

**Agricultural Biodiversity in Agricultural Policy –
Identifying Opportunities and Developing New Options**

Position paper of the Advisory Board on Biodiversity and Genetic Resources at the Federal Ministry of Food, Agriculture and Consumer Protection on the reform of the European Agricultural Policy 2013

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Preliminary remarks

Farmers act within the scope of a certain social, scientific, economic, ecological, technical and legal-administrative environment. The agricultural policies at global, European and national level exert influence on these parameters and thus to a significant degree determine the decisions regarding the type and scope of genetic diversity used in breeding and agricultural production. The more animal and plant species used in agriculture, the greater are the chances of success in the conservation, exploration and further development of genetic resources and the protection of genetic diversity in natural ecosystems. Agricultural policy thus represents a key control function in the management of genetic resources for food and agriculture.

European agricultural policy has undergone several reforms since the mid-1980s. The Health Check of the current funding period 2007-2013 and the preparations for the debate on agricultural policy in the funding period 2014-2020 provide an opportunity for a discussion on the contribution of agricultural policy to the use and conservation of agrobiodiversity and on how the funds and instruments of agricultural policy could be put to better use in order to achieve this objective. In the light of rising prices for agricultural goods due to a growing demand for food and agricultural raw materials and the resultant growing production pressure on land resources, we must rethink the priorities and mechanisms of agricultural policy. The impact of these developments on agrobiodiversity are to be taken into particular account here.

The Advisory Board uses the term "*agrobiodiversity*" to designate all components of biological diversity that are of direct importance to agriculture or that sustain key functions of agro-ecosystems. It encompasses all cultivated and domesticated species and their wild relatives. These species have been, are or will be of direct importance as *genetic resources* for targeted developments in agricultural systems. We also include all species that render *ecosystem services* in the agricultural landscape, e.g., beneficial species that control pests, soil organisms that extract nutrients for crops, and pollinators and plants that contribute to erosion control or stabilise the soil moisture regime. This species diversity is underpinned by intra-specific diversity which means that any organism may become genetically unique and which constitutes the precondition for a continuous evolution of species. The Advisory Board

described some functions of agrobiodiversity in greater detail in earlier recommendations and opinions¹.

This paper will address the question as to how the EU's Common Agricultural Policy (CAP) can be better brought into line with the protection and conservation of agrobiodiversity and how it can be used to achieve this long-term policy objective. This paper does not deal with the conservation of genetic resources, for instance in gene banks, that are currently "not in use", but this is not intended to downplay the importance of such conservation. We will first reflect on the changes in the institutional framework of agricultural policy (I). We will then discuss the importance of regulation, information and incentives for the conservation of agrobiodiversity (II). The CAP reforms between 1992 and 2008 were steps in the right direction in this regard (III). However, the actual political challenge is how to focus more effectively on causes and policy integration (IV). CAP as a whole has a long way to go until priority to the conservation of agrobiodiversity will be achieved (V). In order to illustrate how agrobiodiversity represents a challenge for all policy levels, we will propose an overall conceptual framework for agrobiodiversity policy in terms of spatial patterns (VI). Using this as a basis we will put forward for discussion a multi-phased concept for agrobiodiversity policy within a multi-layered agricultural and regional policy framework (VII) and consider some prerequisites for this to prove a success (VIII). The paper closes with a summary (IX).

I. Institutional framework on the move

The conditions that underly biodiversity and agrobiodiversity at national and European level have changed drastically and remain in a state of flux.

- By including trade in agricultural goods in the **multilateral trading system** of the General Agreement on Tariffs and Trade, GATT, and the World Trade Organization, WTO, in 1994, the Member States of the WTO, that now number 153, have tied their agricultural policies to rules that are intended to reduce, and in the long run phase out, trade-distorting measures. These rules will be developed further in the ongoing round of

¹ *Agrobiodiversity ensures the Potential for Innovation of Land Use and of Agriculture*, recommendations of the Advisory Board on Biodiversity and Genetic Resources at the BMELV, Bonn 09.11.2006.

Agrobiodiversity and Land Use, recommendations of the Advisory Board on Biodiversity and Genetic Resources at the BMELV on the integration of agrobiodiversity objectives into the development of land use, Rostock 24.07.2005.

trade talks and presumably also in future ones. In the process, the scope for transfer payments that influence production decisions to be made to farmers will decline. The opening of markets intensifies global competition in the agricultural sector as well. This could adversely affect agrobiodiversity if producers decide to respond with strategies of standardisation and specialisation.

