

## **Nature Conservation Advisory Service for Farmers - A New Approach to Integrate Nature Conservation on Farm Level**

THOMAS VAN ELSSEN

### **The Impact of Agriculture on Landscape Development and Biodiversity in Europe**

From a historical point of view, it is obvious that agriculture is responsible for building the cultural landscapes of Europe. In a process of hundreds of years, the natural landscapes had been replaced by cultural ones. Of course, agriculture led to extinction of at least some mammal species, but replacing the forests by settlements with pastures, meadows, orchards, arable fields and structural elements increased the number of plant and animal species in the landscape. Several species were introduced from other continents.

Since the introduction of mineral fertilisers and pesticides, the role of agriculture has changed. Nowadays modern farming techniques are accused of being responsible for the decrease of species numbers and a decay of the cultural landscapes in Europe. Two different tendencies affect biodiversity quite strongly: the high input of chemicals and fertilisers in regions with good soils and high yields, and the abandonment of farmed land in marginal regions with shallow soils and difficult climatic conditions (such as mountain areas). Both tendencies lead to a decline of biodiversity. In highly productive areas only few species survive the regular spraying of herbicides, insecticides and fungicides, and in marginal regions species disappear that depend on agricultural measures like ploughing, mowing of the grassland and other agricultural operations. In the course of succession, shrubs and trees take over, and farmers themselves become species of the red list data books.

### **The Contribution of Sustainable Farming to Biodiversity Conservation**

The conversion from conventional to organic farming means to stop using pesticides and mineral fertilisers, mostly wider crop rotations and – if conversion is aiming for cycles of energy and nutrient flows – mixed farms with both plant and animal production. Many investigations have proven that nature benefits a lot from organic farming. More wild arable field plants and insect species on the fields, more birds on the farmland, a higher diversity of organisms under the surface of the soil and populations of micro-organisms being more active have been found in a lot of investigations (cf. WEIGER & WILLER 1997, VAN ELSSEN 2000, SOIL ASSOCIATION 2000). Organic farming can integrate contributions to biodiversity conservation in its farming system, whereas former approaches of the nature conservation movement often tried to preserve biodiversity separated from the area where intensive production takes place. For example the field margin programmes, which are implemented in Germany, Great Britain and Denmark, compensate the farmers for not using pesticides along the edges of their conventionally managed fields. In the unsprayed field margins, arable field plants and wildlife are allowed to develop, whereas the rest of the field is managed by using chemicals. Within the nature conservation movement

such approaches are more and more replaced by a demand for extensification of land use in general: a shift from “separation” to “integration” is taking place (cf. the campaign “Landschaft schmeckt” [landscape’s tasty] of the German NGO “Naturschutzbund”).

Does organic farming fulfil the expectations of the nature conservation movement? A closer look at the situation of organic farms shows that there are still problems to be solved, that improvement of organic farming techniques is needed to preserve and develop biodiversity on the organically managed land. For example the biodiversity of many grassland communities depends on extensive mowing or grazing systems, which normally cannot be reached just by converting to organic farming. The cutting regime and frequency does not differ that much from management on conventional farms. Frequent cutting of field fodder (clover grass) keeps sky larks from successful breeding, and cutting grassland for silage in May prevents most plants from flowering and producing seeds; the number of plant species decreases. – Few organic farmers grow old varieties or crops or use old breeds of livestock. The tendency towards large fields without special biotopes and with only few structural elements does not differ that much from conventional farms – nowadays cultural landscapes do not develop just by conversion to an environmentally friendly management system. Also the abandonment of marginal land cannot be stopped by conversion.

Despite these points, where improvement is still needed, organic farmers already contribute a lot to the preservation of biodiversity. In a project about the optimisation of organic farming under the aspect of preserving biodiversity, which was supported by the German Federal Agency for Nature Conservation with funds of the Federal Environment Ministry, different examples of farms were investigated, whose farmers have different approaches to integrate nature conservation goals into their management system. On most of the farms, the planting of hedgerows has been an important issue. Hedges prevent soil erosion and attract birds and insects, including beneficial organisms for the health of the crop. At least some of the farmers are also interested to use leaves and branches as winter fodder for their livestock. Especially in regions with large fields and before having converted to organic management schemes, some farmers have made big efforts to structure their land by planting hedgerows and trees and creating biotopes like ponds and walls of stones collected on the arable fields. If it is not possible to build perennial structures like hedges, a strip of spontaneous or sown flowers can easily be introduced to attract beneficial insects and to contribute to an aesthetic and diverse structure of the landscape.

