

Changing farming practices

Editorial

Over the past 50 to 60 years, the focus of agricultural development and research has mainly been on maximising yields, coupled with increasing specialisation of production and ever larger farm sizes. Although yields have increased substantially, contributing to raising total production, farmers and the environment have had to pay the price for keeping up with this development. During the last two decades, many farmers have chosen to make the transition to practices that are more environmentally sound and that have the potential to contribute to the long-term sustainability of agriculture.



Tree fodder for dairy cows of a farmer organisation, near the town of Mbale in Eastern Uganda. This organisation owns a cooling tank and the milk is sold daily to customers in Mbale.

Across the world, the factors that encourage individual farmers to begin this transition process share some similarities. The continuing drop in prices of farm produce and the rising costs of agricultural inputs have made farming increasingly unprofitable, leading farmers to seek new ways to increase the farm returns and incomes in order to stay on the land. Farmers and supporting organisations have been developing new practices that provide viable alternative options, and also working to find new and stronger markets for products grown and processed in a more ecologically sound system. Last, but not least, there is an increasing environmental awareness among all actors: consumers, producers and administrators.

Yet, the conversion process from conventional practices to more sustainable farming systems can be rather complex. It is not a simple task for large-scale or industrialised farmers to move away from a farming pattern that depends heavily on external and chemical inputs, and put their trust in a farming system which relies instead on the optimal use of natural processes. A conversion to a more productive and a more sustainable agriculture is also not straightforward for small-scale farmers. They are often marginalised, lack secure access to land and the natural resources available are commonly degraded, quite often by their very own farming practices. They lack access to resources and information, which makes it difficult for them to invest in improving farming systems. Efforts to improve farming practices, therefore, need careful planning and implementation. For that reason, it is crucial that we explore and analyse ongoing conversion processes globally, with the intention to learn from them and so be able to better support farmers in their transition processes.

Redesigning the farming system

There is no single recipe to follow when developing a sustainable farm. The move towards more sustainable ecological practices depends largely on local agro-ecological conditions and on local socio-economic circumstances, as well as on farmers' individual needs and aspirations. As such, the transition process can vary greatly from case to case.

However, there are general ecological principles which farmers can build on. One of the characteristics of sound ecological farming is that instead of focusing on the solution of problems, the main aim is to prevent these problems in the first place. Diversity on farms is one way to achieve this; with a range of crops and/or animals, farmers will suffer less from price fluctuations or drops in yield of single crops. Maintaining diversity will also provide a farm family with a range of products to eat or sell throughout a large part of the year.

Diversity of tree, crop and animal species on farms helps to establish a more balanced ecosystem and avoid the spread of pests and diseases. It also helps farmers to increase their sources of livelihood and avoid taking large economic risks. Other principles of ecological farming include maintaining a healthy soil, recycling nutrients on the farm, and utilising approaches such as integrated pest management (IPM).

A conversion to ecological farming requires farmers to learn about such ecological principles and to have access to innovative ideas, information, insights, and additional skills. Conversion to ecological farming requires a shift in thinking, and probably the most important conversion has to take place in the mind of the farmer. To the farmers' advantage, there are many organisations promoting ecological agriculture, which provide ample reflections and inspiration for conversion to a more sustainable agriculture (see Sources on page 38). In addition, learning about useful natural processes can also be facilitated through training courses, visits to experienced ecological farmers, studying suitable educational materials and consulting professional advice. The Farmer Field School approach has also proven to be a very effective tool for cultivating farmer learning and developing capacity for critical thinking (see also *LEISA Magazine* – March 2003; vol. 19 no. 1).

Several cases presented in this issue show that it is important to assess the opportunities and risks of the intended changes in farm practices, before starting the conversion process. This includes an analysis of the resources available on or close to the farm, and some creative planning of how these resources can best be utilized by the family. Some key questions here address the type of activities which should be developed. Which of these should be implemented first and which only at later stage? How can the different components of the farm be better integrated so that they support each other? Should new components be introduced to further complement and build up the agro-ecosystem? These may include, for example, animals for economic reasons and for manure production (Ntapi and Njakoi, page 14), *Rhizobium* strains for nitrogen fixation by leguminous species, or woody species in developing agroforestry systems. Vercauteren (page 30) discloses that introducing the growing of fodder grains mixed with a grass/clover combination solved one of the main worries of the transitional farmer-labour requirements for weeding- while the new feed production scheme also substantially cut down on commercial feed expenses.