- On the other hand, the **importance of agrobiodiversity is growing both as a resource in the global innovation contest and also as a means of ensuring food production**. It is therefore crucial to focus agricultural policy more strongly on the objective of agrobiodiversity conservation specifically and on biodiversity conservation in general.
- The European Union has thoroughly overhauled its **Common Agricultural Policy (CAP)** in four steps in 1992 (MacSharry reform), 1999 (Agenda 2000), 2003 (Luxembourg decisions) and 2008 ("Health Check") and has thus also substantially altered the regulatory framework for the use and conservation of genetic resources. The EU switched the payments to farmers from production-based payments to direct payments that are largely decoupled from production. Artificial production incentives that negatively affected agrobiodiversity were thus eliminated. In addition, the payments were made conditional on compliance with numerous requirements concerning the protection of the environment, nature, consumers and animals (cross-compliance). The level of direct payments was based on the objective of making the distributional effect of reforms among the Member States largely neutral. There has as yet been no broad policy discussion on how the direct payments, which absorb approx. 37 billion Euro of the Community budget per year, **could be employed as efficiently as possible to achieve social and environmental policy targets**. Robust evidence is lacking, in particular, on whether the level of the payments currently made in order to compensate farm operators for the higher expenses they incur due to the cross-compliance rules is appropriate, especially since these rules correspond, in part, to the requirements laid down in special laws.
- Agenda 2000 introduced a "second pillar" of agricultural policy, the Integrated Rural Development Policy, which also funds measures for the conservation of genetic resources and for agrobiodiversity protection. While the 2003 Luxembourg Decisions increased the funds available for rural development, the decisions on the EU's financial perspective for the term 2007-2013 adopted in December 2005 revoked this increase in part. The outcome of the dispute over the consolidation of the Community budget demonstrates quite clearly that the **in the event of conflict, income policy objectives of the CAP take priority over**

their links to environmental, social and structural policy aims. The rise in funds raised from modulation (cuts in direct payments and transfer of the funds saved to the second pillar) under the "Health Check" in November 2008 only partly offset the losses sustained in December 2005, especially since new tasks such as aid for the dairy sector have been included in the second pillar.

The conservation of agrobiodiversity represents a key component of sustainable development in Central Europe. The Advisory Board takes the view that the major challenge to be faced in the forthcoming negotiations on the funding period 2014-2020 will be to establish how the **overall conditions for agrobiodiversity conservation can be improved.** In this paper we will not elaborate in greater detail on the key fact that new agricultural policy options could also help to meet the WTO requirements for transfer payments in agriculture (so-called Green Box criteria) which are expected to be more stringent in the future.

II. Importance of regulation, information and incentives for the conservation of agrobiodiversity

The fact that **biodiversity is a public good** forms the basis for all biodiversity policy. Public goods are characterised by non-exclusivity and/or non-rivalry in consumption. The producers of public goods or services generate more benefit than they can themselves realise on the market as remuneration from the beneficiaries. This results in an under-supply, when measured against public welfare. Farmers and breeders who contribute to the conservation of agrobiodiversity increase, for instance, the resilience of agricultural production systems and preserve genetic information for possible future use, the beneficiaries of which are not yet known. In comparison with competitors who focus on the use of the few varieties and breeds that are economically optimised, they sustain a loss of profit. The conservation of agrobiodiversity is therefore endangered by the lack of possibilities to internalise the benefit and thus by an unsuitable incentive structure. Given that the conservation of agrobiodiversity cannot be achieved solely by refraining from harmful action, what is needed are **targeted conservation measures** that can be achieved by continuous use and breeding. Therefore economic incentives to use or manage rare breeds and varieties in a manner that conserves diversity play a key role in agriculture and breeding. From an economic point of view, the aim must be to provide reimbursement for goods that are in short supply because they are not

produced in sufficient quantities, but not for public goods produced as a by-product of agricultural or breeding activity *per se*.

