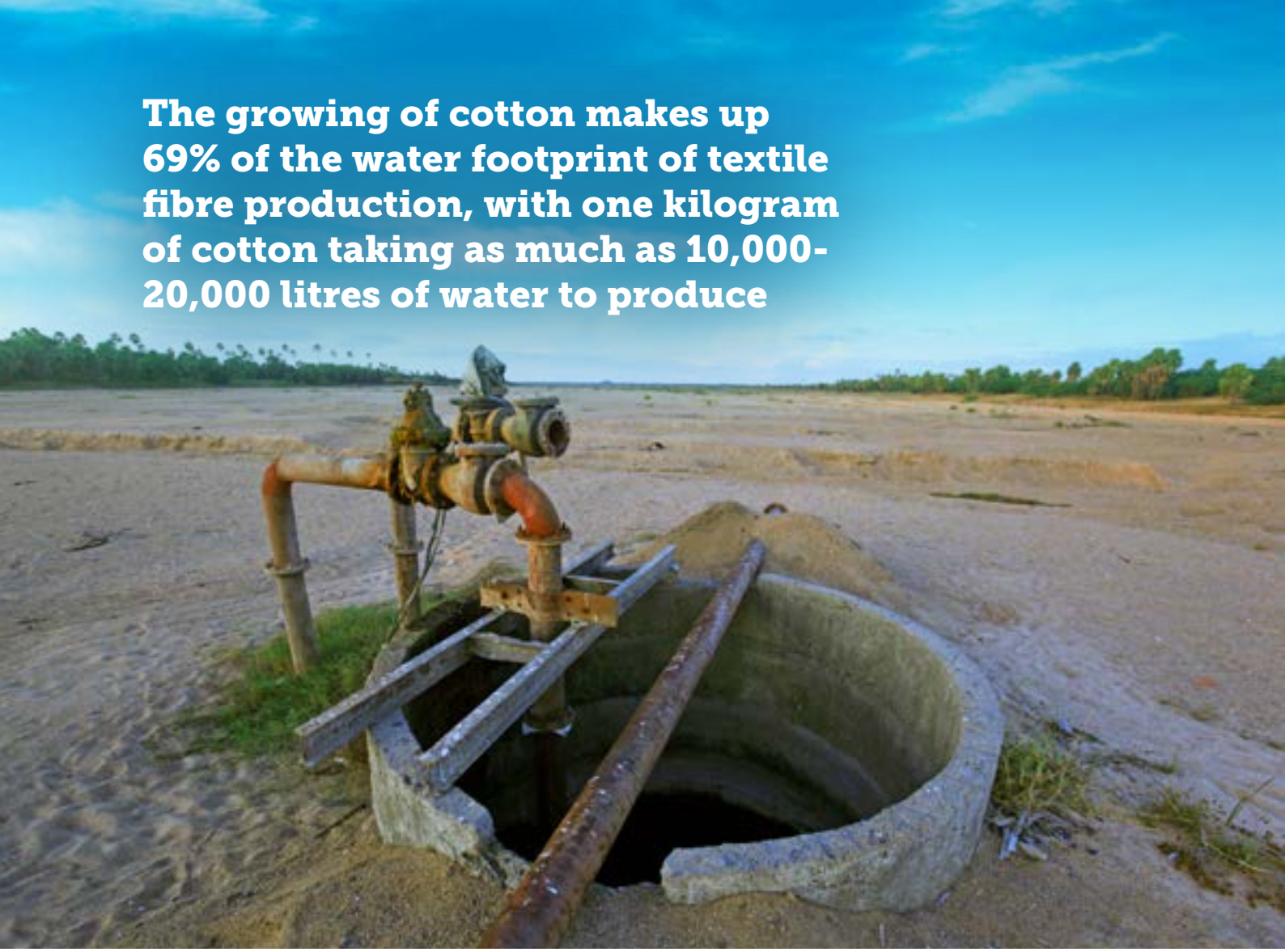
From Field to Fibre: Cotton Production

Cotton production takes up 2.5% of the world's arable land[7], and accounts for nearly 40% of global textile production, making it the second most used fibre after polyester[8].

