



**TextileExchange**  
Creating Material Change

# PREFERRED FIBER & MATERIALS MARKET REPORT 2017



## Welcome to the fourth edition of the Textile Exchange Preferred Fiber & Materials (PFM) Market Report.

With each year our understanding of the market deepens and, of course, more and more great work is being done within the industry for us to report out to you.

This year we had a record 95 brands and retailers report via our benchmark survey. This allows us to give a comprehensive picture of company activities and uptake of preferred fiber and materials.

It is a combination of interventions that is transforming the industry: company strategies are going beyond concept into full implementation, business models are evolving to support, and technologies are coming online to disrupt current modes of production.

It is also a time when we need to give greater voice and put numbers to our progress. With the framework of the United Nations Sustainable Development Goals, Textile Exchange is in a unique place to give voice to not only the individual actions that you'll see highlighted in this report – but to the collective action our membership is taking as pioneers and leaders in creating and driving material change.

We are indeed living in a time of great progress. Some would say the industry is not moving fast enough, while others are optimistic about the progress being made. We need both the cynics to nudge us further and the optimists to believe it will happen!

La Rhea Pepper  
Managing Director, Textile Exchange



Significant birthdays are always a good time to pause for thought, and as Textile Exchange reaches 15 years of age it's instructive to look back and realize how far we've come.

Back then – when we were Organic Exchange – we had a focus on one signature fiber, organic cotton, and we did all we could to encourage its use in the market and help farmers and manufacturers adopt the principles and processes that we knew would Create Material Change.

Now, we have both widened and deepened our coverage, building expertise in a range of Preferred Fibers and Materials, complementing our members' broadening interest in the sustainability of all their raw materials.

What hasn't changed over the 15 years is the commitment of our members to keep improving, and the commitment of the Textile Exchange team to help them do so. This Report's Leaderboards "name and fame" many of the leaders in textile sustainability, and provide healthy competition for the industry.

Throughout this Report you'll find great examples of innovation, entrepreneurship and shared value. The Dashboards, Supply Landscapes and Noticeboards give the most comprehensive picture I've ever seen for each and every preferred fiber – and the Insider Series takes us into the heart of some intriguing new developments,

What comes through most strongly in all those stories is the people who strive to make a better world. Whether you're part of one of these stories or developing your own narrative, I salute your efforts and look forward to even more in our 16th year.

Elayne Masterson  
Textile Exchange Governance Board Chair, Esquel Apparel

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## ABOUT THIS REPORT

Much has changed since last year's Preferred Fiber & Materials (PFM) Market Report, and sometimes it feels impossible to keep up with all the new opportunities and challenges. However it's good to report that things are moving in a positive direction, with uptake of preferred fibers rising in all categories, and some showing very significant leaps in usage. This report brings recognition of the progress being made but also a reality check that there is much more to do.

It's clear that our economic system is changing, with a greater focus on circularity and moving beyond purely financial capital. The language of the Sustainable Development Goals is influencing our industry and it's good to see the industry get behind the Science Based Targets.

While macro-level drivers for change are getting stronger, we also know that, overall, consumption continues to grow. More people are buying more stuff. The circular economy is going to be key to a more sustainable future, but the size of the circle also needs to shrink and slow down.

We are learning that more companies are managing a portfolio of preferred fibers, rather than focusing on an individual one, and we are coming to understand how managing a portfolio mix properly can have just as much sustainability impact as targeting one specific fiber.

Company strategy and fiber priorities will vary and potentially change over time as progress is made. Throughout the journey, Textile Exchange will be there, helping our members chart a course to a more sustainable future.

### **This year, in celebration of Textile Exchange's 15th anniversary, we launch our first Insider Series.**

For this Series we asked fiber and materials experts "inside" the industry for their personal account of working in this space. We think you will enjoy the read! In fact, the enthusiasm for the series has been so great that we aim to continue the series - and share more stories.

This report would not have been possible without the willingness of our members and other friends and colleagues to share information with us. We know this is a privilege, and one we do not take for granted.

Finally, as a learning organization we welcome your feedback and suggestions for how we can keep improving. We want to keep getting better every year and hope you will help us do that.

#### **Liesl Truscott**

Materials Strategy Director, Textile Exchange

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# KEY FINDINGS FROM THE 2017 MARKET SURVEY

## THE NEW NORMAL

Survey results demonstrate that more companies are engaged on the topic of preferred fiber and materials. This year, 95 companies (est. turnover US\$1.2 Trillion) voluntarily disclosed information to Textile Exchange, allowing us to gauge industry progress. This participation rate sees a growth of 14% over 2016, and 76% over 2015.

## A WAVE OF PROGRESSIVE COMMITMENTS

The early-adopters of organic cotton are broadening their horizons, setting and publicly disclosing ambitious targets for preferred cotton and recycled polyester, and committing to forest policies. They are also exploring new areas of innovation such as biosynthetic fibers and circularity.

## CIRCULAR ECONOMY IN DEVELOPMENT

Companies are beginning to mobilize and gear up for circularity. 24% of companies said they have already developed a circular textiles strategy and 57% said they have a circularity strategy under development.

## GLOBAL GOALS GAIN MOMENTUM

Companies are beginning to align corporate goals with the Sustainable Development Goals (SDGs). Textile Exchange has begun to mobilize the sector and track progress. Early findings indicate that from the 76 brands surveyed, 29% said they were aligning their corporate strategy with the SDGs.

## PREFERRED FIBERS BUILD BRANDS

Retailers are talking more to customers about sustainability. Some are building their brands entirely around preferred fibers, such as Organic Fair Trade cotton. This committed group has seen triple-digit growth in volumes.

## EXPANDING FIBER PORTOLIOS

Textile Exchange has expanded its Preferred Fiber & Materials (PFM) reporting categories to reflect the growth and expansion of company portfolios. PFM Leaderboards now cover all of the major preferred cottons, recycled polyester, preferred man made cellulose and preferred down.

## PFM SURVEY HIGHLIGHTS

The data for the 2017 report and leaderboards is derived from the 95 company survey submissions to Textile Exchange's [PFM Benchmark Program](#).

Participation rates continue to grow every year, with 2017 seeing an increase of 13 per cent compared to last year. 22 per cent of participants are new and over 75 per cent of participants are returnees (for the past three years).

Tracking year-on-year\*, companies are using more PFMs:



Organic and other preferred cottons (e.g. Better Cotton, Cotton made in Africa, Fair Trade, and recycled) represent 47 per cent of total cotton usage.



Recycled polyester usage grew by 58 per cent.



Demand for lyocell grew by a staggering 128 per cent.



Preferred down (certified to the Responsible Down Standard or the Traceable Down Standard) grew by 54 per cent.

\*Analysis is of the 95 companies participating in the PFM Benchmark Program.

Comparing the same companies from 2015 to 2016 i.e. growth in volumes before taking into account increase in the number of participants.

Data is based on disclosure and a Textile Exchange review (no third party audit). All data and trends are drawn from company disclosure and may not necessarily reflect the market.

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### ANIMAL FIBER STANDARDS

Link here to access the [glossary and abbreviations](#).

## FEATURES

### WHAT TEXTILE EXCHANGE IS DOING

Each section is peppered with news and updates from Textile Exchange. Look out for the logo to find out what Textile Exchange is doing.

### INSIDER SERIES

This report links through to 36 Q&A-based stories exploring fiber and materials related topics with a number of industry "insiders". When you come across signage like this you can click through to an Insider story. Or read the entire series [here](#) →

### SPOTLIGHTS

We have also asked our friends and collaborators to provide insights and updates on their activities. We have a lot of friends... including the 21 organizations spotlighted here.

# THE WIDER CONTEXT: NEW ECONOMIC SYSTEMS

The past year brought increased awareness and vision for a new economy: circular, bio, and beyond a pure focus on financial capital, an economic system that operates within safe planetary boundaries and is inclusive for all, including present and future generations. Front-running apparel and textile companies have embraced the Sustainable Development Goals, and the Science Based Targets will provide the tangible sectoral focus.



Moving from a linear “take-make-dispose” economy to a circular “take-make-remake” economy is a necessary step given the millions of tons of textile waste produced by the industry every year.

In addition to a new Circular Textiles component in our Preferred Fiber & Materials (PFM) Benchmark Program, our recycled polyester (rPET) Working Group is aiming to facilitate the transition towards circularity in the use of polyester. Moving to a circular economy requires support and collaboration, and there is a growing number of exciting initiatives working on this in the textile industry. For example, the Circle Textiles Program led by [Circle Economy](#), the Circular Fibers Initiative supported by the [Ellen MacArthur Foundation](#), and the [European Clothing Action Plan](#) (ECAP): Building A Circular Economy.

In partnership with the Council of Fashion Designers of America (CFDA), EILEEN FISHER created Remade in the USA as part of a Social Innovators Project – a year-long residency challenging three graduates with finding a solution to garments received through the Green Eileen garment recycling initiative. H&M announced their 100 per cent circular vision and goal to only use recycled or other sustainably sourced materials by 2030, and C&A launched the first of their Cradle to Cradle garments. First movers in product renewal, such as the Renewal Workshop, are servicing brands and the community with new business models based on extending a products life.



## WHAT TEXTILE EXCHANGE IS DOING

### PFM Benchmark Program: includes new Circular Textiles component

Textile Exchange's [PFM Benchmark](#) survey included a new question on circular textiles this year. Early findings indicate that from the 76 brand participants that answered this question, a quarter (24 per cent) said they have already developed a circular textiles strategy. Well over half (57 per cent) said they have a circularity strategy “in development,” and the remaining 19 per cent have not started yet. This data, while holding a bias towards industry front-runners in sustainability, indicates how quickly circularity is being embraced by the industry.

### Recycled Polyester (rPET) Working Group: working to close the loop on polyester

Textile Exchange's [rPET Working Group](#) aims to accelerate the move from linear to circular, and to find solutions to technical, societal, and commercial barriers to growth. The group is focused on building scale and smoothing market economics in existing technologies, while also exploring newer technologies and barriers to address waste and close the loop on synthetics. Current and future focuses include setting rPET uptake targets, and defining deeper linkages to the SDGs.



Textile Exchange's Working Groups are focused on leading the industry toward a portfolio of preferred fibers. This includes pulling waste out of the environment for recycled synthetics, using more sustainable growing methods for cotton, deriving feedstocks from biobased materials and processing cellulose in an environmentally safe way. This work combined with support for new technologies that enhance the ability to deliver these feedstocks and manufacturing systems effectively will drive the industry towards the circular economy and a future we can all enjoy.

**Karla Magruder**

Founder, Fabrikology, rPET Working Group Lead for Textile Exchange

“ The textiles industry is arguably the most lucrative, creative, consumer facing industry on earth, and we believe it has the power to change the world. By collaborating to create a truly circular supply chain, we will reclaim the human, economic, and natural value lost in today's linear system. The Circle Textiles Program is developing the systems innovations necessary for this transition. Together with our members, we produce the critical data, tools, technologies and business models that are building the new foundation for a circular textiles industry.

**Gwen Cunningham**

Program Lead, Circle Textiles Program, Circle Economy



The bioeconomy encompasses the production of renewable biological resources and the conversion of these resources and waste streams into value-added products, such as food, feed, bio-based products and bioenergy. Moving from an economy based on limited non-renewable resources to a biobased economy is a priority for both the European Union and the United States Department of Agriculture. Cutting waste and curbing climate change are key environmental aspirations. While on the socio-economic side the hope is that new jobs will be created from reindustrialization and development of rural areas.

For the textile industry, the shift from petrochemical based synthetic fibers to biobased is in its infancy, with biobased polyester being the most well developed. Scaling production is underway with brands such as adidas, The North Face, and Tierra supporting pilots with suppliers such as Toray, Far Eastern New Century, Spiber, SM Silk and Bolt Threads.

Discussions and debate continue over land use and GMO use in crop production where the feedstock is often cornstarch. Many are working towards the "second generation" of biosynthetic feedstocks based on agricultural biomass or food waste.

## WHAT TEXTILE EXCHANGE IS DOING

**Biosynthetics Working Group: set to release the first apparel and textiles focussed microsite for bio-based synthetics**

Bio-based synthetics are emerging as a potential alternative to oil-based. Textile Exchange's [Biosynthetics Working Group](#) is focused on the early stages of market penetration. To date, the priority of the Working Group has been the gathering and synthesizing of available information and resources on biosynthetics to create a microsite. As a step towards building knowledge, the group decided that the public availability of good quality, industry-vetted information would help meet the Working Group's goal that this relatively new material becomes a larger part of a company's PFM portfolio.

Next steps involve further development of an education and awareness-raising strategy. This includes webinars and collaborations with key actors, exploring transparency and integrity options and tools to support content claims, sharing best practices, and supporting the shift towards technologies that take us from first generation use of food crops to the use of waste and biomass.

“ A significant opportunity exists today to improve the sustainability performance in the apparel industry through the use of renewable, bio-based materials, rather than petroleum. Finite petroleum risks market volatility and is used as the backbone of our most widely used synthetic fibers today, polyester and nylon. Renewable and bio-derived chemistry offers up promising alternatives to produce in general chemically identical materials made from non-food biomass and further innovation opportunities in the future.

**Sophie Mather**  
Founder, Biov8tion



On September 25th 2015, countries adopted a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years.

Raw materials sourcing and textile manufacturing primarily occurs in regions around the world that face social, environmental and economic issues addressed by the targets underlying the [Sustainable Development Goals](#) (SDGs). Resolving those issues enables businesses to secure more stable supply chains, and addressing the SDG targets also opens up opportunities for innovative business models and resource efficiencies. Companies are starting to align their corporate goals and strategy to the SDGs.



## WHAT TEXTILE EXCHANGE IS DOING

### A Call to Action

Textile Exchange is creating a targeted [call to action](#) for the textile industry around adoption of the SDGs. The SDGs represent a universal call to action to end poverty, protect the planet and ensure that everyone enjoys peace and prosperity. From increased PFM consumption data, to the ongoing development and adoption of industry standards and increased sustainable business practices, Textile Exchange will continue to seek out effective pre-competitive areas of collaboration to advance the SDGs and assist its membership, led by an SDG Action Roundtable, on sector guidance.

### PFM Benchmark Program: increasing alignment with the SDGs

Key indicators of Textile Exchange's [PFM Benchmark](#) are monitored through a Barometer of Progress which aligns with a number of targets within the SDGs, in particular: SDG 12: Ensuring sustainable consumption and production, and SDG 17: Partnerships for the Goals – since the SDGs can only be realized with a strong commitment to global partnership and cooperation.

Life Cycle Assessment (LCA) is used to calculate the sustainability impacts associated with the uptake of specific preferred fibers. Textile Exchange plans to expand the current set of indicators over the next few years.

This year, the PFM Benchmark survey included a new question on the SDGs, in line with the United Nations Global Compact (UNGC) and the Global Reporting Initiative (GRI) [reporting framework](#) on the SDGs. Early findings (to be released in greater detail later in the year) indicate that from the 76 brand participants that answered this question, 29 per cent said they were already aligning their corporate strategy with the SDGs. The majority (45 per cent) said it was under internal discussion, and 26 per cent said they had not started or the SDGs were not yet on their corporate agenda. The top five SDGs for survey participants in order of priority were: *Goal 12: Ensure sustainable consumption and production; Goal 13: Take urgent action to combat climate change and its impacts; Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work; Goal 5: Achieve gender equality and empower all women and girls; and Goal 6: Ensure availability and sustainable management of water and sanitation for all.*



“ The private sector has an important role to play in meeting the SDGs. Textiles tie directly to several of the SDGs, and responsible practices by the textile industry can contribute significantly to achieving these goals. Textile Exchange is in a perfect position to catalyze action under SDGs for the textile sector, drive global change and improve business conditions for the industry.

**Felipe Arango**  
Partner, BSD Consulting



“ Wouldn't it be amazing if individuals from our industry could act as a trigger to change our industry into a better, more sustainable industry through encouraging everyone involved? From the CEO's of the world to the product designer, the production manager, the entire workforce involved in the production to the consumer on the street. We have twelve years to go before the SDGs will be concluded; twelve decisive years where we all will have the opportunity to do it right.

The SDGs provide food for thought. But these thoughts have to be transferred into action and require immediate cooperation and transparency in order to achieve the global substantial and sustainable change, which will create a better world for us all to live in.

**Dr. Reiner Hengstmann**  
Founder, go4more.global



There is a clear trend toward more science-based initiatives in target setting. Kering was the first apparel company with approved Science Based Targets (SBT). Other first movers, such as Nike and H&M, refer to the work of the Stockholm Resilience Centre and the concept of Planetary Boundaries.

“ The Science Based Target initiative is enabling the business community to set meaningful goals around greenhouse gas reduction. At Kering, we are implementing our own validated Science Based Targets because contributing to combatting climate change and respecting planetary boundaries in the way we do business is a priority for us.

**Marie-Claire Daveu**  
Chief Sustainability Officer & Head of International Institutional Affairs, Kering

The SBT initiative is a collaboration between the Carbon Disclosure Project (CDP), World Resources Institute (WRI), the World Wide Fund for Nature (WWF), the United Nations Global Compact (UNGC) and one of the We Mean Business Coalition commitments. In 2017, the SBT Initiative launched the Working Group for Apparel and Footwear and began developing [sector guidance](#) for setting targets.



## BEYOND FINANCIAL CAPITAL

Without incorporating natural and social capital into decision-making, companies are likely to be missing significant business risks and opportunities. The [International Integrated Reporting Council](#) (IIRC) identifies six different capitals: financial, manufactured, intellectual, human, social and relational, and natural. This integrated perspective allows companies to assess their business in a more holistic way, leading to new insights on risks and opportunities.

According to the [World Business Council for Sustainable Development](#) (WBCSD), the days of measuring corporate performance by financial metrics alone are over. Business needs to measure and value its relationship with natural and social capital in a credible and generally accepted way, to produce reliable, relevant and fit-for-purpose information that can inform decision-making and ensure meaningful reporting and disclosure. In the future, business can then systematically account for natural and social capital, in the same way that it does for financial capital.

The [Natural Capital Coalition](#) (NCC) Protocol provides a standardized framework and sector guidelines for the textile industry to measure natural capital. Hugo Boss released the second edition of their Environmental Impact Valuation as a base for a Sustainable Fashion Strategy report this year, which explains their use of the Protocol.

The International Federation of Organic Agriculture Movements (IFOAM) Organics International think-tank, [Sustainable Organic Agriculture Action Network](#) (SOAAN), of which Textile Exchange is a member, is focusing its efforts on True Cost Accounting. There is a broad consensus in the organic movement that accounting for the real costs of the things we grow and consume, including compensation of negative external effects to society, is needed, and that rewards should be given for positive external effects such as ecosystem services.

Associated concepts include Environmental Profit and Loss, Full Cost Accounting, and Triple Bottom Line Accounting.

### INSIDER SERIES

01

The Circle Economy requires that we sort large volumes of mixed post-consumer textiles, but how? **Fibersort** makes this both technically and economically feasible - find out more from Traci Kinden from Circle Economy [here](#).

### INSIDER SERIES

02

**C&A's** Cradle to Cradle Certified GOLD garments brought circular fashion to the high street in Summer 2017. Now they want others to join them in empowering the public to affordably purchase organic, socially responsible products that fully respect nature. Read more from C&A Chief Sustainability Officer Jeffrey Hogue [here](#).

### INSIDER SERIES

03

**H&M** has set a goal that they will only use recycled and other sustainably sourced materials by 2030. They want to prioritize the use of recycled materials and complement that with materials that have been sustainably sourced, taking a holistic and systemic perspective of circularity covering the whole value chain. H&M's Cecilia Strömblad Brännsten gives more details [here](#).

### INSIDER SERIES

04

**EILEEN FISHER (EF)** partnered up with the CFDA (Council of Fashion Designers of America) to create the EF x CFDA Social Innovator Award. Amy Hall, Director of Social Consciousness at EILEEN FISHER tells us how this initiative is influencing business strategy within the company. [See](#)

### INSIDER SERIES

05

The **Renewal Workshop** enables a circular economy by partnering with the world's best-loved brands and retailers to recover value from their unsellable returns and excess inventory. Nicole Basset, co-founder, explains how they do this. [See](#)

# CORPORATE CONCERNS

There is an ever increasing awareness of the risks (and opportunities) associated with fiber and materials. Supply chain transparency remains high on the list of sustainability challenges, while the management of textile waste, consumption patterns, microfibers in the ocean, and issues associated with viscose production are some of the topics rising up the corporate list of priorities.



## Towards Transparency

With advances in technology and “encouragement” from civil society, supply chain transparency is fast becoming an expectation, and not just for brands and retailers, but for all supply partners. Avoiding reputational damage, securing supply, and reducing uncertainty in business are important for all. Increased transparency is now viewed as a necessity for risk management and an opportunity for better business outcomes.

“ Transparency goes beyond gaining visibility into the extended supply chain. It is the process by which a company takes action on the insights gained through greater visibility in order to manage risks more effectively.

**David Lynch**

Principal, Strategy & Operations, Deloitte Consulting LLP  
([Path to Supply Chain Transparency](#))

## Know Your Supply Network

To begin with, mapping upstream and downstream suppliers or customers is important to identify high-risk geographies, in terms of human rights and social unrest among others, and to identify environmental concerns that could affect supply and demand, such as climate change, water scarcity and desertification. Knowing your supply network including raw material producers means you can make informed decisions on how you want to manage any associated risk or risk potential. Transparency is also a door-opener to building partnerships and initiatives that can result in new opportunities.

## Authenticity and Integrity

When companies commit to the sourcing of a preferred fiber, sustainability standards, chain of custody, traceability and content claim assurance are terms that start to resonate.

Ensuring that the preferred product you receive and sell on is authentic is obviously critical on many levels. Companies have the option to invest in third party Chain of Custody (CoC) standards. CoC travels with the product from raw material through its processing to final product. Third party CoC standards involve certification of the production facility, site visits, documentation and records (transaction certificates), and often includes a consumer-facing labeling component. All in all, third party CoC standards such as those developed by Textile Exchange, provide peace of mind on the integrity and authenticity of the preferred content in your final product.

## Sharing Risk and Reward

At some point, the sustainability differential (some call this a price premium) of the preferred fiber enters the equation, if indeed it costs over the commodity price. While many components of a company's business will be confidential, transparency of the sustainability differential will help ensure that everybody is benefiting from their respective investment, especially those in the first mile (Tier 4) who are often the most vulnerable.

Transparency smooths the way for the sharing of risk and reward, which helps secure supply, build capacity and integrity, and improve trust and loyalty. It also helps a company plan for the future, measure impact, and talk confidently about its contribution to sustainable development.



## Waste Generation is on the Rise

Global data on the volumes of clothing waste and used clothing is difficult to come by. The ['Pulse of Fashion Report'](#) estimates that the volume of global fashion waste will increase from 92 million MT in 2015 to 148 million MT in 2030 - equivalent to 17.5 kg of annual fashion waste per person. [McKinsey](#) reported that the average consumer bought 60 per cent more clothing in 2014 than they did in 2000, but kept garments half as long. Only around 20 per cent of fashion waste is collected for reuse or recycling, with the majority being either incinerated or sent to landfill.

## A Glimpse at the Reuse Industry

[Greenpeace](#) reported that only 10-12 per cent of the best quality clothes are re-sold locally and much of the rest is likely to be exported to countries in the Global South. The second hand clothing system is complex, with many livelihoods depending on this market. The export of used clothing has risen dramatically since 2000, with 4.3 million MT traded in 2014. In the UK, 70 per cent of the 540,000 MT of clothes that are collected for reuse are exported, and in the USA 53 per cent (800,000 MT) are exported. Large amounts of used clothes are reprocessed in India and Pakistan and re-exported to Africa. However, 42 countries mostly in Africa, South America and Asia, have restricted or banned imports to protect local clothes production and development, among other reasons.

## Status of Textile Recycling

Closing the loop through the recycling of textile fibers is in its infancy and very little textile waste is recycled, which is in part due to the difficulty of separating blended cotton and polyester.

The mechanical recycling of cotton (and wool) is the most established, although volumes are still small. The recycling of synthetic fabrics is also limited as only a few suppliers offer

chemical recycling of synthetic fabrics, with the mechanical recycling of PET bottles being much more common. New technologies are under development to enable the chemical recycling of cellulose (such as cotton waste) to produce a lyocell-like fiber. The ambition is to truly close the loop on textiles, so as this technology advances companies will begin to design for garment disassembly and business models will move towards a more circular approach.

## Extending Product Responsibility

An increasing number of retailers, such as Nike, H&M, Zara, Marks & Spencer, Patagonia and EILEEN FISHER, offer to take back unwanted clothing and footwear for reuse, repurposing, and recycling. Currently, the majority of reclaimed clothing and other textiles enters the reuse or down-cycling schemes. The longer term ambition is to close the loop on textiles.