In its reflections on the development of an agrobiodiversity strategy², the BMELV focused on the concepts of **incentives** and **information**. The BMELV took a critical view of the efficacy of regulatory approaches (rules, standards, limit values) for the protection of agrobiodiversity because of problems relating to operationalisation, implementation and controls. Instead, the BMELV noted the growing importance of instruments and mechanisms that integrate the costs of conserving and regenerating genetic resources into the **cost-benefit calculations of the users** such as tradeable quotas, user fees and financial incentives for definable services. The BMELV (2007) also pointed out that measures for agrobiodiversity conservation vie with other options for the use of land that is in short supply. Sustainable conservation of agrobiodiversity therefore primarily necessitates changes in the behaviour of individual producers and consumers with the aim of improving the conservation of genetic diversity in production systems. This focuses the spotlight on the **incentive structures** established by markets and institutions as well as on the information provided to economic operators.

The question concerning the relationship between incentive schemes and the need for regulation is particularly urgent in the conservation of agrobiodiversity with it being indispensable public property. The principle of "conservation through use" will always fail when the relevance of using individual varieties and breeds is not obvious at a given time. This also holds true for wild species of actual or potential use for food and agriculture that are present in nature conservation areas but are not actively protected there. From a strategic perspective, the **relationship between incentives, information and regulation** must therefore be continually adapted to developments in the respective fields.

An incentive-based approach cannot fully replace the other instruments used to secure public goods such as minimum standards and the safeguarding of infrastructure. Under suitable circumstances **regulatory instruments** can prove efficient and superior in addressing major problems when the requirements can be controlled and enforced at acceptable cost: legal prohibitions can force people to abstain from harmful actions and laws can be used to enforce standards for certain activities as long as the burdens do not cause the cessation of the

regulated activity. Requirements in agri-environmental policy are therefore frequently combined with programmes to finance necessary investments or to grant flat-rate compensation for income losses. Hence, in view of globalised agricultural markets, the payments to European farmers have since 2003 been justified as compensation for an increased level of regulation compared with that faced by many competitors. On the other hand, voluntary incentive instruments reach their limits when being confronted with high opportunity costs. For example, the voluntary agri-environmental programmes become less attractive for farmers if agricultural goods are expected to achieve high prices. Regulatory instruments are therefore indispensable to ensure acceptable minimum standards. However, it is imperative to critically discuss whether and how regulatory approaches can be operationalised, implemented and controlled.

This gives us the opportunity to critically examine the effectiveness of the existing body of regulations in agricultural policy. In light of the vital importance of agrobiodiversity, the impact of agricultural policy and other measures on agrobiodiversity is being critically analysed.

III. The CAP reforms: halfway along the right path

Due to the great importance that market organisations and direct payments, allowances for intermediate inputs and state-financed services (marketing, infrastructure, research) play regarding farmers' incomes, the incentive schemes in the agricultural sector have for a long time been shaped by the political measures taken under the EC's **Common Agricultural Policy** (CAP). The market organisations, and their price-supporting elements were established in the 1960s and provided key **incentives for improved performance and specialisation** in agricultural production. The targets in production and income policy were reached, albeit to a lesser extent over time. However, one side-effect that was initially overlooked and then underestimated was the **loss of biodiversity and in particular of agrobiodiversity**.

The **reforms** of the EC market organisations adopted in 2003 removed the direct incentives that were stimulating production. Furthermore, the cross-compliance requirements introduced

² BMELV (2007): *Conservation of Agricultural Biodiversity, Development and Sustainable Use of its Potentials in Agriculture, Forestry and Fisheries*. A Strategy of the BMELV on the Conservation and Sustainable Use of Biodiversity for Food, Agriculture, Forestry and Fisheries.

at the same time made the receipt of direct payments conditional on compliance with statutory minimum requirements. However, this concept of linking income policy targets with the public interest in preserving public goods has not yet been rigorously implemented in terms of the agricultural policy instruments. Indeed, the **lack of accuracy and the low efficiency of the direct payments as an instrument for securing public goods** such as environmental protection, conservation of the cultivated areas and biodiversity have been criticised in various quarters (Advisory Board on Agricultural Policy at the BMELV³).

In its agrobiodiversity strategy the BMELV refers to the great importance of the CAP and its reforms of 2003. However, the comments focus on the measures under the second pillar aimed at agricultural and rural development and here primarily on agri-environmental measures. The BMELV repeatedly draws attention to **uncertainties, both over the further development of the agricultural policy framework** in the EC, and in the ongoing WTO negotiations, and states that research is needed in these areas (BMELV 2007, p. 18 f.). In this context, the Advisory Board expressly confirms that **it will be crucial for the further development of the agrobiodiversity strategy to gain scientific evidence on the effects of the decoupled direct payments (which are to be paid as single area payments in Germany in the medium term) on the aim of conserving agrobiodiversity and genetic resources**. Such evidence should be the precondition for continuing with this instrument, even if it is in future used on a lesser scale.

