Advisory Board on Biodiversity and Genetic Resources

at the Federal Ministry of Consumer Protection, Food and Agriculture (BMVEL)

Agrobiodiversity and Land Use

Recommendations by the Advisory Board on Biodiversity and Genetic Resources at the BMVEL for the integration of agro-biodiversity targets into the development of land use

Rostock, 24 July 2005

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Agrobiodiversity comprises the biological diversity of cultivated landscapes that comes along with agricultural use or also depends on it. This includes the different annual or perennial field crops with their large intra-specific diversity of varieties, the accompanying wild flora and fauna as well as the mosaic they form in the landscape, interspersed with unused ecotonal or insular structures. Farm animals and microbial beneficials enlarge the range of possible uses of plant primary production, whilst helping to steer the dynamic force of substances in a biotic manner. The diversity of species and genotypes ensures options of adapting to different qualities of primary production in the long term. These agrobiodiversity features constitute anthropogenically-shaped ecosystems of our cultivated landscapes whose productivity, functionality and capacity for development are key agricultural as well as non-agricultural targets.

Alongside the production of traditional agricultural goods (food, animal feed, raw materials), land use encompasses other rural sources of income that are tied to specific variants of use (conservation of habitats worthy of protection) or landscape sceneries (cultivated landscape as a recreation area). Land use is therefore multifunctional and also fulfils ecological and social duties.

Land use and agrobiodiversity depend on the special conditions of sites and are subject to great changes in space and time. Apart from abiotic site conditions such as soil and climate, operational parameters exert a direct influence on land use. Furthermore, economic, infrastructural and socio-economic conditions such as demand, proximity to the market and trends in the economy and population also represent determining factors. Add to this that technological progress in the production and organisational methods change the options for land users. Hence, land use undergoes constant change.

This change gave rise to a major social demand: land use should develop in a sustainable manner. Ecologically speaking, the sustainable development of land use is targeted at protecting the abiotic bases (soil, water and air) as well as biodiversity and the genetic resources. All in all, sustainable development is characterised by the coupled optimisation of ecological, economic and social benefits for this and future generations.

Agrobiodiversity comprises services rendered by land users to foster the conservation and promotion of biodiversity in arable crops and farm animals. The term also takes services for "integrated" nature conservation into account that is incorporated into cultivated landscapes and maintained through specific types of land use. This integration causally relies on land use and can only be implemented with the land users. Agrobiodiversity is based on many services rendered by land users that cannot currently be evaluated in monetary terms or even remunerated.

Given that land use primarily serves the production of foodstuffs and raw materials, the agrobiodiversity depending on it will also be directly determined by the market situation of these goods.

Beyond that, the policies having an effect on rural areas, especially the EU's common agricultural policy (the so-called first pillar) and the policy for rural areas in the EU (the so-called second pillar), also exert a direct as well as indirect influence on land use.

The common agricultural policy of the EU supports users of farmland. Under the agricultural policy system in effect so far, this support took the shape of public transfer payments that were, inter alia, largely tied to the production of specific arable crops. The instrument of seasonal set-aside is used to exert a controlling influence on the volume of output.

The process of "decoupling" EU agricultural premiums has changed this situation. Premiums that have so far been coupled to the cultivation of specific arable crops will be decoupled in the process and allocated to the farmed area. Germany opted for a hybrid model for this purpose: production premiums for arable crops will be immediately transferred. Structural elements within all farmed agricultural areas now form part of the land eligible for premiums. Area payments for grassland, that has so far not been eligible for premiums, result from a share of the premiums hitherto granted for specific farm animals and products derived from them. The remaining share will be initially grouped together in a farm-specific manner and, at the end of the adaptation period (2013), the previous animal payments will be fully reallocated to farmland. The level of the then ensuing area payment will differ from region to region, but will be uniform for the farmed area in the region. A three-year reference period (2000-2002, 2005 for dairy payments) will be taken as a basis for calculating the initial status of the agricultural holdings. The operator of the farmed areas acquired payment entitlements in this period. Decoupled payments will also be granted if no agricultural products are produced on the land. Yet, the areas have to be kept open.

