

Better food security for Senegal's organic farmers

Cotton farmers in Africa are at the mercy of fluctuating prices on world markets. Local NGOs are helping organic cotton farmers to market a greater range of crops from their organic rotations improving their food security and income. Such projects are being carried out in several regions of Senegal. Jörg John reports on developments in the Koussanar in the south of the country.

Resource-poor cotton farmers depend on income from their crop to feed their families. But fluctuations in world cotton prices have made them exceedingly vulnerable. A number of local NGOs are working with organic cotton farmers in Senegal helping them market other crops produced in their organic rotation.

Yakaar Niani Wulli Federation

The Yakaar Niani Wulli (YNW) Federation has been working for more than 10 years in seven rural communities in the Department of Tambacounda in the south-east of Senegal. Its goal is to encourage the sustainable development of land use, the protection of nature and respect for local values. The Federation receives technical and financial support from the non-governmental organisation ENDA Pronat and its headquarters are currently in Koussanar. The Federation comprises 2,000 organic farmers in 85 villages. These are constituted in 12 farmers' unions which are represented in the management committee of the YNW

Federation. The Federation has organic certification from Ecocert for cotton, fonio (a cereal crop), sesame and bissap and has fair trade certification from FLO-Cert for cotton. To improve the food security of its members the Federation has sought to ensure access to different income sources by expanding its activities to include research, marketing and processing.

ENDA Pronat

Pronat (Protection of Nature) is part of the international organisation ENDA Third World. It was set up in 1982 with the objective of fighting the massive over-use of synthetic agrochemicals. After a phase of raising awareness of the problems of agrochemical use amongst stakeholders in Senegal and other West African countries, the programme dedicated itself to developing alternative farming systems with small-scale family farmers in the three zones of Senegal which had been most intensively using agrochemicals: Les Niayes area; the Senegal River valley; and Koussanar in the

Department of Tambacounda. More recently they have started work in a fourth zone seriously degraded by decades of peanut cultivation in the region of Fatick.

Alternatives for safe and sustainable agriculture (both rainfed and irrigated) are now available for growing vegetables, cereals and other market crops (cotton, sesame, bissap, peanut) and there are strong peasant farmer organisations in the first three regions. Some of their agricultural products have obtained organic and fair trade certification. These results would not have been possible without paying specific attention to the training and active participation of women and young people and required Pronat to raise awareness of biodiversity, GMOs, peasant seeds and fairer trading in the context of Senegal and the West Africa sub-region.

Organic cotton in Koussanar

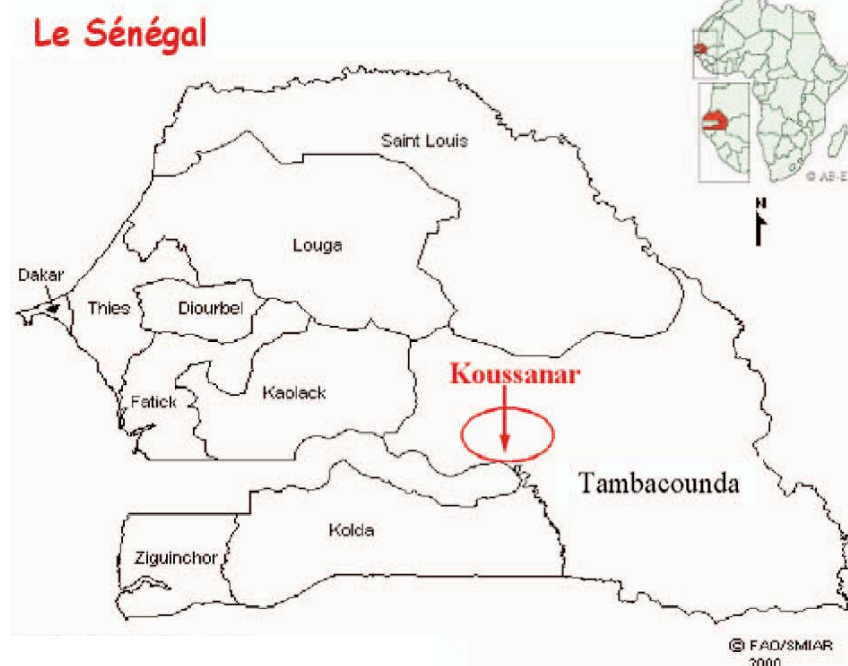
In 1994 ENDA Pronat carried out its first trials of organic cotton with Koussanar farmers. Organic certification was first achieved in 1997 coinciding with the establishment of the Yakaar Niani Wulli Federation. Subsequently the project has been involved in developing agronomic protocols for the organic production of other crops and supporting processing initiatives. This change in emphasis was prompted by the difficulties experienced in marketing organic cotton at international level and difficulties in processing the organic cotton within Senegal [PN62, p7 Dec 2003].