### **Quo Vadis, Organic Farming? – Landscape Development by Organic Farming: A Challenge for the Future?**

Despite many examples of farmers contributing to landscape and nature conservation as a consequence of the growing support for conversion, more and more farmers decide to undertake conversion more for economical than for idealistic reasons. Will it be possible to combine the quantitative growth of organic farming with the aim to preserve and even increase biodiversity by organic farming?

Modern landscape development on organic farms needs:

- a participatory approach (bottom-up instead of top-down planning),
- a qualified advisory service for farmers who are willing to improve their impact on biodiversity,
- support for farmers by better agri-environmental schemes, which help farmers to realise locally adapted concepts,
- better education at agricultural schools and universities.

There is a growing demand to improve the guidelines of organic farming and to integrate the task of nature development and the “production of biodiversity” into the regulations. However, the better landscape is not produced by better regulations but by farmers who are willing to improve their land, who are convinced of this task, and who change their attitude towards nature. This needs advice and education; it needs a participatory approach and cooperation between landscape planners, farmers and experts from the nature conservation movement. The integration of nature preservation is not only a question of natural or environmental sciences, but a social question, how people with different professions and backgrounds can work together: the farmers with their unique experience in managing the land, the environmentalists and biologists, who know the species, and customers and friends of the farm, who practically give hands to support the farmer to improve the landscape, and who care for biotopes. Landscape development can become an added value of multifunctional farming, being the starting point of a new culture of the European landscape.

### **Approaches to Improve the Positive Impact of Organic Farming on Nature and Landscape**

The conversion to organic farming already means a contribution to nature conservation. However, organic farming also shows a tendency towards intensification and specialisation, which reduces these positive effects. Do organic farms show the interest and the will to integrate certain measures of nature conservation (such as planting of structural elements) in their farm? By acting this way they could push forward the leading role of organic farming towards a multifunctional and environmentally friendly type of agriculture (VAN ELSSEN & DANIEL 2000).

In order to help and to support farmers, an advisory service for organic farming was implemented at the “Competence Centre for Organic Farming” in the German state of Lower Saxony in November 2001, after a test-period of four months. The intention of this offer is to support farmers with an on-farm-advice service to put more means of nature protection into practice on their farms.

The advice for single farms is provided directly on the farms, but often help via telephone communications can also solve a lot of problems. The advisory service is an “all-round service” including support on the following issues that often consists of more than only advisory talks:

- Development of ideas and practical actions that can be implemented on the farm.
- Practical realisation of these actions.
- Advice for financial support activities.
- Communication-support if there are problems with nature conservationists.

- Organizing actions together with nature conservationists and other groups.

The advisory service is based upon the needs and the interests of the farmers. They are supported in realizing their own ideas and to optimise approaches under the aspect of nature conservation. Many farmers have taken advice and a lot of measures have been implemented successfully on their farms. The interest in the service shows the good will of farmers to integrate aims of nature conservation. On the other hand qualified support is needed to find the right means for each farm and for the special landscape concerned. It helps a lot that the advisory service in Lower Saxony is linked to an agricultural advisory institution. The service is a model being unique in Germany and supporting the development of organic farming towards a farming system that also develops nature.

Besides implementing such advisory services all over the country it is still necessary to improve the concept, especially by developing model farms, using participatory concepts to develop nature and landscapes on farm level as good examples (evaluation report: VAN ELSEN et al. 2003). To support these aims and to build up a network for nature conservation advisory services on farm level, a new project has started in Germany at the German Research Institute for Organic Farming (Forschungsinstitut für Biologischen Landbau, FiBL).

