Volatile food prices and increasing numbers of hungry people mean there will be pressure in the years ahead to prioritise using agricultural land to grow food rather than crops for biofuels. As the debate continues, the textile industry may also face questions over its use of valuable land and resources.

Should food come first?

Two years ago, the number of hungry people in the world exceeded one billion for the first time since records began at the end of the 1960s. Reaching this painful milestone generated a lot of publicity for organisations such as the United Nations Food and Agriculture Organization (FAO), which works to improve agricultural policy across the world to stop hunger from spreading, and its sister organisation the World Food Programme, which works to relieve the immediate effects of hunger.

Hungry people in this context are those who do not consume the minimum daily energy requirement, the amount of calories they need to carry out light activity and reach and maintain an acceptable weight for their height. This varies by sex and age but, on average, a person needs about 1,800 calories per day as a minimum energy intake. The FAO has a formula for calculating the total calories available in a particular country, the total calories needed for the population, and the distribution of calories. From this, it can calculate the number of people who are below the minimum energy requirement, and this is the number of undernourished people.

After passing the billion-persons barrier in 2009, the total fell in 2010 to 925 million, but the FAO has warned that ongoing food price volatility and growing concerns about food security will make the first UN Millennium Development Goal—point C is to halve the 1990 level of hunger by 2015—difficult to achieve. The 1990 figure was 843 million people.

Beyond this, the global population of around 6.9 billion people today is projected to reach 9.1 billion by 2050. The FAO believes global food production is going to have to go up by 70% (and by 100% in developing countries) to



An eco T-shirt made from bamboo and Sorona.
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Sierra Leone, 2010. Chairperson of Tungi United Agricultural Association, Fatmata Sesay, sorting harvested palm kernels.

FAO/Caroline Thomas

keep pace and new ways of using the earth's resources to produce food, coupled with new thinking about food production and distribution ,are required to meet these targets. The organisation's director-general, Jacques Diouf, called on governments of developing countries earlier this year to double the proportion of national budgets they devote to agriculture at the moment (5%). In the same breath, he bemoaned the fact that "more than 100 million tonnes of cereals are diverted from food to biofuels".

Food v fuel

Clearly, this is a question of priorities. No one is saying biofuels are bad, just that feeding people should come first. And while we need clothes as well as food, it is likely that the textile industry will also face questions during this ongoing debate as concerned observers wonder if it is fair to use corn and other crops to make polymers for yarns and fibres, or to devote agricultural land to cotton instead of food crops.

This June, international charity Oxfam launched a new global campaign to achieve "food justice in a resource-constrained world". Oxfam America President Ray Offenheiser stated that world food prices could double in the next 20 years because of population growth and climate change. He called for policy changes in the United States and other countries and said the new GROW campaign would be Oxfam's largest. The charity's report, "Growing a Better Future", describes world food problems and proposals for change.

Devoting land to corn crops used for biofuel instead of food is a significant factor in reducing the world food supply, Oxfam claims. However the Renewable Fuels Association (RFA) countered Oxfam's claims, citing a FAO report that found biofuel could spark investment in agricultural and rural transportation infrastructure and boost rural economies. RFA President and CEO Bob Dinneen said that ethanol production had spurred investment in the United States, and that the same opportunities could be available in developing countries.

Cotton demand

International prices of cotton are very high by historical standards, which is prompting cotton growers both in the US and in other countries to devote more land to cotton crops. Farmers in China are currently favouring cotton above other crops, and the China Cotton Association estimates that cotton acreage will total 540 million acres this year, an increase of 5% from 2010. In Pakistan, cotton will be sown on around 400,000 hectares of land in the 2011-12 season. Rana Abdul Sattar, senior member of the Pakistan Cotton Ginners Association (PCGA), cited "growing demand, higher domestic prices and better returns to growers" as the main reasons that 20% more land in the country will be used for lint cultivation. Meanwhile in Virginia, US, cotton producers expect to plant 50,000 hectares this season, up more than 50% from 2010.

Such high demand and prices for cotton will surely balance out eventually; indeed the International Cotton Advisory Committee (ICAC) released figures in May showing that cotton prices in April had fallen for the first time in seven months. The debate of how much land to devote to cotton is admittedly a tricky one for any country. Stephanie Thiers of the Cotton Council USA insists there is "no debate" in the US and that "relative prices determine what gets planted".

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The sustainability issue

DuPont has worked hard over the last five years to generate interest among fabric and garment manufacturers in Sorona, which it has called "the most transformative polymer to be introduced into the fibres industry in the last 20 years". Fabrics made with Sorona offer durability and softness, built-in permanent stain and ultraviolet (UV) ray resistance and comfort stretch, while resisting stretch and sag, thanks to the molecular structure of the polymer (it has a kink, which provides "fibre memory" so fabrics keep their shape better, eliminating sags at the elbow or bags at the knee of a pair of trousers. At the moment, 37% by weight of Sorona comes from a source that DuPont celebrates as being annually renewable. The manufacturing process of Sorona reduces greenhouse gas emissions by 63% and uses 30% less energy compared to the production of an equal amount of conventional nylon made from petroleum. All of this is good. The only question mark you could raise is that the renewable resource that provides that 37% of the raw material is corn sugar.

