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Why Opting for Organic Cotton Matters

Analysis by Dr. Joseph Mercola | January 10, 2024

STORY AT-A-GLANCE

- While making up less than 2.5% of global cropland, nonorganic cotton receives 25% of all insecticides, 10% of all pesticides and nearly 7% of all herbicides used worldwide
- Ninety to 95% of nonorganic cotton clothing is made from genetically engineered cotton. Organic cotton accounts for a mere 1% of the global cotton production
- When buying nonorganic cotton, you expose yourself to potentially heavy doses of toxins, contribute to ever-worsening environmental destruction and enable human rights violations

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Cotton clothing has a longstanding history of being all-natural and wholesome. Unfortunately, times have changed, and once you delve behind-the-scenes of the cotton industry, its wholesome image quickly frays around the edges.

Most people forget that a vast majority — about 90% to 95%[1] — of nonorganic cotton clothing is made from Monsanto's genetically engineered (GE) cotton. Organic cotton, grown in a sustainable, nontoxic manner, accounts for a mere 1% of the global cotton production.

You may be boycotting genetically modified organisms (GMOs), but if you're still buying nonorganic cotton clothes and other items made from cotton, be it towels, drapes or tampons, you're still feeding the beast.

You're also exposing yourself to potentially heavy doses of toxins, contributing to ever-worsening environmental destruction, and enabling human rights violations.[2]

Cotton — One of the Most Toxic Crops on the Planet

Its toxicity is perhaps one of the most surprising findings you'll discover when researching the conventional cotton industry.

While making up less than 2.5% of global cropland, nonorganic cotton receives 25% of all insecticides,[3] 10% of all pesticides[4] and nearly 7% of all herbicides used worldwide, many of which are among the most hazardous.

Herbicide-resistant GE cotton is typically sprayed with copious amounts of Roundup, the active ingredient in which is glyphosate, a likely human carcinogen.

The 2002 introduction of Bt cotton, which is genetically engineered to produce its own internal pesticide, was supposed to lead to a reduction in the use of insecticides. In reality, Bt cotton actually requires more pesticide sprayings than indigenous cotton, as it has created new chemical-resistant pests.

To control these resistant pests, farmers now use 13 times more pesticides than they were using prior to the introduction of Bt cotton.[5] Moreover, in addition to being heavily contaminated with topical pesticides, the Bt cotton is itself a pesticide as well — it's even registered as such[6] — since Bt toxin is produced in every cell of the plant.

Uzbekistan's Cotton Industry Is a Modern Form of Slavery

The featured video, "White Gold — The True Cost of Cotton" created by the Environmental Justice Foundation, reveals the gross human rights violations occurring in Uzbekistan, the second largest cotton exporter in the world, and how the cotton industry has created an environmental catastrophe of unbelievable proportions.

Here, one-third of the population, including children as young as 7, labor for the government-owned cotton industry. Schools close during harvest time, and teachers

bring the children to the cotton fields instead. Students who refuse to pick cotton may lose their schooling privileges.

Teachers risk being fired from their teaching jobs unless they comply with the mandatory cotton-picking each year, and public protests are beat back with lethal force.

No protective gear is provided. Everyone picks cotton with bare hands, ensuring exposure to toxic pesticides. Lack of drinking water forces laborers to drink from the irrigation canals — water that not only may be contaminated with chemicals, but also disease-causing pathogens.

At the end of the harvest season, many workers end up being deeper in debt to the state than before they began. They simply aren't able to pick enough cotton to offset the expenses for food and lodging the government deducts from their earnings.

Environmental Catastrophe in Uzbekistan

In addition to being chemical-dependent, nonorganic cotton also needs water — lots of water. Enough to drain a sea in a few decades.

The water level of the Aral Sea — situated between Kazakhstan and Uzbekistan — began receding in the early 1970s. Fish also started dying from the chemical runoff from the fields. Aral Sea fishermen of old used to catch 40 tons of fish per year. Today, the area is littered with fishing vessels lying on dry land.

What used to be a thriving seaport is now nearly 50 miles (80 kilometers) from the water's edge, and the fishing economy has been obliterated.

The former seabed is heavily contaminated with salt and pesticides, both of which prevent plant growth, and wind-driven toxic dust has led to high rates of cancer and tuberculosis. This is the hidden human and environmental sticker price for cotton.

