



Textile
Exchange

Preferred Fibers and Materials: Definitions Initial Guidance

January 2023

Acknowledgments

We would like to express our thanks to those who contributed to this report with their time and expertise.

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Special Thanks for Contributions:

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Introduction

About this document

This document is intended to provide high-level guidance for the fashion, apparel, and textile industry to support the interpretation and implementation of its commitments related to fibers and raw materials. It has been developed by Textile Exchange, the global non-profit dedicated to reducing the fashion and textile industry's climate impacts related to fibers and raw materials, with stakeholder review and input from the Fashion Charter Raw Materials Working Group (Definitions Task Team).

How this document **should** be used:

- As guidance to provide a shared aspiration and direction of travel for the industry around the principles that the materials we consider “preferred” should ideally embody.
- As guidance for fiber and raw materials programs to understand these principles and develop transition pathways toward achieving them, with the ultimate goal of further reduction of greenhouse gas (GHG) emissions.

How this document **should not** be used:

- As a “black and white” definition of what materials are considered preferred today.

This guidance document will serve as a starting point for the following next steps in 2023 and beyond:

- Further development of detailed criteria by fiber category.
- Development of transition pathways for fiber and raw materials programs.
- Development of industry roadmaps by fiber category, including dates for application of criteria and other details, such as a cutoff date for deforestation/conversion free, further guidance around regenerative agriculture definitions taking into account the realities of the differences in geographic regions and production systems, specifics of what must be demonstrated in terms of GHG reductions and/or removals, and more.

We recognize that establishing more detail is going to require thoughtful discussion across the industry, and we want to make sure that adequate time and engagement opportunities are provided for this, while also not waiting longer to release some high-level guidance as a starting point.

Background to “preferred”

Overview of “preferred” materials

From cotton to polyester, wool, hemp, viscose, and more, most of the materials used in the fashion and textile industry today are linked to agriculture, forestry, and oil. These are three of the most significant opportunities to limit global warming and to mitigate the most serious impacts of climate change.

At the same time, fashion and textile companies rely heavily on land-based fibers and the healthy, functioning ecosystems needed to produce them, as well as on non-renewable, synthetic materials. Sourcing decisions made today will determine the resilience of the industry tomorrow – but reducing impacts is not as simple as switching from one fiber type to another.

Currently, at least 64% of textile materials come from synthetic sources,¹ meaning that it is simply not realistic to shift all raw materials sourcing to land-based fibers due to land constraints and the potential impacts. Working towards fully “closing the loop” to produce recycled fibers from textile waste along with substituting for “preferred” options within each fiber category is the recommended approach for companies looking to reduce their impacts at the raw materials level.

“Preferred” past and present

In 2010, Textile Exchange began utilizing the term “preferred” to categorize fibers and materials that included environmental or social improvements over the conventional or status quo options. This was aimed at helping to address the growing ambiguity around what constitutes a sustainable or responsible material. In doing so, Textile Exchange provided the industry with guidance to step up its sustainability commitments, and over the years, the definition of “preferred” has continued to evolve to capture its growing progress and ambition.

It is imperative that we do everything we can to help limit global warming to 1.5°C, and the time is now to update the definition of preferred to align with that pathway. In today’s climate, incremental improvements associated with doing *less harm* aren’t going to get us to our goals. We’ve got to harness the potential of fiber and raw material production to bring beneficial impacts to people and ecosystems, starting to repair the damage that’s been done.

That’s why Textile Exchange is revisiting the definition to identify key indicators across climate, nature, animals, people, and governance that not only focus on reducing negative impacts but that also drive forward measurable beneficial outcomes.

Current Textile Exchange definition: “Preferred fiber or material”

Textile Exchange has historically defined a preferred fiber or material as “one which results in improved environmental and/or social sustainability outcomes and impacts compared to conventional production.” The current criteria are as follows.²

A preferred fiber or material is assessed according to the following pillars.



Sustainability criteria developed through a formalized multi-stakeholder process.



A recognized **industry standard** in place which confirms its status as preferred.



A robust **chain of custody system** in place to track or trace the material through the supply chain and back to its origin.



Objectively and scientifically tested or verified as having greater sustainability attributes, such as through a peer-reviewed Life Cycle Assessment.



Potential for circularity (under consideration).