The decoupled payments are thus basic amounts that do not influence the type of production on the one hand, but should urge farmers to shape farming according to market considerations. A large-scale liberalisation of the market for these products will also contribute to this. The resultant world market prices will be lower than before for some products and will vary more widely. On the other hand, payments will be granted to land users to cushion this adaptation to the liberalised markets and to reward the assumption of multifunctional tasks in an unspecific manner at first. It is currently still uncertain whether, what kind of and where in Germany goods will be produced under the world market prices and area payments that will then be effective.

What's more, the maintenance of area payments is tied to principles to be complied with by the land user under the keyword "cross-compliance" as a "service in return". The conservation of abiotic resources has so far taken centre stage here. Agrobiodiversity hardly plays any role in this context. Given a non-farming use, maintaining the land in "good ecological condition" is conditional on mulching (annually, exemptions are possible).

Global interconnections and agreements are also of decisive importance for the agricultural policy environment of land use. The ongoing negotiations under the World Trade Organization (WTO) consider the reduction of trade-distorting support payments as an agreed joint target. In future, state-funded transfer payments to land users will only be allowed if they are conditional on clearly defined services that will be rewarded irrespective of the production of agricultural goods. The model of EU agricultural policy introduced with decoupling should meet these requirements for the years to come. Yet, we can also expect more stringent requirements for providing proof of a return service in the form of public goods to be set in the medium term. Here lies an opportunity for shaping the measures for the conservation of agrobiodiversity in Germany and Europe.

To date, multifunctional tasks have been initiated and rewarded in a targeted way by measures of agri-environmental and rural development policy of the EU (second pillar). A smaller share of transfer payments under the common agricultural policy (first pillar) is offered under the keyword "modulation" via those programmes that should either be directly implemented by the land users or are designed to strengthen the regional business cycle (common EU policy on "rural development"). Here, too, the conservation of abiotic resources has taken centre stage so far. Measures fostering agrobiodiversity have so far been rather selectively applied, in fact.

It is quite possible that decoupled area payments will be "pared down" over the long-term perspective of the coming decades. We will have to tread new paths then to integrate the desired variants of land use into economic development and to safeguard the multifunctional services of land use that go beyond the production of goods. With regard to the multifunctionality of land use, we should question today already whether other models could put state-funded transfer payments to land users to more efficient use than via a single area payment. In the process, the until then largely voluntary contributions of land use to agrobiodiversity could play a greater role.

Before/After – How are the changes going to affect agrobiodiversity?

In view of this, the Advisory Board initially recommends to clearly highlight the services rendered by land users for agrobiodiversity, communicate them to society and foster pro-active contributions.

Due attention has to be paid to the fact that concepts for the conservation and promotion of agrobiodiversity are necessarily subject to a dynamism. This dynamism arises for the most part from anthropogenic driving forces, individually by the needs of individual persons reflected in the market situation and for society as a whole by the EU policies for agriculture and rural areas with their foundations within the scope of Federal Government/Länder responsibilities.

The impact of individual demand on agrobiodiversity elements must be explained to consumers to a greater extent. "Make use of what you want to save" for it is only demand that motivates farmers and foresters to produce specific products in their enterprises. If a specific type of hay made of herbs, for instance, is offered

and demanded, the conservation of the species-rich meadows, on which it is produced, is secured.

The impact of previous land use on agrobiodiversity is obvious:

- The concentration on few arable crops that made economic sense in most cases was even reinforced by the coupling of premiums to specific arable crops.
- Within the crops, a concentration on few varieties took place.
- The intensity of production on arable land is high, with high yields also standing vis-à-vis large inputs (pesticides and fertilizers, energy and technology). As a result, the living conditions for flora and fauna on the land have worsened on a small-scale level.
- Mosaic-like structures on farmed agricultural area were not rewarded by premiums. This has also curbed biodiversity in the entire agricultural landscape on a large scale.