Cotton farming supports an estimated 250 million livelihoods, accounting for almost 7% of employment in some low income countries[9]. Most of the world's cotton is farmed in India and China,

Icons: Nounproject

The growing of cotton makes up 69% of the water footprint of textile fibre production, with one kilogram of cotton taking as much as 10,000-20,000 litres of water to produce



but it is produced across the globe, from the US, Australia and West Africa, to countries throughout Central Asia.

19 countries currently produce organic cotton, with 92% grown in the following countries: India (67%), China (12%), Turkey (6%), Kyrgyzstan (5%) and the US (2%)[10].

A thirsty crop

The majority of cotton is produced in countries that are already facing severe water stress, including China, India, the US, Pakistan, and Turkey[11]. In China, 80%-90% of fabric, yarn, and plastic-based fibres are made in water-scarce or water-stressed regions[12]. This situation is set to get worse as our changing climate results in unpredictable weather patterns. The impacts of water scarcity exacerbated by cotton production, are particularly felt in low-income countries which are ill-equipped to adapt to the challenges posed by droughts.

Cotton tends to be grown in arid areas that require irrigation with water from surface or groundwater sources (blue water), rather than relying on rain water alone (green water). Irrigation diverts water away from rivers, lakes and aquifers, often with devastating impacts on local ecosystems and communities (see Case Study 1: The Disappearance of the Aral Sea). Demand for irrigated water is likely to increase as temperatures rise, bringing increased competition between agriculture, urban and industrial users[13]. As water becomes more scarce, irrigation will become more expensive, as more energy will be required to pump water to where it is required[14].

Picture: © Peter Caton / Greenpeace

Case study: The disappearance of the Aral Sea

The Aral Sea, located across the border of Uzbekistan and Kazakhstan, was once the fourth largest inland body of water in the world. It provided communities along its coastline with thriving livelihoods based on fishing, and offered an oasis for flora and fauna in the middle of the great Central Asian deserts. Today it is a toxic wasteland...

Cotton farming in the region, and particularly in Uzbekistan, has reduced the Aral to just 10% of its former volume[15]. 85% of the water from the rivers which supply it is siphoned off, primarily to irrigate cotton crops, with Uzbekistan consuming nearly 50% of the total river flow in the Aral basin[16]. It is now known as the Aralkum Desert.

In addition to the 14,000m^3 of water used on every hectare of irrigated farmland in Uzbekistan, a significant amount of water fails to reach its destination through poor infrastructure. One study found that up to 60% of water diverted from the rivers feeding the Aral Sea is lost before it reaches the cotton fields[17].

As water levels have fallen, salt levels have increased causing the demise of 24 native species of fish[18]. Nearby wetlands and lakes have shrunk by up to 85%, and drought has decimated local forests resulting in the widespread disappearance of native animal and plant species, and the appearance of invasive species more suited to the new dry, saline environment[19].

Over-irrigation and poor drainage infrastructure has lead to the salinisation of around 64% of Uzbekistan's irrigated farmland, with 20,000 hectares of agricultural land rendered unusable every year as a result[20]. Farmers have since increased the amount of water they use in an attempt to 'flush out' excess salt from their soils which then negatively impacts soil quality for farmers further downstream.

Livelihoods supported by the Aral Sea, including fishing and livestock farming, dried up as the waters receded, leaving 70% of people in the region unemployed by 2005[21].

Pesticide and fertiliser residues left on the dried surface of the sea bed are blown into the surrounding region in toxic dust storms. Respiratory diseases, such as pulmonary tuberculosis, obstructive lung disease and bronchial asthma are rife, with a report from the Environmental Justice Foundation finding that in some areas around 50% of deaths are from respiratory illnesses[22]. Cancer rates are abnormally high, with residents of the Karakalpakstan region suffering the highest rates of oesophageal cancer in the world[23]. Much of the drinking water in the region, particularly in the south of the Aral basin, is also contaminated by pesticides from cotton production further upstream. In 2005, 1 in 20 children was born with an abnormality, five times more than in Europe[24].

What is organic cotton?

Organic cotton works with rather than against nature. By using natural techniques, organic farmers are saving precious water, combating climate change, feeding families and eliminating GMOs and toxic hazardous pesticides.

How can organic help?

Organic soils require less irrigation. 80% of land producing organic cotton is located in areas which are predominantly rainfed, requiring considerably less blue water[25]. In addition, organic farmers employ a wide range of techniques to conserve water, including rainwater harvesting, selecting seed varieties which are drought resistant, and good soil management. Overall this means that organic cotton requires up to 91% less water to produce (from farm to bale)[26].