Cotton Industry Is Notorious for Human Rights Violations

Similar human rights violations and environmental tragedies are found in other cotton-producing nations. In India, an estimated 300,000 farmers have also committed suicide in the past two decades[7] — deaths attributed to despair over unsurmountable debt created by Monsanto's patented seed scheme, which prohibits saving and sharing of seeds and requires the use of expensive chemicals.

As noted in "Our Cotton Colonies" by In These Times, which starts out by highlighting the often-violent history of the cotton trade and then details the modern-day cotton life cycle from field to sales rack:[8]

> *"The T-shirts we buy at retailers like Gap and H&M may feel far removed from the bloody past of a crop synonymous in the 19th century with slavery and sweatshops.*
>
> *But when one follows the global supply chain of cotton growers, workers, traders and factory owners, it becomes increasingly apparent that capitalism has not, in fact, traveled far at all from its bloody origins."*

It's a fascinating read, and I encourage you to review it, but don't expect to feel good about that stack of jeans and cotton T-shirts in your closet when you're done.

Conventional Cotton Production Is Toxic Business

The environmental assaults don't end when the cotton leaves the field. The process necessary to turn raw cotton into cotton yarn and fabric involves another round of toxic exposures that result in environmental pollution. The Organic Trade Association explains:[9]

> *"During the conversion of cotton into conventional clothing, many hazardous materials are used and added to the product, including silicone waxes, harsh petroleum scours, softeners, heavy metals, flame and soil retardants, ammonia and formaldehyde — just to name a few.*

Many processing stages result in large amounts of toxic wastewater that carry away residues from chemical cleaning, dyeing and finishing. This waste depletes the oxygen out of the water, killing aquatic animals and disrupting aquatic ecosystems. The North American Organic Fiber Processing Standards prohibits these and similar chemicals."

Cotton in Our Food Supply

While you cannot eat cotton per se, 65% of conventional cotton production still ends up in the food chain, through:[10]

- Cottonseed oil, a primary ingredient in Crisco cooking oil and vitamin E supplements
- Cottonseed meal, added to dairy cow and beef cattle feed
- Cotton cellulose, used as a non-caloric filler, thickener and stabilizer in a wide range of processed foods and beverages

The toxic pesticides sprayed on conventional cotton crops also threaten the health of, and contaminate, other food crops. In Texas, winegrowers fear the approval of new herbicide-resistant cotton crops may wipe out the wine industry altogether. Such dire predictions stem from the fact that pesticides drift wherever the wind blows, and vineyards cannot tolerate the herbicide mixtures now being used on GE plants such as cotton.

Paul Bonarrigo, who owns a vineyard in Hale County, has been unable to produce grapes for the past two years in a row. They keep dying from chemical damage — damage that will only get worse as cotton plantations in the area start planting the next-generation GE cotton resistant to dicamba and 2,4-D. As reported by The Texas Tribune:[11]

"Other Texas winegrowers have seen similar damage, and they blame it on dicamba and 2,4-D, two high-volatility herbicides commonly used on cereal crops, pastures and lawns. Now, the state's vintners are alarmed that use of the chemicals may soon expand to include 3.7 million acres of cotton fields in the

High Plains, where cotton is being invaded by weeds immune to the Roundup pesticide long used."

Are Your Tampons Full of Roundup?

Cotton is not only used for clothing, of course. In addition to linens, towels, furniture coverings and drapes, women may also be using cotton tampons. A 2016 investigation[12] by a French magazine found traces of harmful chemicals in 11 brand name tampons and sanitary pads, including dioxins, organochlorine pesticides — including glyphosate — and pyrethroid insecticides.

Considering the high probability of cotton being contaminated with pesticides and insecticides, I encourage you, whenever possible, to choose "USDA Certified 100% Organic" cotton tampons. Bt cotton is a particularly questionable choice for tampons, since it contains both internally-produced toxin and topically applied chemicals. Another safer alternative is the Diva Cup, which works in a similar way as a diaphragm, allowing you to avoid tampons altogether.

Pimacott Resorts to DNA Tagging to Track Cotton Origins

Unfortunately, it's easy to support human rights violations and environmental destruction even when you're a conscientious consumer. You basically have to trust the company you're buying from, and while many will do their best to source cotton responsibly, there's no way to really identify the origin of a piece of cotton. Fraud also exists even in the organic industry.

For example, seven years ago, Swedish fashion giant H&M was caught in a scandal when testing revealed 30% of its "organic" cotton contained genetically modified material. All of the questionable cotton came from India, one of the world's largest producers of organic cotton, which suggests the fraudulent labeling was probably occurring at other retailers as well.