Further details of a preferred fiber/material:

- **Feedstock production:** The fiber or material is derived from a renewable or reclaimed material produced according to at least one recognized industry sustainability standard.
- **Feedstock processing:** The fiber or material is processed or recycled (to a “spin-ready” filament or staple fiber or an otherwise prepared/cleaned material state) according to a recognized industry standard or results of a risk assessment. Risks associated with the primary processing of feedstocks (e.g. ginning, retting, pulping, shredding, cleaning, tanning, etc.) will vary in type and priority depending on the fiber or material, geography and/or country-level regulations.
- **Product Integrity:** The material is identified and preserved (e.g. using a Chain of Custody standard) and can potentially be traced through the supply chain back to its origin. If the material is managed via a mass-balance system, as a minimum, the country of origin is identified.
- **Scientifically tested:** The sustainability outcomes, impacts, or benefits associated with the fiber or material are relevant, scientifically proven, and peer-reviewed (e.g. LCA). Improvements need to be sustainable over time, and the positive impact achieved should not cause any (unintended) negative impacts somewhere else.
- **Potential for circularity:** The material has a good potential for circularity. This should be considered at the product design stage for end-of-life and cover durability, disassembly, resource use (including embedded impacts such as water, chemicals, non-renewable fossil fuels) technical and/or biological recyclability.

This definition and set of criteria have been reviewed, and an update is presented in the next section.

The need for a new definition

We want to lead the industry towards resilient, regenerative, and circular production practices, creating reciprocal systems that work *with* nature, not against it. In doing so, we hope to ensure a sustainable future for every stakeholder along these global supply chains, from farmers to suppliers and brands.

There are multiple pathways to lowering environmental impact, but they all must consider the interconnectivity of nature and climate. That’s why the existing Textile Exchange definition of “preferred fiber or material” is evolving to include key criteria that go beyond greenhouse gas emissions, considering how production processes impact areas like soil health, water, biodiversity, and communities.

By bringing outcome-focused indicators into this definition, we aim to drive an increase in the production of virgin land-based materials that positively contribute to the resilience of nature and local communities, as well as boosting the recycled textile-to-textile content that the industry uses.

This definition will continue to evolve in line with the best available climate science and modeling. As we develop it, a process that will include robust stakeholder engagement, it will also be applied to other industry tools developed and led by Textile Exchange such as the Preferred Fiber and Materials Matrix, the 2025 Sustainable Cotton Challenge, and the 2025 Recycled Polyester Challenge.

Key principles and desired outcomes

The principles below lay out a framework for the long-term transformation of textile raw materials. While these principles may be aspirational today, the direction of travel for materials to be considered “preferred” should be in-line with outcomes that will lead to the ultimate achievement of these principles.

- Natural ecosystems and species are protected and restored.
- Agricultural systems and soils are regenerated.
- No virgin fossil-based resources are used as feedstocks.
- Material production transitions from fossil-based energy sources to renewable energy.
- No natural ecosystems are converted or deforested.³
- Water resources are responsibly managed in line with contextual limits.
- Chemicals of concern and other pollutants are properly managed and eliminated from environmental discharges and runoff.
- Animals are managed in accordance with the Five Provisions of Animal Welfare.
- Human rights are universally respected.
- Farmers, herders, raw materials producers, and processors are empowered to build more equitable fiber systems.
- Finite resources are safeguarded for future generations.
- Production mitigates and builds resilience to climate change.
- Supply chains are transparent and accountable.

Proposed updated definition for a preferred fiber or material

A fiber or raw material that delivers consistently reduced impacts and increased benefits for climate, nature, and people⁴ against the conventional equivalent, through a holistic approach to transforming production systems.⁵

All preferred fiber and raw materials will be expected to meet all of the following criteria where applicable (further details to be developed in 2023):

Climate

- **Either** the program⁶ has verifiable impact data that demonstrates greenhouse gas (GHG) emissions reductions or removals in raw material production and processing compared to the conventional equivalent fiber or material.⁷
- **Or** the program has a climate action plan (aligned with a 1.5°C pathway) to reduce GHG emissions or ensure that carbon stocks and sinks are maintained or strengthened.
- Climate benefit analysis is consistent with the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, ISO 14064-1:2018, or protocols that build on IPCC Guidelines such as GHG Protocol, Gold Standard, Quantis Accounting for Natural Climate Solutions Guidance, or others.
- Programs must demonstrate GHG reductions and/or removals to keep preferred status.
- Emissions reductions must not be achieved at the expense of people or nature.

Nature

- The fiber or material is recycled or derived from a renewable feedstock.⁸
- **Either** the program has an integrated strategy that already demonstrates through outcome metrics how it conserves or improves soil health, biodiversity, deforestation, water-use efficiency, and water quality at the local level.
- **Or** the program has an action plan to measure soil health, biodiversity, and water stewardship indicators, and an adaptive management approach that is informed by these indicators.
- Programs must demonstrate ongoing protection or continuous improvement to keep preferred status.

