

Cotton farmers grow food as well as fibre

Millions of farmers in developing countries depend on cotton as their main source of income but are vulnerable to volatile prices in world markets. Organic cotton clearly provides solutions to the negative health and environmental impacts of agrochemical-intensive production but does it keep farmers locked into dependency on export markets? Does it address food security issues? Alexandra Perschau and Stephanie Williamson address these questions.

Dependency on cotton can damage the welfare of farming families and even whole communities dramatically if market conditions change to the detriment of the cotton producers. Massive and unfair government subsidisation of US (and to a lesser extent EU) cotton producers has been blamed for keeping cotton prices low on global markets and causing severe hardship for poor cotton farmers elsewhere¹. At the same time, rising costs of fertiliser and pesticide inputs increase production costs, placing conventional cotton farming families in a high risk and precarious situation.

In contrast, organic cotton farmers derive income benefits from the savings made by not using synthetic agrochemicals and in most cases earn a premium on their seed cotton. Nevertheless, some NGOs working in the fields of poverty reduction and food sovereignty have concerns over whether organic cotton can reliably lift smallholders out of poverty, improve food security and empower rural communities to take greater control over their livelihoods. Is it ethical for Europeans to promote its production for export when hunger and

malnutrition levels are so high in Africa? Should we focus instead on supporting African farming communities to concentrate on growing food for their domestic and local consumption?

Food insecurity under conventional cotton

Research with conventional cotton farmers in Benin in Kpako village, Banikoara district, illustrated serious food security problems associated with reliance on cotton revenue to meet family food needs². Farmers judged that ten years earlier 90% of families had been food secure, measured by the ability to offer visitors a large bowl of sorghum broth. By 2001, less than 40% were able to do this, while 11% could not afford to offer any food to visitors. Farmers identified various factors contributing to food insecurity: expansion of cotton acreage and a decline in traditional food crops, especially yams and sorghum; competition between cotton and food crops for household labour at peak periods around cotton picking; severe delays in receiving payment from cotton companies; declining

yields of all crops due to soil degradation. The failure of conventional cotton to meet family needs was graphically demonstrated by accounts of families selling fertiliser and pesticide inputs they received on credit for cotton in order to buy food during the 'lean' season before food crops were ready. Tragically, such families were selling these inputs at less than half the price that would be deducted from their cotton harvest payments. Kpako village had formerly played an important granary role for the district but this had declined as farmers concentrated on cotton production and any food crops they grew were kept for family consumption. Anecdotal reports described some farm women having to travel to buy food as so little was grown locally, as farmers tried to grow as much cotton as possible, in order to generate cash to meet their household expenses.

Food cropping under organic systems

Evaluations by African organic cotton project partners in Benin and Senegal have described how farm families perceive their food security increasing after joining organic projects. Several benefits have been reported: ability to grow food crops as intercrops within cotton fields without risk of pesticide contamination; a wider range of crops grown as part of organic systems; and better income and food provision means farmers can devote less of their land to cotton. Organic cotton farmers working with PAN partner OBEPAB in Benin, for example, grow a range of food crops: cowpea; groundnut; maize; cashew; soya; and hot pepper. Cashew is mainly sold as a cash crop, whereas the other crops are partly for home use and partly for sale, as needs arise. Research by Organic Exchange [see pp10-13, this issue] shows that quite a large proportion of food crops grown by organic cotton farmers is kept in the household. For example, farmers in the BioSustain project in Tanzania consume over 60% of the sorghum they grow, 40% of their soya, over 80% of maize, 30% of mung bean, 40% of sunflower and 50% of their sesame.

Although many farmers in dryland agriculture have traditionally grown a variety of crops, energetic government promotion of cotton as the key for income generation has undermined this tradition. In contrast, under organic systems, some form of crop rotation is compulsory. Crop rotation is a cornerstone principle of good organic practice. Table 1 gives some examples.

Together with additional on-farm practices, crop rotation improves the diversity and stability of the whole production system and helps spread and minimise risk to the farming enterprise if a particular crop performs poorly in a particular season. Legumes are especially valuable in the rotation, due to their ability to fix nitrogen, increase nitrogen availability for subsequent crops and improve yields. Practices promoted by organic cotton projects



Mixed cropping of cotton, beans and peas

Photo: Saro Ratter



Sunflowers grown as trap crops around cotton fields in Tanzania

Photo: Saro Ratter

include intercropping, planting trap crops to attract specific pests away from susceptible crops such as cotton, integrating hedges and trees into the farmscape and making better use of on-farm or local resources, e.g. for composting. Several of these practices also provide the opportunity to generate additional sources of income from the whole farm and help to improve soil fertility.