Many plants and animals that make up agrobiodiversity have responded to these changes with massive declines in species and individuals. Ecosystemic functions such as the self-regulation of harmful organisms had to be increasingly replaced by external regulation, e.g. through pesticides.

The concrete impact of the changed agricultural policy on agrobiodiversity hinges on which implications land use will have in detail:

- How many areas and which areas will remain for the production of market goods?
- How will agrobiodiversity evolve on areas that are no longer farmed for the production of market goods?
- How will agrobiodiversity develop on areas that are farmed for the production of market goods? How is the diversity (species and varieties) of cultivated arable crops?
- Which specific intensity will arise from the production of market goods? Which implications does this have for the diversity on cultivated land (vegetation, animal populations)?

Some general and preliminary assessments indicate opportunities and risks:

The forthcoming "decoupling" scenario will guarantee that landscapes that have so far been used for farming will be kept open as long as area premiums are granted. The conditions for keeping the landscapes open are to be examined and developed with a view to their effects on agrobiodiversity.

If we come to the point that agricultural areas are only kept open, this would apply to entire regions and would not help to introduce some variety into all farmland through fallow areas.

Decoupling diminishes the excellency of specific arable crops, with other arable crops being no longer put at a disadvantage with respect to premiums. Yet, possible sustainable uses of many arable crops have so far been lacking to substantially increase crop diversity.

Alongside the exhaustion of every production niche, if possible, provided by diversified demand (example of hay made of herbs and the like), we should welcome all innovations resulting in new uses and possible applications for agricultural primary production, thus promoting the variety of the species and varieties of arable crops in different intensive cropping systems.

Due to operational considerations, the specific cultivation intensities of arable crops will only decline subject to costs to be able to counter falling proceeds. A declining intensity with a noticeable impact on the flora and fauna in the production areas and in the agricultural landscape directly depends on the prices for agricultural inputs such as energy, fertilizers and pesticides and the successes in streamlining the farms. Greater demands will be made on the varieties to be cultivated with regard to tolerance towards pests and competitive capacity to achieve cost savings.

Structural elements can be tolerated on farmland without any losses. However, the size of farmed areas will increase, wherever this is still possible for technological reasons and owing to landscape structures, to cut down on labour and organisational costs. Site-specific management can facilitate the options of diversification within large areas under cultivation.

The Advisory Board sees the general need to develop instruments and assessment processes to coordinate, compare and adjust, as appropriate, possible targets of agrobiodiversity with those of abiotic resource conservation, consumer protection and other targets aiming at a sustainable development of land use.

Scenarios that envisage a "paring down" of area-based payments would further favour some developments: Contributions to income by keeping land open would no longer arise. During the premium phase, however, premiums would also be used to cover the overhead expenses on the holdings. Without the premiums, production would only be possible at minor overhead expenses. Land use will concentrate and be further streamlined. Favoured sites will surely be farmed for a longer time. Depending on the developments of the markets and the preceding structural adaptations by the land users, virtually the entire area will rationally be farmed with few crops on a large scale. All contributions by land users to agrobiodiversity that are associated with diverse patterns of areas and crop species would then lapse.

Given different prospects for land use, different implications for agrobiodiversity are therefore possible that greatly depend on the following factors:

- Which developments prevail and if and how we can actually record and experience their impact?
- If and which concepts for the preservation of production-integrated agrobiodiversity will be found?

- If and how these concepts can be implemented into incentive and reward systems?

Without being able to currently forecast these trends in every detail, they will surely differ from rural area to rural area. In the process, those regions with very favourable prospects for agrarian use will always constitute one pole of the range of variation and regions with marginal agrarian production conditions the other.