Animals

- The program demonstrates responsible treatment of animals with respect to the Five Provisions of Animal Welfare.⁹

People

- The program takes a due diligence approach¹⁰ to protect the human and labor rights of the people involved in fiber and raw material growing, production, and processing. This includes workers, smallholder farmers, Indigenous peoples, and local communities.¹¹
- The program has a strategy to identify and remediate any harm.

- The program has a strategy to reach fair incomes and improve livelihoods to build more equitable fiber and material systems.
- Programs must demonstrate progress against strategy, as well as any other selected social indicators, to keep preferred status.

Governance

- The program has a robust chain of custody procedure and verification mechanisms (such as through third-party audits) in place to trace materials through the entire supply chain and back to their origins.
- The program's goals and indicators are co-developed through a collaborative governance process, and a formalized multi-stakeholder process with meaningful participation of affected stakeholders, their representatives, and communities.
- The program has mechanisms in place to adapt its approach to local conditions, such as consideration of smallholder context, capacity, and resources.
- The program ensures the availability of a grievance mechanism that provides both a channel through which affected stakeholders and their representatives can raise concerns as well as remediation processes.¹²

Related terms

Signatories of the Fashion Industry Charter for Climate Action are required to create and submit reduction pathways. This includes the following Charter target related to raw materials:

*“Source 100% of priority materials that are both **preferred** and **low climate impact** by 2030, ensuring that these do not negatively affect other sustainable development goals. This includes pursuing materials that are closed-loop recycled, deforestation-free and conversion-free in their origins, apply **regenerative** practices, and that relevant verification and impact measurement mechanisms have been applied.”*

This section provides high-level guidance on general definitions of key terms within the raw materials target above.

Low climate impact fiber/material

A fiber or material that generates a lower level of GHG emissions, as measured by CO₂ equivalent, when compared to the conventional method of production.

- GHG emissions benefits can be achieved through the adoption of activities that emit lower levels of GHG emissions (reductions) or that result in carbon “removals,” for example through soil carbon sequestration, or a combination of both.¹³
- The Fashion Charter Raw Materials Working Group has been working to identify low-carbon sources within each fiber category. Their “Low-Carbon Sources of Cotton & Polyester Fibers” report identified some potential low-carbon raw materials based on the impact data currently available today:
 - Mechanically recycled cotton (identified as the most favorable low-carbon source of cotton) or
 - Cotton grown using low-carbon farming practices, which may include but are not limited to:
 - Optimum soil conditions (medium or heavy textured soils with 7-8 pH)
 - High-density planting systems
 - Rainfed areas with supplemental irrigation run on solar power
 - Incorporation of crop residues and/or compost on the field, no or minimum-till, crop rotation, intercropping or cover cropping (based on water availability)
 - Optimal dosing of fertilizers generated by owned livestock, ideally organic
 - Traditional harvest
 - Roller ginning with automatic feeders run on renewable energy
 - Note that not all practices listed above may be appropriate in all farming systems or contexts, and this list is not exhaustive of all potentially beneficial practices.
 - Opportunities to transition current industrial farming practices to lower-carbon industrial farming practices should also be considered as potential levers for impact reduction in the immediate-term.

- Low-carbon PET sources (excludes bio-based PET):¹⁴
 - Mechanically recycled PET from post-consumer plastic bottles has been identified as the current most favorable low-carbon source
 - Chemically recycled PET (% reduction depends on the source of the feedstock and region of PET production)

Regenerative fiber/material

A fiber or material that is grown/produced in a way that seeks to rehabilitate and/or enhance ecosystems as measured by net gains in specific indicators.

While there is no standardized definition of “regenerative agriculture,” Textile Exchange takes the view that the concept is inclusive of the following:¹⁵

- A view of agriculture that works in alignment with natural systems, recognizing the value and resilience of interconnected and mutually beneficial ecosystems vs. extractive agricultural systems.
- An acknowledgement that Indigenous and Native peoples have been employing this approach to growing food and fiber for centuries—it is not a new concept—and that regenerative agriculture must include a focus on social and environmental justice.
- A holistic, place-based, outcome-focused systems approach, not a “one-size-fits-all” checklist of practices.

Examples of desired outcomes for regenerative systems include not only carbon sequestration but also positive outcomes related to soil health, biodiversity, water management, and environmental pollution, alongside the equally important outcomes of animal welfare, social and environmental justice, and livelihood improvement.