## Slowing Down and Shrinking The Loop

While hopes are high for closing the loop, some still question the validity of the circular economy as a framework that contributes to global sustainability, asking for a deeper look at material efficiency and the "rebound effect".

“ The current performance of “circularity” is poor, and it will not get better without an emphasis on shrinking and slowing material loops, rather than simply closing them.

**John Mulrow**

University of Illinois ([Journal of Industrial Ecology](#))

## The Human Factor

The short and long-term effects of materials on human health and the environment, as well as the social aspects of the recycling processes, are also important issues to consider when closing the loop. Companies are just starting to incorporate material health and working conditions into their circular strategies.

The way we value our clothing, and the use of resources and materials, plays into the conversation as well. If retail - and the way we consume textiles and clothing - can shift from product-based to service-based, then we could radically change the game.



Not only does the volume of textile waste going to landfill continue to grow in risk, but so does the flip-side of the same coin: unbridled consumption.

## Growth Linked to Consumption

The growth of most businesses is still based on more people buying more goods. Populations continue to expand and the number of people in the middle class is growing too. According to the UN, the population will be over nine billion by 2050, with the middle class increasing to five billion by 2030. According to the [World Resources Institute](#) (WRI), the rapid expansion of consumption-driven markets in the coming decades is expected to fuel continued business growth. A continuation of business as usual would result in three times our current consumption of the planet's already overused resources.

## The Trend is Still to Consume More

The trend has been for clothing purchases to increase, while their price has stayed low compared to other goods. For example in the UK, The [Waste and Resources Action Program](#) (WRAP) estimated that 1,130,000 MT of clothing was purchased in 2016, representing an increase of almost 200,000 MT over their 2012 baseline.

[Greenpeace](#) predict that the growth of online shopping is going to increase the amount of clothing we buy, with fashion being the biggest e-commerce category. Notably, China overtook the USA in 2014 as the world's largest digital market.

## Time to Talk About Consumption

In March 2017, the WRI put the topic of over-consumption fully and frankly on the table in a report titled 'Elephant in the Boardroom', pointing out that fifteen years ago, climate change was the "elephant in the corporate boardroom." Now the climate change conversation is so normalized that over 200 companies have science-based carbon reduction targets.

The WRI state that business growth predicated on consumption is now the elephant in the corporate boardroom. It is uncomfortable and unmentioned, both because the model has worked so well financially in the past and because addressing it challenges the traditional way of doing business.

## Decoupling Growth from Consumption

Despite the entrenched coupling of business and growth, there are encouraging signs that some companies are examining their business models in a new light. Examples include companies that have put ideas such as the circular economy and the sharing economy into practice and are creating new ways of selling the services their products provide instead of selling the product itself. The WRI report calls on companies to:

- Look honestly at their dependency on natural resources and the associated limits on business growth.
- To take a leadership role in conversations with key stakeholders and begin the transformation to a model that will thrive in a resource-constrained environment.

“Future business success demands that business growth be delinked from increasing resource and environmental impact. Businesses that do so will be there to serve their customers and their shareholders. Those that do not will be outcompeted by disruptive new entrants that are more innovative and transformational.

**World Resources Institute**  
(['Elephant in the Boardroom'](#))

And let's not forget the power of the consumer. Going beyond the shifts that the millennial generation brings to consumerism, consultants [C Space](#) are convinced that the generation following, Generation Z, are even more tech-savvy and more likely to buy from brands that align with their values. As a result of their "always-on" lifestyle and constant influx of information, Generation Z-ers have come to value transparency and are demanding clothes that not only look good, but that are also ethical and sustainable.

How business can or will respond to environmental and societal pressures may be the indicator for long term business success, even survival.



Man made cellulosic fibers (MMCs), mostly viscose, have the third largest share of the total fiber market, after polyester and cotton. MMC production is growing globally with the largest share of dissolving wood pulp now being produced to make viscose for the apparel. Concern starts in the forest, the source of most MMCs, and continues into the pulp mills and fiber production factories, where heavy chemicals can be used during processing. A recent study by the [Changing Markets Foundation](#) points to some of these concerns and claims that there is a clear opportunity for transformational change across the industry.

## Addressing Deforestation

Thanks to [Canopy](#), we are all aware that the majority of MMCs come from forests, possibly even old-growth forests. Inspired by this knowledge, companies are working to reduce deforestation and associated impacts such as climate change, land degradation and habitat loss.

**According to Canopy, 120 million trees are logged for MMC production every year and dissolving pulp production is projected to double by 2025.**

Through corporate policy and the CanopyStyle initiative, companies are driving the change towards more sustainable sourcing of viscose and other MMCs. And change is happening. Canopy's [Hot Button Report](#) showed that nine of the top ten viscose producers have now publicly committed to end all sourcing from ancient and endangered forests. Two of the biggest and most transparent MMC producers, Lenzing and Aditya Birla, have completed [CanopyStyle audits](#) carried out by the Rainforest Alliance. The audits are the first comprehensive, third party audits of MMC producers to assess their risk of sourcing from endangered forests.

## The Viscose Footprint

Alongside forestry, awareness of impacts associated with dissolving pulp and fiber processing is growing. The impacts of hazardous chemicals used in viscose production (such as carbon disulphide, sodium hydroxide and sulphuric acid) are of concern from both a human health and safety and environmental pollution perspective.

The [Water Footprint Network](#) (WFN) found that the grey water footprint (a water pollution metric) is the largest contributor to viscose's total water footprint (representing >90 per cent of the total footprint of viscose). It is important to note that the size and sustainability of viscose's water footprint depends on what processes are applied, the respective management practices and where the processing stages take place.

## A Need for Greater Traceability

Through forestry standards such as the [Forest Stewardship Council](#) (FSC), traceability to certified forests and CoC is possible. Some manufacturers offer traceability services, however there is currently no independent textile standard covering content claim assurance and environmental and social criteria for pulp and fiber processing.

## Closing the Loop

Alongside cleaner closed-loop systems (such as lyocell), new innovative technologies involving the recycling of cotton textile waste or the use of bio waste such as citrus fruit as feedstock could be game changers for the industry. Evrnu, renew:cell, Lenzing (with their Refibra product) and the new start-up Orange Fiber are among the companies leading the way in the advancement of pre and post consumer chemical recycling of cellulose into viscose-type fibers that will relieve the pressure on forests (and landfills) even further.



## MICROFIBERS IN THE OCEAN

### What are Microfibers?

Microplastics are plastic particles less than five mm in diameter. Microfibers sit within this category and are fibrous in shape, and they can be from either the degradation of large plastic waste (secondary) or from primary sources. Primary sources include scrubbing agents in personal care products (shower gels, creams etc.) or result from the abrasion of large plastic objects during manufacturing, use or maintenance, such as from the erosion of tyres when driving or the abrasion of synthetic textiles during washing.

### Rates of Pollution

A recent report, '[Primary Microplastics In The Ocean](#),' published by the International Union for the Conservation of Nature (IUCN), stated that 9.5 million MT of new plastic waste makes its way into the ocean each year, and between 15 and 31 per cent of all of the plastic in the oceans could originate from primary sources. The global release of primary microplastics into the ocean is estimated at 1.5 million MT per year.

The main pathways of these plastics into the ocean are through road runoff (66 per cent), wastewater treatment systems (25 per cent) and wind transfer (seven per cent).

### Industry Research Into The Problem

A literature review carried out by Patagonia and the University of California, and published in the report '[Microfiber Pollution and the Apparel Industry](#)' revealed that:

- Finished apparel products contain large quantities of chemical substances from processing and finishing steps in garment manufacturing, many of which are released from garments during consumer washing.

- Wastewater treatment plants receive large amounts of microfibers daily. While most of these microfibers are removed, a significant amount is still released into the local environment.
- Analysis of global water and sediment sampling data indicates that microfibers are ubiquitous in aquatic environments. Recent evidence supports microfiber pollution pervading terrestrial environments and the atmosphere as well. Although soil systems may be the primary receptors of microfibers, microfiber distribution in aquatic systems is currently the best understood.
- Aquatic organisms throughout the food chain consume microplastics and microfibers both directly and indirectly. Within the food chain, these particles have been found to cause physical and chemical impacts, resulting in starvation and reproductive consequences in species. Microplastics and microfibers have also been found in marine species directly consumed by humans, the effects of which are unknown. They have also been found in abiotic ocean products such as sea salt.

The report recommended the apparel industry looked into the effects of garment construction, washing machine type and fabric composition, use of recycled polyester and biodegradable synthetic textiles, and the possibility of re-incorporating fibers shed in the consumer washing phase in garment manufacturing.

### Industry Initiatives are Growing

- Initiatives such as the [Ocean Conservancy](#), [Plastic Soup Foundation](#), [Parley for the Oceans](#), [mermaids](#) and the startup [Guppy Friend](#) are working to raise awareness and decrease the risk of microfiber pollution.
- The European Outdoor Group (EOG) has formed a [Microfibers Consortium](#). The Consortium is designed to build a collaborative approach to address, and align on the emerging need for a better understanding of microfiber pollution. The ultimate aim is to develop a better understanding of microfiber shedding and to work towards concrete solutions. Member of the Consortium include: biov8tion, the University of Leeds (UK), The North Face, Marks & Spencer, and Norrøna.
- A new three-year project "TextileMission" to combat the microfiber issue is funded by the German Federal Ministry for Education and Research. The project is coordinated by the Belgian Security & Defence Industry (BSDI) and supported by adidas, Henkel, Hochschule Niederrhein, Miele, Polartec, TU Dresden, Vaude and WWF Germany.

# CORPORATE OPPORTUNITY

Collaboration and collective action continues to play an important role in tackling sustainability issues, pre-competitively. In 2016, alongside individual company targets there was an increased appetite for setting industry-wide targets for the uptake of preferred fibers. We also witnessed the rise of the “incentivization platform” to support and scale innovative fibers and technologies.



Companies are not only beginning to set in-house targets for integrating sustainability and committing to specific volumes or increases in use of preferred fibers, but are also collaborating with others and setting group targets. An aspect to group targeting is the willingness to publically declare commitment and monitor progress.

## WHAT TEXTILE EXCHANGE IS DOING

### **25%** At least a 25 per cent increase in rPET usage by 2020



The Textile Exchange community, spearheaded by members of the rPET Working Group, are supporting a commitment to grow the use of rPET in recognition of the environmental impacts of using virgin PET. Each brand that has signed up has agreed to at least a 25 per cent increase in rPET usage by 2020. The commitment takes 2016 reported usage in the 2017 Textile Exchange PFM Benchmark Report as the baseline for growth.

#### Monitoring Progress:

Progress against both the Sustainable Cotton 2025 target and the Recycled Polyester 2020 target will be tracked via the PFM Consumption Tracker, which is part of the Textile Exchange PFM Benchmark Program.

## Growth in Industry Targets

### **100%** 100 per cent of cotton from sustainable sources by 2025



Supported by Soil Association, BCI, CottonConnect, Fairtrade Foundation, and Cotton made in Africa among others, 13 CEOs signed up to the [Sustainable Cotton Communiqué](#) in May 2017. Through this communiqué, these companies have committed to ensuring that 100 per cent of the cotton they use comes from sustainable sources by 2025. The companies that have signed up to date include: ASOS, EILEEN FISHER, Greenfibres, H&M, IKEA, Kering, Levi Strauss & Co., Lindex, Marks & Spencer, Nike, Sainsbury's, Tesco and Woolworths Holdings. Over 15 companies are joining the initiative which will be announced at the Textile Exchange Conference in October 2017.

### CALL TO ACTION



### Commitment to a circular fashion system by 2020

143 apparel and fashion brands including ASOS, adidas, Bestseller, Guess, Hugo Boss, Inditex, H&M, Kering, Tommy Hilfiger and VF Corporation have signed a commitment to accelerate a circular business model. The Call to Action for a Circular Fashion System was presented at the Copenhagen Fashion Summit (May 2017) by [Global Fashion Agenda](#), the summit organizer. By signing the Call to Action, the businesses have committed to defining a circular strategy, setting targets for 2020 and reporting on the progress of implementing the commitment.

### **15%** 15 per cent reduction in waste, water and carbon by 2020



80 organizations including ASOS, Primark, Sainsburys, Marks & Spencer, Next, and Tesco signed up to the [Sustainable Clothing Action Plan \(SCAP\) 2020 Commitment](#). Signatories and supporters (representing 65 per cent of clothes sold in the UK and included a number of collectors, recyclers and charities) have pledged to reduce the carbon, waste to landfill and water footprints of clothing they supply or receive in the UK by 15 per cent, starting from a baseline year of 2012. Data from 2015 indicates that signatories have reduced their carbon impacts by 10.6 per cent, water by 13.5 per cent, and waste across the product life cycle by 0.8 per cent since 2012.





Recognizing and rewarding advancements in fiber and materials sustainability and innovation is key to industry progress. Platforms to accelerate innovation in textiles are on the rise, such as H&M Foundation's Global Change Award, the Fashion For Good Accelerator Program, and Fashion Positive's revolving fund, the Launch Nordic initiative which is accelerating new ways of design and manufacturing for a circular economy, and the Textile Exchange Innovation Award in Organic Cotton.



## WHAT TEXTILE EXCHANGE IS DOING

### Innovation Awards in Organic Cotton

Every year, innovators in organic cotton come together to showcase their ideas in competition for the Organic Cotton Round Table (OCRT) [Innovation Award](#). Now in its third year, finalists pitch their ideas live to an esteemed panel of judges during the OCRT, and the winning project receives a cash prize and priceless publicity to help move the idea forward.

### New PFM Hands-On Lab

In partnership with Fashion & Style Director, Andrea Martin, Textile Exchange launches its first PFM [Hands-On Lab](#) at the 2017 Conference. The Lab aims to be an educational and tactile experience. Participants get to see and feel samples from a diverse range of new and innovative fibers and materials. Highlights include chats with innovation experts and live demonstrations from a range of new innovators. Launch collaborators include Recover and WestPoint Home.

“As a fashion stylist with 16 years in the New York fashion industry and a consumer, I am aware of the volume of garments that pass through our lives. It took a new awareness for me to really understand the devastating effects fabric (my love) can have on our natural resources, including the ocean (my other love). At Textile Exchange's first Hands-On Lab we are offered the space to communicate new navigation, and be inspired to create, design and innovate for a better quality of living. A place where art, design, technology and hope evolve.

**Andrea Martin**  
Fashion & Style Director

Winners of the H&M Foundation's Global Change Award for 2016 were: Vegeo, manufacturing a leather from grapes; Solar Textiles, developing a nylon production process that uses only water, plant waste and solar energy; Content Thread, devising a way to simplify the recycling process for clothing with the help of digital tagging; Denim-Dyed Denim, reducing both the amount of water and energy used in production and dyeing by using old denim and breaking it down into fine particles to produce a dye; Manure Couture, transforming the cellulose in cow manure into biodegradable textiles.

Helping start-ups with great ideas is the first step. Moving from concept to development, and on to piloting, and scaling for commercial application are all critical stages and take time. Young companies on the verge of commercializing innovative and more sustainable products and technologies include Worn Again, Ioniqa, gr3n-recycling, Jeplan, Evrnu, re:newcell, qMilk, Bolt Threads, and Modern Meadows.

“Worn Again is now scaling-up new technology that can separate and recapture polyester and cellulose from cotton from non-rewearable textiles to go back into the supply chain as virgin equivalent PET and cellulosic raw materials. H&M has been a key brand partner for Worn Again. The technology – which can recycle PET bottles as well as clothing – has been proven in a laboratory setting and is now being optimized for industrial-scale application. Once these developments have been completed, the technology will be ready for licensing.

**Cyndi Rhoades**  
Founder and Circular Executive Officer, Worn Again



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## SPOTLIGHT: GLOBAL CHANGE AWARD

Erik Bang, Innovation Lead, H&M Foundation

The [Global Change Award](#) is an innovation challenge by H&M Foundation, in collaboration with Accenture and the KTH Royal Institute of Technology in Stockholm. The program is recognized as one of the world's leading challenges for early stage innovation, and the largest initiative of its kind in the fashion industry.

We look for game-changing ideas that can make the entire fashion industry circular and help protect our planet and living conditions. The Global Change Award catalyses early innovations that can accelerate the shift from a linear to a circular fashion industry. Neither the H&M Foundation nor the company H&M take any equity or intellectual property rights in the innovations.

“ As we approach 8.5 billion people on this planet, we must innovate at the edge of imagination to future proof this industry to operate within the planetary boundaries. Radical ideas that are good for both planet and business will reinvent fashion, and the Textile Exchange Hands-on Lab with its direct and concrete approach will move the needle for the adoption of new materials. I'm very excited to be part of the first Lab to see, feel and experience the forefront in material innovation.

Erik Bang  
H&M Foundation

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## SPOTLIGHT: FASHION FOR GOOD

Katrin Ley, Managing Director, Fashion for Good  
Isabelle Laurencin, Director of Plug and Play, Fashion for Good

[Fashion for Good](#) is the global initiative that wants to make all fashion good. Fashion for Good sparks and scales innovation by offering practical action in the form of support and funding, sharing best practice and lessons learned in open-source roadmaps, and fosters sector-wide collaboration for the entire apparel industry to change. Fashion for Good invites brands, producers, retailers, suppliers, non-profit organizations, innovators and funders to jointly transform the industry.

Fashion for Good was launched in 2017 with C&A Foundation as a founding partner, and is supported by partners Plug and Play, McDonough Innovation, the Cradle to Cradle Products Innovation Institute, IDH – the Sustainable Trade Initiative, the Sustainable Apparel Coalition, the Ellen MacArthur Foundation and Impact Hub Amsterdam. Fashion for Good's programs are run in partnership with leading brands, including C&A, Galeries Lafayette Group and Kering.

At the core of Fashion for Good is an innovation platform, which includes:

- **An Accelerator Program:** Fashion for Good works with Plug and Play, a leading Silicon Valley accelerator, to give promising start-up innovators the funding and expertise they need in order to grow.
- **A Scaling Program:** Fashion for Good finds innovations that have proof-of-concept and helps them scale by offering bespoke support and access to expertise, customers and capital.
- **An Apparel Acceleration Fund:** this fund will catalyze access to finance where this is required to shift at scale to more sustainable production methods.

Fashion for Good is founded on the principle of collaboration and aims to create tools that are open-source, such as its Good Fashion Guide, which provides practical tips for brands wishing to embrace circular apparel principles. It operates from its first hub in Amsterdam, which also houses a Circular Apparel Community co-working space and a visitor-facing Launchpad Exhibition.

If you wish to learn more about Fashion for Good or join us in this journey, please contact us or visit our website for more information: [fashionforgood.com](https://fashionforgood.com)



Pre-competitive collaboration is critical to tackling big, systemic challenges to sustainability.

Government backed initiatives include the Partnership for Sustainable Textiles in Germany, the UK's Sustainable Clothing Action Plan (SCAP), the Dutch Sustainable Textile Agreement, and the European Clothing Action Plan (ECAP). In the case of ECAP, MADE-BY is a key partner helping embed a circular approach into the European apparel sector. MADE-BY is working with European brands and retailers to measure their fiber usage and implement more sustainable fiber strategies, encouraging an uptake of more sustainable fibers in place of conventional ones. The program will run until March 2019 and interested brands and retailers can sign up until November 2017.

Collaboration has led to the development of valuable industry tools such as the Higg Index (a supply chain management tool) driven by the Sustainable Apparel Coalition (SAC), and Fashion Positive's public library of fashion materials, certified through the Cradle to Cradle Products Program. Textile Exchange is coordinating a growing number of PFM round tables and working groups, and is supporting a range of multistakeholder platform initiatives including:

- The **Organic Cotton Accelerator** is a brand-driven initiative focusing on addressing barriers to growth. Some of their interventions include investing in non-GMO seed breeding and building the business case for organic cotton farmers.
- **Cotton 2040**, hosted by Forum for the Future, is facilitating collective action within the sector to drive the adoption of more sustainable cotton solutions.
- The **CEO Sustainable Cotton Commitment** coordinated by the International Sustainability Unit (one of the Prince of Wales' charities), Soil Association, and Marks & Spencer, is creating the motivation for brands to commit to the adoption of more sustainable cotton by 2025.

## WHAT TEXTILE EXCHANGE IS DOING

### Global Round Table Meetings Are Evolving

The Organic Cotton Round Table has been the global platform for organic cotton stakeholders for six years now. The model works as a place and space for the sector to come together to learn, exchange ideas and create action plans. As we spread our net wider to cover a range of Preferred Fibers and Materials, the round table format has evolved to offer both focused sessions on specific fibers and materials, and the opportunity for the organic cotton community to come together to build region-specific strategies.

### Regional Organic Cotton Round Table Meetings

Textile Exchange in collaboration with İZFAŞ and EKOLOJİ İZMİR launched the Regional-OCRT in Izmir in 2016. As part of the collaboration, we worked with Change Agency to conduct a Market Opportunity Scoping Project (MOSP) in Turkey, Egypt, Central Asia and the wider European region. The findings of the MOSP framed the discussions at the R-OCRT in Izmir, which generated a number of initiatives and workstreams to take forward. New regional round tables are under development for 2017.

### Africa Sourcing Hub Working Group

The Africa Sourcing Hub Working Group, co-ordinated by Textile Exchange, evolved out of the Organic Cotton Round Table in Hamburg in October 2016 with a goal to improve market connections for African farmers certified to Organic, Fair Trade, and CmiA standards. Priorities for the Working Group include multistakeholder alignment for building capacity, supply networks and market linkages.

### Responsible Leather Working Group

In early 2017, Textile Exchange launched the Responsible Leather Initiative to address the issues in the leather supply chain. The goal is to leverage and bring value to the work that is being done by the food industry and to explore solutions to drive global change.

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## SPOTLIGHT: PARTNERSHIP FOR SUSTAINABLE TEXTILES

Saskia Anders, Advisor Sustainability Standards,  
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

In Germany, 150 organizations have come together to form the [Partnership for Sustainable Textiles](#).

The Partnership for Sustainable Textiles is a multi-stakeholder initiative with members from the fields of business, politics and the civil society. Together they are striving to improve the social and environmental conditions in global textile production – from the production of raw materials for textile production to the disposal of textiles.

The Textiles Partnership was founded in October 2014 in response to the fatal accidents in textile factories in Bangladesh and Pakistan. It was initiated by the German Federal Minister for Economic Cooperation and Development Dr. Gerd Müller. Today, members of the Textiles Partnership represent about half of the German textile market, and by 2018 the partnership aims to cover 75 per cent of the market.

Our work is based on three pillars: individual responsibility, collective commitment and mutual support. The Textiles Partnership adheres to the principle of procedural liability: all members are committed to achieving concrete goals. For example, each procuring member is obliged to continuously increase the share of sustainable natural fibers in its procurement. In order to support members in achieving this goal, the Natural Fibers Working Group has developed a recognition mechanism for standards systems and initiatives focusing on natural fibers.

In the second pillar - collective commitment - the Textiles Partnership encourages the development of partnership initiatives in textile producing countries. These initiatives are jointly devised, carried and implemented by a number of members of the Textiles Partnership from the different stakeholder groups. One of the first three partnership initiatives addresses the improvement of water management for a sustainable value chain in the cotton sector in Pakistan. A second initiative is currently planned with the aim to increase the availability of organic cotton seeds in selected regions.

In our third pillar we encourage learning and dialogue among members and provide information on existing tools and databases.

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## SPOTLIGHT: SUSTAINABLE CLOTHING ACTION PLAN

Keith James, Textiles Delivery Manager, WRAP



In the UK, clothing has the fourth largest impact on the environment, after housing, transport and food. In September, SCAP launched [Valuing Our Clothes: The Cost of UK Fashion](#), revealing the huge impact that UK clothing has on the environment, and the opportunities there are to reduce that impact. The report showed that consumers are taking better care of their clothes, with 700,000 MT of CO<sub>2eq</sub> being saved through people changing their clothing care habits. UK households have also reduced the amount of clothing they put in their general waste bin by 50,000 MT.

SCAP is asking consumers to do more by having a clothes clear-out. The Love Your Clothes decluttering campaign was launched on September 4th, and will run through to the end of November 2017.

Love Your clothes is asking people to pledge to declutter their wardrobes and donate and/or recycle their unwanted clothes. [The pledge](#) allows them to see how much impact this action has on the environment. The campaign has been a success so far, with 50 pledges made within the first week.

The campaign is also supported by [Clothes Aid](#) who are distributing one million collection bags at the end of September, which contain leaflets with details of the campaign. You can find out more about the campaign [here](#).