Fibre, Food and Beauty

A new project by PAN Germany, PAN UK, OBEPAB in Benin and ENDA Pronat in Senegal explores ways to reduce dependency on cotton, increase farm income and improve on-farm biodiversity among organic cotton projects. Its value is especially relevant in the current situation of low cotton prices on the world market, the food price crisis and rising costs of conventional cotton production, including pesticide and synthetic fertiliser costs. An important objective is to look at how more diverse cropping can increase family and community food security. The Fibre, Food and Beauty project collaborates closely with Organic Exchange's Farm Systems Crop programme. In September 2008, a workshop was organised to discuss options to broaden the marketing of crops from cotton-based organic projects and address controversial issues. Representatives from organic and fair trade certification and promotion bodies, development NGOs, donors, development agencies and those working with smallholders in export markets met to discuss dilemmas with respect to smallholder livelihoods from organic cotton; cash crops versus food crops; global versus local markets; food sovereignty; climate change; and ethical consumption. One clear conclusion was that export market opportunities are not a 'magic solution' and that for some crops and farmers, identifying ways to increase local demand and market rewards might be more appropriate.

For example, women organic cotton farmers in Djidja, Benin, noted that their maize and cowpea was much appreciated by housewives and local consumers³. It could be useful to share lessons on how to achieve this kind of appreciation and translate it into more secure and stable market outlets.

Nevertheless, there are crops and other farm resources that have potential for marketing further afield. For example, the tree that produces sheanut butter grows abundantly in West African cotton growing zones and produces a nut harvest in excess of that required to satisfy local demand or existing export channels. One option could be to find ways to improve nut processing and quality for its many potential uses in cosmetic products. Since organic cotton certification covers the whole farm, not just the cotton crop, existing producers could easily add in additional crops. However, the project recognises that farmers will require

training in food hygiene and safety procedures if they are to sell to demanding European markets. The advantage is that they are already aware of the health problems of pesticide contamination and already undertake quality control and internal group monitoring for their cotton, so adding food safety precautions will be a logistical step, rather than changing a mindset.

African partners working with 5,000 organic cotton farmers are keen to discuss possible market options with European food companies who take an ethical stance and are willing to develop transparent, equitable and long-term relations with the farmers. To this end, OBEPAB and ENDA-Pronat participated in the Africa Pavilion of the international Biofach organic trade fair in Germany in February 2009, the world's largest annual organic fair. They exhibited organic produce including hibiscus (the flowers of which are used to produce a fruit drink known as bissap), cashews, sesame and the cereal fonio, a traditional high value speciality food prepared for weddings and other ceremonies but which is little known outside West Africa. Project partners are clear that local food security comes first in the future plans for organic cotton projects, and therefore all the food products exhibited at Biofach are either of no importance in food security terms or are available in amounts exceeding local and regional needs. For example, sesame is not part of the traditional diet in Senegal but it forms a useful component of a good rotation system so it makes sense to consider export options to increase its value.

The Fibre, Food and Beauty project has discovered that its approach to reduce poverty by marketing further agricultural goods out of organic cotton farming systems is new to most food traders. First experiences from the Biofach trade show that food companies were very interested to



Senegalese farmers in a hibiscus field, maize grown around the field

Photo: Malick Ndiaye, ENDA Pronat

Table 1. Rotation crops

Rotation type	Year 1	Year 2	Year 3
Pulses + cereals	Cotton (winter crop: wheat or pulses)	Pulses (soya, mung beans, cow peas, black gram, pigeon pea), maize or sorghum	Cotton (winter crop: wheat or pulses)
Vegetable	Cotton (winter crop: wheat or pulses)	Chilli, onion or other intensive vegetable crop	Cotton (winter crop: wheat or pulses)
Sugar cane	Cotton	Sugar cane	Sugar cane
Diverse rotation (from Tanzania)	Cotton	Sesame, safflower, sorghum or maize	Pulses (mung beans, chick pea, cow pea, pigeon pea, ground nut)
Rotation with herbal plants (from Egypt)	Cotton (winter crop: wheat or pulses)	Herbs (anise, basil, fennel etc)	Maize with clover intercrop

Source: Eyhorn et al (2005)⁴

find out more about food products from organic cotton projects and wanted to explore how their business could support the livelihoods of West African farmers.

