Recycling is a subject on everyone's lips. Recycled yarns and garments at the end of their lifespan are in big demand. Italian city Prato, in Tuscany, is producing clothing under a label that guarantees clothes are carbon neutral and observers believe the idea could become a model for the rest of Italy and beyond.

Prato produces zero-impact textiles

During a press conference at Première Vision in Paris, last September, president of Prato's chamber of commerce, Carlo Longo, and president of the consortium for the protection and promotion of carded textiles, Riccardo Marini, explained how this has been achieved and what the ultimate vision of the project is.

The carding process

Prato has been a well-known producer of carded fabrics for many years. Carding is a special process that breaks up clumps of fibre from either virgin fibres or from old clothing and knitted fabrics. The individual fibres are aligned so that they are more or less parallel with each other.

The process can also be used to create blends of different lengths and types of fibre and different colours. When blending, the carding process combines the different fibres into a homogeneous mix. Around 22,000 tons of rags are recycled each year in Prato and turned into carded fabrics. These fabrics can now be produced using luxury yarns such as cashmere, angora, alpaca and mohair blended with silk and viscose.

Garments are sorted according to quality and colour and then linings and fastenings are removed by hand. A process called carbonising is used to eliminate vegetable impurities from the wool. Rags and cuttings are dry cleaned with hydrochloric acid, while new wool fibre is soaked in sulphuric acid. The treated fabrics or staples are then beaten to eliminate the carbonised particles. During this process the rags are turned back into fibres by being mechanically torn and washed. The two processes are carried out in tanks where the rags are forced, by the current of the water, through two pairs of cylinders with steel teeth, which tear them. The fibre is then dried.

Statue of Datini in Prato. The city has been a major fabric producer since the Middle Ages.

Wikimedia

Bringing it back

Prato's economy has relied heavily on the textile industry for many years, having been a major fabric producer since the Middle Ages. However, the carding process has become less widely used in recent years with the discovery of new synthetics and the growing demand for more expensive virgin fibres as new economies emerge and consumer demand changes.

But as sustainability becomes more and more of an issue across the globe, reducing its impact on the environment has become an increasingly important focus for the region. "Sustainability is very important now," says Mr Marini. "It's probably not as important as giving fashion to designers, which is obviously very important. But you have to do both together, to explore the eco-friendly aspects of fabrics."

The new initiative has implemented new environmental practices and introduced upgraded technologies as well as adapting the region's traditional carded textile production process to make it more eco-friendly. Although the carding process has always been relatively eco-friendly, the new initiative has reportedly come up with a way of making carded fabrics that are completely CO_2 neutral. "The process follows the traditional way but follows the progress of the textile world. It's a cleaner, more environmentally friendly process than before," Mr Marini explains.

Meanwhile, the chamber of commerce and the promotion consortium have been monitoring CO_2 emissions produced by companies involved in the carded textile production process since February 2009 in collaboration with TÜV Italia, a division of German clothing and footwear testing, inspection and certification group TÜV Sud. Factories must provide data documenting their energy consumption, use of materials, modes of transport used and the number of employees at the firm.

"Prato has a long tradition of producing regenerated fibres from used clothes to make beautiful fabrics," says Mr Longo. "The process has been used less in the last few years, but now with more attention on CO_2 emissions and the reusing of materials the old way is becoming more current than ever."

Offsetting the emissions

The emissions are being cancelled out through the purchase of Emission Trading credits. The way this works is that "ecobrokers" arrange for these companies to pay for tree-planting exercises and other environmental initiatives in order to offset carbon dioxide emissions. The more carbon dioxide a factory produces, the more credits the company has to purchase. The idea is that the trees that are planted absorb carbon dioxide to cancel out emissions being produced during the manufacturing process. When this happens the company can describe itself as carbon neutral.

At the beginning of the project, a number of companies were selected to take part in the zero emission experiment. The three companies that produced the first ever collections adopting the new CO_2 neutral textile products are Lanificio Fratelli Balli, which mainly produces fabrics for outdoor jackets, Lanificio Nello Gori, which produces textiles for apparel, sportswear and accessories, and Lanificio Mario Fiaschi. To be part of the initiative, firms must be based in Prato, produce fabrics with a minimum of 70% recycled material and have purchased the relevant number of carbon credits.

"The price [of producing carded fabrics] is very competitive," claims Mr Marini. "The costs are low and it's important everyone takes care of our world." He adds that the scope of the project is wide. "For the moment it just covers carded yarns but that doesn't mean it can't be expanded to other fibres. And while for now the initiative is exclusive to the Prato region, he sees no reason why it could not be extended to include the rest of Italy and even other nations across the world.

The Chamber of Commerce has been working with the textile sector to reduce its environmental footprint for around 20 years. It has built an aqueduct that connects more than 150 companies producing dyed textiles. The water is cleaned and recycled. It has also been encouraging more companies to recycle fabrics, which was becoming a less common practice in recent years, rather than sending them to landfill sites. "We're trying to make a better world for our children by focusing on our environmental situations," says Mr Marini.



President of Prato's chamber of commerce, Carlo Longo, believes the idea of recycling clothing is back in fashion and that the idea of offsetting carbon emissions has won a lot of support.

Prato Chamber of Commerce



When blending, the carding process combines the different fibres into a homogeneous mix.

Prato Chamber of Commerce