Other crops

Of all the crops grown by the YNW Federation farmers, the most important in terms of food security or income generation are millet, maize, sorghum, peanut and cotton. Other food crops are mainly for household use, although they may be sold occasionally. These include fonio (a cereal), rice, and cowpea, (which may be intercropped with cotton). Ingredients for sauces such as okra, white and red hibiscus (for bissap juice), pepper, aubergine, cassava (also as an emergency food) are often grown by the women on small plots near to the house or in the household compound. Certain food crops which had been neglected have been re-introduced thanks to the Federation, such as fonio, indigo plants for obtaining dye and sesame as a cash crop.

Crop rotation

Traditionally on a plot of 0.25 hectare (ha) or larger, one year of peanut (a nitrogen-fixing crop) cultivation is followed by two or three years of cereal cultivation and then three to five years of fallow. Typically a household will cultivate three or four fields under so-called 'large-scale crops' (cereals – millet, maize, sorghum – and peanut), depending on how much labour is available within the family. Other crops such as rice, fonio, sesame, cowpea, hibiscus or indigo





Senegalese farmers prepare the soil before planting cotton

Photo: ENDA Pronat

only take up a small space (less than 0.1 ha) and are usually grown by the women.

Crop rotation choices for organic farming under the ENDA/Federation programme broadly follow traditional patterns, aiming to increase revenues from cotton, fonio and sesame which benefit from residual nitrogen in the soil after a year of growing peanuts.

Market challenges

However, the Federation's hopes for a good income from rotations based on organic and fair trade cotton have proved disappointing. In the case of fonio, sesame and bissap, the Federation has little or no influence on the supply chain and struggles to manage production goals effectively in the face of national and international market prices and demand fluctuations, especially for cotton. Access to a more stable supply would improve their bargaining capacity. However, to ensure a more stable supply farmers would have to grow greater volumes and most are unwilling to do so at the expense of growing food for their families.

Until 2006, Federation farmers were free to choose which crops they grew for organic certification. However, from 2007 the Federation has sought to encourage fonio and sesame production in certain areas. Specific zones or farmer groups obtaining good yields of these crops were selected to help reduce costs as project subsidies dried up. The same strategic decision was made in 2008 for cotton after analysing the cotton yields and economics of the different farmer groups in the Federation. Only six of the 12 farmer groups were favoured for growing certified organic cotton. This decision has helped rationalise costs and improve yields but, as a result, fonio and cotton are now often grown in different areas and are not economically feasible within the same rotation, due to the labour requirements. The Federation and ENDA nevertheless hope that in the medium term all the farmer groups will eventually be able to receive technical support,

once the 'specialised crop zones' are able to cover their costs.

Increasing farmer capacity

Several motivating factors seem necessary to maintain a diverse rotation system, to help farmers become more professional and to increase their income on a sustainable basis. These include improved access to farm equipment; better supply/demand management, better training and implementation of food safety standards in processing units and increased market profile at local, national and international levels.

To achieve this, the Federation's technical and management capacity must be improved. These activities should be accompanied by teaching environmental awareness and agroecology at school and college level to encourage the next generation into decision-making roles in the Federation.

Creating local markets

ENDA and the Federation have worked together to get the different crops into local and national markets. However, according to the Federation, these efforts have not achieved a completely fair trade. To improve this, the income needs to be more equitably redistributed to the different cropping groups growing bissap, fonio and sesame. In this regard, there are instructive lessons from organic and fair trade cotton experiences.