To sum up, the Advisory Board currently sees opportunities and risks in the forthcoming amendment of key EU policies on agriculture and rural areas. The Advisory Board recommends the recording of the impact of the changes in land use to be expected on agrobiodiversity in the different agricultural areas through targeted monitoring programmes, to communicate the established changes and to identify concepts to promote agrobiodiversity. All already existing data are to be used to this end (such as the IACS data, for instance). Access to these data is to be ensured.

In Germany, the Federal Government and the *Länder* maintain a complex system for the preparation, monitoring and analysis of policy measures in the agricultural economy and in rural areas. Apart from the infrastructure maintained by the Federal Government and the *Länder* for the conservation and sustainable use of genetic resources for food, farming, forestry and fisheries, these studies should be incorporated into a knowledge network on "agrobiodiversity" in terms of methods and results and be accompanied by it. This would ensure a transparent approach, on the one hand, and a supra-*Länder* consideration of the outcome, on the other hand. In the process, the results from the evaluation of the common European agricultural policy, notably the evaluation drawn up by the European Commission, should also be taken into account. The Advisory Board also recommends to use the capacities of the Federal Government and the *Länder*, i.e. of the Federal Agricultural Research Centre and the Federal Agency for Nature Conservation, to evaluate agri-policy approaches from the angle of the protection and use of biodiversity and genetic resources.

The Advisory Board also recommends that the imminent changes in land use should be taken as an opportunity to examine new models to reward contributions to agrobiodiversity. The advantages and disadvantages of models, that reward ecological contributions in a result- or action-oriented way, are to be analysed to generate and implement practicable concepts from them that give land users direct incentives to render services for agrobiodiversity.

To be able to use the emerging dynamics in land use also for the agrobiodiversity targets, the EU rural development programmes in place and those to be newly shaped from 2007 (second pillar) should continue to receive greater funding. The Advisory Broad warns against curtailing them in favour of the budget earmarked for general agricultural policy, including the decoupled land transfer payments (first pillar). The inadequate safeguarding of the second pillar in the medium-term financial planning of the EU impairs the certainty of expectation of the actors and thus their readiness to invest into rural development. In the medium term, the different safeguarding of the two pillars of agricultural pol-

icy under budgetary policy should be overcome, if not even reversed in favour of the second pillar. In contract to the allocation- neutral direct payments under the first pillar, the instruments of the second pillar are better suited to foster innovations for the use and conservation of agrobiodiversity.

Summarising recommendations

Against the backdrop of the changes implemented in the framework conditions for land use, the Advisory Board recommends to clearly highlight the services rendered by land users for agrobiodiversity and to communicate them to society.

For this purpose, the importance of individual demand for agrobiodiversity conservation must be conveyed to consumers. The slogan "Make use of what you want to save" underlines that demand is the key motivation for farmers and foresters to produce specific products in their enterprises.

The Advisory Board sees the need to develop instruments and assessment processes to coordinate, compare and align, as appropriate, the agrobiodiversity targets with those of the conservation of abiotic resources, consumer protection and other goals of sustainable development.

The Advisory Board sees risks and opportunities in the amendment of key EU policies on agriculture and rural areas. The Advisory Board recommends the recording of the impact of future changes in land use on agrobiodiversity through monitoring programmes to obtain substantiated information on the importance of the changes and to identify ideas for the preservation and fostering of agrobiodiversity.

The Advisory Board recommends that the imminent changes in land use should be seized as an opportunity to examine new models to reward contributions towards agrobiodiversity. Feasible concepts are to be developed and implemented that provide land users with direct incentives to render services for agrobiodiversity.

To be able to use the emerging dynamics in land use also for the agrobiodiversity targets, the EU rural development programmes in place and those to be newly shaped from 2007 (second pillar) should continue to receive greater funding and be better secured in institutional terms. The Advisory Board warns against curbing them in favour of the budget for general agricultural policy, including the decoupled land transfer payments (first pillar).