Studies have shown that organically farmed crops often yield better than conventional crops in times of drought[27], something that will become increasingly important in our changing climate. Organically farmed soils are generally much higher in soil organic matter (SOM)[28]. This is because instead of using synthetic fertilisers to stimulate plant growth, organic farmers use organic matter, such as farmyard manure and compost, to enrich and build their soils. Soils higher in SOM are better at holding water than soils that are managed with artificial chemical inputs. This means that soils farmed organically are much more drought tolerant [29,30]. Healthy soil can store as much as 3,750 tonnes of water per hectare, the equivalent of one and a half Olympic swimming pools[31].

In addition, organically farmed soils are more biologically diverse and active, which also plays an important role in a soil's capacity to store water[32]. Mycorrhizal fungi in rich soils improve 'plant water relations' allowing plants to access more water from the soil, and use water more efficiently, thus increasing the drought resistance of host plants[33]. Pesticides, fungicides and herbicides used on conventionally grown cotton destroy these beneficial networks of fungi so they are less prevalent in conventionally farmed soils.

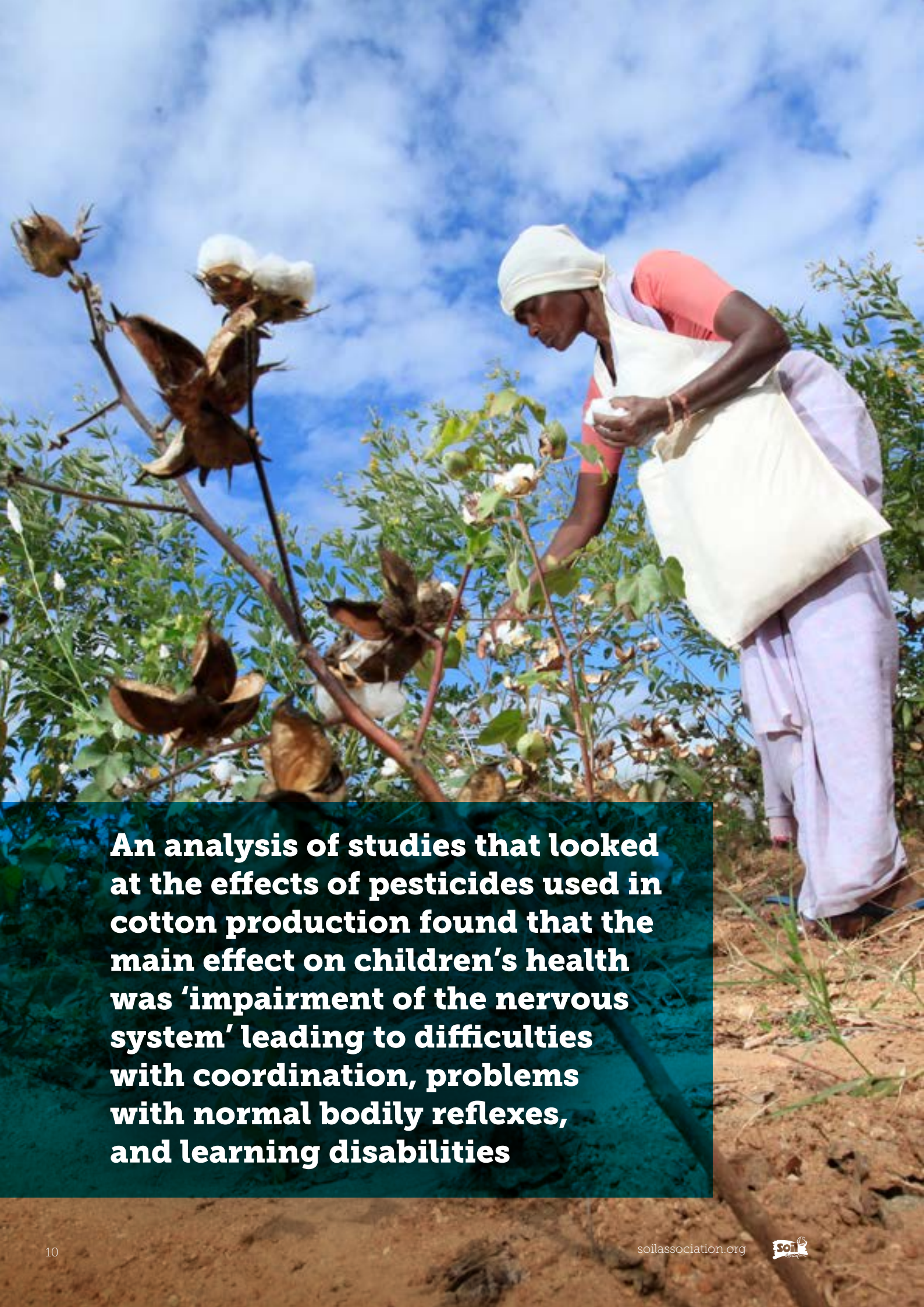
Organic farmers use soil management techniques such as crop rotation, green manures and cover crops to naturally boost the soil. Cover crops not only improve soil fertility but they can also reduce soil erosion, as their roots hold soils in place. They can also mitigate the effects of drought in the long-term by preventing evaporation of moisture and improving soil structure, thereby improving their ability to absorb more water[34].