To ensure the authenticity and purity of its product, Pimacott has developed a novel DNA tagging technology that allows you to verify the origin of its cotton. Pimacott is the developer of pima cotton, grown primarily in the San Joaquin Valley in California and certain Peruvian regions. As noted by David Greenstein, CEO of Himatsingka America Inc., of which Pimacott is a trademark:[13]

> *"In the industry, there was an increasing discrepancy between what was written on the package of a cotton product and what the material was actually made of … We decided that we were going to use technology to change the way that we source cotton and take control of our supply chain."*

Together with the technology firm Applied DNA Sciences, the company has developed a DNA tag for its cotton — a microscopic marker on every grain of cotton that can be read by a DNA scanner, much like you'd read a package barcode. As explained in the featured article:[14]

> *"This insertion process happens at the gin* [editor's note: a cotton gin is a machine that separates the fibers from the seed]: *Little molecules are released into the cotton and permanently bind to it. From this point onward, it is possible to place a piece of cotton or fabric under a simple DNA scanner to see whether the marker is present."*

Cotton-Blend Fabrics and Microfiber Pollution

Cotton-blend fabrics also contribute to environmental pollution by introducing microfibers into waterways. Synthetic fabrics such as acrylic and polyester are the primary culprits here, but cotton-blend fabrics are also best avoided.

In a comparison of acrylic, polyester and a polyester-cotton blend, acrylic was the worst, shedding microfibers up to four times faster than the polyester-cotton blend[15,16] Still, your "cleanest" option in this regard is 100% organic cotton fabrics, as the synthetic fibers in these other fabrics pose severe hazards to water quality and the survival of sea life.

According to estimates by the International Union for Conservation of Nature and Natural Resources, up to 1.7 million tons of microfibers enter the ocean each and every year.[17] In some ocean waters, plastic exceeds plankton by a factor of 6-to-1,[18] and the fibers have been found in both table salt[19] and various seafood sold for human consumption.[20]

Testing reveals 90% of freshwater and saltwater fish have microfiber debris in their bodies,[21,22] and since these fibers act like sponges, they soak up and concentrate toxins like PCBs and pesticides. As a result, the fish become even more toxic than they normally would be simply by swimming in polluted water.

Cleaning Up Your Wardrobe in the Name of Humanitarianism

While some companies are actively investigating ways to produce more environmentally-friendly clothing, each and every one of us can contribute to the solution by curbing your consumption and giving more thought to what you buy and how you care for your items.

As described in my previous article on "fast fashion," the entire life cycle of a piece of clothing would ideally be taken into account before buying, as most of your **discarded clothes** actually end up in landfills, or are resold to developing countries where local clothing industries then suffer instead.

To avoid toxic chemicals, reduce environmental pollution and promote safe and fair labor rights across the world, consider the following recommendations when it comes to buying clothing and other fabric-related items:

Opt for organic cotton, hemp, silk, wool and bamboo fabrics — While such items typically cost more than nonorganic cotton and synthetics, buying fewer items will allow you to spend more on each item. On the upside, higher quality organic items tend to last far longer with proper care, so you get your money's worth in the end.

Opt for items colored with nontoxic, natural dyes when possible — Businesses investing in organic farming and natural dyes include PACT (undergarments and loungewear), Boll & Branch (bed linens, blankets and towels), Jungmaven (organic hemp and cotton T-shirts), Industry of All Nations (clothing) and many others.

Avoid screen printed items, as they typically contain phthalates.

Look for the Bluesign System Certification,[23] which tells you the item has been manufactured with a minimal amount of hazardous chemicals, or none.

Avoid trademarked technical fabrics, as most are coated with chemicals that will eventually wash out.

Be mindful of when and how you wash synthetic clothing — Wash synthetic clothing as irregularly as possible using a mild detergent. Line dry instead of putting them in the dryer. The heat and agitation will break down fibers. Handwashing or using the gentle cycle with cold water will also minimize the shedding of fibers, as will using a front loading washing machine.

Avoid commercial fabric softeners and dryer sheets. Not only do they release potentially toxic chemicals into wastewater and air (through the dryer vent), they also leave a film on the fabric that decreases the wicking ability of the fiber.

Install a microfiber filter on your washing machine. Wexco is currently the exclusive distributor of the Filtrol 160 filter,[24] designed to capture nonbiodegradable fibers from your washing machine discharge.

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