Textile Exchange

Preferred Production Systems

Principles, definitions, and guidance

February 2026

Contents

Cover photo: Mike Terry

Introduction

Purpose of this document

This document provides high-level definitions, guidance, and principles for the fashion, apparel, and textile industry to support the transition to preferred production systems for fibers and materials.

For Textile Exchange specifically, the contents of this document will underpin its tools, resources, and initiatives, including:

- Pathways to preferred production systems for the industry, including related actions and targets
- Annual reporting mechanisms
- Fiber and Materials Matrix
- Materials Matter Standard system
- Material summaries

We welcome other organizations and stakeholders to utilize this guidance as a shared reference point for the industry.

This guidance was developed by Textile Exchange, a non-profit operating in the textile, fashion, and apparel industry. Our vision and mission are as follows:

- **Vision:** A world where materials have lasting value, leading to thriving communities and landscapes.
- **Mission:** Textile Exchange transforms how we produce, choose, and reuse materials to benefit people and places at the source.

This document replaces and builds upon the Textile Exchange *Preferred Fibers and Materials Definitions Guidance* published in January 2023.

Photo: Danilo Arenas

Scope of this document

This document is designed to apply to **Tier 4 material production systems**, covering the production and processing of raw material production in the fashion, apparel, and textile industry. A more detailed definition of Tier 4 is outlined in the Apparel Alliance's Supply Chain Taxonomy.

Within Tier 4, we focus on four key production systems, producing materials such as those highlighted in the examples below:

- Cropping systems (for example, cotton)
- Animal systems (for example, wool, bovine leather)
- Recycling systems (for example, recycled synthetic or natural materials)
- Forestry systems (for example, virgin manmade cellulosic fibers (MMCFs))

Use of this document

The key audiences for this document are Tier 4 producers, suppliers, brands, retailers, and any other stakeholders working with these groups.

How this document **should** be used:

- As guidance to provide a shared aspiration and direction of travel for the industry, based on a vision for the ideal state of preferred production systems and the principles these systems should embody.
- As guidance to inform the development and understanding of pathways toward achieving preferred production systems, with the aim of driving beneficial impact and achieving industry goals.
- To inform brands' and retailers' strategies related to raw material sourcing and sustainability.
- To inform the actions that Tier 4 producers can take toward preferred production systems.

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

- For comparison between material types and/or material substitution, for example, cotton to synthetics.
- To switch fiber or material sourcing to other locations/geographies.

Photo: Priyadarshini Ravichandran

Why preferred production systems?

A **production system** is the interconnected set of processes, practices, inputs, and relationships involved in the cultivation, extraction, or creation of textile fibers and materials. Production systems encompass not only the technical and biological aspects of production, but also the geographical, environmental, and sociocultural contexts that shape how raw materials and fibers are produced.

While materials may be the product of a production system, it is the way that the production system is composed and managed that drives the impact of the raw material or fiber being produced.

Definition of preferred production systems

Production systems that deliver reduced impacts and increased benefits for climate, nature, people, and animals[2] against the conventional equivalent, through a holistic approach to management and transformation.

Textile Exchange has recently recognized the need to evolve its thinking—and that of the industry—from the concept of "preferred materials" to that of "preferred production systems,"[1] for several reasons:

- Production systems are where the impact of raw material and fiber production, extraction, and cultivation occurs.
- The concept of production systems centers the role of Tier 4 producers in influencing the potential beneficial impact of materials.
- Because the cultivation, extraction, and processing of raw materials are specific to each production system, adopting a production-systems perspective better captures the complexity and context-dependence required.
- Articulating an ideal future state for production systems illustrates the ambition of our work without prescribing a universal list of "preferred" and "non-preferred" materials.
- This shift supports Textile Exchange's theory of change and outcomes-driven approach by contextualizing the transformation we aim to drive within production systems.

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

Photo: Claudia Gori

Principles of preferred production systems

A holistic view of impact must consider the interconnectivity of impact areas, specifically how topics such as soil health, freshwater, biodiversity, animal welfare, and community livelihoods influence each other and are inherently interdependent.