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## SPOTLIGHT: WORLD RESOURCES INSTITUTE

Kevin Moss, Global Director, Sustainable Business, World Resources Institute

As leaders in the apparel industry make progress on sustainable production and consumption, we need to know if efforts to reduce [environmental impacts](#) are sufficient. Specifically, are we doing enough to address:

**Climate change:** companies can set science-based targets for greenhouse gas emissions to align their goals with international ambitions to limit global temperature rise well below 2°C.

**Water stress:** companies can develop approaches based on sound science and local, social context. They can link internal and external efforts to the status of the local watersheds and public sector efforts, particularly targets relating to SDGs on water (SDG 6).

**Unchecked consumption:** companies can transition to circular business models (e.g. resale, leasing) to meet customers' demands while also reducing pressure on natural resources and the environment. But they will need credible methods to understand how those new models affect overall consumption and whether the net environmental impacts are positive.

World Resources Institute and partners are working to develop guidance on the above to help ensure the industry's efforts to do "better" will ultimately be "enough."

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## SPOTLIGHT: CEO WATER MANDATE INITIATIVES

Tien Shiao, Senior Research Associate, Pacific Institute

As the apparel industry makes progress on sustainable production and consumption across the value chain, the CEO Water Mandate is tailoring water stewardship best practice guidance and tools, and launching collective action initiatives that reduce water risk and advance achievement of SDG 6. Specifically, we are addressing:

**Water access, sanitation and hygiene (WASH):** companies can incorporate WASH best practice in their workplace, across their supply chain, and in communities where they operate. The work is geared towards developing relevant guidance and tools that enable companies to integrate WASH into their supply chain as part of their broader water stewardship practice. The work also entails piloting innovative approaches to WASH implementation in collaboration with NGOs, local governments, and UN agencies such as ILO and UNICEF.

**Water stewardship metrics and targets:** companies can develop approaches based on sound science and local context. They can align their efforts to the status of the local watersheds and public sector efforts, including the targets underpinning SDG 6, and track the progress of water stewardship projects. The CEO Water Mandate, with our partners, is developing a methodology and guidance in this area.

**Water stewardship toolbox:** companies can enhance their supplier engagement efforts by aligning apparel specific tools, such as the Higg Index, with the CEO Water Mandate's water stewardship resources, to generate specific action plans for suppliers.

**Water-related collective action and policy engagement:** companies can facilitate partnerships and explore opportunities to work together across public, private, and non-profit sectors, locally and internationally, on various topics and geographies. For example, climate resilience across company supply chains in California to improve water stewardship and reduce pressure on local water resources.

The CEO Water Mandate, jointly administered by the Pacific Institute and the UNGC, and our endorsing company partners are working to develop guidance and initiatives on the above to help ensure the industry's efforts leads to improved water stewardship.

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## SPOTLIGHT: FASHION POSITIVE

Annie Gullingsrud, Director, Textiles and Apparel Sector  
Cradle to Cradle Products Innovation Institute

Fashion Positive is a sector initiative of the [Cradle to Cradle Product Innovation Institute](#) focused on certifying fashion materials as inputs for the emerging circular economy. Through industry collaboration, we grow the Fashion Positive Materials Collection, a public library of fashion materials certified through the Cradle to Cradle Products Program. As the collection grows, so does the industry's capacity to make fashion waste obsolete by design.

Fashion Positive leads the circular fashion movement in the following ways:

- **Facilitating industry collaboration through Fashion Positive "PLUS":** Members are global brands including H&M, Stella McCartney, Kering, Loomstate, Zero + Maria Cornejo, EILEEN FISHER and Marks & Spencer.
- **Educating the industry on materials for circular fashion:** Fashion Positive provides a suite of online tools, which guide brands, suppliers and designers into circular fashion and material certification. We also provide occasional workshops on circular fashion.
- **Funding certification of material inputs for circular fashion:** Fashion Positive administers a revolving fund, which lends below-market-rate cash to suppliers wishing to certify materials to the Cradle to Cradle Product Standard. Certified materials are added to the Fashion Positive Materials Collection and made available to the industry.

To explore the Fashion Positive Materials Collection, learn more about circular fashion, find funding for certifying materials or learn about PLUS membership, visit us at [www.fashionpositive.org](http://www.fashionpositive.org)

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## SPOTLIGHT: SUSTAINABLE APPAREL COALITION

Julie Brown, Manager, Products, Sustainable Apparel Coalition

### Apparel Industry Can Now Score Sustainability of Materials

The Sustainable Apparel Coalition's (SAC) Higg Materials Sustainability Index (Higg MSI) is the apparel industry's most trusted tool to accurately measure the environmental sustainability impacts of materials.

The tool now includes 79 base materials - such as cotton, polyester, and silk - which, when blended and processed in different ways create hundreds of thousands of materials the industry uses. Applying trusted metrics, the Higg MSI assesses a material's impacts and scores the results. Computations account for global warming potential, water scarcity, abiotic resource depletion, eutrophication, and chemistry. Lower scores indicate better sustainability performance, giving designers greater insight for creating more sustainable apparel.

The tool offers brands, retailers, and manufacturers the opportunity to make key decisions about a product's sustainability during the early supply chain stage of material selection.

The SAC envisions every brand, retailer, and manufacturer in the apparel, footwear, and textile sector applying the tool to their assessment processes. As customers demand sustainable products across sectors, the SAC has garnered additional interest for use of the Higg MSI.

The SAC urges the entire apparel sector to use the tool and add to its growing library of materials. Learn more at [www.msi.higg.org](http://www.msi.higg.org).

The industry can also benefit from the SAC's Higg Design Development Module (Higg DDM) and the Higg Product Footprint Tool (currently in development by the SAC) to make comprehensive sustainability decisions about a product's design, materials, and life-cycle attributes to achieve lower negative impact throughout the manufacturing process.

To learn more about the entire Higg Index suite of tools visit [apparelcoalition.org/the-higg-index](http://apparelcoalition.org/the-higg-index).

# DEFINING A PREFERRED FIBER OR MATERIAL (PFM)

Textile Exchange describes a PFM as ecologically and/or socially\* progressive and has been selected because it has more sustainable properties in comparison to conventional options.

Ways to recognize or achieve a preferred status include:



The fiber or material has a recognized industry standard in place that confirms its status as preferred.



The fiber or material has sustainability criteria developed through a formalized multi-stakeholder process.



The fiber or material has been objectively tested or verified as having sustainability attributes, such as through a peer reviewed Life Cycle Assessment (LCA).

A PFM strategy should be based on the principles of continuous improvement and result in impact improvements.

## Textile Exchange takes a portfolio approach to PFMs. A portfolio approach is:



The process of building a suite of preferred fiber and materials from a choice of preferred options, through the consideration of impacts and organizational priorities.



The embedding of a strategy that leads to preferred options replacing conventional\*\*.

The process and transition to a portfolio of preferred fiber and materials takes time and usually involves corporate, cultural as well as business evolution.

\* "Socially" progressive covers both human and animal welfare.

\*\* A movement away from practices that (a) depend on fossil-based raw materials and chemical inputs, (b) cause depletion of natural capital such as soil, water, etc. or result in degradation of environmental, social, human capital, or cause animal welfare issues; towards practices that lead to wellbeing and prosperity, while conserving or enhancing the natural environment.

# INTRODUCING PREFERRED

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Photo: MetaWear

# A PORTFOLIO OF OPTIONS



## PREFERRED SYNTHETICS

Preferred Synthetics are synthetic fibers that are ecologically and/or socially progressive because they have more sustainable properties in comparison to other conventional options. Synthetics currently defined by Textile Exchange as preferred includes: recycled polyester, recycled nylon, and potentially biosynthetics.

## BIO-BASED SYNTHETICS

A Biosynthetic is made using polymers created from either a part percentage or 100% natural and renewable resource. There are now biobased alternatives for polyester and nylon. Content claim standards include the USDA Certified Biobased Product scheme and the European Standard EN 16785-1:2015.



## PREFERRED MM CELLULOSICS

Preferred Man Made Cellulosics (pMMCs) are sourced from non-endangered certified forests and are manufactured more sustainably. This means chemicals, water and energy are properly managed to avoid pollution and human exposure. pMMCs include: Lyocell, Preferred Modal and Preferred Viscose.

There is currently no third party industry standard to support the sustainability claims of a pMMC through the processing of pulp and fiber. Chain of Custody from certified feedstocks can be provided by the main forest standards (such as FSC) and through Textile Exchange's Content Claim Standard (CCS).



## PREFERRED COTTON

Preferred Cotton (pCotton) is cotton that is ecologically and/or socially progressive because it has more sustainable properties in comparison to other conventional options.

Cottons currently defined by Textile Exchange as preferred include: Recycled, Organic, Fair Trade, Cotton made in Africa (CmiA) cotton, cotton grown to the standards set by the Better Cotton Initiative (BCI and its benchmarked equivalencies), and CottonConnect REEL cotton.



## PREFERRED WOOL

Wool defined as preferred includes wool that is grown with a progressive approach to land management, and from sheep that have been treated responsibly.

The Responsible Wool Standard (RWS) is an independent, voluntary standard that includes strict animal welfare criteria, land management, and chain of custody. Wool has been recycled for many years, and this continues to be a strong choice for reducing waste. Wool may also be grown organically.



## PREFERRED DOWN

Preferred Down is down that comes from supply chains that have strong animal welfare principles in place, with zero tolerance for force-feeding and liveplucking.

Preferred Down is down certified to either the Responsible Down Standard or the Traceable Down Standard. The recycling of down and feathers is another option gaining traction.

## RECYCLED

Fibers that have been manufactured from materials recovered from the waste stream. New products can be made from recycling natural fibers, such as cotton and wool, or synthetic fibers, such as polyester and nylon. Recycled products are made from pre- or post-consumer waste. Pre-consumer waste is the leftovers or by-products generated during manufacturing, such as from the spinning of yarn or the cutting of garments. Post-consumer waste has already passed through the consumer market and is recycled into a product for the market once again. Post-consumer waste includes plastic PET bottles, industrial fishing nets as well as used clothing. Best practice involves certification through the supply chain, for example to Textile Exchange's Recycled Content Standard (RCS), or the Global Recycled Standard (GRS). The GRS provides processing criteria as well as a content claim.

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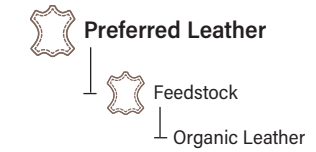
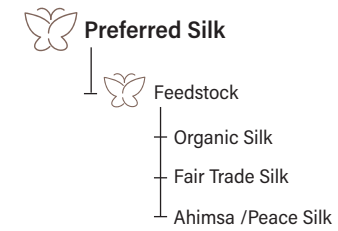
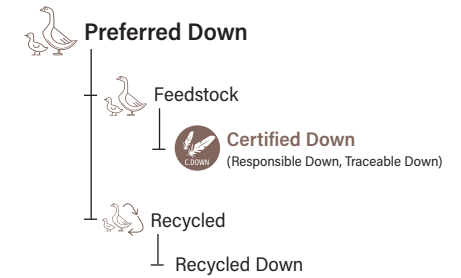
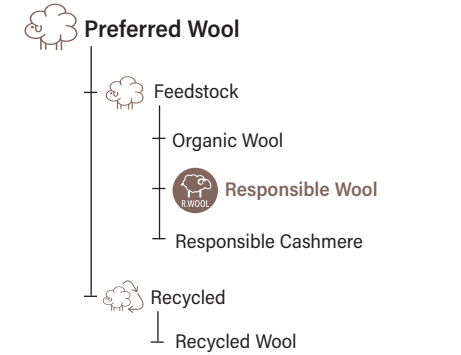
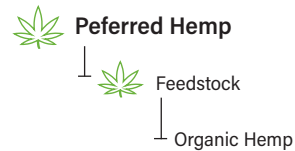
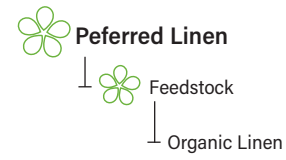
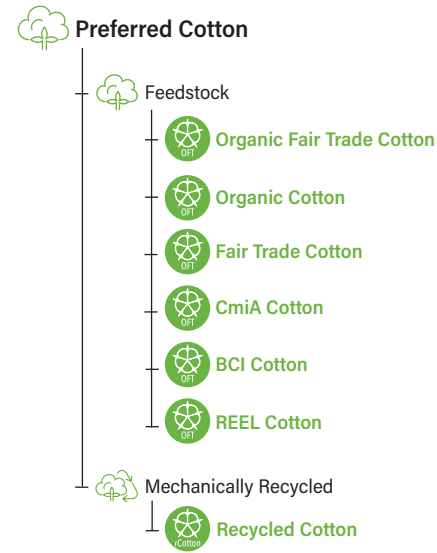
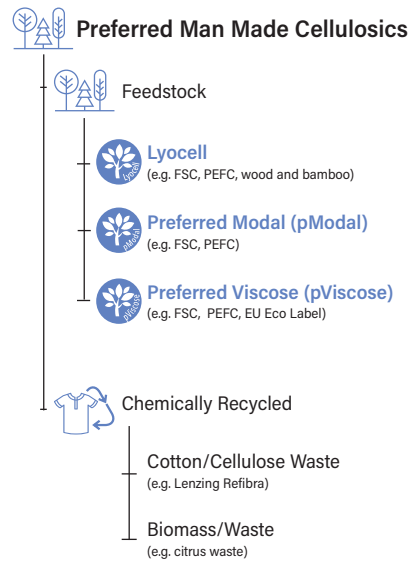
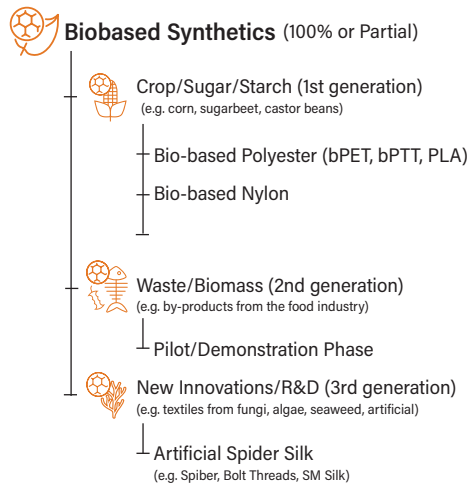
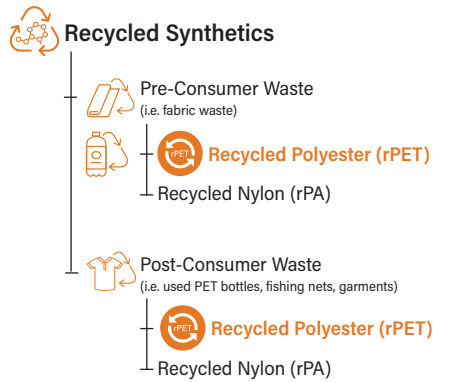
## ORGANIC

Fibers that are grown within a rotation system that builds soil fertility, protects biodiversity, and are produced without the use of any synthetic chemicals or genetic modification (GMOs). Organic fibers include cotton, linen, wool and silk. Growers must meet organic agricultural standards as set nationally, and by the importing country if export is carried out. Farm standards vary from country to country but are mandatory for recognition as organically grown. Best practice involves certification through the textile supply chain to Textile Exchange's Organic Content Standard (OCS), or the Global Organic Textile Standard (GOTS). GOTS provides processing criteria as well as a content claim.



# THE PFM CATEGORIZATION CHART

MANUFACTURED FIBERS		NATURAL FIBERS	
SYNTHETICS FIBERS	MAN MADE CELLULOSIC FIBERS	PLANT-BASED FIBERS	ANIMAL FIBERS



Note: bold colored icons signify inclusion in the Textile Exchange PFM survey and benchmark program, and these icons are repeated throughout this report.

# THE PFM MARKET

## THE BROADER FIBER MARKET

The growth of synthetic fibers in 2016 continues to dominate world trends. Synthetic fibers, predominantly polyester (64 per cent), was estimated at 64.8 million metric tons (MT)<sup>2</sup>, making up the largest share of global fiber production.

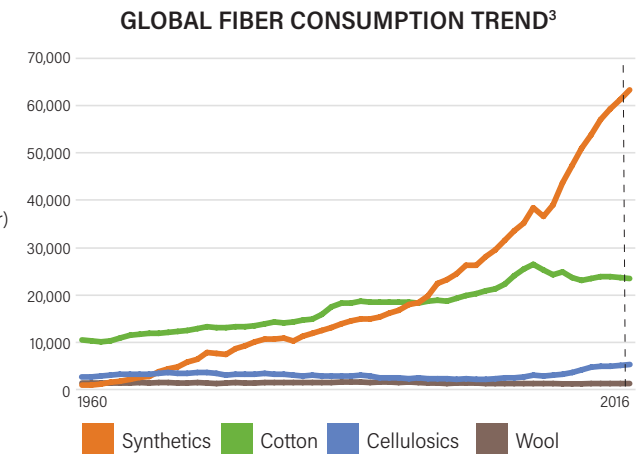
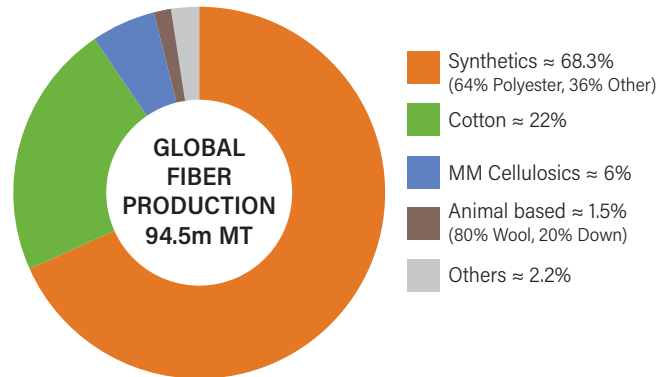
At 21 million MT<sup>3</sup>, cotton is the second largest segment in fiber production, making up approximately 22 per cent.

Estimated at 5.3 million MT<sup>4</sup>, man made cellulosic fibers, mostly viscose, makes up approximately 5.2 per cent.

Animal fibers volumes (wool<sup>5</sup> and down<sup>6</sup> figures based on 2015 data) were approximately 1.5 per cent of the global fiber production.

Consumption of synthetics fibers continue to rise, whilst consumption of cotton fibers saw a dip in 2016 (see trend graph below). There was a slight increase in man made cellulosic fiber consumption, while wool remaining on a fairly even keel.

Overall fiber consumption continues to grow, as it has done since the 1960s, but the year-on-year change for 2015-16 and 2016-17 (projected) is slowing down to two to three per cent compared to four to five per cent for the past five years.<sup>2</sup>



“ The global apparel market is valued at three trillion dollars, 3,000 billion, and accounts for 2 per cent of the world’s Gross Domestic Product.

Fashion United Business Intelligence

1. [The Fiber Year Report 2016](#)
2. Statista, [Global chemical fiber production from 2000 to 2016](#)
3. ICAC, [Cotton World Statistics 2016](#)
4. Lenzing, [Lenzing Investor Presentation 2017](#)
5. IWTO, [Wool Production](#)
6. cn-down.com, [Down and Bedding Sector Looks Promising](#)

## THE PFM MARKET

A comprehensive picture of preferred fiber and materials production and consumption is not possible. However, a brief summary based on Textile Exchange research, is provided here.

In section three, we can get a good idea of trends and growth in the market by looking at what the 95 companies reporting into the PFM Benchmark are doing, within each fiber category.

### Signs of Growth

Slowing the consumption of resources and moving towards a circular economy is an over-arching sustainability goal. Transferring from conventional to preferred and closing the gap on conventional fibers is another. The production of preferred, more sustainable, fiber alternatives is still very niche compared to conventional. However, as the sector organizes, the systems and technologies to enable the transition improve, the shift to preferred could start to accelerate.

#### Preferred Synthetics

While we are witnessing a growing demand for recycled polyester (and nylon) among sustainability frontrunners, the growth of virgin polyester continues to dominate market trends. Price and quality are still concerns raised by brands and retailers. Textile Exchange estimates that approximately seven per cent of the 64.8 million MT of polyester was from recycled PET in 2016.

Hardly denting the surface of the textile market, there is a longer term vision for bio-based to become a viable alternative to petrochemical-based synthetics. According to the [nova-Institute](#), bio-based polymers (for fuel, plastic

and packaging) accounted for two per cent of global polymer production in 2013. While not impacting textiles yet, capacity for bio polymers is expected to increase faster than that of conventional polymers, leading to a four per cent share by 2020.

#### Preferred Cotton

With the introduction of the Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA), the preferred cotton (pCotton) sector has seen volumes of more sustainable cotton increase dramatically over the past few years. Globally, preferred cotton is now estimated at 15 per cent of total cotton production.

#### Preferred Man Made Cellulosics

Man made cellulosics (MMCs) are reported to be the fastest growing fiber category. Lyocell is currently estimated at five per cent of global MMC production but expected to grow.

#### Preferred Animal fibers

Although very small compared to all other fiber categories, the preferred down market is growing. Data is vague but Textile Exchange estimates that under one per cent of the down in the market is preferred.

The preferred wool market is niche but expected to grow. Less than one percent is currently from organic or Responsible Wool certified sources. percent of the wool market is from organic or RDS certified sources.

## MEGA TRENDS IMPACTING THE MARKET

Global megatrends shape markets and markets are shaped by global trends. Significant megatrends include:



**Ongoing population growth.** The population is estimated to rise from its current count of approximately seven billion people to >nine billion by 2050. There is expected to be an increase in the middle class. A growing middle class equates to an increase in purchasing power.



**Increase in urbanization.** The United Nations estimate that by 2030, one in every three people will live in cities with at least half a million inhabitants.



**Increasing resource constraints.** Increased shortages of resources drive tension between and within countries. Access to food and water will receive as much focus as oil and gas.



**Changing weather patterns.** Extreme weather events such as heat waves and storms are likely to become more frequent or more intense with climate change.



**Technological breakthroughs.** Digital innovation is changing our experience of the world, including the way we shop. People are more likely to use digital tools to articulate and fulfil their consumer needs. Breakthroughs in the technologies to close the loop on materials may radically change the textile industry.



**Shifts in consumer values.** Millennials are more likely to buy from companies whose values are like their own. Authenticity and transparency are paramount to this digital generation.

## INSIDER SERIES

06

Millennials are influencing sustainability choices in the home textiles market, both in their own purchases, and the choices they make in travel and hotels. **WestPoint Home** President and CEO Normand P. Savaria gives us his insights [here](#).



Photo: West Point Homes

## INSIDER SERIES

08

**Gap** has committed to obtain 100 per cent of its cotton from more sustainable sources by 2021. Sister brand Athleta has pledged that 80 per cent of its apparel materials will be made with sustainable fibers by 2020. Wendi Goldman Sustainability Champion and Chief Product Officer at Gap Inc. tells us more [here](#).



Photo: Country Road Group

## INSIDER SERIES

07

In Australia, **Country Road** has framed its sustainability efforts as its "Good Business Journey," covering not only cotton but other Preferred Fibers as well. Lucy Hall, Group Sustainability Manager, explains their approach. [See.](#)

## INSIDER SERIES

09

**prAna**'s Spring 2018 collection will mark the last step in their journey to join the 100 per cent club of organic cotton users. Now they have also eliminated rayon and viscose in line with their strong forest fiber policy. The ultimate goal is to create product that promotes a circular economy. Brianna and Mike from prAna tell us more [here](#).

“ In our fiber portfolio we are looking beyond our base preferred fibers like recycled polyester, organic cotton, and hemp to continually increase material performance while lowering our environmental and social impacts. We take a holistic approach weighing all impacts, such as, raw material origin, dyeing and finishing chemistry, social and animal welfare in the supply chain, and land use. A few key areas of focus are a renewed push to expand organic cotton, grow our overall use of hemp, and supporting innovative recycling technologies.

**Sarah Hayes**

Senior Material Innovation & Development Manager,  
Patagonia



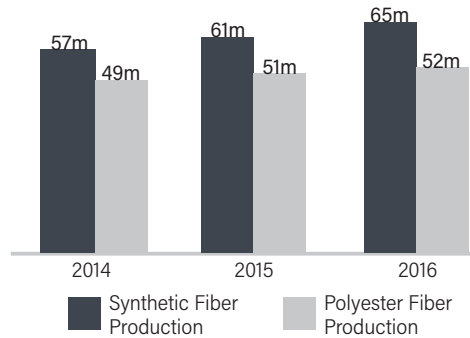
Photo: prAna

# PREFERRED SYNTHETICS

## WHAT'S HAPPENING IN PRODUCTION

Polyester is the most commonly used fiber in the world, and accounts for roughly half of the overall fiber market<sup>1</sup> and around 80 per cent of synthetics fibers. Due to its significance in the synthetics segment, the growth of polyester fiber production maps closely to the growth of synthetics fiber production.