The examples from Beechenhill farm in the U.K. (page 16), Cabiokid in the Philippines (page 24), and the Mouton family farm in Belgium (page 30) show that a conversion to ecological farming can be realised without involving many outsiders and within just a few cropping seasons. In the case of seeking organic certification, the length of this process is often defined more by the regulations set by the certifying organisation than by technical difficulties associated with the conversion. Such difficulties, however, often play an important role in the case of resource-poor or isolated smallholder families, for who it is generally more complicated to oversee all potential difficulties and risks of such a transitional process: where to get the required knowledge and skills, how to overcome existing socio-cultural barriers to change, how to survive if yields (temporarily) drop. In these cases, it is often advisable to follow a process that proceeds in slower steps and involves support from members of the local community as well as outsiders.

Laying a foundation for change

All over the world, there are projects or programmes working together with farmers on the development of farming practices that can provide a foundation for a transition towards more ecological farming systems. The focus is usually on introducing practices that are essential for the development of a more sustainable agriculture which at the same time involve low risk. An example of such a “best bet” technology is soil and water conservation. It is very difficult to develop a sustainable farming system where rampant soil erosion problems exist. Farmers who have managed to prevent the loss of soil nutrients, soil life and rainwater by investing time and energy in developing proper soil and water conservation structures (for example terraces, ditches, and vegetation strips on sloping land), experience immediate gains in crop production. Other relatively simple changes include better timing of operations, improved crop spacing and densities, using more appropriate tools and machinery, pest monitoring for more sensible pesticide application, and precision farming for manure or compost and water application based on local conditions. In some cases, conventional agricultural research has also focused on reducing the use of costly, scarce, or environmentally damaging inputs and some interesting agricultural technologies and practices have been the result. Such efforts can increase the efficiency of conventional practices and are widely promoted by development initiatives all over the world.

Finding alternatives

Going a step further than just trying to reduce the negative effects of conventional agriculture, conventional external and chemical inputs can be replaced with environmentally friendly alternatives. Examples of such “substitution practices” include the use of nitrogen-fixing plants and rotations to replace synthetic nitrogen fertilizers, the use of biological control agents rather than pesticides, and shifting to reduced or minimal tillage of the soil. This typically involves experimentation by farmers with locally available materials. Complemented with meetings and discussing with other farmers, these activities can be very enlightening and inspiring and help in building new knowledge and skills. In addition, they boost the farmers’ curiosity to experiment with more different options, as well as a feeling of solidarity between members of a farming community, all important aspects for ultimately developing sustainable farming systems.

However, as mentioned by Funes (page 10), the experiences in Cuba show that many of the problems that exist in conventional systems also occur in farming systems where changes are characterised by input substitution only. It is therefore imperative that smallholder farmers make the ultimate move to redesigning their farm in such way that maximum benefit can be derived from integrating different ecological principles. Some issues require special attention for farmers to be able to make that step.

Incentives for changing

Farmers are often prepared to experiment with, or adopt new farming practices, when they feel that they are in a position to carry out such practices, and when they perceive that some benefit will be gained from it. It is therefore crucial to include several socio-economic considerations in the process of changing farming practices with smallholder farmers.

As the different examples in this magazine show, there is clearly a need for farmers to become better organised. By developing local groups and community institutions, the creation of “social capital” can play a role in learning activities, in participatory planning, in experimentation and development, and in creating healthy, effective relations with external organisations and professionals who are willing to work in good partnerships with the local people (see Bakewell-Stone, page 20). Whereas a single farmer may not be able to provide a sufficient quantity to markets or buyers of ecological produce, forming producers associations can be advantageous.

Other encouragement for farmers can include the free provision of some initial tools and materials, which in some cases can be transferred to other farmers in a revolving scheme. The conversion process generally also requires financial investment and this implies that making some credit facilities available to farmers could be advantageous. It might be possible to develop such credit facilities within the local community or involve farmers in building financial reserves for in case unforeseen costs arise (see Ntapi, page 16). McClintock (page 26) and Peeters (page 22) show that, for some of us, educating and inspiring others can provide the lasting motivation for developing sustainable systems. Lastly, we believe that providing information is an essential incentive: showing that it is possible to make the transition to more sustainable farming practices, and that there are many advantages in doing so.