To support this perspective, Textile Exchange has identified **five key categories for principles of preferred production systems** for the fashion, apparel, and apparel industry:

- CLIMATE Climate
- NATURE Nature
- PEOPLE People
- ANIMALS Animals
- GOVERNANCE Governance

Within and across these categories, Textile Exchange has developed specific principles for preferred production systems, to be achieved in the long term.

While some of these principles may be aspirational today, they can serve as a shared direction of travel for the transformation of production systems.

The principles are outlined here, along with the relevant categories. Note that several principles are relevant to more than one category.

Principles of preferred production systems:

CLIMATE NATURE	Natural ecosystems and species are protected and restored.
CLIMATE NATURE	Agricultural systems and soils are regenerated.
CLIMATE NATURE	No virgin fossil-based resources are used as feedstocks.
CLIMATE	Material production transitions from fossil-based energy sources to renewable energy.
CLIMATE NATURE	No natural ecosystems are converted or deforested.[3]
NATURE	Freshwater resources are responsibly managed in line with contextual limits.
NATURE	Chemicals of concern and other pollutants are properly managed and eliminated from environmental discharges and runoff.
ANIMALS	Animals are managed in accordance with the Five Domains of Animal Welfare and have “a good life” as defined by the Good Life Framework.[4]
PEOPLE	The human rights of growers, workers, Indigenous Peoples and Local Communities involved in production systems are respected and supported by an effective due diligence approach.[5]
PEOPLE	Production systems are fair and inclusive, providing equitable support and returns to growers, raw material producers, and processors.
CLIMATE NATURE PEOPLE	Finite resources are safeguarded for future generations.
CLIMATE NATURE	Production mitigates and builds resilience to climate change and nature loss.
GOVERNANCE	Production systems are grounded in due diligence, as set out by the Organisation for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Business Conduct.
GOVERNANCE	Verification of practices and outcomes occurs via an independent third-party verification approach (where possible), which may include third-party audits, accredited certification bodies, or robust local quality assurance systems, such as participatory guarantee systems.
GOVERNANCE	There is a chain of custody model to support tracking inputs through the value chain.

Additional considerations:

- A commitment to continuous improvement should be demonstrated. Ideally, a reduction in negative impacts and an increase in beneficial impacts are achieved over a long-term time horizon, contributing toward resilient ecosystems and communities. Particularly in natural systems, the influence of external factors, such as extreme weather events or trade pressures, must be recognized. A reduction in negative impacts and/or an increase in beneficial impacts is not achieved at the expense of people, animals, or the environment.
- Production systems related to virgin fossil fuel extraction cannot be considered “preferred.”

Textile Exchange recognizes its role and influence not only in transitioning systems, but also in meaningfully supporting, reinforcing, and celebrating existing best practices. Textile Exchange also seeks to highlight and support the progress of systems that have already transitioned to regenerative approaches, in order to maintain and steward these systems.

Principles of preferred *natural* production systems

Natural production systems include cropping, animal, and forestry production systems.

Overarching consideration: Regenerative agriculture

Textile Exchange's view of preferred natural production systems is generally in alignment with regenerative, organic, or agroecological approaches.

The concept of regenerative agriculture, and its associated principles, can be applied across cropping, animal, and forestry systems.

There is no single definition for regenerative agriculture, nor a single set of practices to follow. The reason for this lies in the complexity of nature itself and the different resources available to different producers in different production systems across different geographic landscapes. We refer to this as the "local context." Only by considering the unique site-based context of each production system, led by the producers working on the ground, can one begin to plan and implement regenerative practices.

In the 2022 Regenerative Agriculture Landscape Analysis report, Textile Exchange outlined its view that regenerative agriculture should include the following principles:

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

These principles provide a foundation. When individual production systems are considered, it is possible to identify additional details underpinning the management of regenerative production systems, such as:

- **Holistic management and contextual understanding:** Management that considers the entire ecosystem and its interconnections when making grazing or cropping decisions.
- **Minimizing soil disturbance:** Limiting physical, chemical, and biological disturbance of the soil helps maintain soil structure and minimizes the risk of erosion.
- **Maximizing soil cover:** Maintaining soil cover is critical to moderate soil temperature, reduce moisture loss, suppress weeds, and promote soil microbial activity, contributing to overall soil health.
- **Maximizing living roots:** It is important to keep living roots in the soil because different plants have varied root structures, nutrient demands, and interactions with soil microbiota, promoting biodiversity above and below ground.
- **Maximizing biological diversity:** Encouraging microbial, fungal, and faunal diversity within the soil ecosystem is crucial for performing vital functions such as nutrient cycling, decomposition, and pest control.

