SUSTAINABILITY: CANOPY

The rise in demand for wood pulp-based fibres is putting pressure on forests around the world and is being brought to the attention of fashion and sportswear brands by Canopy, a Vancouver-based non-profit organisation aiming to protect the world's forests.

Seeing the forest behind the "tree" fibres

The current global market share of regenerated cellulose textiles, obtained via the viscose process or the more environmentally favourable methods used to make modal and lyocell, is estimated to be 6%. The general consensus is that cotton production will remain stagnant and growing demand will have to be met by regenerated cellulose from wood pulp, a situation dubbed "the cellulose gap". Unlike trees, the production of cotton consumes substantial amounts of water and requires high-grade arable land and thus competes with food crops. Additionally, the manufacture of viscose (also called rayon) involves toxic chemicals, an issue that newer, regenerated cellulose fibres, such as modal and lyocell, have significantly minimised. The evolution of the wood pulp industry is attracting investment and research into textiles, and the lyocell process itself is the subject of several projects in Scandinavia, (*see WSA May-June 2014*).

Few consumers realise that their viscose, modal or lyocell garments originally come from trees. Canadian not-for-profit Canopy is looking to change that. "The fabric supply chain can be complex and most consumers don't know where their clothes originate, even conscious and sector-savvy textile insiders," says Canopy's founder and executive director, Nicole Rycroft. "The reality with viscose, and its various 'cousin' cellulosic fabrics, is that there is currently no way to guarantee that it's not coming from an endangered forest due to the lack of supply chain transparency." That's why Canopy's first priority is to work with major names in fashion such as Inditex, H&M, Stella McCartney and Lululemon. A series of initiatives, such as the CanopyStyle Pledge, are being rolled out to build awareness at consumer level.

Data rounded up by Canopy indicates that rayon production consumes 70 to 100 million trees every year and that demand for dissolving pulp will increase by 112% in the next 40 years.



Jeans made with a Tencel and Lycra DualFX blend fabric produced by Tejidos Royo.

Lycra

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Having worked with the paper industry to improve its supply chain monitoring, the NGO has decided to take on the fashion and textile industries. "Fashion brands have been generally surprised to learn about the issue, but they are being very forward," says Nicole Rycroft. "We've seen big names come on board, such as H&M and Zara and we are in conversation with 50 major brands." A kick-off meeting held in Vietnam in May was the first of a series of sessions programmed over the next three years to improve traceability by tracking fibre flow from the forest floor to the dissolving pulp mills and from there to the viscose manufacturing facilities. "Our goal is to transform supply chains, and this doesn't happen overnight," says Ms Rycroft.

Transparency in sourcing

Long before Canopy launched its "Fashion Loved by Forest" campaign, regenerated cellulose fibre producers in Europe had made moves to certify their supply chains. Though viscose has a low market share in fashion, it is growing, agrees Lenzing sustainability manager Peter Bartsch. "We have seen pulp capacities and viscose use increase in the past few years," he says.

While recognising the impact of deforestation, the Austrian fibre producer sees this issue as relatively minor in the world of textiles. "Globally, only 0.5% of the world's 188 million tonnes of total pulp production capacity is dissolving pulp, and of this two-thirds go into textile fibres," say corporate communication managers Angelika Guldt and Christina Kreuzwieser, who believe there are more relevant sectors to look at "if you want to save endangered forests".

Lenzing does however take its wood sourcing very seriously. The company has been producing its own pulp for 75 years, in the Austrian town that gives the company its name. It has built its own biorefinery, and the wood that doesn't go into fibre production is used as fuel. This means that only 12.7% of the company's energy needs are drawn from fossil fuels, it says. The fibre producer sources much of its wood in Eastern Europe, and has acquired a pulp mill in Paskov, Czech Republic, to expand its in-house capacity. The eucalyptus pulp used to make Tencel fibre comes from South Africa, with a small portion coming from certified Brazilian forests, says Mr Bartsch. At present, Lenzing produces 50% of the raw materials it uses. Its strategic long-term goal is to produce two-thirds of what it needs.

The Austrian company has partnered with Canopy as well as the Sustainable Apparel Coalition to take part in measuring and reducing the garment industry's environmental footprint. The Higg Index gives Tencel a high rating, due



H&M has pledged to source fabrics outside of ancient and endangered forests by 2017. The retailer's collections include Tencel and Monocel fabrics. Shown here is a picture from its swimwear campaign featuring Brazilian model Gisele Bundchen.