SYNTHETIC & POLYESTER FIBER PRODUCTION TREND<sup>2</sup>

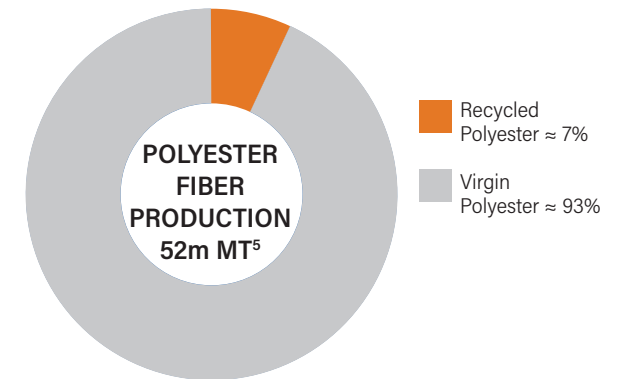


The synthetic and polyester fiber production trend over the past few years hints at the possible direction of the market: firstly, synthetic fiber production (albeit still growing), appears to be slowing down at around three to four percent year-on-year compared to five per cent or above in the early 2000s. And secondly, polyester share in synthetics fiber production appears to be reducing (from 85 per cent in 2014 to 80 per cent in 2016), possibly due to innovation and introduction of alternative synthetic fibers.

In 2016, polyester fiber production is estimated at 52 million MT<sup>3</sup>.

**At less than four million MT<sup>4</sup>, recycled polyester (which is the key fiber in preferred synthetics) makes up an estimated seven per cent of polyester fiber produced – these fibers are largely used in carpets, blankets, clothing and other textile applications.**

Government initiatives, increased awareness, relative low production cost and increase in virgin polyester uptake has seen a surge in recycled polyester growth – which is expected to continue – with China, India, Japan and the US projected to account for the highest production.



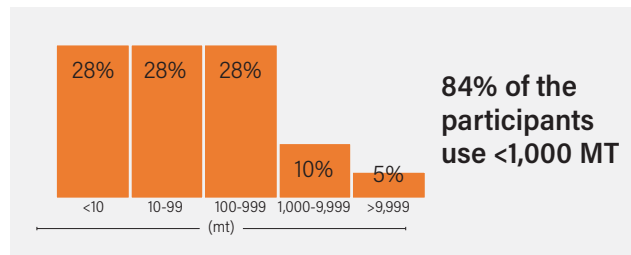
1. Chemical Economics Handbook, Polyester Fibers. IHS Markit  
2. For Polyester Fiber Production: CIRFS - European Man-Made Fibres Association. For Synthetic Fiber Production: Statista - [Global chemical fiber production from 2000 to 2016](#)  
3. CIRFS - European Man-Made Fibres Association  
4. Recycled Polyethylene Terephthalate (PET) Market Analysis By Product Type, By End-use, And Segment Forecasts, 2014 - 2025  
5. CIRFS - European Man-Made Fibres Association

## WHAT WE LEARNED ABOUT MARKET DEMAND FROM THE PFM BENCHMARK SURVEY



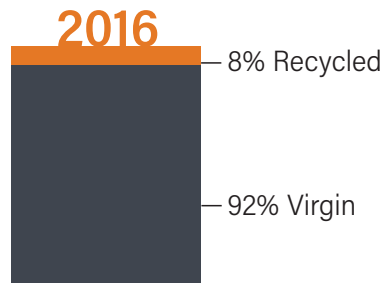
**47,407 MT**  
recycled polyester fiber used

≈  **2.9 billion**  
bottles diverted  
from landfill



Tracking the cohort of participants for 2015-16, we find that:

 **↑ 58%** aggregate recycled polyester usage (MT)  
average 75% growth per company



56 companies responded to the recycled polyester module in the 2016 PFM Benchmark, and based on their response we are able to get a flavour of the market demand for recycled polyester.

70 per cent of the 56 recycled polyester participants are able to report on their uptake on recycled polyester for 2016.

**This indicates that the majority of the companies who are using recycled polyester have a system in place to track and monitor their use of the fiber.**

The aggregate uptake of recycled polyester reported in 2016 culminated to 47,407 MT. Of those who reported, 85 per cent are using less than 1,000 MT, 10 per cent are using between 1,000 to 9,999 MT and only five per cent are using more than 9,999 MT of recycled polyester a year.

The PFM Benchmark Program is a voluntary self-reporting benchmarking framework which means that each year the spectrum of participants will differ based on their ability and resource to report.

**Tracking the cohort of participants who reported uptake between this and last year, shows that aggregate recycled polyester usage increased by 58 per cent.**

Given the backdrop of only five per cent of companies using more than 9,999 MT, the movement of recycled polyester market is still heavily dependent on a few, but significant, market leaders.

The reported recycled polyester uptake and share of recycled in overall polyester portfolio shows that:

**Companies are currently using approximately eight per cent of recycled polyester in their polyester mix.**

Considering the share of synthetic fibers in the overall fiber market, this suggests a significant potential for growth in uptake for recycled polyester.

The impact is significant, in 2016 the estimated bottles diverted from landfills calculated based on the aggregate recycled polyester used is 2.9 billion – which is more than double the 1.37 billion bottles recycled in 2015.

34 per cent of the participants who completed the recycled polyester module have a SMART target.

**“ Polyester is the most used fiber in the apparel industry. And as Textile Exchange has worked to move the market to preferred fibers, such as organic cotton, it is time that we do the same for polyester. We must move from oil as a feedstock to plastic bottles and eventually post-consumer textiles in a big way. LCA data, the Higg MSI and MADE-BY Environmental Benchmark makes rPET the clear choice.**

**Karla Magruder**

Fabrikology, rPET WG Lead for Textile Exchange

# PREFERRED SYNTHETICS DASHBOARD

Photo: JEPLAN

		Standards & Certification		Feedstock					Factory		
		Feedstock	CoC + Processing	Fossil Fuel	Toxicity	Water	Climate	People	CoC	Processing	
Recycled Synthetics	 Non-Textile Waste Materials (i.e. bottles, fishing nets)	 Recycled Polyester Recycled Nylon	 Global Recycled Standard							✓	
	 Pre-Consumer Waste (i.e. fabric waste)	 Recycled Polyester Recycled Nylon	 Global Recycled Standard	✓	✓	✓	✓	✓	✓	✓	✓
	 Post-Consumer Waste	 Recycled Polyester Recycled Nylon	 Global Recycled Standard	✓	✓	✓	✓	✓	✓	✓	✓
Bio-based Synthetics	 Crops Biomass (i.e. corn, sugarbeet, castorbeans)	 Biobased Polyester Biobased Nylon (100% or partial)	 USDA CERTIFIED BIOBASED PRODUCT								
	 Waste Materials (i.e. by products from the food industry)	Pilot/Demonstration Phase									
	 Non-Food Biomass (i.e. algae, seaweed)	Pilot/Demonstration Phase									

Life Cycle Assessment

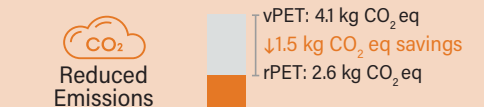
## SDG MAPPING: KEY INDICATORS



▶ Full SDG Mapping is under development

✓ SPOTLIGHT: rPET LCA

For every 1MT of polyester:







vPET (Virgin Polyester)
 rPET (Recycled Polyester)

LCA based on Recycled Polyester Chemical BHET Process




▶ See: Full LCA Analysis on Recycled Polyester

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## TOP 10 BY VOLUME

1	
2	
3	
4	
5	
6	
7	WILLIAMS-SONOMA, INC.
8	
9	M&S
10	

## TOP 10 BY GROWTH

1	
2	
3	OUTERKNOWN
4	
5	<b>INDITEX</b>
6	
7	
8	
9	
10	

## RACE TO THE TOP

1	
2	OUTERKNOWN
3	
4	
5	<b>patagonia</b>
6	<b>BOSS</b> HUGO BOSS
7	
8	WESTPOINT HOME
9	
10	EILEEN FISHER

## 100% CLUB

ARMEDANGELS


LOOMSTATE
METAWEAR
<b>mini rodini</b>


**Top 10 By Volume:** Top 10 brands/retailers using recycled polyester in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of recycled polyester in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of recycled and virgin polyester consumption. This category excludes companies who are using 100 per cent recycled polyester • **100% Club:** Brands/retailers using 100 per cent recycled in their polyester portfolio. • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.



# PREFERRED SYNTHETIC SUPPLY LANDSCAPE

Photo: THREAD

## RECYCLED POLYESTER (rPET)

Supplier	Product	Category	Product Type	Feedstock Type	Production Process	Production Locations	Volume (MT)	Expected Growth	Standard	LCA
Advansa	Suprelle®	rPET	staple fiber	post consumer	mechanical	Germany		↑	GRS, Oekotex, EU Ecolabel	✓
Far Eastern	TOPGREEN®	rPET	flake to fabric	post consumer	mechanical; semi-chemical	Taiwan, Japan, China, Vietnam	90,000	↑	SCS, GRS	✓
Hyosung	Regen™	rPET	filament	post consumer	mechanical	Korea		↑	GRS	✓
Indorama	RAMA PET EA 60C	rPET	flakes, resins, fiber	post consumer		Netherland, Thailand, France, Mexico		↑	GRS	✓
Ioniqa	BHET	rPET	monomers	post consumer	chemical	Netherlands		starting		
Jeplan	BRING	rPET	chip, yarn, fabric	post + pre consumer	chemical	Japan		starting		✓
Libolon	RePET™	rPET	chips, yarn, fabric	post consumer		Taiwan			GRS, Oekotex Standard 100 Class 1	
Palmetto	REPREEVE®	rPET	staple fiber	post consumer	mechanical	USA	4,535	↑		X
Polygenta	perPETual	rPET	filament yarn	post consumer	chemical	India	10,000	↑	GRS	✓
Poole Company	EcoSure®	rPET	fiber	post consumer	mechanical	US, India, China			SCS RC	
Poole Company	EcoSure® Bioplast™	rPET	fiber	post consumer	mechanical	US, India, China			SCS RC	
RadiciGroup	r-RADYARN®	rPET	yarn	post consumer		Italy	16,000	↑	Oekotex Standard 100 Class 1	✓
RadiciGroup	r-Starlight®	rPET	yarn	post consumer		Switzerland	8,000	↑	Oekotex Standard 100 Class 1	✓
Sinterama	Newlife™	rPET	yarn	post consumer	mechanical	Italy			Oekotex Standard 100 Class 1, GRS	
Teijin	Eco Circle™	rPET	fiber	post + pre consumer	chemical	Japan			SCS RC / GRS	
Teijin	ECOPET™	rPET	fiber	post consumer	mechanical	Japan			SCS RC	
Thread International	Ground to Good™	rPET	yarn	post consumer	mechanical	Haiti, Honduras, Taiwan		↑	GRS	✓
Toray	ECOUSE™	rPET	staple fibre, filament, yarn, fabric, garment	post consumer	mechanical	Japan, South Korea, China, Malaysia, Thailand, Italy			Eco Mark	✓
Unifi	REPREEVE® Post Consumer	rPET	filament fiber; staple fiber	post consumer	mechanical	US, China, Brazil, El Salvador, Taiwan, Turkey, Italy, Sri Lanka, Vietnam, Columbia		↑	SCS RC + RS; GRS, Oeko-Tex 100 Class 1	✓
Unifi	REPREEVE® Hybrid	rPET	filament fiber; staple fiber	post + pre consumer	mechanical	US, China, Brazil, El Salvador, Taiwan, Turkey, Italy, Sri Lanka, Vietnam, Columbia		↑	SCS RC + RS; GRS, Oeko-Tex 100 Class 1	✓
Unifi	REPREEVE® Performance	rPET	filament fiber; staple fiber	post + pre consumer	mechanical	US, China, Brazil, El Salvador, Taiwan, Turkey, Italy, Sri Lanka, Vietnam, Columbia		↑	SCS RC + RS; GRS, Oeko-Tex 100 Class 1	✓
Unifi	Flake + Resin	rPET	flake; resin products	post consumer	mechanical	USA	n/a	↑	SCS RC + RS; GRS, Oeko-Tex 100 Class 1	✓

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## RECYCLED NYLON (rPA)

Supplier	Product	Category	Product Type	Feedstock Type	Production Process	Production Locations	Volume (MT)	Expected Growth	Standard	LCA
Aquafil	Econyl®	rNylon 6	yarn	pre + post consumer	chemical	Slovenja	>10,000		GRS	✓
Chainlon	Greenlon® Re	rNylon	yarn	pre + post consumer	mechanical	Taiwan			GRS	
Fulgar	Q-Nova®	rNylon 6,6	filament	pre consumer	mechanical	Italy		↑	Oeko-tex Standard 100 Class 1, GRS, EU Ecolabel	
Hyosung	Mipan Regen	rNylon 6	filament	post consumer	mechanical / chemical	Korea		↑	GRS	✓
Nilit	Nilit® EcoCare	rNylon 6	yarn	pre consumer	mechanical	Israel		↑	SCS RS	✓
Unifi	Repreve® Nylon	rNylon 6	filament fiber	pre consumer	chemical	US, China, Brazil, El Salvador, Taiwan, Turkey, Italy, Sri Lanka, Vietnam, Columbia		↑	SCS RC + RS; GRS; Oeko-Tex 100 Class 1	In Dev



## BIO-BASED POLYESTER (bPET, bPLA, bTT)

Supplier	Product	Category	Product Type	Feedstock Type	Production Locations	Volume (MT)	Expected Growth	LCA
DuPont	Sorona®	bPTT	polymers	corn sugar	USA, China		↑	✓
Anellotech		bParaxylene	chemical	non-food biomass	US			
Far Eastern	TopGreen®	bPET	chips to garment		Taiwan, China	500	↑	
Far Eastern		bPTT	filament		China, Taiwan	3,600	↑	✓
Far Eastern	Ingeo®	bPLA	staple fiber	corn etc.	Taiwan	450	↑	✓
Indorama		bPET			Thailand			in dev't
NatureWorks	Ingeo	bPLA	polymers		USA		↑	✓
Palmetto	Ingeo®	bPLA	staple fiber	corn etc.	USA	725	↑	
RadiciGroup	PLA	bPLA	yarn		Switzerland	5,000	↑	
Toray	ECODEAR® PET	bPET	resin, filament, fabric, garment		Japan, China, Indonesia, Malaysia, Italy			✓
Toray	ECODEAR® PLA	bPLA	filament	corn	Japan			
Toray	ECODEAR® PTT	bPTT	fabric	corn	Japan, Malaysia, Czech Republic			✓
Virent	BioFormPX® paraxylene	bParaxylene	chemical	sugars	USA	not yet commercial		✓



## BIO-BASED POLYAMIDE (bPA)

Supplier	Product	Category	Feedstock Category	Product Type	Feedstock	Share	Production Locations	Volume (MT)	Expected Growth	LCA
Fulgar	Evo®	bPA 10.10	biobased	filament	castor bean		Italy		↑	✓
RadiciGroup	Radilon	bPA 6.10	biobased	yarn	castor oil	64% bio	Italy	10,000	↑	✓
RadiciGroup	Biofeel	bPA 5.10	biobased	yarn	castor oil	100% bio	Italy	5,000	↑	✓
RadiciGroup	Dorix 6.10	bPA 6.10	biobased	staple fibre	castor oil	64% bio	Italy	6,000	↑	✓
Toray	ECODEAR® PA 6.10	bPA 6.10	biobased	filament	castor bean + petroleum		Japan			

# PREFERRED SYNTHETICS NOTICEBOARD



## Recycled Nylon Supplier Update:

Aquafil, Chainlon, Fulgar, Hyosung, Nilit and Unifi



## Committed to cleaning up ocean waste such as industrial fishing nets...

FAO and UNEP estimate that there are 640,000 MT of fishing nets in the oceans. Abandoned fishing nets, often called ghost nets, can remain adrift for up to 500 years and are responsible for the accidental capture of whales, turtles, birds and other marine mammals. In 2016, the Healthy Seas Initiative, a joint initiative by Aquafil, ECNC Group, Star Socks and Ghost Fishing, recovered 152 tons of fishing nets. The fishing nets are used to produce recycled nylon.

Photo: Aquafil



**34%** participants who completed the rPET module in the PFM Benchmark have SMART Targets.



**≈7%** estimated share of recycled in polyester market (see p29)



## The number of polyester recycling suppliers is increasing.

Among the key suppliers are Unifi, Hyuson, Far Eastern Textiles, Teijin, Polygenta and Threads International.

Photo: THREAD

## Recycled polyester supplier update:

- Jeplan is developing an innovative chemical polyester recycling technology and is constructing a pilot scale plant in Japan. The plant will be operational at the end of 2017.
- gr3n has developed a microwave technology that enables the chemical recycling of plastics.
- Ioniqa, specializing in magnetic smart materials and separation processes for all kinds and colors of PET polyester waste, has started to scale up to industrial levels.



Among the top users of recycled polyester are Nike, H&M, The North Face, Patagonia, WestPoint, Williams-Sonoma Inc., Wolcome, Woolworth, prAna and Lindex — Textile Exchange 2017.

Pioneering brands, such as Norrøna, commit to using 100 percent recycled polyester.

Photo: Plastics For Change

## Biosynthetics supplier update:

Among the pioneering suppliers are Dupont, Natureworks, Modern Meadow, Far Eastern, Virent, Teijin, InVista, Reliance, and Bioamber.



## Emerging Markets

Bio-based polyester is still a new material but first bio-based polyester products are commercially available.



Examples of pioneering brands trialling biosynthetics are adidas, Reebok, The North Face, Tierra and Westin.



Until now, the chemical industry has not had a viable option for cost-competitively producing 100 percent "drop-in" aromatic chemicals – the basic building blocks used to make both nylons and polyesters for apparel – due to the lack of efficient and scalable processes that use renewable non-food biomass feedstocks. Today, this dynamic is changing, with newer, second-generation bio-based materials entering the market to offer a practical and commercially-viable pathway to 100 percent bio-derived materials.

Bio-based products alone represent €57 billion (US \$62 billion) in annual revenue, according to a study by the European Commission.

Pioneers include Dupont, Arkema, and Fulgar.

## INSIDER SERIES

10

Everyone loves recycled products, but how do we ensure the feedstock is sourced fairly? **Plastics for Change** has adopted strategies from fair trade agricultural practices and applied them to the informal recycling economy in developing countries. Their deal process and mobile platform provides urban waste pickers with access to fair market prices. Founder and CEO Andrew Almack tells us more [here](#).

## INSIDER SERIES

11

**Ioniqa** is a cleantech spin-off from the Eindhoven University of Technology (Netherlands) and is specialized in Magnetic Smart Materials and Separation Processes. With this proprietary technology Ioniqa found a profitable circular solution for all kinds and colours of PET polyester waste. And the ambition doesn't stop here. Tonnis Hooghoudt, Ioniqa's CEO, tells us more [here](#).

## INSIDER SERIES

12

**Thread** describes itself as on a mission to create the most responsible fabric in the world. Working with plastic bottle collectors, with supply chains in the shadows, those living and working in the First Mile (where raw materials are sourced and processed) must endure poor and unforgiving conditions. Thread believes we deserve the full story behind the things we buy. Thread connects brands to a transparent and responsible supply chain on a mission to fight poverty and repurpose plastic. More details [here](#).

## INSIDER SERIES

13

**perPETual Global Technologies** has a breakthrough process to reverse-engineer consumer waste PET bottles into high quality sustainable (poly)ester. This sustainable ester can be used to directly replace conventional esters made from PTA and MEG, high carbon footprint petrochemicals. perPETual transforms two million bottles a day. Dr Vivek Tandon, CEO, tells us more [here](#).



## INSIDER SERIES

14

The **gr3n** recycling project has made an extraordinary technological breakthrough using microwaves in the depolymerisation process for recycling PET bottles. This technology will bring the industry closer to closing the loop on polyester. Maurizio Crippa, founder of gr3n explains [here](#).

## INSIDER SERIES

15

Recycled nylon is now available from **Aquafil**. ECONYL® yarn is a unique product, not only because it's 100 per cent regenerated from nylon waste such as fishing nets and carpet fibers, but because it can be regenerated an infinite number of times without any loss in quality. CEO Guilio Bonazzi has more details [here](#).



## INSIDER SERIES

16

**ECOALF** recovers marine litter from the seabed and recycles it into fabrics for fashion. They are working in 32 ports, with 440 boats and more than 2,000 fishermen. By the end of 2017 they will have recovered about 150 tons of marine debris. ECOALF transforms the PET from the sea into a polyester yarn. Carol Blázquez is Head of Innovation & Sustainability. [See.](#)



Photo: Ecoalf

## INSIDER SERIES

17

Biosynthetic fibers are an emerging category of materials. They provide all the functionality of synthetic fibers but are produced from non-petroleum raw materials with a much reduced carbon footprint. Stacey Orlandi, CEO at **Virent** gives insight into the challenges to be overcome and the importance of collaboration [here.](#)



DuPont is developing enzymatic polymerization as new platform technology for the production of engineered polysaccharides. This new biomaterial category will find applications for use as polysaccharide fiber for apparel/textile and nonwoven markets or as fiber additive in different established fiber categories. This new platform technology will step-change the sustainability footprint for this material category – sourced from rapidly annual renewable feedstock with unparalleled land productivity with the lowest, best in class water and agricultural input footprint.

**Christian Lenges**

DuPont Industrial BioSciences

## INSIDER SERIES

18

Dan Widmaier, CEO and co-founder of **Bolt Threads** and his team believe that answers to our most vexing problems can be found in nature. The team have created a synthetic spider silk and assure us that no spiders are harmed in the making of Bolt Threads Engineered Silk™ fibers! Bolts secrets are revealed [here.](#)

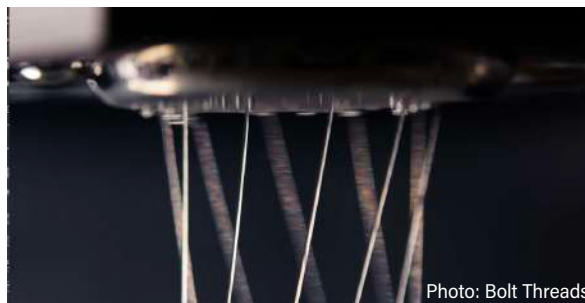


Photo: Bolt Threads

## INSIDER SERIES

19

Erik Blomberg, Head of Product Development at **Tierra** is determined to see biosynthetics succeed. As an evolving and constantly adapting company, Tierra pride themselves on being ahead of the pack. Find out more about this ambitious outdoor brand and why they are so keen on biosynthetic alternatives [here.](#)



The production, use and disposal of apparel, be it cotton, polyester, or a blend of both is inherently damaging to the environment. The growth of the “fast fashion” trend has significantly increased both the global production and disposal of apparel and the associated environmental effects. In polyester, technologies have been and will continue to be developed which help reduce this environmental impact through reduction of resources used in production and recycling of post-consumer waste. I believe these technologies can be cost effective and their use will grow substantially in the coming years.

**Bill Jasper**

President, Two Eleven Associates (former CEO, UNIFI)

# PREFERRED PLANT BASED FIBER

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Photo: RARE, China

## WHAT'S HAPPENING IN PRODUCTION

The cotton fiber market was estimated at 21.07 million MT in 2016 (ICAC). The preferred cotton segment which is made up of Organic, Fair Trade, CmiA, BCI, REEL, Cleaner Cotton and e3 makes up approximately 15 per cent of total cotton fiber production (Note: analysis in this section does not include recycled cotton). This is a significant increase from nine per cent of the cotton market share in 2015.