IV. Policy Integration and Focus on Causes : The Challenge

Biodiversity policy is a cross-sectoral task. It is part of a dynamic and complex field and must therefore be developed further on an ongoing basis. It must reflect the **large number** of ecological, economic, technological and social **factors** that influence the conservation or the loss of biodiversity. Scientific approaches to exploring these influencing factors and their interplay must also bear this plurality in mind.

A critical review of the **incentive effects on market operators allows us to focus on the causes rather than just curing the symptoms**. The review should include both the impact of

³ Preparation for the "CAP Health Check", Opinion of the Scientific Advisory Board on Agricultural Policy, Sustainable Land Management and Rural Development at the BMELV, March 2008.

the entire framework for incentives in market processes and the impact of the individual policy instruments. Incentives that stimulate behavioural patterns which jeopardize agrobiodiversity should be rectified, if possible, using instruments tailored to market needs. Where these are ineffective, the efficacy of other measures should be examined. Making incentive structures more targeted presupposes that more funds are available for programmes specific to particular targets or regions. Given the limited funds for agricultural policy, these additional funds could only be raised by reallocating funds from less specific but more expensive programmes. The proposal for a differentiated agricultural and regional policy, which is set out below can contribute to this.

The extensive decoupling of payments from production implemented by the CAP reform in 2003 has reduced contradictions between income policy targets and environmental policy targets. However, eligibility for the single area and farm payments that have been paid to farmers since 2005 depends, other than on complying with special agricultural laws, only on maintaining land in good agricultural and environmental condition. The payments provide hardly any additional incentives to farmers to render services for the conservation of agrobiodiversity. Therefore the integration of income, environmental and consumer policy targets within the first pillar has not yet moved beyond rectifying the most glaring contradictions. We must hence continue to **intensify the integration of environmental concerns into general agricultural policy, the sectoral policies of agriculture and other policy areas** in order to bring into use a greater diversity of species and their intra-species diversity (both between and within varieties, breeds and populations), conserve natural ecosystems and endangered species and develop instruments to foster innovations. A top-up of funds for agricultural policy is unrealistic however. If the conservation of agrobiodiversity is to represent a priority policy aim and if it requires the use of incentive-based instruments, it becomes hard to convey that those 90 per cent of funds for agricultural policy spent under the first pillar exert few incentive effects in this direction. There is therefore no way of getting around a shift of funds within the agricultural budget. The funds under the first pillar have since their introduction been justified in terms of income policy (compensation for price cuts). This explanation given then (1992) has become a less convincing argument over time so that the question of the socio-political rationale arises today.

The **farmers** first saw the greater importance of market signals as a major opportunity at a time when prices were rising. The extreme price volatility on the markets for agricultural

primary products in 2007/2008 revealed a heightened economic risk for many farms however. This situation was even aggravated by a partial failure of the future markets for forward transactions that customarily serve economic risk management. Analogous to the crisis on the financial markets, we cannot generally rule out that the increased risk exposure of farms might result in a systemic vulnerability of regional agricultural production systems. An increased focus of agricultural policy on the objective of agrobiodiversity can therefore open up **new opportunities** for a number of farmers to **earn income by rendering services for the conservation of agrobiodiversity** that is independent of the development on the commodity markets. From the farmers' perspective, rendering services for agrobiodiversity can therefore help to reduce risks by extending the range of their services in the sense of the portfolio approach.

