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Social & environmental impacts of organic and non-organic textiles an overview of the literature

This paper serves as an information tool about the environmental and social impacts of organic textiles. Current synthetic, fossil fuel-based textiles and the associated fast fashion industry are a great source of environmental pollution. Moreover, inhumane working conditions have regularly been associated with the fast fashion sector, especially in developing countries. Therefore, it is crucial for policymakers to enable alternative, more sustainable paths to produce textiles – both regarding environmental and social aspects.

This document highlights the recently published position paper on organic textiles from IFOAM Organics Europe, peer-reviewed research and studies from non-governmental organizations on the social and environmental impact of organic and sustainable textiles, and lastly, an overview of the threat of greenwashing in the textile sector.

IFOAM Organics Europe Position Paper (2022)

In August 2022, IFOAM Organics Europe published a position paper which stresses the necessity of the EU to further support the development of the organic textile sector. This paper gives concrete examples of how EU policies could change to minimize the risk of greenwashing and how to ensure that the growing market of organic textiles can thrive within the European Union by protecting the term 'organic' (full version of the position paper [here](#)).

Some of the key recommendations are:

- The textile fibre should originate from raw material produced in organic farms according to globally recognised organic farming standards (such as the EU Organic Regulation or the US National Organic Programme, or standards in the IFOAM Organics International Family of Standards)
- The textiles should also be processed according to a recognised organic textile processing standard that prohibits hazardous and residual inputs according to clear criteria.
- Organic fibre content ("contains X% organic fibre") should be stated.
- IFOAM Organics Europe recommends that the European Commission clearly defines and differentiates two categories of textile products that could use the "organic" claim: "textiles containing organic fibres" and "organic textiles".

Textile production & social impacts

This section summarizes information about social and environmental impacts of textile production from peer-reviewed research and studies from non-governmental organisations.

Topic	Results	Source
Production of cotton	<p>Cotton is a natural material but has environmental impacts. Also, skin irritation, asthma, lung damage, and respiratory disorders are examples of human health consequences associated with cotton production.</p> <p>Organic cotton production reduces leukaemia and skin irritation risks are reduced, air pollution is reduced, insect predators are preserved, fisheries are protected, and healthy soil is built for safe food (Howard, 2012).</p>	<p>Sustainable practices of the large-scale textile firms in Ghana (Okai-Mensah, Howard & Okai-Mensah, 2022)</p> <p>(Howard, 2012)</p>
Health effects of pesticide use on cotton farms	<p>The types of symptoms reported by farmers included localized reactions such as eye (93%) and skin (91%) irritation, but a high proportion of farmers also experienced systemic reactions such as blurred vision (51%), general weakness (46%), tremors (34%), insomnia (34%), vomiting (9%), memory loss (3%) and convulsions (2%).</p> <p>When organic farmers were asked why they ceased using pesticides, 52% said that it was because of the dangers that pesticides pose to their health.</p>	<p>Is cotton conquering its chemical addiction? A review of pesticide use in global cotton production (Pesticide Action Network UK, 2018)</p>
Income comparison between organic and conventional farmers	<p>Organic farmers earned on average 21% more in net profit from their cotton per hectare than their local non-organic peers.</p> <p>OCA's Farm programme saw a 180% increase in farmer numbers compared to the previous season.</p>	<p>OCA Farm Programme Impact Report 20/21. Accelerating the Organic Cotton effect. (Organic Cotton Association, 2022)</p>
Global Organic Textile Standard (GOTS) Certification to assure social and ecological standards	<p>Social: GOTS social criteria, based on the key norms of the International Labour Organisation (ILO), United Nations Guiding Principles on Business and Human Rights (UNGPs) and Organization for Economic Cooperation and Development (OECD), must be met by all processors, manufacturers and traders</p>	<p>Global Organic Textile Standard (2022)</p>

Highlights of Social dimension:

- Employment is freely chosen
 - Freedom of association and collective bargaining
 - Child labour shall not be used
 - No discrimination is practised
 - Occupational health and safety (OHS)
 - No harassment and violence
 - Remuneration and assessment of living wage gap
 - Working time
 - No precarious employment is provided
 - Migrant workers
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Textile production & environmental impacts