Cotton

Firstly, attempts to export this certified cotton via the SODEFITEX cotton company did not provide farmers with any real benefit. There were problems with seed provision and SODEFITEX made very late payments to farmers. Both of these problems demotivated the farmers. Secondly, agreement to ensure the spinning and weaving was carried out by the families has not benefited the women involved as they have only received a small increase in their

income, reinforcing the inequality between the sexes. ENDA and the Federation are trying to find a solution by building a completely integrated processing chain up to the finished garment. According to preliminary studies, the sale of garments in the national market would increase the spinners' income fourfold and make handmade indigo dying profitable.

Dehusked and pre-cooked fonio

Experience gained with French organic/fair trade company GAIA provided useful training in processing techniques to generate a high quality product in taste and nutritional terms. However, the 'value added' by this processing in France was not shared equitably and was not transparent. Consequently, the Federation decided to look at national market opportunities and to set up their own processing unit.

Farmers can sell to a Dakar-based trader at wholesale prices of 800-1,000 CFA/kg (£1.22 to £1.53/kg) while direct sales to consumers in Dakar can achieve 1,500-1,600 CFA/kg (£2.29 to £2.44/kg) if the fonio is well-packaged with a logo and sales outlets detailed and if the supply is reliable. To organise direct sales, prefinance arrangements for buying from producers are needed, to help with storage and to ensure the required hygiene levels in the processing unit. Finance capacity at harvest time is crucial: the Federation must have funds to buy the available organic fonio at least at the price offered by farmgate dealers or in wholesale markets. The Federation has been able to use credit from a bank or mutual society to reserve at least part of the fonio harvest and to take on some of the risk of poor sales of the unprocessed fonio.

Prefinancing problems exist for the other crops, especially cotton. If payment for organic and fair trade produce is late from SODEFITEX (the only ginner in Senegal), farmers' motivation to grow organic cotton is undermined. For fonio, public procurement (school and hospital canteens) could be an interesting outlet for large volumes if the logistics can be organised by the Federation.

Sesame

Although sesame is exported in unprocessed form, processing of sesame seed oil could find national outlets in culinary or cosmetic applications. Preliminary deliveries have been made to private clients but current quality is unreliable. Price setting is rather inflexible. Local customers are unlikely to accept prices above 1,400 CFA per litre (£2.14 per litre), while oil production costs are around 1,200 CFA per litre (£1.83 per litre). Technical improvements in oil pressing methods and product quality are needed, along with better presentation and market visibility. High prices can be achieved for healthy and safe cosmetic products (organic but without international level certification). The Federation is working with partners to explore the pos-

sibility of developing good quality soap and body lotions in Koussanar. Export of unprocessed sesame seed does not appear problematic in terms of affecting food security since few people in Senegal eat it and it is easily integrated into the rotation. Local processing of sesame could be an attractive option if prices stay stable or increase, which looks likely. The disadvantage is in the increased dependence on export markets which the Federation cannot influence.

Bissap juice

The first pilot trials on processing around 400 kg of quality bissap were done in 2007 and attracted a network of women processors who made an advance order for five tons of dried hibiscus flowers for 2008, for organic produce. They did not demand certification at European standard but did want to see production protocols and the internal control system already in place for cotton, fonio and sesame. Linked to an African platform for fair trade values, a national plan of action has been made and a generic protocol launched, starting with bissap juice for the foodstuffs component. It includes prefinancing for quality hibiscus seed via a processing network, closely linked to purchasing with a preliminary price at harvest, followed by a final price agreement. Data collection and monitoring of production and processing will allow the chain actors to decide on fair prices for all, sharing the proceeds of adding value and providing useful information to feed into development of a bissap protocol for fair trade and organic in Senegal.

Peanut

Market options exist for organic peanut in the national market, for raw nuts and peanut butter. The latter could be very attractive since a bucket of 15 litres could double in price between farmgate in Koussanar (8,000 CFA; £12.21) and retail outlets in Dakar (22-25,000 CFA; £33.59-£38.17).

Many factors play a role in developing local markets for organic produce including:

- organising quality production
- assuring adequate storage, processing and packaging capacity, especially for food safety and hygiene
- careful selection of packaging and market outlets
- facilitating good relations between stakeholders within the value chain regarding procedures and methods to guarantee transparency

ENDA and the Federation recently succeeded in getting more support from the state, particularly the Ministry of Agriculture and Senegal's First Lady, in support of safe and sustainable agriculture as a priority in national agriculture policy. The government, convinced by results with alternative agriculture, is now ready to protect the environment in zones such as Koussanar.