A dirty crop

High use of toxic pesticides and fertilisers

Cotton production uses 2.5% of the world's cultivated land, yet it accounts for 16% of all insecticides sold globally[35]. It also accounts for 4% of global artificial nitrogen and phosphorus fertiliser use[36]. It is estimated that cotton production requires 200,000 tonnes of pesticides and 8 million tonnes of synthetic fertilisers every year[37].

Eight of the top 10 pesticides most commonly used on U.S. conventionally produced cotton have been classified by the World Health Organisation as moderately to highly hazardous.[38]



An analysis of studies that looked at the effects of pesticides used in cotton production found that the main effect on children's health was 'impairment of the nervous system' leading to difficulties with coordination, problems with normal bodily reflexes, and learning disabilities

Pesticides, fungicides and herbicides are chemicals used to manage pests and diseases that might affect cotton yields. Many of these are highly toxic to both people and animals. Eight of the top 10 pesticides most commonly used on U.S. conventionally produced cotton have been classified by the World Health Organisation as moderately to highly hazardous.[39]

Studies agree that the Grey Water Footprint (GWF)* of conventional cotton production is significantly bigger than the footprint of organic cotton. Life cycle analyses have found that the GWF of conventional production can be between 5[40] and 22[41] times bigger. This difference is largely due to the quantity and toxicity of the pesticides used in conventional production.

Despite being diluted to legally defined 'acceptable levels' most of the toxic chemicals that end up in the aquatic environment cannot be broken down or metabolised, and can remain present in organisms, water and soils for many years[42]. These persistent toxins can then bio-accumulate through the food chain leading to problems for both animals and humans.

Toxic chemicals also end up in drinking water supplies, not usually in concentrations high enough to cause acute poisoning but enough for chronic low-level exposure that could lead to a range of health problems, including impaired memory and severe depression, and to more serious illnesses such as cancer, birth defects and infertility[43]. An analysis of studies that looked at the effects of pesticides used in cotton production found that the main effect on children's health was 'impairment of the nervous system' leading to difficulties with coordination, problems with normal bodily reflexes, and learning disabilities[44]. The health effects of exposure to pesticides on women included delayed puberty, menstrual problems and breast milk contamination which can cause long-term health issues for babies[45].

In conventional cotton farming, synthetic mineral fertilisers, which are high in nitrogen and phosphorus, are used to feed crops. However, due to the synthetic nature of these fertilisers, soils are less able to absorb the nutrients they contain, meaning that farmers must over- and intensively apply them to crops in order to keep plants healthy and support growth[46]. Much of the nutrient content is then washed away, contaminating ground and surface water[47]. High levels of nitrogen fertiliser washed into bodies of water such as rivers and lakes often result in algal blooms, which starve the water of oxygen and lead to the death of fish and other water-dwelling organisms[48,49]. Synthetic fertilisers do not improve the long-term fertility of soil, which means that more and more are required over time to grow the same amount of crops[50].

By contrast, organic farmers improve soil fertility using natural inputs such as farmyard manure and compost, which supports the health of soils in the long-term.

Soil Erosion

Most cotton tends to be grown as a 'monoculture', relying on synthetic inputs to maintain soil fertility and to manage pests. As synthetic fertilisers do not help to maintain or improve soil structure, conventionally managed soils are more prone to soil erosion[51].