The practices applied to support these principles will depend on context, considering the environmental and ecological characteristics of the farm, forest, or plantation, including the limitations and potential of the land's unique ecosystems. The business context, such as available resources (for example, equipment and infrastructure), operational capacity (for example, labor and skills), and available funds to transition to regenerative approaches, as well as the land manager's general objectives, must also be considered.

The same principles of social and economic equity apply across cropping, animal, and forestry systems.

Preferred natural production systems should uphold and respect the human rights of growers, workers, and local communities, while ensuring fair and equitable returns for growers, raw material producers, and processors. As with ecological principles, practical application depends on context—meaningful consideration of and engagement with affected stakeholders can foster transparency, build trust, and support solutions that are both socially just and economically viable.

The way practices are implemented in different contexts in line with the regenerative principles set out above will impact on the outcomes achieved. Examples of desired outcomes for regenerative cropping, grazing, and forestry systems are outlined in the Textile Exchange Regenerative Agriculture Outcome Framework, and fall into three holistic categories:

- Ecological health
- Social and economic equity
- Animal welfare

Preferred cropping production systems

Additional key principles of preferred production systems specific to cropping*

CLIMATE NATURE — Highly hazardous pesticides[6] are eliminated and replaced with safe alternatives, including non-chemical alternatives.

CLIMATE NATURE — Synthetic fertilizers and pesticides are reduced or eliminated.

CLIMATE NATURE — Plant and soil microbial diversity is optimized.

*NOTE: These principles are also relevant to animal production systems and plantation forest production systems.

Photo: Priyadarshini Ravichandran

Vision for preferred cropping production systems

In preferred cropping production systems, crops are grown in ways that sustain healthy soils, ecosystems, and farming communities, or regenerate those that have been degraded. They are grounded in ecological processes and locally adapted practices, with an emphasis on reducing reliance on synthetic inputs and enhancing soil health, freshwater, and biodiversity.

Growers and producers are treated fairly and equitably. Human rights are fully respected, including the internationally recognized rights of workers, and Indigenous Peoples and Local Communities.

Preferred animal production systems

Additional key principles of preferred production systems specific to animals

ANIMALS	Animals can exercise choices about their lives, including their food, environment, company, and behavioral expression.
ANIMALS	There is an opportunity for animals to have positive interactions with other animals and people.
ANIMALS	Animals are managed to promote good health and vitality, not only the absence of disease or injury.
ANIMALS	Ruminants spend their lives in pasture-based systems.
ANIMALS	Sheep are not mulesed: there is no removal of the breech, tail skin folds, or tail skin wrinkles of a sheep by any method.
ANIMALS	Permitted painful husbandry procedures only take place when the outcome improves animal welfare.
ANIMALS	There is a pain management process, including pain relief, when available.
ANIMALS	Animals are stunned prior to slaughter.

Photo: Carl van der Linde

Vision for preferred animal production systems

In preferred animal production systems, animals are managed in ways that enable normal behaviors, and good health, nutrition, and living environments, leading to a positive mental state while also enhancing soil health, freshwater, and biodiversity. Growers and producers are treated fairly and equitably. Human rights are fully respected, including the internationally recognized rights of workers, the the rights of Indigenous Peoples and Local Communities.

Preferred forestry production systems

Additional key principles of preferred production systems specific to forestry

Recognizing that the presence and distribution of high conservation values[7] determine the management actions implemented across each forestry system, preferred forestry production systems include those that maintain or enhance these values over time. High conservation values in forestry systems include:

NATURE	Species diversity
NATURE	Ecosystems and habitats
NATURE	Ecosystem services
NATURE	Landscape-level ecosystems, ecosystem mosaics, and intact forest landscapes
PEOPLE	Community needs
PEOPLE	Cultural values

Photo: Sonny Sixteen / Shutterstock

Vision for preferred forestry production systems

In preferred forestry production systems, natural and plantation forests are managed in ways that sustain healthy soils, ecosystems, and forest-dependent communities. These systems are grounded in ecological processes and locally adapted practices, with an emphasis on enhancing soil health, freshwater, biodiversity, and reducing synthetic pesticides and fertilizers where relevant (such as plantation systems). In natural forests, preferred forest production systems ensure that the integrity and species composition of these forests are protected (especially in intact forests and those of high conservation value) or are restored where they have been degraded.