Activity	Results	Source
Cotton cultivation	<p>Non-organic cotton cultivation uses fertilizer, pesticides, and fungicides. This cultivation consumes just 3% of the world's farmland and accounts for 25% of total pesticide use (Ballikar, 2013; Textiles et al., 2015; Kumar, 2015; Hasanuzzaman and Bhar, 2016).</p> <p>Its huge environmental issues include the use of large volumes of water along with pesticides (higher than any other crops) that contaminates fresh water (Karthik and Gopalakrishnan, 2014; Hansen and Schaltegger, 2013).</p>	<p>Sustainable practices of the large-scale textile firms in Ghana (Okai-Mensah, Howard & Okai-Mensah, 2022)</p>
Jeans production	<p>Comparison of organic and conventional cotton</p> <ul style="list-style-type: none">- 87% improvement in terrestrial ecotoxicity- 59% improvement in freshwater ecotoxicity (Ecotoxicity refers to the potential for biological, chemical, or physical stressors to affect ecosystems)	<p>The impact of organic cotton use and consumer habits in the sustainability of jeans production using the LCA approach (Sener Fidan, Kızılkaya Aydoğan, & Uzal, 2022).</p>
Production of a white T-shirt	<p>Dyeing is the most pollutant step in the whole cycle of textile production. It is associated with the usage of huge amounts of energy, water, steam, and various chemicals like bleaching agents, dyes, wetting agents, soap, softener, and salts, in order to obtain the required shade of colour [7, 8]. Additionally, it causes a large volume of wastewater in dyeing plants with destructive effects to the environment [8].</p>	<p>Lifecycle Analysis (LCA) of a White Cotton T-shirt and Investigation of Sustainability Hot Spots: A Case Study (Khan et al. 2018)</p>

In the last few decades, distinct initiatives have been developed to lessen the adverse effects of cotton production. In that case, the cultivation of organic farming practices avoids the use of fertilizers, herbicides, and insecticides [9]. The estimated total pesticide consumption in the cotton cultivation is an 11% of the world consumption, which is almost 50% in the developing countries.

Hence, the practice of organic cultivation approach grants to greatly scale down the usage of chemicals and the detrimental environmental impacts [10].

Life Cycle Analysis (LCA) of organic cotton

Results: Organically grown cotton has the following potential impact savings (per 1,000kg Cotton Fibre) over conventional:

The life cycle Assessment of organic cotton fibre – A global average ([Textile Exchange, 2014](#))

- 46 % reduced global warming potential
- 70 % reduced acidification potential

- 26 % reduced eutrophication potential (soil erosion)
- 91 % reduced blue water consumption
- 62 % reduced primary energy demand (non-renewable)

Limitations: The impact on biodiversity or soil carbon sequestration have not been assessed

Global Organic Textile Standard (GOTS) Certification Comparison of organic and conventional Cotton

Organic fibres:
Grown without the use of synthetic pesticides (such as insecticides), or herbicides and GMOs (Genetic Modified Organisms) according to the principles of organic agriculture. Organic agriculture is a production process that sustains the health of ecosystems, soils, and people.

Conventional cropping systems:

- 95% of Cotton seed market is controlled by GM giants
- Cotton normally originates from monoculture
- 16.1% of the world's insecticides, and 5.7% of total pesticides
- 77 million agricultural workers suffer poisoning from conventional farming methods

The threat of greenwashing

This section gives an overview about the greenwashing currently riddling the textile sector, including the misuse of green claims.

Following a corporate screening in various business sectors including garment, cosmetics or household equipment, the Commission estimated in January 2021 that 42% of the analysed claims were “exaggerated, false or deceptive”¹. Others have given a higher figure in the textile sector, at around 60%².

Most recently discussion evolved surrounding the most appropriate use of the Higg Material Sustainable Index (MSI) due to shortfalls:

- It uses a “cradle-to-gate” approach, rather than “cradle-to-grave” or “soil-to-soil.”
- It considers only environmental impact to measure sustainability, rather than looking at environmental, economic, and social costs of producing a good.
- It doesn’t apply apples-to-apples measures to score environmental costs; a result of the discrepancies in how fibre types are scored is that animal fibre products like wool, silk, and alpaca rate lower than the preferred materials of large apparel companies, like cotton and synthetics.

Subsequently the use of the Higg MSI has been suspended in Norway and now reintroduced with guidelines provided by the Norwegian consumer authorities³.

¹ European Commission, 2021. Press release “screening of websites for greenwashing: half of green claims lack evidence”

² Synthetics anonymous, 2021. Available here.

³ Fibershed, 2022. Available here.