### **What Motivates the Farmer to Integrate Aims and Objectives of Nature Conservation?**

During the project “Optimising nature conservation on organic farms” (see above), farms were investigated which integrate approaches of nature conservation into their practice (VAN ELSEN et al. 2002). What is the motivation of these farmers to deal with questions of nature conservation and landscape development, and – furthermore – to create and develop their landscape actively? Which circumstances allow such initiatives? What are the motives behind them?

The following hypotheses were the starting point of the investigation:

- There are organic farms that are exceptional among organic farms concerning their engagement in nature conservation and landscape development.
- There are different motives that lead to actions.
- There are different ways of acting and different systems of knowledge applied in order to find ideas and realise means of landscape development.

Due to the lack of previous investigations an explorative approach was chosen. In different regions of Germany, 13 interviews were carried out on organic farms belonging to different certifying organisations. A wide spectrum of farms with respect to size, geographical location, structure, social structure and assumed intentions of the farmers were chosen. The interviews were carried out using methods of qualitative social analysis (MAYRING 1988, STRAUß & CORBIN 1996).

The results show that the motives of the farmers are exceptionally intrinsic in nature. Especially their relationship to nature is very important. Two types can be discerned, one of which is an “intimate” relation

to nature, which is characterized by a close connection to nature and landscape including feelings and the ability of “living within”. The other type is characterized by a “more distant” relationship to nature.

With respect to the reasons for acting, again two types can be found: On the one hand the protection of endangered plant and animal species and biotopes, and on the other hand a phenomenological approach with a strong connection and reflection of own experiences. Such farmers rather have the whole farm in their mind. The measures implemented on the farms are more similar than the approaches of the farmers.

## References

- VAN ELSSEN, T. 2000: Species diversity as a task for organic agriculture in Europe. – *Agriculture, Ecosystems & Environment* 77 (1-2). Special Issue: "Criteria for sustainable Landscape Development": p. 101-109. Elsevier, Amsterdam/ Lausanne/ New York/ Oxford/ Shannon/ Tokyo.
- VAN ELSSEN, T., DANIEL, G. 2000: *Naturschutz praktisch. Ein Handbuch für den ökologischen Landbau. – (Praxis des Ökolandbaus)* Bioland Verlag, Mainz, 108 pp.
- VAN ELSSEN, T., KEUFER, E., GOBE, A., DIENER, J. 2003: *Naturschutzberatung für den Ökologischen Landbau – eine Projektstudie zur Integration von Naturschutzziele auf Biohöfen. – Abschlussbericht zum Projekt 02OE459, gefördert vom Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft (BMVEL) im Rahmen des Bundesprogramms Ökologischer Landbau.* Witzhausen, 263 pp. Available as Download: <http://orgprints.org/00002577/>
- VAN ELSSEN, T., MEYERHOFF, E., OPPERMAN, R., WIERSBINSKI, N. (eds.) 2004: *Naturschutzberatung für die Landwirtschaft. Ergebnisse des 1. Trainingsseminars vom 16. – 20. Februar 2004 am Bundesamt für Naturschutz, Internationale Naturschutzakademie Insel Vilm. – BfN-Skript 119, Bonn.* Available as Download: <http://www.bfn.de/09/skript119.pdf>
- VAN ELSSEN, T., RÖHRIG, P., KULESSA, V., SCHRECK, C., HEB, J. 2003: *Praxisansätze und Naturschutzpotenziale auf Höfen des Ökologischen Landbaus zur Entwicklung von Kulturlandschaft. – Angewandte Landschaftsökologie* 60, Bonn, 359 pp.
- MAYRING, P. 1988: *Qualitative Inhaltsanalyse.* Deutscher Studienverlag, Weinheim, 120 pp.
- SOIL ASSOCIATION 2000: *The Biodiversity benefits of organic farming.*
- STRAUSS, A., CORBIN, J. 1996: *Grounded Theory.* Psychologie Verlags Union, Weinheim, 227 pp.
- WEIGER, H., WILLER, H. (eds.) 1997: *Naturschutz durch ökologischen Landbau. Ökologische Konzepte* 95, Bad Dürkheim.