These outcomes can be achieved by following the below regenerative agriculture principles, where practices are selected in line with the consensus elements identified by recent research and grounded in context-based respect for local knowledge:

- Minimize soil disturbance
- Maximize crop diversity
- Keep living roots in the ground at all times
- Keep soil covered
- Integrate livestock

Many of the same principles apply in forestry contexts:

- Promote biodiversity-friendly practices that maintain or increase forests and their ecosystem services, including their contribution to the global carbon cycle.
- Exclude the conversion of primary forests, high conservation value ecosystems, and ecologically important forest areas into less biodiverse ones.
- Exclude the conversion of forest to another land use or the long-term reduction of tree canopy cover.

- Maintain, conserve, or improve the diversity of habitats, species, and stand structures.
- Maintain or improve soil health.
- Adopt a holistic, place-based, outcome-focused systems approach, not a “one-size-fits-all” checklist of practices, as forests in different climate zones and geographies are very different.

How ‘preferred’ is differentiated

	Low climate impact	Regenerative	Preferred
Indicators measured	CO ₂ and CO ₂ equivalent emissions	Multiple environmental and social indicators but often with soil health and carbon sequestration as the entry point (see the Textile Exchange statement above)	Environmental and social indicators
Fiber or raw material type	All fiber or raw material types	<ul style="list-style-type: none"> • Natural fibers (e.g., plant-based fibers and animal-derived fibers) • Forest-based fibers (e.g., manmade cellulosic fibers derived from wood) • Bio-based fibers from soil-based systems 	All fiber or raw material types
Impact type	Avoid/reduce	Protect/enhance	Both avoid/reduce and protect/enhance

In addition to preferred sources of traditional fibers, we will also need innovative fibers and materials to decarbonize and transform the fashion industry. However, it is challenging to measure or accurately benchmark the benefits of innovative fibers before they reach market scale. An alternative approach will be required to support innovators in understanding the reduced impacts or increased benefits of their models.

About Textile Exchange

Textile Exchange’s goal is to help the industry to achieve a 45% reduction in the GHG emissions that come from producing fibers and raw materials by 2030. This is known as Tier 4 of the supply chain, and on average it accounts for an estimated 24% of the industry’s GHG impacts related to the supply chain.¹⁶

This goal underpins our Climate+ strategy.¹⁷ We’re calling it Climate+ because it goes beyond accounting for greenhouse gas emissions. Instead, it is an interconnected approach that swaps siloed solutions for interdependent impact areas like soil health, water, and biodiversity. Our strategy is underpinned by three major areas of impact and opportunity:

First, we’re accelerating the adoption of preferred fibers and raw materials, including organic, regenerative, recycled, or other more responsible alternatives to conventional fibers. We want to make these materials the accessible default by providing global certifications and standards as well as industry-wide benchmarking for brands to measure and manage their sourcing strategies.

Next, we need innovation and out-of-the-box thinking. New business models, circular systems, and even innovative materials. This means collecting better data and facilitating information sharing around how we can scale existing solutions, like regenerative agriculture and textile-to-textile recycling. We do this through our industry reports and data-driven tools, while bringing leaders together via our round tables, conference, and other platforms.

Lastly, underpinning everything is a need to slow the growth in the amount of new raw materials being produced, extracted, and cultivated each year. We cannot keep on our current growth trajectory of an assumed 3% year on year growth—we need to reduce this to 1% at most. Our vision is a new system that works in sync with nature, respecting planetary boundaries while protecting the people that sustain it. To get there, we’re keeping our focus holistic and interconnected as we guide our global community in this collective climate strategy.