In addition to chemicals ending up in waterways, increased soil erosion can

*Grey water – refers to the volume of water required to dilute to 'acceptable values' the polluted water discharged into the watercourse from cotton agriculture

Picture: © Peter Caton / Greenpeace

Improving practice

In this report, 'conventional' refers to cotton that has been grown in a way that relies on synthetic inputs to grow crops and tackle pests and diseases. Manufactured nitrogen fertiliser and synthetic pesticides are cornerstones of conventional practice. In contrast, organic takes a more systems-based approach, relying on natural inputs and processes to manage fertility and reduce pest damage.

They broadly represent two very different approaches to farming practice, but there are some meaningful attempts being made to bring them closer together and improve agricultural practices across the globe. A growing number of initiatives are seeking to improve conventional practice in a number of important ways. Many of these are helping farmers to employ holistic management techniques that are bringing conventional practice much more in line with organic principles.
In order to achieve long-term meaningful change, the textile industry needs to work together to support farmers to produce cotton more sustainably. The following schemes are all examples of better practice in agriculture and are an important step on the journey towards more sustainable cotton.

Better Cotton Initiative
Farmers are encouraged to work together to manage water use sustainably. The most toxic pesticides are forbidden and producers must phase out pesticides that are known or presumed to be carcinogens or reproductive toxicants. Synthetic fertilisers are allowed but farmers are encouraged to have better control of fertiliser use.

Cotton made in Africa
CmiA farmers do not use artificial irrigation. Selective use of pesticides is encouraged and the most toxic pesticides are banned. Farmers are encouraged to use organic manure and compost rather than synthetic fertilisers.

Fairtrade
Fairtrade farmers are encouraged to use water resources efficiently and sustainably. Integrated pest management (IPM) and organic practices are encouraged to manage pests. The most toxic pesticides are banned and the use of certain synthetic fertilisers is restricted.

REEL
Promotes water efficiency. Farmers are trained in pest management, reduction of harmful chemical use, and organic pesticides. Training is provided on crop rotation, composting and reduction in use of chemical fertilisers.

Other initiatives to look out for are: ABRAPA, BASF e3™, Cleaner Cotton, ISCC, myBMP.

A growing number of brands and retailers realise that business-as-usual is not an option and have made a commitment to source 100% of their cotton from farmers involved in these initiatives (and organic and/or regenerative farming) by 2025. This commitment, known as the 2025 Sustainable Cotton Challenge, represents a cornerstone for change in the apparel and textile industry. Already 19% of the world's cotton is being grown more sustainably, and whilst much of this is still conventionally grown, some of the worst practices of conventional production - such as the use of the most dangerous pesticides - are being addressed. For more information about the challenge, visit https://textileexchange.org/2025-sustainable-cotton-challenge/

Picture: CottonConnect

80% of organic cotton is rainfed, not irrigated. This means that organic cotton isn't competing with precious local water resources.

lead to a buildup of sediment. High levels of sediment in streams, rivers and lakes have been shown to reduce the density of aquatic organisms such as fish and invertebrates[52]. Increased sedimentation can also lead to a rise in water temperature, which in itself can cause harm to aquatic invertebrates, but also leads to reduced oxygen availability[53]. Delicately balanced coastal ecosystems, such as coral reefs and mangroves, are particularly sensitive to increased sedimentation.

Organic farming eliminates toxic pesticides and synthetic fertilisers

Organic takes a different approach to feeding crops and managing pests, using natural systems instead of synthetic pesticides and fertilisers.
Organic farmers can only use a small number of pesticides, all of which are naturally occurring, and carefully selected and approved. Pesticides used in organic cotton farming are deemed natural and non- or low-toxic[54]. They can only be used under strict conditions, and only as a last resort when the use of alternatives, like biological and cultural control, have proven unsuccessful[55].

Natural pesticides result in much lower (or even zero) GWF than synthetic pesticides as they are significantly less toxic[56]. If all farming was organic, research suggests that pesticide use would drop by 98%[57].

