

Biodiversity in Dutch Agriculture

Henk Kieft

Although it is generally recognised that agro-biodiversity is decreasing in the Netherlands, relatively little attention has been given to the subject. Only a minority of organisations perceive agro-biodiversity as crucial to sustainable development. Recently, however, the Dutch Ministry of Agriculture, Nature Management & Fisheries drew attention to this ambivalence in its Work Plan Biodiversity. This article describes the perceptions relating to biodiversity in conventional and organic Dutch agriculture. It also explores the potential for strengthening agro-biodiversity in the Netherlands.

"In the Netherlands biodiversity in agriculture has seriously decreased since 1950. This statement holds true at all levels, from genetic diversity in crops and animals to the agro-ecosystems as a landscape unit". This was the message sent by the Rathenau Institute to the Dutch parliament in March 1998. Some examples were presented to illustrate this trend. The production of potato, sugar beet and wheat strongly dominates Dutch farming. In 1989, the top three varieties of sugar beet and wheat covered 69% and 79% respectively of the total planted area with these crops. In barley and rye this was even higher: 89% and 95% respectively. (Rathenau Institute, 1998). In livestock production, similar examples can be given. By 1996 some 942,000 inseminations had been carried out in the Netherlands with semen from one single Holstein Friesian bull, named Sunny Boy. In that period the Dutch dairy sector averaged some 1.7 million milk cows! The survival of many Dutch traditional breeds like Lakenveld cattle, Kempen sheep, Veluwe Land goats and Gelders horses is being threatened.

Wild species

The development of bird species in the Netherlands is another indicator of how landscapes have been simplified. In this century seven native bird species have become extinct, especially birds that need a specific environment. Some 24 non-native species, mainly birds that thrive in various habitats, have been able to settle in the country. The main reason for this decline in specialist species is the change of specific habitats and the up-scaling of agriculture. Before 2010 ten other native bird species will probably have disappeared.

Dutch homogeneous agriculture has also influenced the diversity of other wild organisms. Modern farming trends are

'very negative for butterflies, negative for mushrooms, amphibian and reptiles, moderately negative for grasshoppers and fish,

and landscape elements. Environment and nature-oriented organisations have particular interest for life support functions and the landscape dimensions of biodiversity.

As most organisations have no clear perception of the complexities of biodiversity, they tend to under-estimate its relevance as well as the reasons for its decline. In general, there appears to be little feeling for the ecological, economic or social importance of biodiversity for mankind and society. On the other hand landscape diversity is now more actively promoted. Substantial interest in biodiversity exists in several research organisations and at the Wageningen Agricultural University.

In an inventory by ETC- Ecology of recent Dutch initiatives that support biodiversity, it became clear that only a small number of organisations in conventional agriculture are involved in this subject. The majority of initiatives comes from ecological orientated organisations. From the ten organisations most active with biodiversity, four were found in the organic agriculture sector, two in the environmental movement and one among critical consumers. The other three were two breeder organisations and one wholesaler, part of the conventional sector.

Different perceptions

Very different perceptions of biodiversity shape the management of rural areas in the Netherlands. The most general is the 'non-perception' of the importance of biodiversity. However, insights prompted by particular interests are growing. Some farmers, particularly those involved in organic agriculture, see bio-diversity as the basis of farming. Breeders may perceive bio-diversity as a driving force behind evolution and see the loss of biodiversity as threatening further develop-



Photo: Hans Dijkstra

Mono-cultures are the most common form of agriculture in the Netherlands

neutral for mosses, higher plants and mammals and moderately positive for birds' (Bink et al, 1994).

An abstract concept?

Agro-biodiversity is generally perceived as a vague and abstract concept in the Netherlands. Only a few organisations have developed a systematic approach to biodiversity in the agricultural sector; very often one or more of the four dimensions of biodiversity are overlooked (box 1). The dimensions that are taken into account depend largely on the specific position of each organisation. Breeders pay special attention to the genetic dimension but tend to overlook life-support functions

Genetic level: the number of different genes in (wild) species, breeds and varieties of plants, animals and other organisms.

Life support level: the number of different organisms with life support functions for agricultural production, like pollination, natural enemies of diseases and plagues, and soil-organisms for improving soil fertility and structure.

Nature and landscape level: the number of different elements without direct agricultural production function like meadow birds, flora and fauna in hedges, field borders and along ditches.

System level: the number of different agro-ecosystems, characterised by a certain combination of crops or animals and technology.

Box 1 The four dimensions of biodiversity

ment and breeding. An economist may argue that diverse ecosystems are more flexible in the way they react to change and thus more efficient in their use of natural resources. Moralists tell each other to conserve the natural heritage and hand it over intact to the next generation. And what would become of the artist within all of us without the miracles of colour, smell, song and feeling impressed by the kingdom of animals and plants? Mankind's own spirituality and its expression is rooted in the diversity of the surrounding nature.

Politicians and consumers

The recently endorsed European Union's Common Agricultural Policy called 'Agenda 2000', gives opportunity to a more extensive agriculture through agri-environmental programs. It is designed to give income support to those farmers who actively promote the environment in their farming system. The more they comply with ecological policy objectives, the higher the payments they receive. The budget for this is tight, however.

Another major question is if the principal underlying these measures can be maintained in the next round of trade ne-

gotiations of the World Trade Organisation. 'Agenda 2000' is already under attack by USA negotiators for being too protectionist. There is reason to fear that further competition on the world market will eventually result in even lower biodiversity.

A potential source of support for biodiversity within conventional agriculture appears to be the consumers' quest for higher quality and more assorted foods of a regional character. Slightly higher product prices are paid for this type of labelled products if quality control can be guaranteed. Market signals suggest that this trend is receiving support from the consumer lobby and other market players. If this is true, conventional producers may gradually move towards more diverse cropping patterns and locally adapted varieties. These developments will only result in a very slight increase of genetic diversity, however.

'Organic' biodiversity

Biodiversity in organic agriculture is generally stronger than in conventional farming. Comparative research confirms this for genetic diversity, life-support functions and landscape diversity. In terms of

acreage, however, eco-farming is still very marginal and occupies between 1% and 10% of Europe's agricultural area. Eco-farming accounts for less than 1% of agriculture in France, the UK and Spain, in the Netherlands around 1%, Sweden, Finland and Denmark between 5 and 7% and in Austria and Switzerland 10%.

Organic farming pays closer attention to biodiversity because it is both a production factor and important against pests and diseases. In the regulations of the European Union genetic manipulation is not accepted in organic farming. Organic farmers indicate that land management should be developed further to promote biodiversity, because the genetic diversity is still too narrow. Some researchers and breeders are starting to speed up the development of varieties for organic farming.

Comparing potential

When comparing the potential for biodiversity, it is substantially higher in organic agriculture than in conventional agriculture. The 10-50% higher market prices of certified organic products give the farmers more room to improve biodiversity.

At the same time small improvements on the large areas under conventional farming would also be helpful. But this does not receive support by means of higher product prices. The current free market system influences both conventional and organic farming. Biodiversity, therefore, needs to be 'protected' not only by today's consumers, by paying higher market prices, but also by society through policy support.

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Photo: Chris Pennaerts

Critical consumers pay higher prices for organic products, thereby stimulating agro-biodiversity

ETC-Ecoculture
P.O. Box 64
3830 AB Leusden
The Netherlands
Tel: +31 33 4943086
Fax: +31 33 4940791
E-mail: office@etcnl.nl