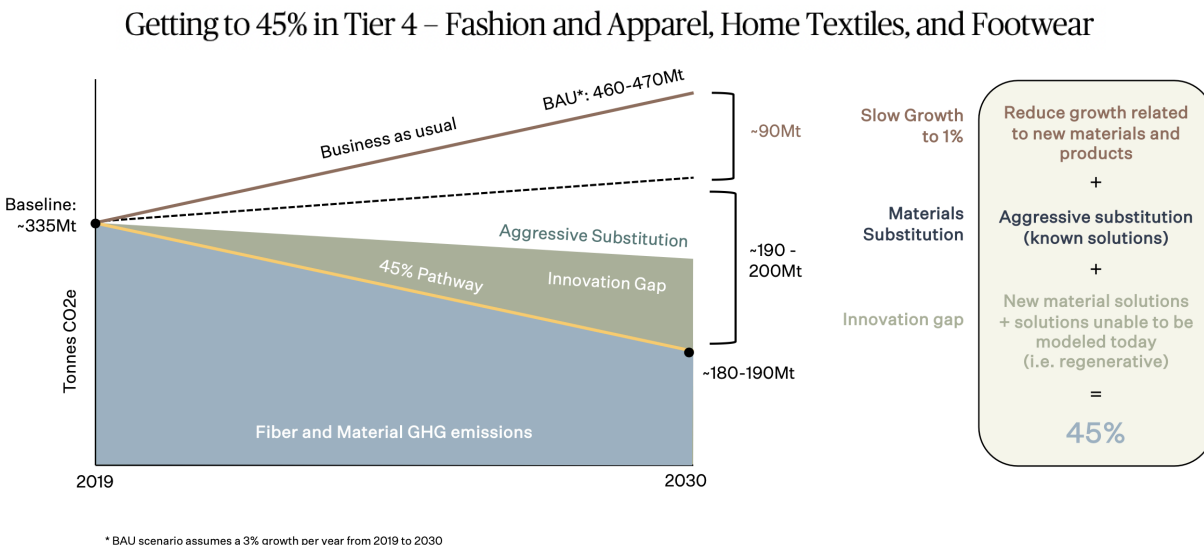


Figure 1: Modeling of interventions needed in the apparel and footwear raw materials extraction phase in order to achieve 45% GHG impact reduction by 2030, as measured against a 2019 baseline.

Endnotes

¹ Textile Exchange, 2022. “Preferred Fiber and Materials Market Report.”
https://textileexchange.org/wp-content/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf

² Textile Exchange, 2021. “Corporate Fiber & Materials Benchmark.”
<https://mci.textileexchange.org/>

³ Global leaders at COP26 pledged to end and reverse deforestation by 2030. Textile Exchange is developing fiber-specific deforestation strategies.

⁴ Our definition echoes the UNEP Ecosystem Restoration narrative, removing the “and/or” approach in the current definition. If we achieve emissions reductions but overlook human rights or fail to safeguard biodiversity it will mean solving for one problem but creating others.

United Nations Environment Programme (UNEP) and Food and Agriculture Organization of the United Nations (FAO), 2021. “Becoming #GenerationRestoration: Ecosystem Restoration for People, Nature and Climate.”
<https://www.unep.org/resources/ecosystem-restoration-people-nature-climate>

⁵ The aim is to drive systemic change, not just incremental improvements. Also aligns with the language used in the Textile Exchange Preferred Fiber and Materials Matrix.

⁶ The term “program” is used broadly and is currently intended to capture schemes, certifications, and branded fibers. This may be revisited in phase two.

⁷ Further details regarding baselines and comparison data will be provided in 2023.

⁸ Further details regarding recycled feedstock thresholds will be developed in 2023.

⁹ David J Mellor, 2016. “Moving beyond the ‘Five Freedoms’ by Updating the ‘Five Provisions’ and Introducing Aligned Animal Welfare Aims.”
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5082305/>

¹⁰ Organisation for Economic Cooperation and Development (OECD), 2017. “Due Diligence Guidance for Responsible Supply Chains in the Garment & Footwear Sector.”
<https://www.oecd.org/industry/inv/mne/responsible-supply-chains-textile-garment-sector.htm>

¹¹ United Nations Human Rights, 2011. “Guiding Principles on Business and Human Rights.”
https://www.ohchr.org/sites/default/files/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf

¹² Shifting away from “one-size-fits-all” approaches and towards socially inclusive, contextualized approaches that are considerate of local realities.

¹³ Condition of permanence in line with Greenhouse Gas Protocol Land Sector and Removals Guidance, which is currently “100 years or other time period defined by the program.”

¹⁴ UNFCCC Fashion Industry Charter for Climate Action, 2021. “Identifying Low Carbon Sources of Cotton and Polyester Fibers.”
<https://unfccc.int/documents/273670>

¹⁵ Textile Exchange, 2022. “Regenerative Agriculture Landscape Analysis.”
<https://textileexchange.org/regenerative-agriculture-landscape-analysis/>

¹⁶ World Resources Institute and Apparel Impact Institute, 2021. “Roadmap to Net Zero: Delivering Science-Based Targets in the Apparel Sector.”
<https://apparelimpact.org/wp-content/uploads/2022/02/roadmap-net-zero-delivering-science-based-targets-apparel-sector.pdf>

¹⁷ Textile Exchange, 2022. “About Climate+.”
<https://textileexchange.org/about-us/climate/>