**Preferred cotton increased from nine to 15 per cent of total cotton production between 2015 and 2016.**

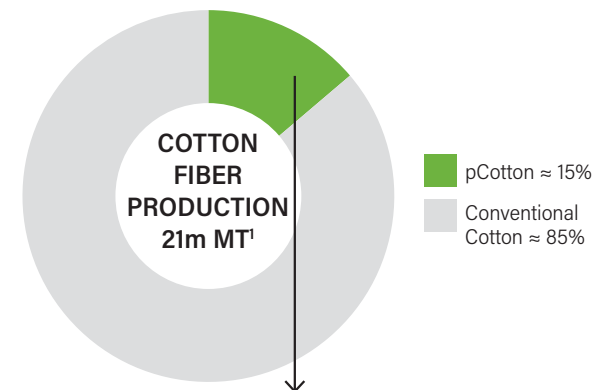
The two factors that contributed to this shift were: firstly the reduction in the overall cotton fiber production, from 26 million MT in 2015 to 21 million MT in 2016; and secondly

**preferred cotton fiber production increased from 2.2 to 3.2 million MT between 2015 and 2016.**

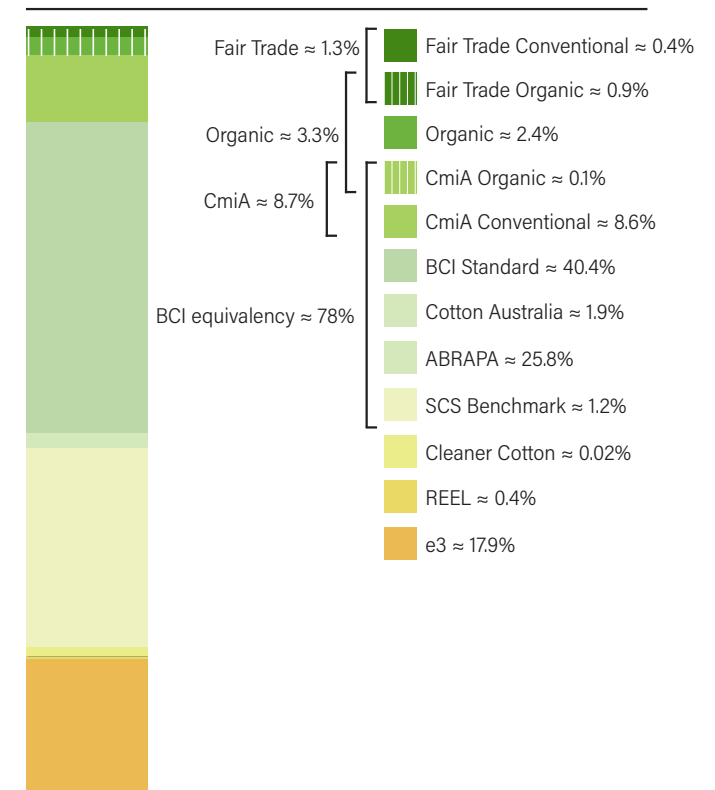
Organic makes up 3.3 per cent of the production of preferred cotton, of which approximately one per cent consists of organic Fair Trade and organic CmiA. Fair Trade makes up 1.3 per cent and CmiA makes up 8.7 per cent of the preferred cotton market.

BCI makes up 40.4 per cent of the preferred cotton market, whilst its equivalent programs (which includes CmiA, Cotton Australia, ABRAPA and SCS Benchmark) makes up 37.6 per cent. It is worth noting that a comparison of BCI's market share for 2015 and 2016 is limited due to a change in the program's data reporting format from calendar to harvest year.

e3 gained significant market share of the preferred cotton segment in the past year with an increase of production from 113,398 MT in 2015 to 578,000 MT in 2016.



### PREFERRED COTTON FIBER PRODUCTION 3.2 million MT



Note: The above data is provided by respective cotton initiatives

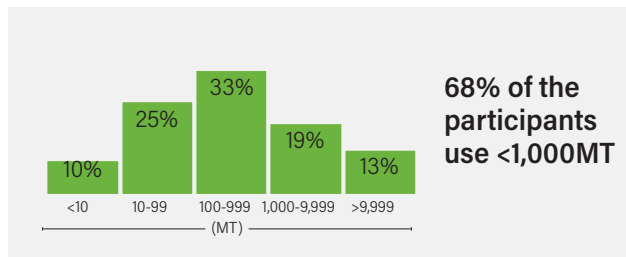
## WHAT WE LEARNED ABOUT MARKET DEMAND FROM THE PFM BENCHMARK



**598,333 MT**  
preferred cotton fiber used

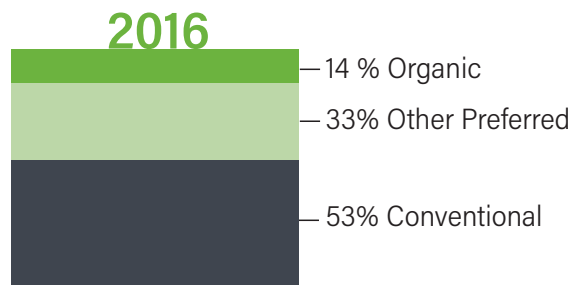


**1,022,515 ha**  
land under improved management



Tracking the cohort of participants for 2015-16, we find that:

**↑ 3%** aggregate organic cotton usage (MT)\*  
average 48% growth per company



\*Preferred Cotton year-on-year growth is not possible this year due to the change in pCotton modules introduced in 2016

All 94 companies who participated in the PFM Benchmark Program completed one or more preferred cotton modules for the year 2016, confirming that the cotton portfolio is the most mature of all the PFM portfolios.

77 per cent of all participants were able to report on their uptake of preferred cotton for 2016 and

**the total preferred cotton uptake amounted to just under 600,000 MT.**

Which also means that the current reporting group is using approximately 19 per cent of all the preferred cotton produced in the world.

Of those who reported, 10 per cent consume less than 9 MT, 25 per cent between 10 and 99 MT, 33 per cent between 100 to 999 MT, 19 per cent between 1,000 to 9,999 MT and 13 per cent over 9,999 MT. Unlike recycled polyester, the normal distribution of the consumption spread confirms a more mature market with 13 per cent companies using more than 9,999 MT of preferred cotton a year.

Tracking the cohort of participants who reported uptake between 2016 and 2015 shows that the aggregate uptake of organic cotton increased by three per cent. (Note: the same method cannot be applied to the preferred cotton due to the introduction of new preferred cotton modules such as recycled cotton and REEL this year.)

**It is interesting to note that while the aggregate consumption growth is three per cent, the average growth per**

**company is much higher at 48 per cent which suggests that there are more smaller players who are increasing their uptake of organic cotton.**

PFM Survey participants are currently using 47 per cent preferred cotton (of which 14 per cent is organic) and 53 per cent conventional. Mapped against the total of 15 per cent preferred cotton (quoted on page 39), it becomes clear that the universe of participants in the PFM Benchmark is significantly more progressive than the prevailing market.

All in all, consumption of preferred cotton impacted over one million ha of land (which benefited either from integrated pest management or reduction/elimination of chemical and pesticide use under organic operations).

Further to the conversion of conventional virgin cotton to preferred, is the enormous potential to recycle more, thus relieving pressure on the land and cottons competition with food. There were 23 brands responding to the new recycled cotton module in this years PFM survey this year, and from those 11 reported volumes, which aggregated at almost 25,000 MT.

52 per cent of the participants who completed one or more of the preferred cotton modules have a SMART target.



**Companies who have wholly embraced the adoption of organic/organic fair trade in their strategy, supply chain and consumer engagement have shown triple digit growth!**

# PREFERRED PLANT BASED FIBER DASHBOARD

Photo: Loomstate

	Standards & Certification		Feedstock						Factory		
	Feedstock	CoC + Processing	No GMO	Toxicity	Soil	Water	Climate	People	CoC	Processing	
pCotton	Organic			✓	✓	⊙	⊙	⊙	✓	OCS GOTS	GOTS
	Fair Trade			✓	IPM	✓	✓	✓	✓	✓	✓
	More Sustainable			✓	IPM	⊙	⊙	⊙	✓	MB HIP	
				✓	IPM	✓	✓	✓	✓	Bale ID	
					IPM	✓	✓	✓	✓	Bale ID	
					IPM	✓	✓	✓	✓	To Mill	
Recycled									✓		
pLinen	Organic			✓	✓	⊙	⊙	⊙	✓	OCS GOTS	GOTS
	pHemp			✓	✓	⊙	⊙	⊙	✓	OCS GOTS	GOTS

⊙ Life Cycle Assessment IPM - Integrated Pest Management HIP - Hard Identity Preserved

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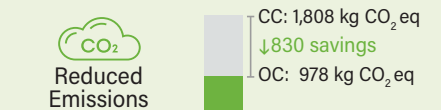
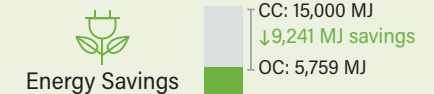
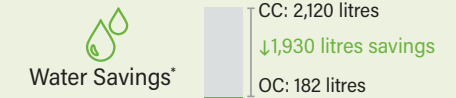
## SDG MAPPING: KEY INDICATORS



▶ See: Full SDG Mapping for Organic Cotton

## ⊙ SPOTLIGHT: ORGANIC COTTON LCA

Potential saving for every 1 MT of cotton:



■ CC (Conventional Cotton) ■ OC (Organic Cotton)

▶ See: Full LCA Analysis on Organic Cotton

\*Water savings refer to blue water consumption only.





# PREFERRED COTTON LEADERBOARD

Photo: Tchibo

## TOP 10 BY VOLUME

- 1
- 2
- 3
- 4
- 5
- 6 **LEVI STRAUSS & CO.**
- 7 **M&S**
- 8
- 9 **JACK & JONES®**
- 10

## TOP 10 BY GROWTH

- 1 **ASOS**
- 2
- 3
- 4 **OUTERKNOWN**
- 5
- 6 **G-STAR RAW**
- 7 **VARNER**
- 8
- 9 **mini rodini**
- 10

## RACE TO THE TOP

- =1
- =1 **Nudie Jeans co**
- 2 **hessnatur**
- 3
- 4 **EILEEN FISHER**
- 5 **LINDEX**
- =6
- =6
- 7 **KappAhl**
- 8
- 9
- 10

## 100% CLUB

- |                     |                         |                       |
|---------------------|-------------------------|-----------------------|
|                     | <b>portico</b>          |                       |
| <b>METAWEAR®</b>    |                         |                       |
|                     |                         | <b>STANLEY/STELLA</b> |
|                     |                         |                       |
| <b>TOAD&amp;CO®</b> | <b>NORRØNA</b>          |                       |
| <b>LOOMSTATE</b>    | <b>UNDER THE CANOPY</b> |                       |
| <b>mini rodini</b>  | <b>COYUCHI</b>          |                       |
|                     |                         |                       |
| <b>cotonea</b>      |                         |                       |
| <b>ARMEDANGELS</b>  |                         |                       |
| <b>TENERITA</b>     |                         |                       |



## RECYCLED COTTON TOP 10 BY VOLUME

- 1
- 2
- 3
- 4
- 5
- 6 **INDITEX**
- 7 **WILLIAMS-SONOMA, INC.**
- 8 **G-STAR RAW**
- 9
- 10 **OUTERKNOWN**





**Top 10 By Volume:** Top 10 brands/retailers using preferred cotton (Recycled, BCI, CmiA, REEL, Fair Trade, Organic and Organic Fair Trade Cotton) in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of preferred cotton in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of preferred and conventional cotton consumption. This category excludes companies who are using 100% preferred cotton • **100% Club:** Brands/retailers using 100 per cent preferred cotton in their cotton portfolio • **Recycled Cotton Top 10 By Volume:** Top 10 brands/retailers using recycled cotton in 2016 by MT consumption • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.

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## TOP 10 BY VOLUME

1	
2	
3	
4	
5	<b>INDITEX</b>
6	
7	
8	
9	WILLIAMS-SONOMA, INC.
10	<b>STANLEY/STELLA</b>

## TOP 10 BY GROWTH

1	 BOLL & BRANCH™
2	<b>HEMTEX</b>
3	OUTERKNOWN
4	<b>mini rodini</b>
5	 greenfibres
6	 FJALL RAVEN
7	<b>patagonia®</b>
8	<b>cotonea</b>
9	FELISSIMO
10	 ethicus

## RACE TO THE TOP

=1	 greenfibres
=1	Nudie JEANS co
2	<b>TOAD&amp;CO</b> 
3	<i>hessnatur</i>
4	 VAUDE <i>The Spirit of Mountain Sports</i>
5	EILEEN FISHER
6	 prAna
7	 HempAge <i>clothed by nature</i>
8	 Tchibo
9	OUTERKNOWN
=10	 LINDEX
=10	 REI

## 100% CLUB

COYUCHI		
NORRØNA 		
	METAWEAR	<b>cotonea</b>
UNDER THE CANOPY		
ARMEDANGELS	<b>mini rodini</b>	
	LOOMSTATE	<b>portico</b>
		
		
<b>patagonia®</b>	TENERITA	
		

## ORGANIC FAIR TRADE

1	 BOLL & BRANCH™
2	<b>coop</b>
3	<b>cotonea</b>
4	 Dibella <i>longlife textiles</i>
5	
6	ARMEDANGELS
7	COYUCHI
8	
9	
10	

**Top 10 By Volume:** Top 10 brands/retailers using organic cotton in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of organic cotton in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of organic and conventional cotton consumption. This category excludes companies who are using 100 per cent organic cotton • **100% Club:** Brands/retailers using 100 per cent organic cotton in their cotton portfolio • **Organic Fair Trade Top 10 By Volume:** Top 10 brands/retailers using organic fair trade cotton in 2016 by MT consumption. • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.

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# PREFERRED COTTON SUPPLY LANDSCAPE

Photo: Fairtrade International

## PREFERRED COTTON

Initiative/Supplier	Objective	Product Type	Investment Model	Production Locations	Volume fiber (MT)	Growth Expectation	Standard	LCA
Organic	Sustaining the health of soils, ecosystems and people	Organic Cotton	Prices agreed between grower and buyer or traded in the market often with a price differential	Argentina, Benin, Brazil, Burkina Faso, China, Egypt, India, Kyrgyzstan, Mali, Pakistan, Peru, Senegal, Tajikistan, Tanzania, Thailand, Turkey, Uganda, USA	107,154	varies with region	IFOAM Family of Standards	✓
Fair Trade	Ensuring income security and community development	Fair Trade Cotton	Fixed minimum price and social premium	India, Kyrgyzstan, Senegal, Uganda	43,481	n/a	Flocert	X
CmiA	Sustainable African cotton for a global textile industry	CmiA Cotton	Volume based license fee Donor funding Extension delivery partner	Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Mozambique, Uganda, Tanzania, Zambia, Zimbabwe	280,814	—	Initiative Standard	✓
BCI	To transform the market by making Better Cotton a responsible mainstream commodity	BCI Cotton	Membership fee Donor funding Growth & Innovation Fund	Brazil, Burkina Faso, China, India, Israel, Madagascar, Mali, Mozambique, Pakistan, Senegal, South Africa, Tajikistan, Turkey, USA	1,302,000 (2,232,186 eq)	↑	Initiative Standard	X
CottonConnect	To create more sustainable, traceable cotton	REEL	Capacity building projects and value chain services covered by brand	India, China, Peru	12,155	n/a	Code of Conduct	X
Sustainable Cotton Project	Cleaning up Cotton In California	Cleaner Cotton	Price differential to producers	USA	754	n/a	Initiative Standard	X
Bayer	To create a more sustainable American landscape	e3	Contract growing	USA	578,000	n/a	Initiative Standard	X
Cotton Australia	Producing Australian cotton according to best practice	myBMP	Grower support	Australia	60,000	↑	Initiative Standard	X

## RECYCLED COTTON (rCotton)

Supplier	Product	Category	Product Type	Feedstock Type	Production Process	Production Locations	Volume (MT)	Growth Expectation	Standard	LCA
Gebrüder Otto	recot <sup>2</sup>	yarn	rCotton	pre consumer	mechanical	Germany	no data	no data		
GIOTEX	Giotex™	fiber	rCotton	pre consumer	mechanical	Mexico	no data	↑	GRS	
Hilaturas Ferre	Recover®	yarn	rCotton	pre and post consumer	mechanical	Spain	5,657	↑	Oekotex Standard 100 Class 1, GRS	✓


# PREFERRED PLANT FIBER NOTICEBOARD

 **↑13%** 2015 USA ORGANIC NON-FOOD SALES (including textiles and apparel)  
— Organic Trade Association

Cotton 2040 seeks to drive change through collaborative action to scale up and overcome barriers to sustainable cotton uptake across multiple standards, so that more sustainable cotton becomes a mainstream commodity. Focus on building demand, traceability, and resilience.




Photo: C&A Foundation

 **52%** participants who completed the pCottons module in the PFM Benchmark have SMART Targets




Belgian linen company, Libeco, produces GOTS certified organic linen, and has now achieved Cradle to Cradle certification.

Rodale Institute is conducting a four-year research project focusing on utilizing industrial hemp as a cash or cover crop to address weed pest issues and enhance soil health in organic agriculture.




Textile Exchange releases:  
- Quick Guide To Organic Cotton  
- OCRT "Out of the Box" Interview Series, sponsored by Organimark and produced by TVPP



**OCA**  
ORGANIC COTTON ACCELERATOR

OCA is gearing up to scale its interventions in sourcing practices and seed breeding. The use of technology is being explored to enhance traceability and different financial products are being piloted to lower the barriers to accessing finance across the supply chain.

Photo: Tchibo

The Smallholder Farmers Alliance (SFA), with the support of global outdoor brand Timberland, is reintroducing organic cotton to Haiti.

The Initiative for Smallholder Farmers (ISF) is exploring the feasibility of a supply chain financing facility with the Rockefeller Foundation that would incentivize suppliers to meet global sustainability standards of global buyers through low-cost post-shipment financing. ISF will develop and test a series of financing concepts directly with global multinational supply chain partners.




The Aid by Trade Foundation (AbTF) and GFA Consulting Group (GFA) set up Cotton House Africa (CHA). The CHA is an open access, web-based knowledge platform designed to support capacity building and the sourcing of African sustainable cotton. CHA is "standards neutral".

Photo: CmiA

 **30 PER CENT OF AFRICA'S COTTON PRODUCTION MEETS RECOGNIZED SUSTAINABILITY STANDARDS.**

Includes CmiA, Fair Trade, Organic and Better Cotton Initiative. (Cotton House Africa)

## INSIDER SERIES

20

The **Chetna Coalition** works together to grow the value of their fiber and the sustainability of their farming community. This year, the ChetCo model is ready for replication. Nanda Kumar, CEO, Chetna Organic and Rhett Godfrey, Founder of the Chetna Coalition tell us how to grow sustainable cotton coalitions [here](#).



Photo: Chetna Coalition

## INSIDER SERIES

21

With ECOfashion pioneer Marci Zaroff at the helm, **MetaWear** is determined to revolutionize the fashion industry. Find out more [here](#).



Photo: MetaWear



Photo: MetaWear

## INSIDER SERIES

22

In 1994 **Patagonia** made a stand against chemically intensive agriculture and went organic. Now the company is taking the “remove the bad” to a new level of “enhance the good”, and are investing in regenerative agriculture. Phil Graves, Senior Director of Corporate Development, explains the company's enthusiasm for the topic [here](#).



Photo: Tchibo

## INSIDER SERIES

23

German brand **Tchibo's** highlight of 2016 was its cooperation with the Indian Appachi ECO-LOGIC project, which led into their first ECO-LOGIC ladies wear collection that was launched in March 2017. They were inspired by the strength, self-determination and independence of the farmers involved in the project. Tchibo's Nanda Bergstein explains more [here](#).



Photo: Tchibo

## INSIDER SERIES

24

UK Brand **Fat Face** made a commitment to using only sustainable cotton by 2020, and were delighted when the buying teams took on the challenge and extended it. Now their menswear range will include some hemp blends in coming seasons and they are looking at responsible wool, sustainable leather, preferred viscose and recycled materials for our polyester and nylon blends, especially in swimwear. Jane Blacklock from Fat Face tells us the story [here](#).

## INSIDER SERIES:

25

Recycled cotton is building its presence in the market, with **Recover** one of the leading brands. It is forecast that up to 16+ percent of virgin cotton can be recovered, based solely on the volume of wastage from cutting. It's a matter of mixing different levels of recycled product, as Alfredo Ferre, CEO – Director General of Hilaturas Ferre/Recovertext explains [here](#).



Photo: Recover

## INSIDER SERIES

26

**Terre De Lin** is a cooperative, operating since 1939, specializing in the production of textile flax (linen) from the seeds to the fiber. Thierry Goujon, CEO, explains the coops unique involvement in all the upstream activities of flax production including breeding, seed production, fiber scutching and hackling, and marketing shive by-products. Find out more [here](#).



Photo: Terre De Lin

## INSIDER SERIES

27

President of **Hemp Fortex**, Hongliang Ding, provides insight into the romance of hemp from years gone by, and tells us of the renewed interest as more companies discover the quality, as well as the sustainability of this versatile fiber. Find out more [here](#).



Photo: Outerknown

## INSIDER SERIES

28

There are early signs of a bright future for hemp fiber; it's easy to grow without agrichemicals and water, and it blends beautifully with organic cotton. Find out more from Shelly Gottschamer about **Outerknown** [here](#).



Photo: HempAge



Photo: HempAge

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## SPOTLIGHT: REINTRODUCING COTTON TO HAITI

Hugh Locke, President, Smallholder Farmers Alliance



The Smallholder Farmers Alliance (SFA), with the support of global outdoor brand Timberland, is reintroducing cotton to Haiti after a 30-year absence. Once the country's fourth largest agricultural export, the first step in bringing it back was made in August with the launch of field trials to test cotton varieties to see which will be best suited to smallholder organic cultivation in Haiti.

Over the past seven years the SFA has developed a model by which Haitian smallholder farmers earn seed, tools and training to improve their crop yields and lower their operating costs by planting trees—6.5 million to date. The result is more food being grown, higher household incomes and a tangible environmental benefit through organic cultivation combined with reforestation.

“By applying our basic model to growing organic cotton with smallholder members, we will be charting new territory for sustainable cotton production, as farmers will plant trees to earn inputs and gain access to export markets.” Hugh Locke, President of the SFA.

*Photo: The reintroduction of cotton to Haiti began with seeds planted in SFA field trials by (left to right) Thony Thomas, smallholder farmer; Atlanta McIlraith, Timberland; Pierre Marie Du Mény, Haitian Minister of Commerce and Industry; Hugh Locke, SFA; Timote Georges, SFA; Nerlande Dautarn, smallholder farmer; Rémillot Léveill , noted agronomist who is known as the “father of cotton” in Haiti. The tree seedlings, transplanted elsewhere after this ceremony, symbolize the unique connection being made between trees and cotton in the SFA model. Photo credit: SFA/Thomas Noreille.*

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## SPOTLIGHT: C&A INSTITUTE IN LATIN AMERICA

Margarida Curti Lunetta, Programme Manager Sustainable Raw Materials, Instituto C&A

The expansion of the C&A Foundation's program in Latin America began in Brazil, where since 2016 the focus has not only been on organic cotton, but also in the conversion of smallholder farmers to BCI.

The first initiative with organic cotton aimed at continuing the work performed by current groups that make use of agroecological intercropping and adding new groups with active participation of women, stabilizing and enhancing cotton supply to the fair trade market through the replacement of annual varieties of cotton with the Moc  cotton, which is semi-perennial and drought-resistant. Besides that, this initiative supports farmer associations that are responsible for the participatory certification system (OPACs).

C&A Foundation is also supporting the Solidaridad Network to implement a six-year programme. The main goal is to develop a sustainable and more profitable production model for smallholders and attract producers back to the cotton cultivation in Bahia and Minas Gerais. Going beyond the replacement of conventional cotton with BCI cotton, the goal is that this smallholder production and management model can be more resilient to severe climate condition of the semi-arid region, ensuring real quality of life to smallholders and their families, and being replicable in other regions in Brazil and in other countries, especially Africa.

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“ There are many ways that we, as businesses, can support the organic cotton sector and we are doing so through new sourcing practices, through participation in multi-stakeholder working groups and through innovation. On the innovation side, Kering has been developing platforms to help finance new models for organic cotton and our work with the Coalition for Private Investment in Conservation (CPIC) is an example where we hope to create best practices for investment and sourcing methods to provide fair financing throughout the supply chain, all the way back to the farmer.

Christine Goulay,  
Sustainable Sourcing Specialist, Kering

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## SPOTLIGHT: COTTONCONNECT'S REEL COTTON

REEL Project updates provided by Amol Mishra

REEL (Primark – Gujarat, India): CottonConnect has successfully completed the first year of its sustainable cotton program with 4,012 female farmers in 2016-17, and has entered into the second year with an additional 1,000 female farmers spread across 40 villages in Surendranagar, Gujarat, India. This program involves agronomic training and training on sustainable livelihoods (health, education etc.) for a total of 10,000 female farmers over a six year period.

REEL (Mark's – Gujarat, India): After successfully completing two years of REEL Cotton farmer training with 500 farmers across four villages in Gujarat, the project has now entered the third and final year in 2017-18. The program involves compost pit distribution in addition to the agronomic training for the sustainable cotton program.

REEL (Whitbread – Rahim Yar Khan, Pakistan): CottonConnect started a REEL project in Pakistan this year with 1,600 farmers in the Rahim yar Khan district of the Punjab province across two blocks. The program focuses on agronomic intervention apart from gender empowerment activities - focused specifically on health, awareness on education in addition to microfinance linkages and skill development.