H&M

mostly to the closed-loop process used to manufacture the fibre. "Our energy consumption can be considered high, but because we burn all unused wood, our greenhouse gas emissions are low," says Mr Bartsch. Lenzing is also investigating the recycling possibilities of its fibres, which included inspiring up-and-coming fashion designers to make clothes that are easy to recycle.

Kelheim, a regenerated cellulose manufacturer based in Germany, has also secured environmental sourcing of its wood pulp and complies with the latest EU Timber regulation (revised in late 2013) that seeks to eliminate the use of illegally harvested wood. Raw materials used by Kelheim are certified either by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC).

Kelheim is convinced that viscose fibres offer many environmental advantages: "The raw material for our viscose fibres is based on the world's most abundant organic polymer, cellulose. In contrast to other cellulosic fibres, such as cotton, the wood pulp used for our fibres comes from managed plantations that are efficient regarding use of land, don't compete with food production for fertile agricultural soil, use neither pesticides nor artificial irrigation and are not genetically modified," says corporate communications manager Stefanie Heigl. In addition, she says," we can manufacture viscose fibres which are tailor-

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German viscose manufacturer Kelheim sources its wood pulp from FSC-certified suppliers.

Kelheim

made for our customer's specific needs and deliver a consistent and extremely high quality that is independent of environmental influences such as the weather." Furthermore "after use, products made from viscose fibres are completely biodegradable and offer the same advantage as natural fibres," she says.

Norwegian company Monocel, which markets a bamboo lyocell, works closely with a small circle of suppliers to keep its supply chain clean. "Traceability is very important to us," says Monocel founder and CEO, Johnny Kristiansen. "Understanding the origin of regenerated cellulose fibres can be confusing for the consumer, because labels only indicate a generic term, either lyocell or viscose."

At Renewcell, a Swedish company currently working on a cellulose fibre recycling process, Henrik Norlin, head of business development, admits that wood pulp used for some textiles could come from poorly managed or illegally harvested forests, but he believes there is enough environmentally friendly pulp available. "The wood pulp and cellulosic fibre industry have good sides and bad sides," he says and the chemistry that goes into viscose production is "scary" but he welcomes the debate and media awareness that NGOs attract.

The research team working on Ioncell, another new lyocell-type fibre in development in Finland and Sweden launched the project in part on the assumption that the regenerated cellulose fibre market will continue to grow, citing data that per capita consumption of cellulosic fibres is assumed to increase from 3.7kg today to 5.4kg in 2030. "The gradual replacement of cotton by pulp-based fibres is a favourable move from an ecological perspective," says Herbert Sixta, head of the Ioncell project and Professor of Biorefineries at Aalto University.

What the brands are saying

The Forest to Fashion campaign by Canopy focuses primarily on raising awareness among fashion and sportswear brands, which have responded favourably. "The real cost of fashion doesn't show up on the price tag," says Rochelle Webb, SVP Global marketing activation manager for the Quiksilver group which includes the brands Roxy and DC. "We joined this effort because we wanted to be a part of the solution and we are committed to use reasonable efforts to influence our fabric supply chain."

Yoga wear brand Prana has declared that it plans to "eliminate any wood fibres from endangered, ancient forest regions or controversial sources of trees in its rayon, modal or lyocell fabrics". Sustainability director, Nicole Bassett, says that 1% of the current line is made with viscose or cellulose-based fabrics of unknown origins. The company's long-term goal is to "move away from rayon entirely, and where forest fibres are used, to ensure that they are FSC certified."

As can be expected from one of the industry's leading eco-conscious brands, Patagonia is working closely with Canopy and its preferred cellulose fibre is Tencel. The company says it requests FSC certification for its cellulosic fibre fabrics and is working on improving supply chain transparency.

Regenerated cellulose fabrics are popular in women's wear and their consumption may indeed increase as a substitute for cotton in the future. As often in the textile industry, the long and complex supply chain makes it difficult to achieve full transparency. What may prove to be even more difficult is to increase consumer awareness as to the impact their clothing choices can have on nature.



Tencel is Patagonia's preferred regenerated cellulose fabric, used mainly in its summer women's wear ranges.

Patagonia

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