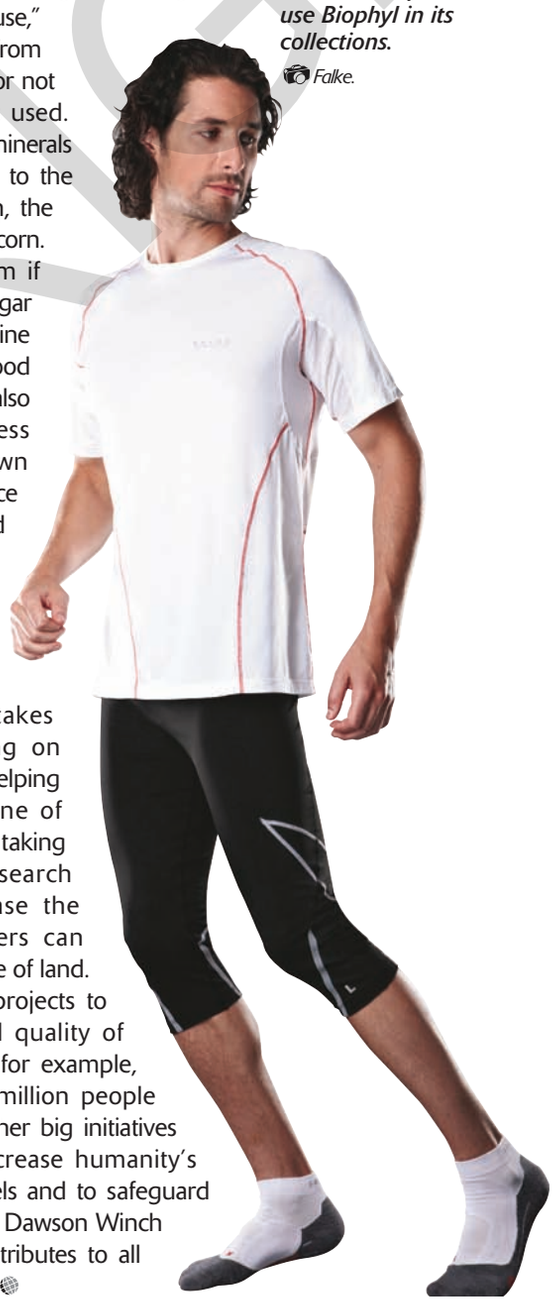
One company with deep interest in sports and activewear to have adopted Sorona quickly is polyester manufacturer Advansa. Since 2008, along with Coolmax, ThermoCool and other products, Advansa has been offering Biophyl, which, owing to the proportion of it that comes from renewable resources, it refers to as an eco-polyester yarn. During 2009 and 2010, Advansa issued a series of announcements about fabric and clothing brands who had opted to use Biophyl, in almost every case because it allowed them to present new collections as 'green'. Specialist swimwear fabric producer Carvico incorporated Biophyl into its Amazzonia offering, saying this was part of its broader 'Green Vision'. German sports brand Falke is another to have emphasised this aspect of Biophyl when launching a new running apparel collection that featured fabric made from the yarn. Cycling brands Santini and SPIUK have gone down a similar path.

However, OrthoLite, a provider of foam technology for insoles and lining for sports footwear, has made a specific point of distancing its customisable, moulded insole and lining foam products from food crops. The technology uses nearly 50% bio-oil in its formula with castor beans, a non-food plant, as the source. Using non-food source bio-oil as a substitute for traditional fossil fuel-based raw materials is something OrthoLite and its customers can be proud of, according to company president, Pamela Gelsomini.

Sports brands and their suppliers balk at the notion of contributing to the problem of world hunger by using food crops to produce textiles. They point out that less than the whole crop of, say, corn goes into the human food chain anyway and their use of these resources is responsible. NatureWorks, a US producer of polymers derived from plants, says that its brand Ingeo uses inconsequential amounts of corn crop. Steve Sterling of NatureWorks says: "Ingeo requires less than 1/20th of 1% of the annual global corn crop for manufacture. So you can see that the impact on food is quite low. And in the future Ingeo will be made from other renewable plant materials."

Dawson Winch, the global brand manager at DuPont Industrial Biosciences with responsibility for Sorona, equates her company's production of the polymer using corn sugar to wine production from grapes. The wine industry uses sugar from grapes to make wine, a form of alcohol; DuPont does the same to produce "the key green ingredient" for Sorona. "There are two things we get asked about over this: using something that could be food and land use," she says. "Only the sugar from field corn not consumed or not digestible by humans is used. The remaining vitamins, minerals and protein are returned to the animal feed supply chain, the intended use for the field corn. This might be a problem if you consider the corn sugar to be food, or think that wine production is affecting food supply. The volumes are also very small—in 2008, less than 2% of all US-grown corn was used to produce all the biomaterials offered in the US."

She points out that these issues are ones that is one that DuPont, as a multi-national corporation, takes very seriously, focusing on three global initiatives. Helping to feed the world is one of these, with the company taking an active part in research programmes to increase the amount of food farmers can produce from one hectare of land. There are also specific projects to improve the nutritional quality of African sorghum crops, for example, on which around 300 million people depend for food. The other big initiatives centre on trying to decrease humanity's dependency on fossil fuels and to safeguard life and the environment. Dawson Winch believes that Sorona contributes to all of these global initiatives.



German sports apparel brand Falke was one of the first companies to use Biophyl in its collections.

Falke.

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