



One of the SICIT production plants in the province of Vicenza, Italy. Credits: SICIT



SUSTAINABLE



MARINE-FRIENDLY



GREEN JOBS

Zero-waste heroes

Finding ways to reuse the waste by-products and residues that the tanning industry produces has always been a major challenge for leather-producing clusters. Today, the most important challenge is to make production as environmentally friendly as possible, in keeping with the latest environmental laws and rules. The tendency in the European Union is to sponsor and encourage production units to face up to this challenge as part of a wider promotion of the circular economy. This comes down to an essential core idea: giving back to nature as much as we can of what we have taken from it.

Farming and the meat industry generate a massive volume of downstream by-products, including animal hides and skins, which are in turn used by the tanning industry in the manufacture of the beautiful and long-lasting product called leather that we all have known and loved for ages. During this production process, though, a certain amount of residue and waste is generated. This is where players such as Veneto-based SICIT Group can begin to work their magic and add value to material the tanners cannot use. The

SICIT, a specialist producer of fertiliser and other products, has spent decades developing solutions to the age-old problem of how best to find a use for and extract value from the waste material that wet-end tannery operations generate. Its products are now in high demand in the agriculture and construction sectors, helping the leather industry's important shift towards becoming zero-waste.

group's estimate is that every 1,000 kilos of raw hides yields around 250 kilos of finished leather and up to 600 kilos of solid by-products. Some of these by-products, including fleshings, hair, trimmings and shavings, are what SICIT calls "recoverable tannery residuals".

Across the Distretto Veneto della Pelle, the well-known Vicenza tannery district that centres on Arzignano and Chiampo, leather manufacturers generate about 150,000 tonnes of tanning waste every year. SICIT says its ambition is to put these residual materials to good use and offer an important service to the tanning sector and, by extension, to the brands and manufacturers that sell and make finished products from the leather made in Italy. That is what SICIT set out to do at the time of its launch in 1960. Almost 60 years later, in 2019, it was able to rub shoulders with some of those high-end fashion names at a lavish ceremony in Milan's La Scala theatre to celebrate the Green Carpet Fashion Awards. This event, founded by film-maker Livia Firth, now takes place annually during the city's autumn fashion week to celebrate the commitment of fashion brands to sustainability. SICIT won a prize for technology and innovation. Milan is not far from Veneto, but this is an indication that the group has travelled a long way.

Acid test

Animal hides and skins are basically made up of amino acids, the same building blocks found in plants and vegetables. Based on this, SICIT has found effective ways to deal with by-products from the hides and skins its leather-manufacturing neighbours generate. It has two highly automated production sites, three laboratories and subsidiaries in China and the US. It is now a major producer of protein hydrolysates of animal origin. From these, following years of research and development effort, it is able to make two main product types: bio-stimulants for use in agriculture and retardants for use in plaster.

Stimulus package

Bio-stimulant technology is at the forefront of modern agriculture. These products are designed to help farmers meet growing agricultural demand sustainably. They help plants, from seed germination to crop maturity, in several different ways, all of them leveraging natural mechanisms. Bio-stimulants improve the efficiency of plants' metabolism to enhance crop yield and quality, which has a positive impact on farm profitability. Bio-stimulants also improve the uptake and efficient use of other essential inputs, notably nutrients and water. This helps farmers optimise their investments with the added benefit of reducing environmental impacts.

The SICIT products also have the effect of increasing a plants' tolerance to and recovery from the effects of drought, heavy rain, frost and other factors. The company says this feature is particularly important as it contributes to overcoming the ever-growing challenges posed by climate change. Bio-stimulants deliver all of these benefits in a perfectly natural way, the group says. They promote healthier crops, and healthier crops require less human input. While bio-stimulants are still associated by many people with organic farming and gardening, they now have an important role to play in mainstream agriculture. SICIT says its bio-stimulants are "two-fold sustainable": they represent a smart way of adding value to leather by-



The group is able to take residual waste from tanneries and turn it into value-added products that are in high demand in the agriculture and construction sectors.

products and, at the same time, they contribute dramatically to improving sustainability in agriculture.

Building blocks

Retardants are aimed at another strategic industry that can also have a major impact on the environment and on people's lives: the building sector. More specifically, retardants provide plaster producers with increased flexibility throughout the process making plasterboard and gypsum for buildings. They are called retardants because they perform the essential task of slowing the setting time of plaster, thereby increasing its workability. The animal-based products also help ensure the smoothness and efficiency of the whole production process. In this way, they provide a high level of support to innovation in civil engineering, making it possible to implement new, more sustainable building technologies and support the spread of eco-friendly building all over the world. Again, all of this happens with a wholly natural input and provides a follow-up life for the by-products and residuals from tanneries.

A further product the group is able to offer is animal fat for bio-fuel, which it extracts from hide fleshings.



High note. At the 2019 Green Carpet Fashion Awards ceremony at La Scala in Milan. Left to right: SICIT chairman, Valter Peretti, chief executive, Massimo Neresini with the award for technology and innovation, and eminent Arzignano tanner Rino Mastrotto.



SICIT has developed ways of putting solid waste from wet-end operations to good use. Its work is helping the tanning industry transition towards zero waste.

Credit: WTP

SICIT chief executive, Massimo Neresini, says the group is now transforming more than 130,000 tonnes of tannery residue and waste each year to obtain these high-value products. The company is able to source the material it wants from tanners, which, for example, means residues that are free from what it calls “overtreatment”; there are no dyes, waxes or other “polluting additives” in the by-products it processes. Requirements for the purity and quality of products are becoming “more and more strict”, Mr Neresini says. He hopes this strict attitude among the authorities will help companies that strive to meet the requirements to receive the rewards their efforts deserve.

The group is currently selling its products in more than 70 countries around the world, shifting around 100 tonnes per day. Massimo Neresini talks of a “fast market-growth perspective”. Even in the troubled times of the first half of 2020, SICIT posted growth of 9.4% in its revenues, which the chief executive calls “a particularly brilliant result, considering the times we are living in”. He points out, though, that this growth has come as the result of years of hard work on the part of the group’s research and development team and its own commitment to sustainability.

It has invested heavily in its own production. It opened its Arzignano facility in 2004 and then spent time and money upgrading its original site in nearby Chiampo between 2006 and 2011. Improvements have allowed it to increase the yield of SICIT products it is able to make from the volume of tannery waste available. It has also expanded the range of waste products it is willing and able to take from tanners, inaugurating cattle hair processing in the course of 2020. It aims to process 10,000 tonnes of cattle hair per year, adding value and easing the burden on wastewater treatment processing.

More recently, it has worked to minimise its consumption of fossil fuels. It inaugurated a steam energy plant at the Arzignano site in 2019 and is currently planning a second one for the Chiampo site. It will use solar energy at a new warehouse it is constructing in Arzignano and is planning to renew its fleet of company cars with electric vehicles. Another plan is to use some of the animal fat it extracts from fleshings to produce electricity and thermal energy for its own consumption. Finally, it has taken part, along with a number of other leather-sector companies, in a reforestation project in the Chiampo valley, contributing more than 1,200 trees. SICIT says it sees itself as something of a pioneer in the move to the circular economy. 🌱

WORLD LEATHER



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