Project partners will follow up on these leads for better local and export outlets during 2009-2010.

Endosulfan spill unleashes ecodisaster in Brazil

In November 2008 an accident involving a truck of the agrochemical manufacturer Servatis caused at least 8,000 litres of the insecticide endosulfan to spill into the river Pirapetinga in southern Brazil. This is a tributary of the major river Paraíba del Sur, which flows through 3 densely populated states and is the sole source of water for 37 municipalities in Rio de Janeiro state. According to the state environmental engineering agency FEEMA, total tank capacity of the truck was 30,000 litres and one week after the accident, the company had only been able to recover 12,000 litres mixed with rainwater, trapped by the on-site retention dyke. Servatis originally claimed that only 1,500 litres has been spilled, but FEEMA estimates from the damage caused to the river wildlife that the volume could have been ten-fold greater.

Endosulfan contamination of water resources put at risk 12 million inhabitants along 1,120 km of the affected rivers. In numerous towns, all water supplies were cut off for several days by the authorities as a precautionary measure, affecting over 70,000 people. All fishing and the consumption of local fish was prohibited. Analysis of the river water revealed endosulfan concentrations of 70 microgram/litre, when maximum levels permitted for fish are only 0.2 microgram/litre, explaining the high mortality levels observed. Maximum tolerance levels of endosulfan residues for humans are 20 microgram/litre.

The immediate visible effects of the endosulfan spill were thousands of dead

fish, water birds, turtles and mammals. The toxic tide contaminated the rivers at the height of the fish spawning season, resulting in very high fish mortality. Biologists estimate that 80 fish species have been severely affected, jeopardising reproductive success for the next three years, especially for large species with a low reproductive rate. The state environmental agency along with the national institute for environment and natural resources IBAMA are compiling an impact assessment and need for a temporary ban on fishing to allow remaining stocks to recover.

State authorities are taking action against Servatis for criminal damage, as is the Field Fishing Association. The company had already been fined three months earlier for contaminating water. The state commission for environmental protection has imposed a new fine of US\$12 million for negligence, leaving retention dykes open and failing to inform the authorities of the spillage as soon as it occurred. PAN Brazil has raised concerns about the longer term impact on health and welfare of the river-dwelling population, which is highly dependent on fish for food and livelihoods, and is demanding the closure of the Servatis factory and compensation for environmental and social damage caused. In March 2009, Rio de Janeiro state environmental secretary proposed legislation to prohibit the production and formulation of endosulfan state-wide.

ENLACE, PAN Latin America newsletter 83 pp22-23, January 2009, RAPAL on-line news, 11 March 2009, <http://www.rap-al.org/>

1. Oxfam, *Cultivating Poverty. The Impact of US Cotton Subsidies on Africa*, 2002. http://www.oxfamamerica.org/newsandpublications/publications/briefing_papers/cultivating-poverty
2. PAN UK, *The Dependency Syndrome: pesticide use by African smallholders*. Pesticide Action Network, London, 2003.
3. PAN Germany, *Back to the roots: the farmers perspective on organic cotton production and marketing*. Proceedings of workshop and field visit in Benin, 26-30 October 2004, 2005. PAN Germany, Hamburg.
4. Eyhorn F, Ratter SG, and M Ramakrishnan, *Organic Cotton Crop Guide*, p16. FiBL Research Institute of Organic Agriculture, Frick, Switzerland, 2005. ISBN 978-3-906081-67-0

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Work with PAN UK to reduce pesticide dependency!

We are seeking new members for our Trustee Board. The Board sets the strategic framework for the Pesticide Action Network UK's (PAN UK) work and ensures its financial and operational accountability. At this time, we are specifically looking for people who will bring experience and skills in governance of charities, fundraising, legal issues and/or campaigning to the Board. We are also looking for someone who is willing to serve as Vice Chair.

PAN UK produces Pesticides News, and runs a variety of programmes in support of our mission to eliminate the most toxic pesticides, reduce overall pesticide use and raise awareness and use of sustainable alternatives. Examples of our work include running an enquiry service for those affected by pesticide exposure, international advocacy on the restriction of the most toxic pesticides, project work in West Africa supporting the growth of organic cotton, and campaigning for pesticide reduction in the food chain.

Each year there are three daytime meetings in London, and one annual awayday with the staff team, which involves an overnight stay. The role of trustee is voluntary but travel expenses will be reimbursed.

For further details about PAN UK's work, and the role of trustee and chair, see www.pan-uk.org.