DDT study prompts Ethiopia to adopt safer malaria control

This report, published by the Institute of Sustainable Development in Ethiopia, presents the alarming findings of a survey of over 400 smallholder Ethiopian farmers in the Rift Valley. The key finding was that almost a third of farmers use DDT on their crops, despite it being banned globally for agricultural use. Ethiopia is one of the African countries that started using DDT to combat malaria, following a now-retracted WHO statement in 2006 giving DDT 'a clean bill of health' for indoor spraying, and this study is the first to indicate such widespread failure to control leakage into the agricultural sector. In general, it systematically documents a reality that most African researchers and regulators are familiar with through personal experience and informal hearsay, but which is generally not available in such a rigorous and factually based format. This study was the starting point for a chain of events since 2007 which culminated recently in the Ethiopian government declaring a switch from DDT to deltamethrin for indoor residual spraying (June 2009).

The researchers had attended a 'training of trainers' in monitoring of pesticide impacts on the environment in 2007, and followed up their training by conducting this research study in Arsi Nergele and Ziway districts in the Ethiopian Rift Valley. As well as documenting the conditions of use of pesticides, the study also took the opportunity to train 70 high school students and their teachers, who were the data collectors for the study.

The study adopted a statistical approach to sample selection, using a single population proportion formula and selecting 23 villages and 422 respondents at random. The questionnaire was translated into the local language and pre-tested on 20 farmers before being administered. The survey cov-

ered four general themes: background of the farmers, pesticide practice, pesticide knowledge and perception, and pesticide use and perceived environmental effects. Key findings on pesticide use and abuse include:

- while 94% of farmers use pesticides, almost 30% claimed to use IPM methods to protect their crop
- 28.7% of farmers use DDT to protect their crop
- 51.9% wear their normal clothes when spraying, while only 1.7% used a mask and less than 10% wore glasses or goggles. Boots were the most commonly used protective equipment, worn by 33%
- 31% indicated that they 'nearly always' felt discomfort after using pesticides
- 37% store their pesticides in the house, including kitchen (6%)
- 38% of farmers use out-of-date pesticides, and 49.4% use empty containers for food or drink storage
- 60 poisoning incidents had happened to surveyed farmers and their families, mostly while preparing or spraying pesticides

The questions on the perceived environmental effects indicated that large numbers of farmers notice decreases in non-target organisms, such as spiders (40%), bees (57%) and other pollinators (37%). A quarter to a third of farmers noticed differences in water quality and aquatic life. 22% had heard of an environmental incident happening in the previous year.

A Rapid Risk Assessment for 2,4-D identified moderate risks mainly due to the mis-handling and incorrect use by the untrained farmers, particularly to non-target vegetation, aquatic wildlife, and algae in the soda lakes nearby. Risks to human health were also considered moderate, given the likely escape to watercourses. For DDT, the risks were higher for animals higher up the food chain, and it poses a high risk to ecosystems under any conditions.

An assessment of pesticide use, practice and hazards in the Ethiopian Rift Valley. Tadesse Amera & Asferachew Abate, 74pp, softback, ISD, Addis Ababa, 2008.

Can export markets respect sustainable development?

Exporting crops can benefit households if exports:

- generate sufficient income to support investment in sustainable development for organic farm families and processing groups
- enable household food crops to be grown at the same time or enable farmers who want to become more entrepreneurial to diversify into suitable cash crops and earn income to buy food in local markets
- enable crop processing units to invest in equipment maintenance and renewal
- enable equitable sharing of benefits among supply chain actors
- achieve greater benefits from exporting processed foods

In Senegal it seems judicious to favour

export of processed goods (value-added), based on raw materials of little importance in the staple diet, such as sesame, bissap, cotton and fonio. Experience to date demonstrates that simply imposing European standards and prefixed prices through either organic and/or fair trade certification do not guarantee adequate remuneration or a fair share of the benefits. In the medium term, developing national guarantee systems with local stakeholders and distinguishing national market context from international market issues are essential to foster real organic and fair terms from the field to the end consumer.

Jörg John is Programme Coordinator for Sustainable and Healthy Agriculture in Senegal, ENDA Pronat; pronat@enda.sn