REEL (Mark's and John Lewis - Hebei and Xinjiang, China): 500 farmers in Hebei, China are being trained on the sustainable cotton program for Mark's. The REEL sustainable cotton training program was started in 2017 with support from John Lewis, and runs from 2017 to 2019 to help 200 conventional Uyghur farmers convert to become REEL Cotton farmers, adapt to more sustainable cotton production and improve their livelihoods. In year one, the REEL Cotton program training mainly focuses on cotton production (or producer technology training), with a further three training modules and three learning groups conducted in the field in 2017.

REEL (CottonConnect funded project - Meiktila, Myanmar): CottonConnect has just started a REEL sustainable cotton training program in Meiktila, Myanmar with 200 farmers in 322 village tracks in a cotton growing area close to 400 acres. Project visits and training for the program has just started, and the project is expected to produce ~256 MT of seed cotton or ~85 MT of cotton lint upon completion.

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## SPOTLIGHT: myBMP, COTTON AUSTRALIA

Brooke Summers, Project Lead–Cotton to Market, Cotton Australia

The Australian cotton story has a rich farming history that has led to an efficient, sustainable industry producing some of the highest quality, highest yielding cotton in the world – using fewer natural resources than ever before.

The industry's efforts are underpinned by its on-farm cotton certification standard called myBMP (Best Management Practices). Over 75 per cent of farms are participating in the program, with 15 per cent achieving full certification last year.

To reach this, myBMP growers must comply with over 400 checklist items across 10 modules including soil health, water management, natural assets, pest management, energy efficiency and worker health and safety. The program is implemented by growers with support from industry extension teams and is supported by a strong research and development culture that has seen over \$200 million invested in the last 24 years.

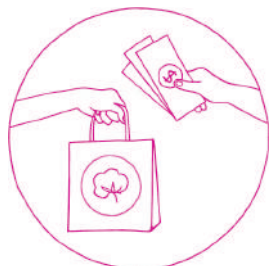
The Australian cotton industry is committed to continuous improvement and in 2014 released the Australian Grown Cotton Sustainability Report to show progress against over 100 sustainability indicators. This report continues the industry's track-record in open and independent reporting on its environmental credentials.

myBMP standards have also been benchmarked against the Better Cotton criteria, and so Australian cotton growers achieving full myBMP certification can also participate in BCI.

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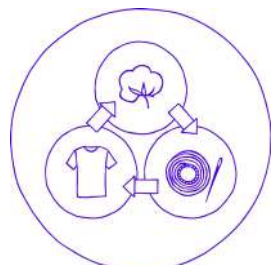


## SPOTLIGHT: COTTON 2040



Cotton 2040 seeks to drive change through collaborative action to scale up and overcome barriers to sustainable cotton uptake across multiple standards, so that more sustainable cotton becomes a mainstream commodity.

Convened by Forum for the Future with support from the C&A Foundation, the initiative brings together leading international brands and retailers, cotton standards, existing industry initiatives and other stakeholders across the supply chain.



Through research and close consultation with many stakeholders, we identified a set of priority areas for action and some working groups have now started to take action. We share the highlights across the various areas below.

### Building demand for more sustainable cotton

Aim: to drive demand for sustainable cotton, by enabling professionals in the fashion and apparel industry to more easily develop and implement cotton sourcing strategies, particularly ones involving more than one standard.

- We are working on a cross-standard sustainable cotton sourcing guide which will enable brands and retailers to gather vital information to develop a sustainable



Charlene Collison, Associate Director of Sustainable Value Chains and Livelihoods, Forum for the Future

cotton sourcing strategy. The standards, brands and retailers and others are working in partnership with us to develop and test it.

- A beta version of the guide will be launched in October at the Textile Exchange conference. We will then run a piloting process with brands, retailers and others in the supply chain who can use the guide internally in return for a small contribution towards covering the development costs.

The active working group includes brands and retailers Marks & Spencer and Target, industry standards BCI and CMiA, organic standards (represented by Textile Exchange), the Fairtrade Foundation, industry initiatives such as CottonConnect, IDH, Cotton Australia, Proudly Made in Africa and Organic Cotton Accelerator as well as the Centre for Sustainable Fashion at London College of Fashion, UAL.

### Traceability

Aim: To build greater traceability, visibility and transparency throughout the cotton value chain and across standards.

- We conducted a scoping study to verify and deepen analysis of what specific collaborative actions would improve traceability and make it more accessible.

- We've built a "cotton traceability roadmap," setting out key steps, options and priorities for building greater visibility through the cotton value chain, and thus contributing to mainstreaming sustainably sourced cotton. This will be reviewed with the cotton standards with the intention of using it as a basis to stimulate collaborative action involving brands and retailers in 2018.

### Upskilling for resilience

Aim: to create a cross-industry forum that will collectively address the systemic challenges to empowering and building resilience in cotton farming communities.

- We will shortly be announcing more detailed plans for a high-level roundtable to develop this forum, made possible with funding from Burberry.

We are inviting brands, retailers and other stakeholders who have serious interest in being involved in a unique cross-industry initiative on this issue to contact us to discuss participation in the roundtable event.

Further information is available here: [Cotton 2040: Making sustainable cotton the mainstream choice](#)

# PREFERRED MAN MADE CELLULOSICS

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Photo: Lenzing

## WHAT'S HAPPENING IN PRODUCTION

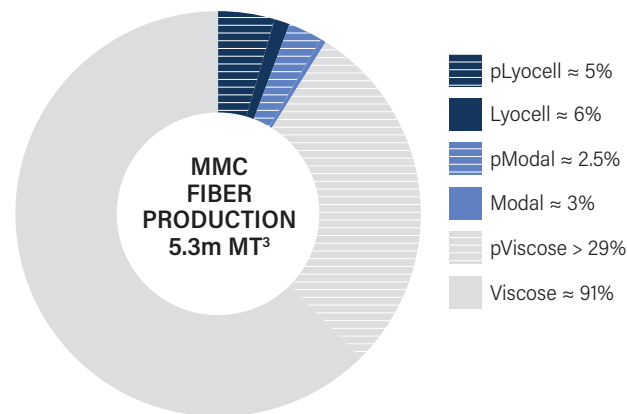
Production of man made cellulosic fibers (MMCs) was estimated at 5.3 million MT in 2016<sup>1</sup>.

**Lyocell makes up an estimated six per cent share of MMC production, with five per cent of this from certified forests. Modal makes up an estimated three per cent of the MMC production, with 2.5 per cent of this certified at forest level.<sup>2</sup>**

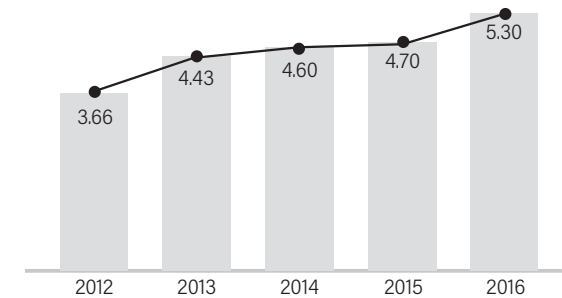
Viscose makes up the remaining 91 per cent of the MMC production.

**It is estimated that at least 29 per cent of this viscose is sourced sustainably.**

Primary producers of preferred MMC includes Lenzing and Aditya Birla, both of which are certified to FSC and/or PEFC and are in compliance with the CanopyStyle Audit.



MMC PRODUCTION TREND (million MT)<sup>4</sup>



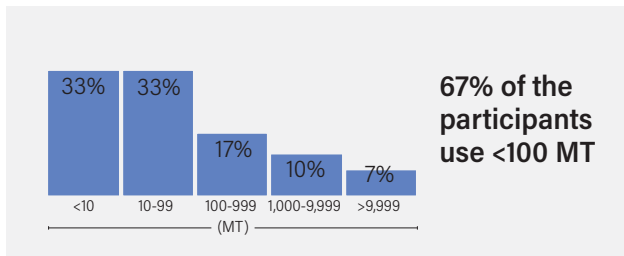
Production of MMCs has been steadily increasing. 2012 to 2013 saw a double-digit growth at 21 per cent, and now 2015 to 2016 again sees a double-digit growth of 13 per cent due to the increase in capacity of Asian producing countries.

- [Lenzing Investor Presentation 2017](#)
- Estimation of MMC Fiber Production Breakdown by Textile Exchange based on supplier survey and desktop research on suppliers.
- [Lenzing Investor Presentation 2017](#)
- [Lenzing Investor Presentation 2012 - 2017](#)

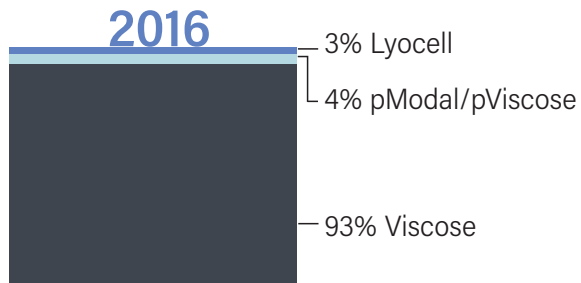
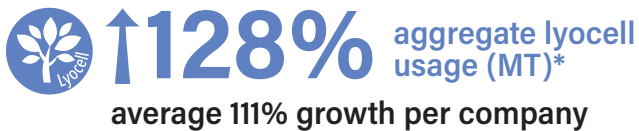
## WHAT WE LEARNED ABOUT MARKET DEMAND FROM THE PFM BENCHMARK



**24,332 MT**  
preferred MMC fiber used



Tracking the cohort of participants for 2015-16, we find that:



\*Preferred MM Cellulosics year-on-year growth is not possible this year due to the change in pMMC modules introduced in 2016

Almost half (49 per cent) of the PFM Benchmark participants completed one or more of the preferred MMC modules for 2016, with

**the total preferred MMC uptake amounting to just 24,332 MT.**

Of those who reported, 33 per cent are just beginning to adopt preferred MMCs, using less than 10 MT. 33 per cent are using less than 100 MT and only seven per cent are consuming more than 9,999 MT. Similar to recycled polyester, the low number of high users renders the preferred MMCs market dependent on the few large scale users.

The preferred MMCs modules changed significantly between 2015 and 2016 with the modularisation of lyocell, preferred modal and preferred viscose. Due to this, it is not possible to report on the growth of the overall preferred man made cellulose usage. Tracking the cohort of participants who reported lyocell uptake between 2016 and 2015 showed that

**lyocell recorded a triple digit (128 per cent) growth in aggregate usage.**

Given that only seven per cent of the population are high volume users and that the average growth rate per company is 111 per cent, this suggests that comparatively many more smaller sized companies are adopting lyocell in their MMC mix.

The reported aggregate consumption and share of preferred MMCs indicates that the benchmark population is currently using three per cent lyocell, four per cent preferred modal and viscose versus a 93 per cent conventional viscose which echoes the current production landscape.

It is estimated that 7,982 ha of certified forest contributed to the aggregate usage of 23,332 MT of preferred MMCs — an area that would have otherwise not been sustainably managed in conventional viscose production.

28 per cent of the participants who completed one or more of the preferred MMC modules have a SMART target.

“ There are two major focus points to identify sustainable fibers: responsible raw material sourcing and clean production technologies. Therefore, one of Lenzing’s key strategic focus areas for sustainability is responsible sourcing of our most important raw materials in cellulose fiber production, wood and pulp. We fully support the CanopyStyle pathway and are committed to supporting Canopy in their valuable work to lead the industry into protecting our global ancient and endangered forests. Clean technology is the second pillar. Apart from our continuous improvement process “Heartbeat”, which is continuously analyzing and improving our production processes, Lenzing has developed a mid-term vision of a voluntary and ambitious Single Lenzing Group Standard for our global production sites which will ensure that all our production plants are compliant with the EU ecolabel regulations.

**Robert van de Kerkhof**  
CCO Lenzing Group

# PREFERRED MMCs DASHBOARD

	Standards & Certification			Feedstock					Factory	
	Feedstock	CoC + Processing		Sustainable Forestry	Reduced Toxicity	Water	Climate	People	CoC	Processing
<p>pMMC from Natural Sources</p> <p>Lyocell</p> <p>Preferred Modal</p> <p>Preferred Viscose</p>				✓	✓	⊙	⊙	✓		✓
				✓	✓	⊙	⊙	✓		✓
				✓	✓	⊙	⊙	✓		✓
<p>pMMC from Recycled Sources</p> <p>Recycled Lyocell (i.e. lyocell from cotton waste)</p>									✓	
				Limited	✓	✓	✓	✓	✓	✓

⊙ Life Cycle Assessment

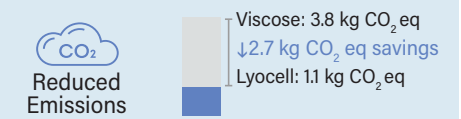
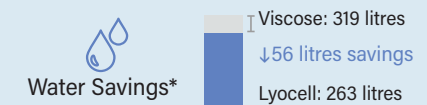
## SDG MAPPING: KEY INDICATORS



▶ Full SDG Mapping is under development

⊙ SPOTLIGHT: LYOCCELL LCA

For every 1 MT of lyocell:



■ Viscose Asia ■ Lyocell

▶ See: Full LCA Analysis on Lyocell

\*Water savings refer to blue water use.

## TOP 10 BY VOLUME

1	
2	<b>INDITEX</b>
3	
4	M&S
5	
6	
7	<b>ASOS</b>
8	
9	<b>LINDEX</b>
10	EILEEN FISHER

## RACE TO THE TOP

1	EILEEN FISHER
2	STELLA MCCARTNEY
3	
4	
5	<b>LINDEX</b>
6	MANTIS WORLD
7	
8	
9	
10	<b>TARGET</b>

## 100% CLUB

<b>STANLEY/STELLA</b>	<b>patagonia</b>
	
<b>mini rodini</b>	
<i>hessnatur</i>	OUTERKNOWN
ARMEDANGELS	
	
	
	METAWEAR

**Top 10 By Volume:** Top 10 brands/retailers using preferred MMC (lyocell, preferred modal and preferred viscose) in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of preferred MMC in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of preferred and conventional MMC consumption. This category excludes companies who are using 100 per cent preferred MMC • **100% Club:** Brands/retailers using 100 per cent preferred MMC in their cotton portfolio • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.



# LYOCELL LEADERBOARD

Photo: Lenzing

## TOP 10 BY VOLUME

- 1 **INDITEX**
- 2 **H&M**
- 3 **M&S**
- 4 **C&A**
- 5 **LINDEX**
- 6 **EILEEN FISHER**
- 7  **Tchibo**
- 8 **ALDI**
- 9 **ARMEDANGELS**
- 10 **TOAD&CO**

## TOP 10 BY GROWTH

- 1 **C&A**
- 2 **ARMEDANGELS**
- 3  **Tchibo**
- 4 **H&M**
- 5 **INDITEX**
- 6 **EILEEN FISHER**
- 7 **STANLEY/STELLA**
- 8 **WILLIAMS-SONOMA, INC.**
- 9 **LINDEX**
- 10 **beart positive.**

## RACE TO THE TOP

- 1 **TOAD&CO**
- 2 **ARMEDANGELS**
- 3 **KREI**
- 4 **LINDEX**
- 5 **MANTIS WORLD**
- 6 **STANLEY/STELLA**
- 7 **EILEEN FISHER**
- 8 **COUNTRY ROAD GROUP**  
COUNTRYROAD MIMCO POLITIX TRENER Y WITCHERY
- 9 **skunkfunk**
- 10 **CONTINENTAL**

## 100% CLUB

- beart positive.**
- FJALL RÄVEN**
- METAWEAR**
- OUTERKNOWN**
- patagonia**
- TERRA**

**Top 10 By Volume:** Top 10 brands/retailers using lyocell in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of lyocell in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of lyocell and conventional viscose/rayon consumption. This category excludes companies who are using 100 per cent lyocell • **100% Club:** Brands/retailers using 100 per cent lyocell in their cotton portfolio • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.

# PREFERRED MMCs SUPPLY LANDSCAPE

Photo: Evrnu



Supplier	Product	Product Type	Feedstock Type	Feedstock Standard	Production Locations	Volume (MT)	Growth Expectations	Voluntary Standard	LCA
Acegreen	GreenCell	filament	no specified		Taiwan				
Birla Cellulose	Birla Excel	fiber	eucalyptus	FSC	India	70,000	↑	OekoTex 100, USDA Biobased Certification	✓
Baoding Swan Fiber	ORICELL	fiber	not specified		China				
China Populus Textile	lyocell	fiber, yarn, fabric	bamboo		China				
Lenzing	TENCEL®	fiber	eucalyptus, southern pine, acacia, spruce, birch, beech, aspen, maple	FSC, PEFC	Austria, Great Britain, USA	232,000	↑	USDA Biobased, OEKO-TEX Standard 100 Product Class I; EU Ecolabel	✓
Monocel	Monocel®	yarn	bamboo		China	in dev't		SGS	



Supplier	Product	Product Type	Feedstock Type	Feedstock Standard	Production Locations	End-of-Life cyclability	Volume (mt)	Growth Expectations	Voluntary Standard	LCA
Birla Cellulose	Birla Modal	fiber	Eucalyptus, Beech, Spruce/Pine, Maple, Aspen	FSC, PEFC, SFI	India, Thailand	biodegradable	34,000	↑	OekoTex 100, USDA Biobased Certification	✓
Lenzing	Lenzing Modal®	fiber	primarily beech (= 90%)	PEFC, FSC	Austria	recyclable and biodegradable	110,000		USDA Biobased; OEKO-TEX Standard 100 Product Class I	✓
Lenzing	Lenzing Modal® Color	fiber	primarily beech (= 90%)	PEFC, FSC	Austria	recyclable and biodegradable			USDA Biobased; OEKO-TEX Standard 100 Product Class I; FDA-approved pigments	✓



Supplier	Product	Product Type	Feedstock Type	Production Locations	Growth Expectations	Voluntary Standard	LCA
Evrnu	EvrnuFiber™	fiber	post consumer	USA	↑	OekoTex 100, USDA Biobased Certification	✓
re:newcell	re:newcell	dissolving pulp	pre and post consumer	Sweden	↑	USDA Biobased; OEKO-TEX Standard 100 Product Class I	✓
Lenzing	Refibra™	fiber	pre consumer (post consumer as goal)	Austria		USDA Biobased; OEKO-TEX Standard 100 Product Class I; FDA-approved pigments	✓
Orange Fibre	Orange Fibre	yarn + fabrics	citrus juice by-products	Italy	↑	USDA Biobased; OEKO-TEX Standard 100 Product Class I	✓

# PREFERRED MMC NOTICEBOARD

**LYOCELL CONSUMPTION**  
 ↑128%

— PFM Benchmark



The Water Footprint Network release study on the sustainability impacts of viscose production.

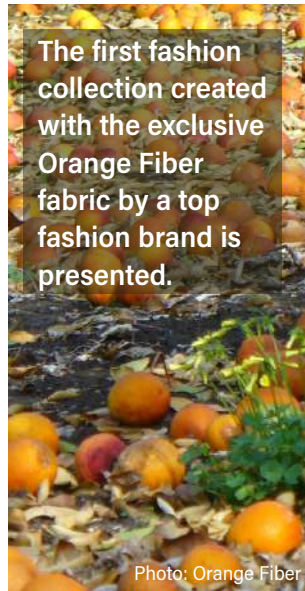


10 COMPANIES CONTROL ≈ 70% OF GLOBAL VISCOSE PRODUCTION

CLEAR OPPORTUNITY FOR RAPID & TRANSFORMATIONAL CHANGE — Dirty Fashion Report



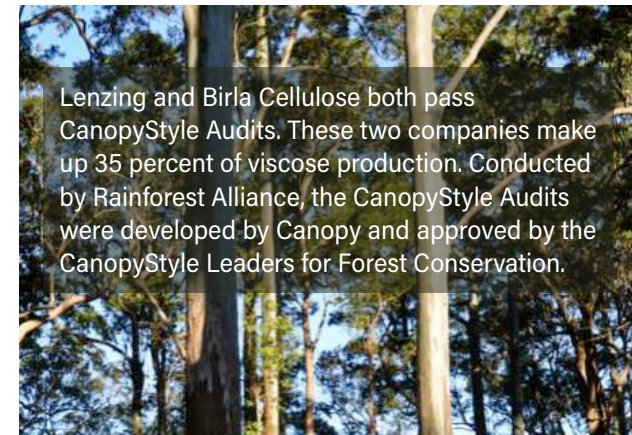
**120 million** trees are logged every year for textiles and apparel — Rainforest Action Network




The first fashion collection created with the exclusive Orange Fiber fabric by a top fashion brand is presented.

Photo: Orange Fiber

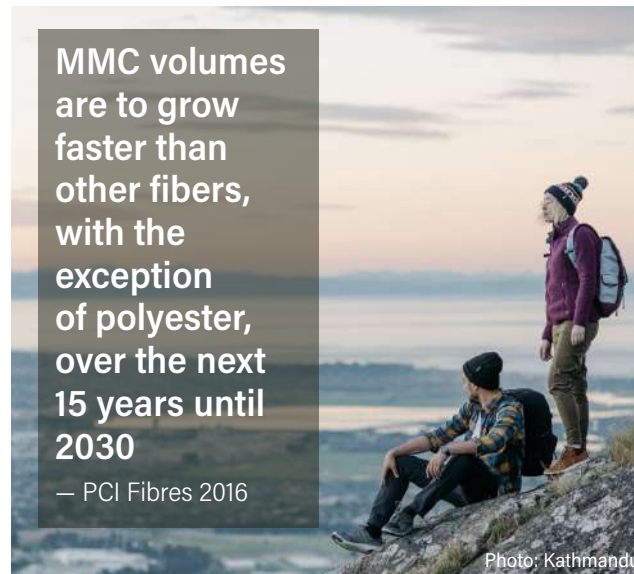
Progress on use of forest alternative feedstocks (such as textile and food waste) is being made by Evrnu, renew:cell and Orange Fibers.



Lenzing and Birla Cellulose both pass CanopyStyle Audits. These two companies make up 35 percent of viscose production. Conducted by Rainforest Alliance, the CanopyStyle Audits were developed by Canopy and approved by the CanopyStyle Leaders for Forest Conservation.



**28%** participants who completed one or more preferred MMC modules in PFM Benchmark have SMART Targets.



MMC volumes are to grow faster than other fibers, with the exception of polyester, over the next 15 years until 2030

— PCI Fibres 2016

Photo: Kathmandu



Both Lenzing and the Aditya Birla Group have earned the US Department of Agriculture (USDA) Certified Biobased Product label.

Photo: Lenzing



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## SPOTLIGHT: INDITEX AND LENZING CLOSING THE LOOP

[Inditex's Annual Report](#) (pages: 107 - 111)

Inditex works with Lenzing to develop the REFIBRA™ Lyocell, a new fiber made from recycled cotton and wood sourced from sustainably-grown forests.

Inditex has created a circular system that allows the company to hand over their textile scraps, which Lenzing then turn into new fiber REFIBRA™.

Lyocell converts the scraps into a resource produced using the same process as TENCEL® Lyocell, following stringent environmental standards while maintaining its natural and original state.



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## SPOTLIGHT: WHY TARGET CHOSE LYOCELL SHEETS & TOWELS

The relative comfort and delight our guests find with lyocell products is a great fit with our Fieldcrest and Threshold product lines, meeting guest demand for high-quality and affordable home goods.

It is a great breathable material that wicks away moisture, and blending it with cotton enhances the durability, color and feel.

Investing in sustainability and using natural resources responsibly is an important way we help protect the planet and support our communities.

Last Fall, we introduced our responsible sourcing aspirations, including a commitment to sourcing wood-based products from well-managed forests. In the meantime we have shared the details of our new forest products policy.

Along with the new policy, we announced our first goal, focused on several of Target's owned brands: SPRITZ, up&up, pillowfort, Cat&Jack, THRESHOLD and SMITH&HAWKEN.



## SPOTLIGHT: MANTIS WORLD

Prama Bhardwarj, Owner and Founder, Mantis World

Since 2015 we have added three styles to our collection that are made from 100 per cent TENCEL® by Lenzing. Besides their obvious eco-credentials, these garments also have an amazing drape, smoothness and hand-feel, which our customers love.

We are a B2B company, so we sell t-shirts on to various brands or merchandising companies who then decorate them and sell them to the end customers. In that way, we enable lots of smaller companies to have access to more sustainable fibers, because the minimum order quantities at the factories would usually be too high for them. They, in return, make these products visible to a broad customer base and thereby spread the sustainability message to a big audience.

Last year we started working with Canopy towards a supply chain free of viscose from endangered forests.



Photo: MANTIS WORLD



Photo: MANTIS WORLD

## INSIDER SERIES

30

By using existing textile production practices in partnership with leading manufacturers and brands, **EVARNU** is converting waste into pristine new fiber and beautiful new textiles. CEO and co-founder Stacy Flynn shares a progress report [here](#).