The fertilisers used by organic farmers, such as compost, farmyard manure and castor meal, help to improve soil structure and increase organic matter content, in addition to feeding crops[58]. Nutrients are released slowly and taken up quickly by plants meaning that not much is lost from the soil through runoff and erosion into waterways[59]. Crop rotations usually include nitrogen-fixing green manures and leguminous crops that help to reduce reliance on inputs, increase soil organic matter (SOM), and improve other soil properties and processes that increase water retention and quality[60]. There is also a much lower rate of soil erosion in soils with high SOM content, resulting in lower levels of sedimentation in waterways and increased retention of soil fertility[61].

Around 20% of global water pollution results from the dyeing and finishing of textiles[62]

Fashion to Dye For: Cotton Processing

Cotton is not only a thirsty crop to grow, but the processing of cotton fibres into finished products also requires huge amounts of water. Dyeing and finishing of textiles, including cotton, can require as much as 200 tonnes of water for every tonne of textiles produced[63], which then require treatment before being discharged. Most of the world's textile wet processing operations are based in developing nations, such as Bangladesh and India, which lack the infrastructure and resources to tackle effluent pollution produced by factories. Around 20% of global water pollution results from the dyeing and finishing of textiles[64].

Water Consumption

As with the farming of cotton, the high consumption of water in cotton processing can severely impact water availability elsewhere. In Bangladesh, which has a large concentration of textile mills around the city of Dhaka, sustained extraction of water for textile processing is causing the long-term decline in groundwater levels[65]. This groundwater depletion can have wide ranging environmental, social and economic effects including: drying of wetlands and the loss of wetland plant and wildlife species; decreased access to drinking water for local communities; decreased access to water for food production; and higher pumping costs to communities and businesses[66].

Water Pollution

In addition to dyeing, cotton has to go through a number of water-intensive processes before the finished fabric can be used to make final products. Each stage of this process can also involve the use of dyes and highly toxic chemicals that are used to: remove dirt and grease from the cotton fibres; bleach fibres to a uniform colour before dyeing; improve absorption of dyes; improve the final texture of the fabric; and provide desirable qualities in the fabric such as crease and stain resistance. Such chemicals and dyes often end up in high concentrations in wastewater. Pesticides used in the production of conventional cotton also find their way into waterways at the processing stage as residues are washed from the raw fibre[67].

While efforts are usually made to treat this effluent, standards and regulations are often difficult to enforce and vary from country to country. Many persistent and highly toxic chemicals cannot be removed even by the most effective available forms of water treatment. This results in the pollution of ground and surface water, which is relied on for drinking water and food production in the communities living near factories. The impacts can be far reaching as rivers and streams can carry pollution thousands of miles to the ocean[68].

Long-term or chronic exposure to some of the chemicals and dyes used in the manufacturing of cotton have been found to cause cancer, and to disrupt hormones in both humans and animals[6970]. Heavy metals, such as mercury, chromium, arsenic and copper which are present in some dyes, are highly toxic and carcinogenic, and can accumulate in vegetables, crops and fish through contamination of water and soils[71].

Some of the most commonly used dyes for cotton are azo dyes[72], many of which break down to produce cancer-causing amines[73]. Even in very small quantities (<1ppm) azo dyes in water have been found to alter the physical and chemical properties of soil, killing beneficial microorganisms and affecting agricultural productivity. They are also toxic to aquatic flora and fauna[74].

Picture: Gigie Cruz-Sy / Greenpeace

Case Study: Dirty denim in Mexico

Mexico is one of the largest producers of denim in the world[75]. A 2012 investigation by Greenpeace collected wastewater samples from two major denim manufacturers to provide a snapshot of the type of hazardous chemicals being discharged into Mexico's waterways. Chemicals found included:

- **Nonylphenol** - a persistent pollutant with hormone disrupting properties
- **TMDD** - a persistent pollutant which reduces the surface tension of water and is toxic to aquatic life with long-lasting effects
- **Anilines** - readily soluble in water and toxic to aquatic organisms. Some are carcinogenic to humans and animals
- **Phthalates** - widely pervasive in the environment and often found in human tissues. Some are known to cause problems with human reproduction.

Greenpeace has been working since 2011 to detox the fashion industry, securing commitments from suppliers, retailers and international brands to eliminate hazardous chemicals from their supply chains.[76]

In response to this campaign a number of major fashion brands, value chain affiliates and associations set up the Zero Discharge of Hazardous Waste (ZDHC) Foundation, which oversees the implementation of the ZDHC Roadmap to Zero Programme. This programme helps businesses reduce and eliminate hazardous chemicals from their value chains and operate safer chemical management practices[77].