Producers are treated fairly and equitably. Human rights are fully respected, including the internationally recognized rights of workers, and the rights of Indigenous Peoples and Local Communities.

Principles of preferred *recycling* production systems

Overarching considerations

Recycling production systems include both synthetic and natural fiber and materials, acknowledging that recycling technologies differ across systems.

The early stages of the upstream recycling supply chain are often difficult to trace and remain out of sight. The industry must extend due diligence efforts to improve transparency and address risks to both people and the environment within waste collection and sorting systems.

The same principles of social and economic equity apply across all levels of recycling systems. Preferred recycling production systems should uphold and respect the human rights of workers and local communities, while ensuring fair and equitable returns for raw material producers and processors. Practical application is dependent on context—meaningful consideration of and engagement with affected stakeholders can foster transparency, build trust, and support solutions that are both socially just and economically viable.

Additional key principles of preferred production systems specific to recycling:

CLIMATE NATURE

Textile-to-textile recycling[8] is the preferred form of recycling. Textile Exchange additionally defines textile-to-textile recycled materials from preferred production systems as those which include certification or verification.

CLIMATE NATURE

The uptake and usage of post-consumer textile waste is the desired feedstock, although Textile Exchange also recognizes and supports the role of pre-consumer/post-industrial textile waste in the recycling system.

CLIMATE NATURE

While recycled polyethylene terephthalate (rPET) from bottles is preferred to virgin fossil-based polyester, it does not constitute a closed-loop recycling option, and efforts should be made to transition away from bottles and toward textile-based feedstocks as rapidly as possible, with consideration that this is executed in a just manner, supporting the communities involved within these existing waste collection systems.

CLIMATE NATURE

Mechanical, thermo-mechanical, and chemical recycling fulfill industry demand for recycled feedstocks, and all systems are needed to transition the industry toward eliminating the use of virgin fossil-derived sources.

CLIMATE NATURE

The energy, water, and chemical usage throughout the recycling process leads to vastly differing impacts. All systems should look to monitor and manage these inputs to improve efficiency and reduce impact wherever possible.

Vision for preferred recycling production systems

In preferred recycling production systems, new virgin fossil-based feedstocks are no longer in use. Textiles are recycled at the end of their useful life, once other options have been exhausted, to create new fibers and materials that match the quality and performance of virgin alternatives, while reducing energy, water, and chemical usage and enhancing human rights and livelihoods. Recycling has displaced the disposal of materials through linear waste streams such as landfill or incineration.

The value chain operates fairly and equitably. Human rights are fully respected across all levels of the recycling system, including the internationally recognized rights of workers, and the rights of Indigenous Peoples and Local Communities.

Annex

Background to the concept of preferred

In 2010, Textile Exchange began using the term "preferred" to categorize fibers and materials that offer environmental or social improvements over the conventional or status quo options. This aimed to address the growing ambiguity around what constitutes sustainable or responsible materials. By doing so, Textile Exchange provided the industry with guidance to step up its sustainability commitments. Over the years, the definition of "preferred" has continued to evolve, capturing the industry's growing progress and ambition.

In 2023, Textile Exchange put forth the following definition of a "preferred" fiber or material:

> *A fiber or raw material that delivers consistently reduced impacts and increased benefits for climate, nature, and people[9] against the conventional equivalent, through a holistic approach to transforming production systems.[10]*

A key element of this definition is that it not only focuses on reducing negative impacts, but also on driving forward meaningful, measurable, beneficial impacts.

While materials may be the product of a production system, it is the way that the production system is composed and managed that drives the impact of the raw material or fiber being produced.

Textile Exchange has recently recognized the need to evolve its thinking—and that of the industry—from the concept of "preferred materials" to that of "preferred production systems," as detailed in the body of this document.