## INSIDER SERIES

31

Kristin Heckmann, Head of CSR at **Hessnatur** tells us how the company expanded on their pioneering work in sustainability and natural fibers, to incorporate Lenzing's Modal Edelweiß, a man made cellulosic, into their fashion collections [here](#).

## INSIDER SERIES

32

Viscose is an important part of **Stella McCartney**'s raw material choice. They are proud to say that all of the viscose they use comes from sustainably managed and certified forests in Sweden, or sources that have been verified to be free from ancient and endangered forests. Claire Bergkamp tells us more [here](#).

## INSIDER SERIES

33

**Orange Fiber** is an Italian company founded in 2014 by Adriana Santanocito and Enrica Arena that creates sustainable fabrics from citrus juice as a by-product. Orange Fiber s.r.l is headquartered in Catania, Sicily, and was awarded €150,000 as the winner of Global Change Award by the H&M Foundation. Read more details [here](#).



Photo: Orange Fiber



Photo: STELLA MCCARTNEY

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## SPOTLIGHT: CANOPYSTYLE

### Exciting Momentum for Forests and Communities

The CanopyStyle initiative unites international fashion brands, viscose producers and not-for-profit Canopy in an effort to ensure MMC fibers and fabrics are no longer made from ancient and endangered forests. During the past year, CanopyStyle has built on its early momentum to be described as moving the dial faster than any other environmental issue that the fashion industry is currently working on.

### Working its way through the supply chain

Launched in 2014, the CanopyStyle initiative now harnesses the purchasing power of more than 100 clothing brands, retailers and designers, totaling over US \$115 billion in annual revenue. They have committed to stop sourcing from the world's ancient and endangered forests, support the development of sustainable fabrics made from recycled clothing and straw, and advance conservation in key forest landscapes such as Indonesia's rainforests, the Canadian Boreal and the Amazon.

Brands' commitments and their work with Canopy have in turn resulted in viscose producers that represent 75 per cent of global viscose production making similar commitments to eliminate their use of endangered forests.

The world's two largest producers, Lenzing and Aditya Birla, have already undergone a rigorous third-party audit conducted by Rainforest Alliance and developed by Canopy. The findings of these completed audits are enabling CanopyStyle brands to assess what level of

risk there is of their fabrics originating from ancient and endangered forests or controversial sources.

At the present time, 25 per cent of the global viscose supply is audited to low risk of being sourced from ancient and endangered forests or controversial fiber.

In addition to the audits, Canopy will update its Hot Button Issue in early Fall 2017. The Hot Button Issue assesses the world's top rayon-viscose producers on their progress against 24 environmental criteria. The tool is easy for brands to use and provides useful feedback to viscose producers on their progress towards being more sustainable.

### The Runway to Greener Fashion

Building on the momentum to date, a new 2020 strategic plan has been developed by Canopy and its CanopyStyle brand partners. This plan will bring greater focus to traceability and will make significant progress in advancing conservation solutions in a number of the world's Landscapes of Hope. Another key pillar of this 2020 CanopyStyle plan is kick-starting commercial-scale production of sustainable alternative fabrics. To that end, Canopy is catalyzing strong market demand for the development of closed loop fabrics with brands, and engaging the investment community and traditional viscose producers about the potential of these new technologies. Parallel to these discussions, Canopy is also developing strong partnerships with cutting edge technology holders to facilitate these solutions coming to market sooner rather than later.

See: [The Hot Button Issue: CanopyStyle Update on Viscose Producers and Forests](#)



Photo: Canopy

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## SPOTLIGHT: WATER FOOTPRINT NETWORK

Research by Alexandra Freitas and Ruth Matthews, WFN - University of Twente

### The Water Footprint of Man Made Cellulosic Fibers

The Water Footprint Network (WFN), commissioned by the C&A Foundation, undertook an assessment of the sustainability issues associated with viscose production. The studies were limited in scope due to restrictions in data publicly available, and additional studies and research were recommended by the WFN to complement the findings.

#### Key Findings

- **Grey water is the largest contributor to the water footprint**

The grey water footprint (a water pollution metric) is the largest contributor to viscose's total water footprint in all stages of production, representing more than 90 per cent of viscose's total water footprint. This highlights the importance of focusing on adequate forest management practices and application of best available technologies and wastewater management practices at the industrial stages of pulp and fiber production.

- **Production processes impact footprint**

The water footprint of viscose varies significantly depending on the fiber type and the processes involved. In the production processes analyzed, the water footprint of viscose staple fiber is estimated at approximately 3,000 cubic meters per ton of yarn. However, when produced through batch washing



the footprint goes up to over 30,000 cubic meters when produced through continuous washing due to higher demands for chemical inputs.

An example is the recovery of by-products at the industrial stages. By-products, such as thick liquor and furfural can be recovered and turned into commercially valuable products or used for the mill's energy generation, significantly reducing waste and emissions and improving production efficiency.

Another example is the integrated production of pulp and fiber. This combined processing offers a number of environmental benefits. For example, the use of energy generated for pulp production being used in the production of fibers, or the fact that pulp does not have to be dried and transported to a different location for fiber production.

- **Largest producers are located in "sustainability hotspots"**

For the largest producers, all locations across each stage of viscose production are in a water "sustainability hotspot," indicating that either environmental flow requirements and/or water quality standards are being violated. This highlights the importance of producers addressing not only their direct operations and their impacts, but also the river basin context and work collectively towards sustainable water use in the regions in which they operate.

See: [Viscose Fibers Production: an assessment of sustainability issues](#)

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## SPOTLIGHT: FOREST STEWARDSHIP COUNCIL (FSC)



### Forests in Fashion with FSC certified cellulosic fibers

The textile industry is at a pivotal moment thanks to the increasing interest from fashion firms to source sustainable fibers. Encouraged by awareness campaigns such as Canopy's "Fashion Loved by Forests," the textile industry is fast moving toward certification by the FSC. Currently, over 60 of the top textile retailers have signed commitments to not source from primeval or endangered forests while at the same time considering FSC as the certification scheme that offers the best guarantees for responsible forest management. As a renewable raw material, wood is undeniably sustainable and constitutes a crucial part of the circular economy thanks to its recyclable nature. As the most credible standard certifying cellulosic fibers, FSC is playing an important role in this.

Responsibly certified forests are not only about timber or wood product extraction. Forests that are managed according to FSC's principles and criteria offer benefits that go beyond the raw material, such as ecosystem

services that include benefits for humans and nature alike and help in the preservation of biodiversity. Responsibly managed forests equally increase the safeguard of carbon storage, acting as efficient carbon sinks that help mitigate the effects of climate change. FSC enjoys the recognition of key international environmental organizations such as Greenpeace and WWF, and has become the preferred forest certification scheme for companies such as IKEA, Tetra Pak, and Kimberly Clark. In the fashion industry, H&M commits to sourcing 100 per cent from FSC certified suppliers.

### Seeking sustainable solutions for the fashion industry

Given the rapid growth in the use of tree fiber-based MMCs in manufacturing textiles, FSC is responding to the challenges of the fashion industry offering solutions to the global negative impact on environmental and social values related to cellulosic fiber production. Despite the complexity of the textile sector's global production networks, FSC is posed to be a front runner by supporting the fashion industry in achieving transparent

and traceable sourcing of renewable raw materials, protecting endangered forests as well as the people and animals who live in them. By tapping into the growing MMC market, FSC is making headway on their 2020 Global Strategy to expand both market and consumer bases. FSC is eager to be a part of the solution and to find areas of collaboration with the textile sector. At FSC's General Assembly in Vancouver, Canada in October 2017, FSC and Canopy will be co-hosting a textile side event showcasing a panel of key speakers, including NGOs, companies and FSC experts. FSC understands that if the fashion sector delivers on their promise towards more sustainable practices, despite its questionable environmental and social footprint, they will create the clearest path to an inspiring new business trend, one that can be followed by the rest of key industry players.

See: [FSC](#)

# PREFERRED ANIMAL FIBER

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## WHAT'S HAPPENING IN PRODUCTION

### WOOL

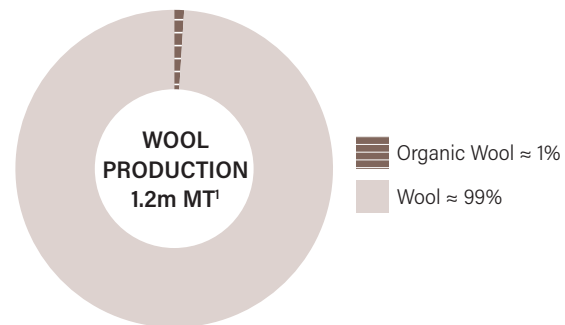
With an annual production of 1.2 million MT (2015)<sup>1</sup>, wool is key to the animal fiber segment.

### Responsible Wool

Though only released in 2016, The Responsible Wool Standard (RWS) is building momentum. There are now farms certified in Australia, New Zealand, South Africa, Uruguay, and the USA.

**The RWS is an independent, voluntary standard. On farms, the certification ensures that sheep are treated with respect to their Five Freedoms and also ensures best practices in the management and protection of the land. Through the processing stages, certification ensures that wool from certified farms is properly identified and tracked.**

We look forward to seeing significant growth in conversion at farm level over the coming years.



1. IWTO, Wool Production

2. OTA, Organic Wool Fact Sheet

3. cn-down.com

4. Transparency Market Research, Feather and Down Market

### Organic Wool

While niche, the organic wool market is fairly well established.

**Organic wool makes up approximately one per cent of global wool production and affects around 10.7 million sheep raised organically in 53 countries around the world, including China, the United Kingdom, Argentina, Italy and Greece.<sup>2</sup>**

Organic livestock management differs from conventional in that: sheep cannot be dipped in commonly used parasiticides; use of conventional synthetic hormones, medicines, and synthetic pesticides is prohibited, and sheeps must have access to the outdoors at all times.

### DOWN & FEATHERS

Annual global production of feathers and down was estimated at 250,000 MT in 2015 — less than a quarter of wool production — with 80 per cent coming from China. The market was valued at US \$4.9 billion in 2015 and is projected to reach US \$8.7 bn by 2024, expanding at a CAGR of 6.7 per cent<sup>4</sup> spurred by rising spending power and greater demand for luxury items such as comforters and bedding.

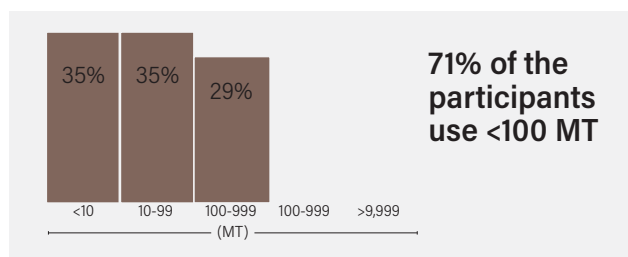
### Responsible Down (RDS) & Traceable Down (TDS)

Whilst it was not possible to estimate the size of down certified to the RDS or TDS, we can see a triple digit (126 per cent) growth in RDS certified facilities between 2015 to 2016, and a 54 per cent growth in aggregate usage by the participants of the PFM Benchmark survey.

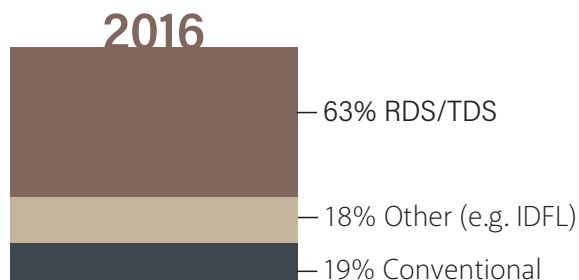
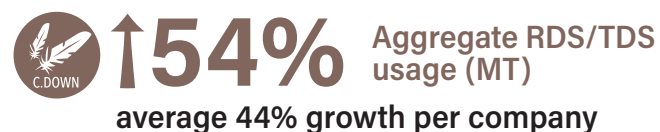
## WHAT WE LEARNED ABOUT MARKET DEMAND FROM THE PFM BENCHMARK



**1,927 MT**  
responsible/traceable down fiber used



Tracking the cohort of participants for 2015-16, we find that:



37 companies responded to the certified down module in the PFM Benchmark 2016 survey, and based on their responses we are able to gauge the market demand for responsible and traceable down.

46 per cent of the 37 participants are able to report on their uptake on certified down for 2016 and

**the aggregate consumption of certified down totaled 1,927 MT, of which approximately 95 per cent covered by RDS.**

Of those who reported, 35 per cent are using less than 9 MT, 35 per cent are using between 10 to 99 MT, and 29 per cent are using between 100 to 999 MT certified down a year.

**Tracking the cohort of participants who reported uptake between this and last year shows that aggregate certified down usage increased by 54 per cent.**

The reported uptake and breakdown of certified down portfolio shows that of all survey participants, 63 per cent are using RDS/TDS certified down, 18 per cent are using a transitional fiber such as IDFL and 19 per cent are using conventional. It is worth noting that this figure may be slightly skewed as a company's adoption of certified down is typically done in whole (i.e. either the company use wholly certified down or none at all). A mix of conventional and certified down use is typically done only as a transitional process.

While the feather and down market is not as large as other fibers, the impact on the number of birds affected is huge. It is estimated that 88.3 million ducks and geese are protected under the RDS/TDS based on the 1,927 MT feathers and down used, an increase on 2015 of over 40 million birds.

32 per cent of the participants who completed the certified down module have a SMART target.

“ At Columbia, we value ethical, sustainable manufacturing practices and are committed to assuring our partners share and practice these values. By joining the Responsible Down Standard (RDS), we are committed to sourcing 100 per cent responsible down for our entire global product line. \* By verifying and validating our entire natural down supply chain through RDS, we can ensure that from farm to final destination, our product meets the industry's animal welfare guidelines. In just three short seasons, we have sourced over 3.3 million units filled with responsible down. We will continue to work closely with our vendors and manufacturers to promote the importance of animal welfare and adhering to the standard.

\* excluding our Japan subsidiary

**Matthew Hoferlin**  
Director of Materials Research , Columbia Sportswear Company

# PREFERRED ANIMAL FIBERS DASHBOARD

Photo: European Outdoor Group

	Standards & Certification		Feedstock					Factory	
	Feedstock	CoC + Processing	Animal Welfare	Land Use	Toxicity	Climate	People	CoC	Processing
Preferred Wool	Organic Wool			✓	✓	✓	✓	✓	✓
	Responsible Wool			✓	✓	✓	✓	✓	✓
	Recycled Wool							✓	
	Responsible Cashmere	To Be Confirmed							
Preferred Down	Certified Down			✓	✓	✓	✓	✓	✓
	Recycled Down							✓	
Preferred Silk	Organic Silk			✓	✓	✓	✓	✓	✓
	Fair Trade Silk								
	Ahimsa Silk	To Be Confirmed							

## SDG MAPPING: KEY INDICATORS




▶ Full SDG Mapping is under development













# PREFERRED DOWN LEADERBOARD






## TOP 10 BY VOLUME

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

## TOP 10 BY GROWTH

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

## RACE TO THE TOP

1	
2	
3	
4	
5	

## 100% CLUB

**Top 10 By Volume:** Top 10 brands/retailers using certified down (i.e. TDS and RDS) in 2016 by MT consumption • **Top 10 By Growth:** Top 10 brands/retailers that have made the biggest increase in uptake of certified down in 2016 by MT consumption • **Race To The Top:** Top 10 brands/retailers who are closing the gap between their share of certified and conventional down consumption. This category excludes companies who are using 100 per cent certified down • **100% Club:** Brands/retailers using 100 per cent certified down in their cotton portfolio • The leaderboards are based on data submission to the Textile Exchange PFM Benchmark Program 2017.

# PREFERRED ANIMAL FIBERS SUPPLY LANDSCAPE

Photo: Allied Feathers & Down



## RESPONSIBLE / TRACEABLE DOWN

Supplier	Product	Feedstock	Standard	Production Locations
Allied Down & Feather	responsible down	duck/geese	RDS	USA
Downlite	responsible down	duck/geese	RDS	USA
Down Decor	responsible down	duck/geese	RDS	USA
Karl Sluka GmbH	responsible down	duck/geese	RDS	Germany
Kwong Lung Enterprise Co. Ltd.	responsible down	duck/geese	RDS	Taiwan, UK
Pan-Pacific Co., Ltd	responsible down	duck/geese	RDS	South Korea
PrimaLoft, Inc.	responsible down	duck/geese	RDS	China, USA
Downlite	traceable down	duck/geese	TDS	
Youngone Corporation in Seoul	traceable down	duck/geese	TDS	
Quang Viet Enterprise	traceable down	duck/geese	TDS	
Shen Gang Tungsang	traceable down	duck/geese	TDS	

See full list of companies certified to Responsible Down Standard (RDS) [here](#)→

Contact NSF for full list of companies certified to Traceable Down Standard (TDS) [here](#)→



## RESPONSIBLE WOOL

Supplier	Product	Feedstock	Standard	Production Locations
Avington Merino	responsible wool	sheep	RWS	Australia
Chargeurs Wool	responsible wool	sheep	RWS	United States
Fox & Lillie	responsible wool	sheep	RWS	Australia
Imperial Stock Ranch	responsible wool	sheep	RWS	United States
Lanas Trinidad	responsible wool	sheep	RWS	Uruguay
Lempriere Wool	responsible wool	sheep	RWS	Bulgaria
Utah Wool Marketing Association	responsible wool	sheep	RWS	United States
Zhangjiagang Yangtse Wool Combing Zhangjiagang Jinmeng Textile Dyeing	responsible wool	sheep	RWS	China

See full list of companies certified to Responsible Wool Standard (RWS) [here](#)→



## ORGANIC WOOL

See full list of companies certified to USDA for organic wool [here](#)→

See full list of companies certified to GOTS for organic wool [here](#)→



## RECYCLED WOOL

See full list of companies certified to Recycled Claim Standard (RCS) for recycled wool [here](#)→

See full list of companies certified to Global Recycled Standard (GRS) for recycled wool [here](#)→



## ORGANIC SILK

Supplier	Product	Product Type	Standard	Production Locations
Chul Thai Silk	organic silk	fiber	GOTS	Thailand
Jharkhand Silk	organic silk	fiber -final products	GOTS	India
Meghalaya Silk	organic silk	fiber - final products		India
Otex	organic silk	fiber - fabrics	GOTS	China
Society Serica Trudel	organic silk	fiber	GOTS	Italy

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# PREFERRED ANIMAL FIBERS NOTICEBOARD




**CERTIFIED DUCK DOWN & FEATHERS ↑54%** — PFM Benchmark survey



India promotes organic sericulture. "With chemical farming, one acre of mulberry garden receives 1.5 MT of fertilizers and 12-15 sprays of toxic insecticides annually which has a negative effects on the beneficial organisms and on silkworms."

Dr. V. Sivaprasad, Director, Central Sericulture Research and Training Institute, Central Silk Board, Mysore, India



The 2016 H&M Conscious Exclusive collection includes gowns made from 100 per cent organic silk.



**32%** participants who completed the pDown module in PFM Benchmark have SMART Targets



Since its release in June 2016, the adoption of the RWS has been steadily growing. There are now 8 licensed certification bodies providing RWS certification and over 30 certified operations covering the full wool supply chain from farm to brand across the key wool producing regions of the world.




The Organic Trade Association (OTA) released a new Organic Wool Fact Sheet. In 2015, over 10 million organic sheep were raised for food and fiber in 53 countries around the world.



**539 RDS CERTIFIED FACILITIES (↑126%)**

Photo: VF Corporation



THERE ARE NOW FARMS CERTIFIED TO THE RWS IN AUSTRALIA, NEW ZEALAND, SOUTH AFRICA, URUGUAY AND USA.



Interest in alternatives to animal leather is growing; alternatives include paper, cork, mushroom, and fruit leathers such as pineapple, apple, and grape.

Photo: Vegea



In early 2017, Textile Exchange launched the Responsible Leather Initiative to address the issues in the leather supply chain. The goal is to leverage and bring value to the work that is being done by the food industry and to explore solutions to drive global change.

## INSIDER SERIES

34

The Textile Exchange Responsible Down Standard (RDS) is growing fast. It was developed with industry support, building on work already done by firms such as **Allied Feather & Down**. With all the work and relationship building they had been doing within this supply chain for several years, it was possible to help develop what would eventually become the RDS. Allied's Matthew Betcher has more details [here](#).



## INSIDER SERIES

37

**Vegea** is a bio-based leather-alternative, obtained from the processing of the oils and lignocellulose contained in grape marc: a totally vegetal raw material consisting of the grape skins, stalks and seeds derived from the wine production. The H&M Foundation Global Change Award strongly believe in the project, which won the first prize and received a €300,000 grant to scale up the idea faster. [See](#).



## INSIDER SERIES

35

**Ramblers Way** has created a US-based supply chain to meet its unique requirements. They hand selected each partner based on core capabilities and shared values starting with fiber, sourced directly from fine wool producers in the west, to hands-on relationships with the combing and spinning plants in the South to smaller knitting and dyeing factories in New England. Nick Armentrout from Ramblers Ways [here](#).



## INSIDER SERIES

36

**Triaz GmbH** holds 50 percent shares of the Chinese Company "Organic Textiles" (OTEX), producing organic silk in the Sichuan province. The company sources the organic silk from 205 smallholder farmers (the only producers of organic silk in China) and converts it into GOTS certified organic clothing. Barbara Engel from Triaz talks about the benefits to farmers and the environment [here](#).



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## SPOTLIGHT: EUROPEAN OUTDOOR GROUP

Pamela Ravasio, Head of CSR & Sustainability, European Outdoor Group



The European Outdoor Group (EOG) was part of the international working group that supported Textile Exchange in developing the RWS, which focused on the traceability of new wool. This standard was launched in July 2017 at Outdoor (Europe) and Outdoor Retailer (USA).

We are seeing more wool being used by the Outdoor sector, and with a relatively new (to us) material, it brings fresh and novel opportunities for innovation and improved sustainability.

More and more players in our industry are looking into wool, not just for its fiber qualities, but also as a way to improve their environmental and materials footprint.

The Outdoor industry wants to understand if recycled wool is a viable option for outdoor apparel products. Just like we wanted to know with cotton, polyester, nylon and even down.



At the EOG, we realized that we had few, if any, answers to the many questions related to the use of recycled wool. It is for this purpose, that EOG in collaboration with Greenroom Voice, organized a week-long trip to Prato, near Florence.

Prato has been a center for all types of recycled wool, from both pre- and post-consumer sources, since the middle ages. There is no better place to get effective and meaningful insight into the ins and outs of the wool recycling process, the technology and the value chain.

What we found was a rarely talked about, but none-the-less sizeable, "niche" of the textile industry which has developed highly elaborate and specialized skills, processes, machinery and - last but not least - products. Products, indeed, that until recently were undervalued for their sustainability potential.



The insights from our research have been documented and will be made available to the EOG membership, the general public and via Greenroom Voice. We are further collaborating with our partners, The Sustainable Angle and Textile Exchange, to ensure that these insights are also circulated to their respective networks.

Overall, with what we learned, we truly believe that there is great potential in what we have seen in Prato, and we are looking forward to outdoor brands, particularly in Europe, actively making use of this unique opportunity available so close to home.

Acknowledgement: EOG and Greenroom Voice would like to thank the International Wool Textile Organization, many individuals in the Prato area for their time and support to make our visit a success.

# STANDARDS & CERTIFICATION

“ I'm constantly thrilled by the enthusiasm and commitment from members of our community to address the very real issues facing our world. Even long-term competitors are working together to find common solutions. Standards are a platform for multi-stakeholder collaboration, and create the common language to set global benchmarks and communicate consistent expectations for best practices. We've accomplished a lot in the last few years, but there is more to do.

Our standards are designed to achieve scale; they align brands' communications and actions to a clearly articulated common purpose. They bring together the diverse perspectives from the many stakeholders, and give opportunity to leverage work that is already being done in other sectors.

In our evaluation of our standards policies and procedures against the ISEAL Code of Best Practice, it has become clear to us that we have further work to do in impact evaluation. Going forward, we will be focusing on collecting more data through audits, and integrating it into our database projects. We will continue to work with stakeholders to clearly define the goals and objectives of the standards and how we will measure our progress towards them.

Members of the textile industry are already working together to set common goals, and align their messages and actions. The drive and passion that individuals and companies bring to our work is a testament to the power of this industry to be a leader in making the world a better place!

**Anne Gillespie**

Director of Industry Integrity, Textile Exchange

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## REVISION OF CCS AND OCS

After a year-long multi-stakeholder review, Textile Exchange released the Content Claim Standard (CCS) 2.0 and Organic Content Standard (OCS) 2.0. The CCS is used as the chain of custody requirements for all of Textile Exchange's standards, and therefore, changes in CCS 2.0 affected all of the standards.