(*Information taken from 'Toxic Threads: Under Wraps. Exposing the textile industry's role in polluting Mexico's rivers' published by Greenpeace in 2012*)

Organic processing: the Gold Standard

However, not all factories are the same. Some meet strict criteria for the chemicals and dyes they use for processing textiles, and the way they manage wastewater before it is released into the environment.

The Global Organic Textile Standard[78] (GOTS) was developed to bring organic principles into practice in textile manufacturing. Textiles carrying the GOTS (or Soil Association) logo have been made in factories that have met strict social and environmental criteria. This means that working conditions in factories are safe, workers' rights are protected, and that waterways are not polluted with toxic, persistent chemicals.

GOTS protects the environment

To achieve GOTS certification, strict environmental criteria must be adhered to throughout textile processing. Only low-impact chemicals are allowed, water use is monitored and wastewater must be treated properly before being released. Inputs such as toxic heavy metals, formadehyde, aromatic solvents, nano-particles, and anything that has been genetically modified are banned and so cannot end up polluting waterways. Bleaches must be based on oxygen not chlorine, and processors are not allowed to use azo dyes to colour fabrics.

Processing units must keep stringent records of the use of chemicals, energy, water consumption and wastewater treatment, including the disposal of sludge, and the wastewater from all wet processing units must be treated in a functional treatment plant.

GOTS protects workers' rights and health

GOTS is the only certification standard that not only guarantees the environmental credentials of organic cotton, but also ensures that workers are protected too. To be certified to GOTS, working conditions must be safe and hygienic; no forced or child labour can be used; minimum wages must be paid; workers can't be made to work excessively long hours; regular employment must be provided; workers must be allowed to form unions; and there can be no workplace discrimination.

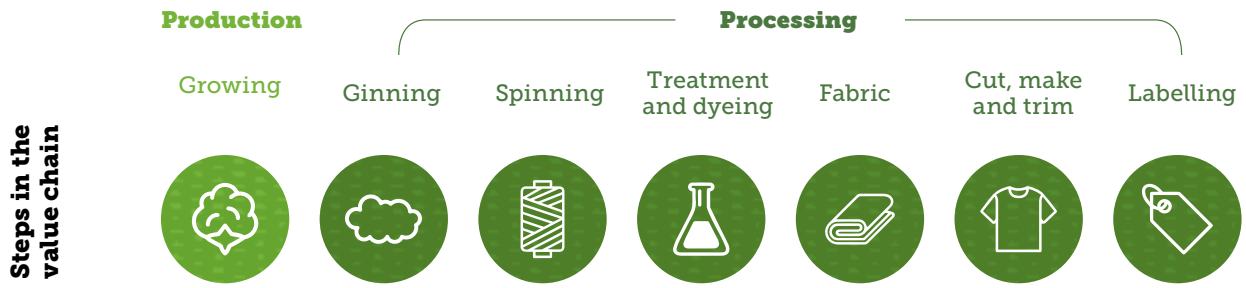
Picture: © Lu Guang / Greenpeace (overleaf)

Shopping organic - look for the logo

Unlike food, textile products can be described as organic without having to be certified. This means that brands and retailers can call products organic regardless of organic content. Certification to standards such as GOTS means that any claims have been verified by an independent third party, so shoppers can be sure that what they're buying is actually organic.

For cotton to be truly organic, it should not only be grown organically but processed organically too. Citizens and brands looking for the gold standard of sustainability should look for the GOTS or Soil Association logo, which demonstrate that the highest standards have been met along the whole supply chain from farm to finished product.

From field to finished product



ORGANIC 100 content standard

The different verification processes

The item is made with organic fibres and this has been traced through the value chain (the chain of custody)

GLOBAL ORGANIC TEXTILE STANDARD · GOTS · or SOIL ASSOCIATION ORGANIC

The item is made with organic fibres AND has been processed according to strict standards for ecological and socially responsible production along the whole supply chain.
This means workers' rights are protected, working conditions are safe and hygienic, only low impact dyes and inks are used, wastewater is treated properly, and energy and water use is monitored.