Photo: Carl van der Linde

Definitions and terms related to preferred materials

"Low climate impact" fibers or materials

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."*

Definition of a "low climate impact" fiber or material:

One that generates a lower level of greenhouse gas (GHG) emissions, as measured by CO_2 equivalent, when compared to the conventional method of production.

A note on GHG emissions:

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.[11]

The Fashion Charter Raw Materials Working Group has developed reference reports to identify low-carbon sources within each fiber category:

- Identifying Low Carbon Sources of Cotton and Polyester Fibers
- Identifying Low Carbon Sources of Sheep Wool, Hair, Alpaca Fiber, and Silk Fiber
- Identifying Low Carbon Sources of Man-Made Cellulosic Fibers

"Sustainably sourced" renewable and recycled materials

Where "sustainably sourced" is adapted from United Nations Development Program (UNDP) and Sustainable Development Goal (SDG) 12 and is aligned with the concept of "preferred," "recycled material" is adapted from ISO 14009:2020, and "renewable material" is adapted from Ellen MacArthur Foundation.

Textile Exchange aligns with UN and SDG 12 use of the term "sustainably sourced" here, as it is already an accepted policy term. The terms "responsibly sourced" or "preferred" would be deemed equivalent/aligned to this.

Textile Exchange definition of "sustainably sourced renewable" materials:

Material that is continually replenished at a rate equal to or greater than the rate of depletion, that delivers reduced impacts and increased benefits for climate, nature, people, and animals.

Textile Exchange definition of "sustainably sourced recycled" materials:

Material that is refined and reprocessed from reclaimed material by means of a manufacturing process and made into a final product or into a component for incorporation into a product, that delivers reduced impacts and increased benefits for climate, nature, people, and animals.

A note on innovative materials:

In addition to traditional fibers from preferred production systems, we will also need innovative fibers and materials in order to decarbonize and transform the fashion industry. However, it is challenging to measure or accurately benchmark the benefits of new innovative fibers before they reach market scale. Alternative approaches to traditional GHG modeling and the use of Life Cycle Assessment data and emissions factors are required to support innovators in understanding the reduced impacts or increased benefits of their models.

Endnotes

1 For background on how the term "preferred" has been used by Textile Exchange and its evolution, please see the Annex.

2 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

3 Global leaders at COP26 pledged to end and reverse deforestation by 2030.

4 Edgar, J. L., et al. (2013). Towards a 'Good Life' for Farm Animals: Development of a Resource Tier Framework to Achieve Positive Welfare for Laying Hens. *Animals*, 3(3). https://www.mdpi.com/2076-2615/3/3/584

5 Organization for Economic Cooperation and Development (OECD). (2018). *Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector.* https://www.oecd.org/en/publications/2018/03/oecd-due-diligence-guidance-for-responsible-supply-chains-in-the-garment-and-footwear-sector_g1g89b0b.html

6 Pesticide Action Network International. (2024). *PAN International List of Highly Hazardous Pesticides.* https://pan-international.org/wp-content/uploads/PAN_HHP_List.pdf

7 High Conservation Values, defined by the Forest Stewardship Council as "From endemic species to sacred sites, all natural habitats – especially forests – inherit conservation values. Those biological, ecological, social or cultural values of outstanding significance are known as 'high conservation values,' or HCVs." HCV Network provides a methodology for identifying HCV areas.

8 Materials utilizing feedstock from an existing fibrous source and which are processed through a Tier 4 raw material production and primary processing stage (see Supply Chain Taxonomy Framework). Additional notes:

- Textile Exchange understands and acknowledges that some material types may present challenges for brands to be able to source textile-to-textile recycled materials due to a variety of different limitations. Known examples include:
  - **Nylon:** The complexity of, and ability to separate, mixed feedstocks in continuous recycling processes currently presents challenges in the availability of textile-to-textile recycled materials on a large industry-wide scale.
  - **Elastane:** Technical challenges currently exist around the separation of elastane particularly from mixed fabrics and fabrics with complex finishes/chemicals/additives (for example, durable water repellent (DWR)).
- This is Textile Exchange's working definition as of February 2026; it is subject to change, and should not be used to substantiate marketing claims or for any other promotional uses.

9 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

10 The aim is to drive systemic change, not just incremental improvements.

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