For more information, visit: <http://textileexchange.org/integrity/>

## REVISION OF RCS AND GRS

In 2016, Textile Exchange launched the revision of the Recycled Claim Standard (RCS) and Global Recycled Standard (GRS). Both standards aim to verify recycled material and track the material using chain of custody. The GRS includes stricter content requirements, as well as additional social, environmental, and chemical criteria. The International Working Group for the revision of the standards includes Unifi, Intertek, H&M, Geetanjali Woolens, Control Union, ICEA, Deckers, and others. The revised standards are expected to be released in 2017.

More information: <http://textileexchange.org/integrity/>

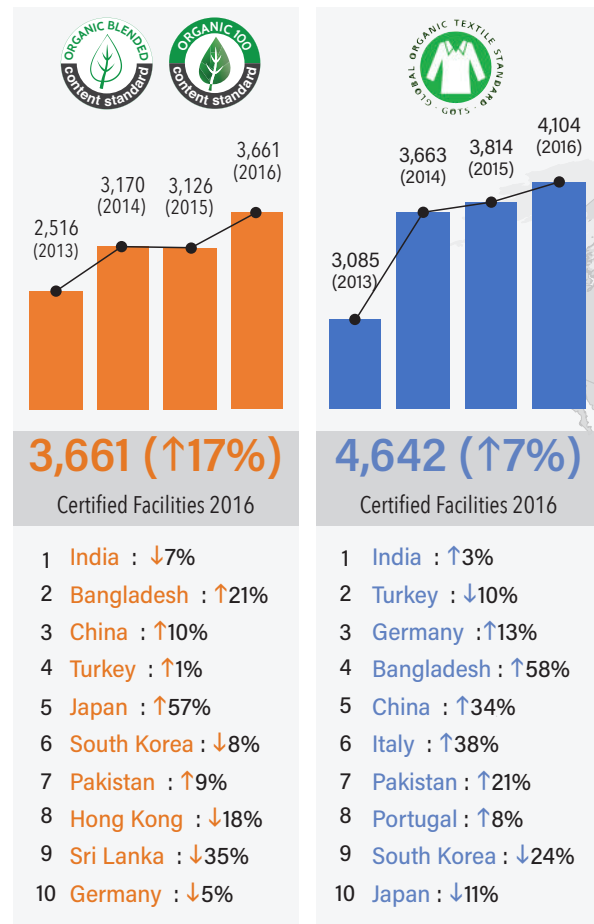
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Photo: H&M

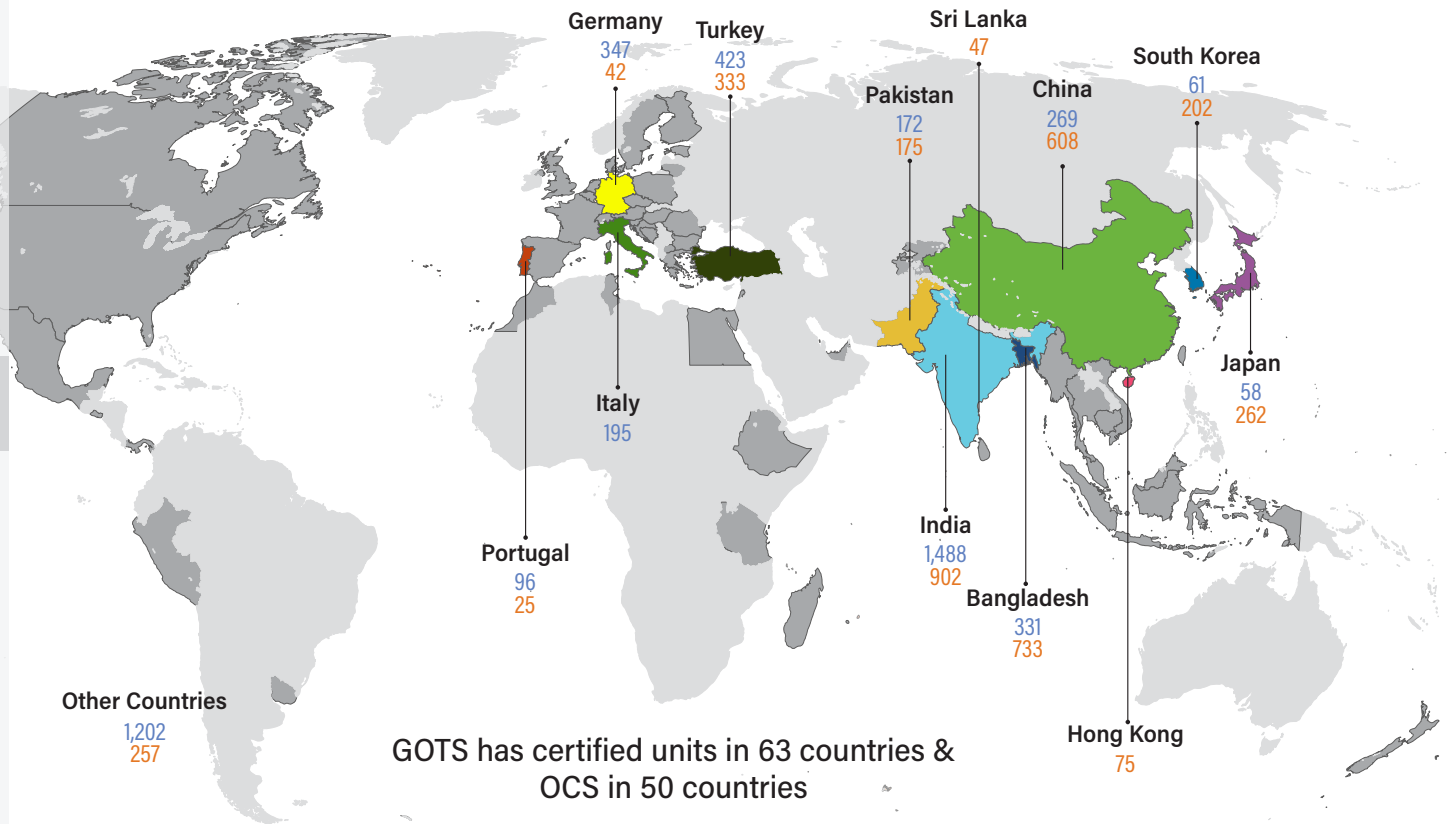
# ORGANIC TEXTILES CERTIFICATION

Textile Exchange and GOTS work closely to ensure that our principles and procedures are aligned as far as possible. We both recognize that these efforts result in greater efficiency and clearer communication to all the parties involved. One key area of collaboration is on a centralized database that would provide the industry with more detailed data and provide a clearer picture of the impact the standards are having.

In 2016 there were 3,661 and 4,642 facilities certified to OCS and GOTS respectively. After a nominal decrease of one per cent in 2015, OCS rebounded with a double digit growth of 17 per cent in 2016 whilst certified facilities by GOTS grew by seven per cent - most of this increase is coming from India (OCS and GOTS), Bangladesh (OCS), China (OCS) and Turkey (GOTS). It is interesting to note that the number of GOTS certified countries recorded a decrease from 68 in 2015 to 63 despite the growth in number of certified units.



## TOP 10 COUNTRIES USING OCS & GOTS



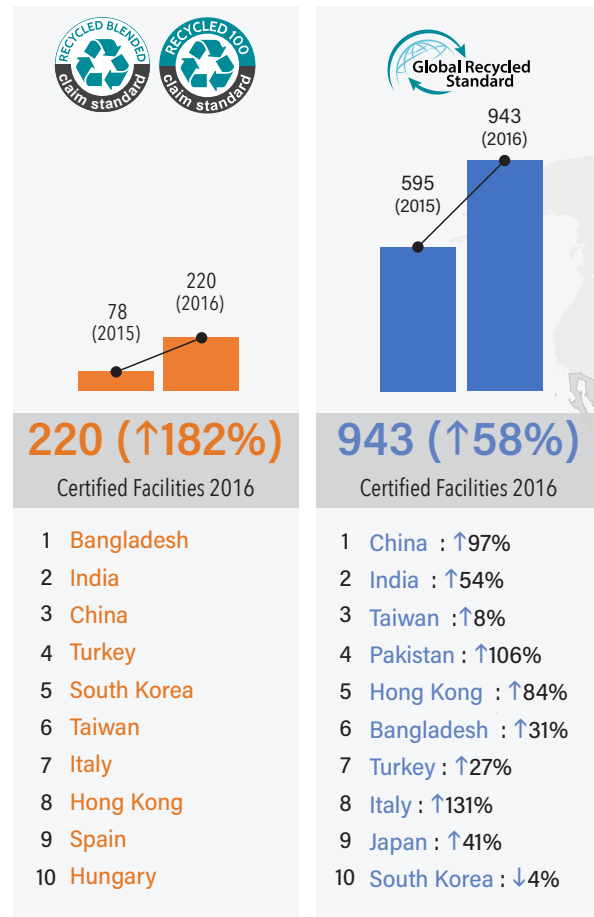
# RECYCLED TEXTILES CERTIFICATION

The Recycled Claim Standard (RCS) and the Global Recycled Standard (GRS) both aim to verify recycled input materials and track that material through to the final product. The GRS goes further by requiring that strict social, environmental, and chemical criteria is met. The recent GRS revision includes the adoption of ZDHC's Manufacturer's Restricted Substance List, as well as other changes to strengthen and clarify the both standard's application.

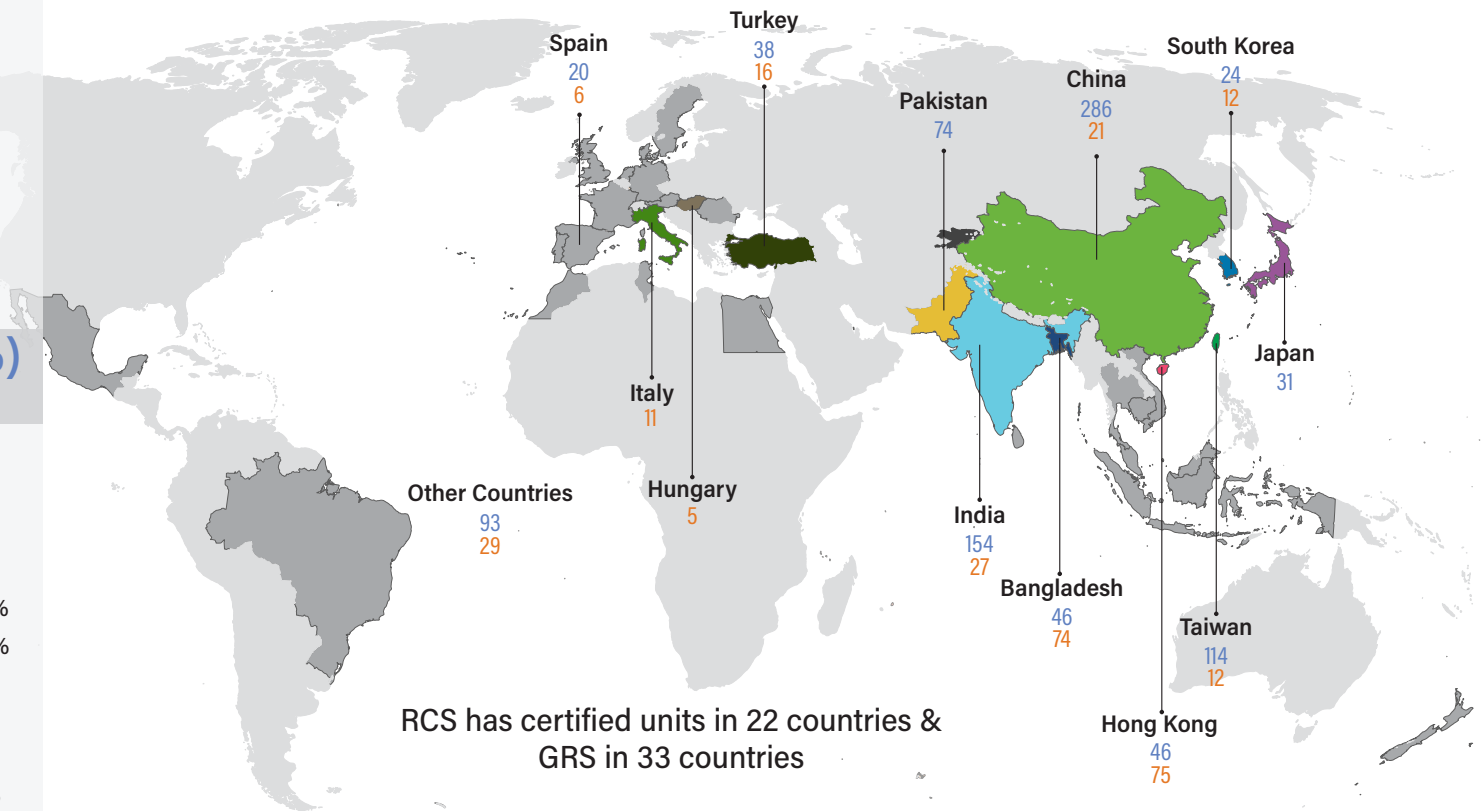
Moving beyond polyester, cotton, and wool, the RCS and GRS are being used to verify a wide range of materials, including spandex, nylon, leather, down, decking and fence

products, beads, plastic, glass, and metal. As more and more companies begin exploring the circular economy and what that means for their sourcing decisions, the standards aim to provide the transparency and verification behind their commitments.

In 2016, 943 facilities were certified to GRS and 220 to RCS. Recycled facilities certification saw phenomenal growth in 2016 (182 per cent for RCS and 58 per cent for GRS). Facilities certification is largely around South Asia and Turkey. The number of countries certified to GRS also increased from 27 to 33.



## TOP 10 COUNTRIES USING RCS & GRS





# DOWN AND WOOL CERTIFICATION

Over the past year, the business benchmark for farm animal welfare noted a shift in how companies approach farm animal welfare. While managing risk is still important, there is an increasing recognition of opportunities that are available to companies to position farm animal welfare as an integral part of their corporate responsibility strategy.

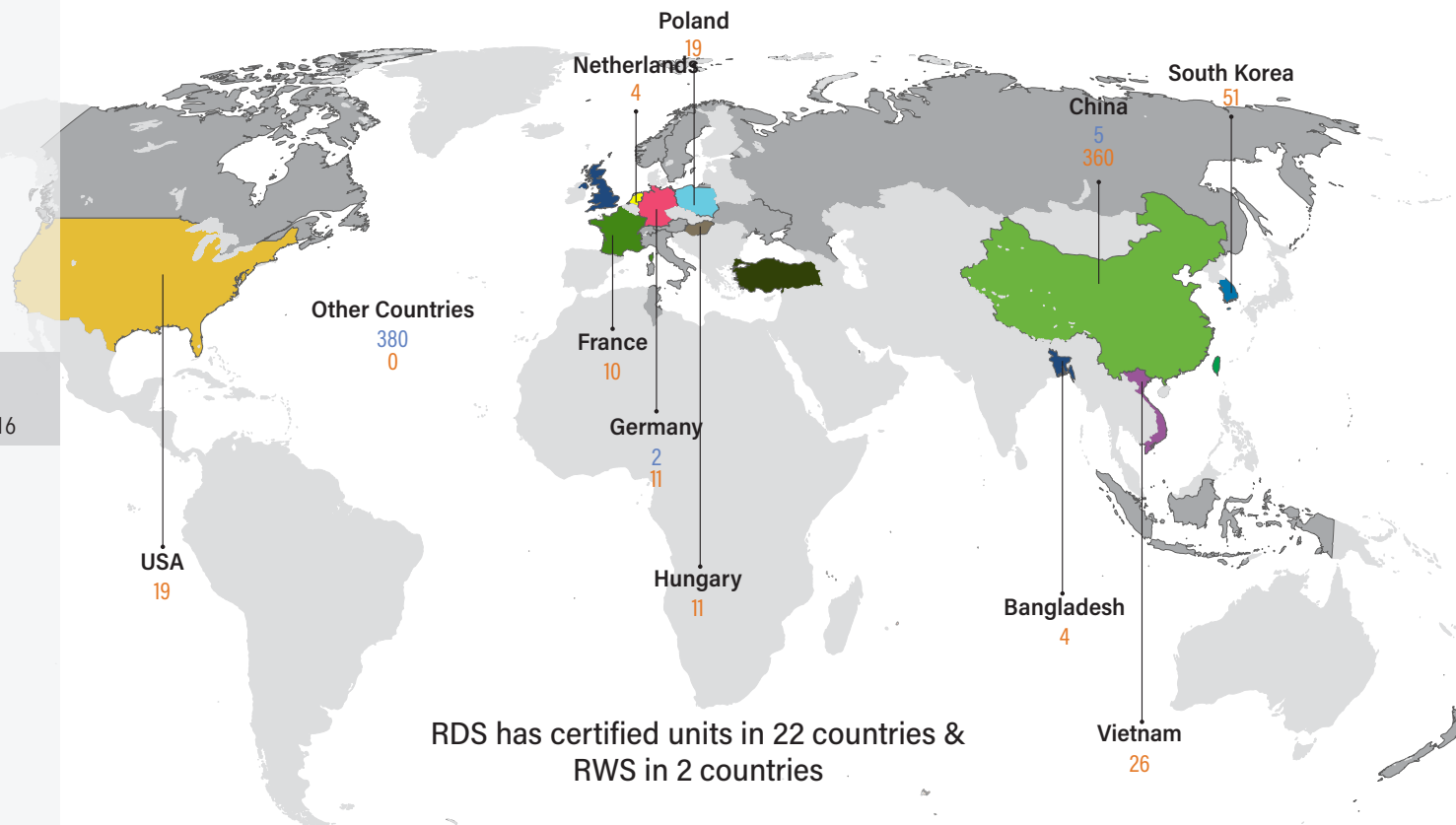
This shift is further supported by the latest Eurobarometer consumer survey which found that 94 per cent of Europeans think protecting the welfare of farm animals is important and half would look for labels to identify animal friendly produced products.

These broader trends are also well reflected within the textile industry through the growth of the RDS, the commitment to the RWS and the support for the Responsible Leather Initiative.

In 2016, there were 539 certified RDS facilities around the world. This represents more than double (126 per cent) of 2015. China sees the highest growth (67 per cent) and also has the highest number of RDS certified facilities (360). Certification of RDS facilities appears to be more concentrated in Europe.



## TOP 10 COUNTRIES USING RDS & RWS



# METHODOLOGY & DISCLAIMER 2017

## Introduction

Brands and retailers drive demand for preferred fiber and materials (PFMs) when they decide to include them in their product lines. When these decisions are communicated to their suppliers, the manufacturers purchase preferred fiber or inputs such as yarns and fabrics that contain PFMs.

This appendix describes the methods used to collect and analyze data about the use of PFM products made and used by brands and retailers for consumer markets around the world in 2016.

The Preferred Fiber & Materials Market Report (PFMR) provides a snapshot of the fiber production at the start of the value chain and a snapshot of the fiber consumption at the end of the chain. Fiber flow throughout the value chain is currently not covered.

## Sources of Information

Information contained in this report was derived from various sources, prioritized in the following order:

- Surveys and data received from brands and retailers with PFM programs.
- Data received from certification bodies, standards organizations, cotton initiatives and NGOs.
- Expert industry resources (promotional bodies, academics, companies, government officials, and individual experts).
- Data provided by suppliers and manufacturers.
- Reviews of publicly available information about companies with PFM programs (company annual reports, corporate responsibility reports, press releases, websites, and media sources).
- All references are specified throughout the report.

In addition all market information specific to organic cotton is based on Textile Exchange's organic cotton data collection and management program. The full methodology can be found in the Organic Cotton Market Report.

## Data Collection Process

To create this report Textile Exchange used a combination of company-specific data and general market information. Through its work with companies and an annual survey, Textile Exchange collected information about PFMs including organic cotton, sustainable cotton initiatives and programs, recycled polyester, recycled cotton, preferred man made cellulosic fibers (e.g. lyocell), and preferred down. A total of 95 companies participated in this year's survey.

To avoid double counting data from brands and their retailers, Textile Exchange only included figures for private label products procured by a retailer, not for the total number of private label and branded products sold by the retailer.

## Timeframe

The reporting period is the calendar year 2016. Textile Exchange collected data used for this report between May and July 2017. Researchers re-checked all data and reports in August 2017.

## Completeness

As with prior reports, the PFMR reflects a complex marketplace, as more brands and retailers offer increasingly diverse PFM products to their customers. As such, this report did not try to capture data from all market participants, but rather gather data from brands and retailers with large-scale PFM programs making up the bulk of the market.

Textile Exchange believes this data is a good proxy for brand and retail activity in the consumer market but it does not cover all market participants. Brand and retailer survey participation is voluntary and self-assessed.

## Results

Textile Exchange does not claim that this data is representative of the entire market. Consistent year-on-year analysis of data by the top users of preferred fibers serves as an important indicator of demand trends. Textile Exchange considers that data from brands and retailers with major PFM programs is representative of the majority of the market.

The rounding of numbers may result in the discrepancy in aggregates.

## Impact outcomes

- Land certified organic is based on data from Textile Exchange's organic cotton data collection program.
- Number of organic sheep is based on data released by Organic Trade Association.
- PET Bottles (recycled into polyester) estimations are based conversion factors shared by certification bodies.
- Geese and duck number estimations are based on conversions shared by key suppliers and J. Kozák, 2011, An Overview of Feathers Formation, Moults and Down Production in Geese.

## Life Cycle Assessment

Published Life Cycle Assessments (LCAs) were referred to, no further normalization or adjustments were carried out. A typical preferred fiber LCA compares the results of the preferred fiber to the results of the equivalent conventional fiber; the latter is referred to in this report.

Please note that the LCA results presented in the report, are not intended to compare different fiber groups (e.g. organic cotton vs. recycled polyester) as additional considerations need to be made to do so.

## PFM Leaderboards

The rankings are based on the participating companies' self-reported consumption data. While Textile Exchange reviews all data entries, checks calculations, and carries out a consistency check, it does not verify the accuracy of the data. The responsibility for the accuracy of the data remains with the participating companies.

**Top 10 by volume:** Companies that reported the highest consumption volumes for 2016.

**Top Growth:** Companies that reported their consumption for 2015 and 2016 and showed the highest growth rate over the 2 years.

**Race To The Top:** Companies that are closing the gap between conventional and preferred fibers in their portfolio. (This ranking excludes companies that belong to the 100% club.)

**100% Club:** Companies that use exclusively 100% preferred fiber. Companies belonging to the 100% club have achieved the status of all relative fiber coming from the relative PFM.

## Supply landscape

The supply landscape corresponds to a detailed mapping of a PFM to specific supply parameters. For PFMs that are now largely available and count a large number of suppliers, only suppliers that

are TE members are listed, however a link to additional lists is provided.

The supply landscape is based mainly on the list of certified operators of the various standards used to distinguish preferred fibers. However, to date relevant certification standards have not been established for all PFMs. In the latter case, some known suppliers are referred to, however the list may not be exhaustive.

Within the list of Lyocell suppliers are a limited number of companies that are manufacturing lyocell (which is considered a cleaner option than conventional viscose/rayon) but may not be using raw materials from certified forests.

## Disclaimer

The Textile Exchange PFMR leaderboard rankings are based on a company's self-reported consumption data for each fiber. While Textile Exchange reviews all data entries, checks calculations, and carries out consistency checks, it does not verify the accuracy of the data. That responsibility remains with the participating company.

Textile Exchange relies on the authenticity of data provided by standard organizations and cotton initiatives, the accuracy of the data remains their responsibility and not the responsibility of Textile Exchange.



Textile Exchange is a community of dedicated and committed members across all segments of the value network in the global textile industry. Our work is accomplished through a unique platform of openness, transparency and multi stakeholder collaboration. Together, we spark inspiration, build knowledge, and deliver meaningful, hands-on tools and resources to help transform our industry into one that integrates the needs of society with the integrity of nature.

A [membership with Textile Exchange](#) will help your company navigate the complex maze of textile sustainability. We partner with organizations of all types and sizes who want to advance their sustainability efforts. When you become a Textile Exchange member, you'll have access to industry experts, networking opportunities, one-on-one consulting, content standards, and the most comprehensive industry reports and tools. Our goal is to help you succeed. Please join us in our collective journey!

Textile Exchange has four tiers of membership to suit your company or organization's needs, including Friend, Supporter, Partner (Brand/Retailer) and Partner (Supply Network). Current Partner level members include:



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See Textile Exchange's Organic Cotton Market Report 2017 for more detailed information on organic cotton production

[!\[\]\(2e897e890e69d81eae4503a8342c36b0\_img.jpg\) Organic Cotton Market Report 2017](#)

Textile Exchange envisions a global textile industry that protects and restores the environment and enhances lives.

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