"Organic"

If a product claims it's organic and isn't certfied, there is no way of knowing if the claim is valid

Icons: Nounproject

Organic cotton, water, and the Sustainable Development Goals

Organic cotton can advance all of the Sustainable Development Goals laid out by the UN in 2015[79]. When specifically looking at the impact on water, organic cotton can support the following goals:

SDG3: Ensure healthy lives and promote well-being for all at all ages
Organic cotton does not use toxic pesticides that can pollute waterways and contaminate drinking water sources, causing illness, infertility, and birth defects.

SDG6: Ensure availability and sustainable management of water and sanitation for all
Local water sources are not contaminated by toxic pesticides and fertilisers. Organically farmed soil is more able to retain water, increasing water efficiency. Rainwater harvesting helps solve potable and non-potable water needs such as irrigation, hygiene, and consumption challenges.

SDG12: Ensure sustainable consumption and production patterns
GOTS certified organic cotton textiles do not use persistent or highly toxic substances in their production or processing, preventing the release of toxic chemicals and waste into water and soil. Waste products from GOTS certified facilities must be treated in fully functioning treatment plants.

SDG13: Take urgent action to combat climate change and its impacts
Organic soils absorb and retain more water thus offering protection against and mitigation of the impacts of flooding or drought brought about by more severe and frequent weather events.

SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
By eliminating toxic and persistent pesticides, organic cotton production is a proactive contributor to clean and healthy water used locally, which ultimately runs into the oceans. Likewise, the elimination of artificial fertilizers (nitrates and phosphates) from organic farming reduces the nutrient load and run-off into surface waterways.

Learn more about how organic cotton supports the SDGs at:
www.aboutorganiccotton.org/sdgs/

SUSTAINABLE DEVELOPMENT GOALS

Conclusion

In a water-stressed world cotton production is placing an unbearable strain on the planet's limited freshwater resources. But there is an alternative...

Organic cotton offers significant and far-reaching impacts: reducing water consumption and preventing pollution from farm to fabric. This has a range of direct and indirect benefits to human health and the wider environment.

Organic cotton benefits human health by eliminating toxic pesticides and dangerous processing chemicals from the water, soil and air. This reduces incidences of poisoning, and illnesses arising from chronic exposure, particularly in low-income countries where access to safety equipment and adequate healthcare is often limited. Clean water also supports other livelihoods such as fishing and agriculture, which rely on plentiful and uncontaminated water sources.

Organic cotton supports biodiversity and the wider environment by supporting healthy soils, mitigating the effects of climate change and preventing toxic substances from polluting habitats.

There are a number of other initiatives attempting to reduce the negative impacts of cotton production. These aim to reduce water consumption and pollution through training and the targeted use of pesticides and fertilisers. These initiatives are a step in the right direction. However, by taking a totally different approach, organic is the only system that eliminates highly toxic substances from the environment and instead works holistically, for the long term benefit of people and the planet.

Given the proven benefits of organic cotton to people and the planet, citizens, brands and policy-makers can support organic cotton as a serious and impactful step to addressing the water crisis in cotton. Supporting initiatives like the 2025 Sustainable Cotton Challenge[80] is a good place to start.

Have you cottoned on yet?

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Picture: ©Vipul Kulkarni for Chetna Organic, India

In honour of Lord Peter Melchett

1948-2018

This report is dedicated to the memory of Lord Peter Melchett who passed away in August 2018. Peter was the catalyst for the 2025 Sustainable Cotton Challenge and a passionate advocate of working collaboratively to ensure the textiles industry makes a meaningful shift to more sustainable cotton.

He was an important and charismatic figure in the environmental movement throughout his life, including for the last 18 years as Policy Director of the Soil Association, while running his family's 890-acre organic farm. Peter was a strong champion of organic cotton due to its profound and far-reaching contribution to tackling climate change, protecting soils and promoting biodiversity. Peter's generous spirit and positive, inclusive and ambitious approach are sorely missed.

Picture: Georgina Rose Thomas

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Organic cotton offers a range of benefits beyond water, see **https://www.soilassociation.org/organic-living/fashion-textiles/organic-cotton/** to find out more.

Author: Hattie Shepherd, Soil Association, 2019.

The Soil Association was founded in 1946 by farmers, scientists, doctors and nutritionists to promote the connection between the health of the soil, food, animals, people and the environment. Today the Soil Association is the UK's leading membership charity and certification body campaigning for all things organic across food, farming, health & beauty, fashion & textiles and forestry.

To find out more visit:
www.soilassociation.org

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