V. Does agricultural policy promote agrobiodiversity?

The **impact of direct payments on the goal of conserving agrobiodiversity is unclear**. It essentially hinges on two variables: the requirements on which the receipt of payments is made conditional under the cross-compliance (CC) rules and possible additional incentives within the scope of agri-environmental programmes. The CC rules include, apart from compliance with nineteen EU Directives and Regulations in the fields of nature, environmental and animal protection and food safety, also the requirement to maintain areas for which payment entitlements are activated in good agricultural and environmental condition. When making the specific national arrangements for these requirements, care was taken to avoid costly requirements for minimum management in order to prevent areas that involve a great effort for minimal upkeep from being completely withdrawn from management. In this context an important consideration was that only such measures would be eligible to receive support under the second pillar that go beyond the minimum requirements under the CC rules. At the same time, a considerable part of the payments entitlements are being activated for areas that would be used for farming even without these payments. This is currently accounted for in terms of income policy because the direct payments are intended to offset losses of income sustained by farmers due to the reform of the market organisations. However, such compensations cannot be justified indefinitely, but only

for a reasonably defined transitional period (cf. the expert opinion on this issue given by the Advisory Board on Agricultural Policy at the BMELV, 2005)⁴.

Voluntary **agri-environmental programmes** play a key role in a strategy that relies on incentives. Consistent with the incentive- and information-based approach, the BMELV highlights the important contribution made by agri-environmental measures under the second pillar and rightly so (BMELV 2007, p. 18). "A broad spectrum of agri-environmental measures is required" (p. 52) that can be used to provide a targeted response to differentiated problems and specific regional conditions" and "measures with a large-scale impact [...] that can achieve a wide range of positive effects on biological diversity [...]" (p. 53). The Advisory Board supports this approach and emphasizes that this has important implications for the strategic alignment of agricultural policy as a whole against the backdrop of scarce public funds.

The Advisory Board is **concerned about the fact** that the incentive- and information-based approach of the strategy for agrobiodiversity conservation cannot be developed further on the required scale because of the decisions adopted by the European Council on the Community budget in December 2005 (financial perspective for 2007-2013). This is due to an **asymmetry in the securing of financing of the first and second pillar of agricultural policy**. The budget for the direct payments under the first pillar was secured by the Council decision taken in December 2002. The level of funds for the second pillar, the Integrated Rural Development Policy, on the other hand was subject to negotiation. As a result of the shortage of funds, measures for biodiversity conservation increasingly compete with other measures under the second pillar. The increase in modulation funds as part of the "Health Check" in November 2008 has hardly eased this situation especially since new tasks such as the support of dairy farmers in the face of the phased-out milk quota were included in the second pillar at the same time. A further problem arises from the fact that rising market prices render agri-environmental programmes less attractive in relative terms and that more funds are needed to keep the programmes attractive. There is thus a danger that the target of protecting public goods, that the incentive-based agri-environmental programmes aim at, may be partly missed because agri-environmental programmes become less attractive.

⁴ Opinion on the proposal for the EAFRD Regulation, *COM(2004)490*, of the Scientific Advisory Board on Agricultural Policy, Sustainable Land Management and Rural Development at the BMELV, January 2005.

VI. Where must agrobiodiversity policy come into play?

Unlike biodiversity in the broader sense, agrobiodiversity is chiefly determined by political structuring and the associated legal systems, economic areas and production techniques apart from the basic abiotic (terrestrial, climatic and aquatic) conditions and their spatial distribution. The targeted support of science and innovation on its part further intensifies the differences in importance of the various components of agrobiodiversity. Seen in global terms, policy systems are classified into several levels just like the agro-biological categories of agrobiodiversity. The multi-level system in politics consisting of the global international community, European Union, the Member States, semi-public units (such as the federal states) is faced with a hierarchy of agrobiodiversity categories in terms of spatial patterns, i.e. the global, EU and regional levels. The European Community thus characteristically differs from the rest of the world in the range, composition and spatial distribution (structure) of crops and livestock as well as in the biodiversity associated with them. This differentiation of agrobiodiversity continues within the Community between the Member States and within the states between the regions.

Agrobiodiversity is structured by its spatial distribution in a specific manner at all of these hierarchically classified levels. It displays different characteristics depending on the systematic biological categories under observation. For example, regions may differ in the diversity of breeds/varieties of one species, in the scale of genetic variability within the breeds/varieties as well as in the genetic differentiation between the breeds/varieties. The spatial distribution of breeds/varieties may by the same token be characteristic of a region (e.g. forced by the spatial homogeneity or heterogeneity of the soil substrate or climatic factors).

Like the different levels of the political system agrobiodiversity is equally structured into hierarchies. Elements of political control can influence the quality, quantity and the (spatial) structure of agrobiodiversity at each political and bio-systematic level. The effectiveness and efficiency of such control elements hinge on the extent to which they prevent the viability of the ecological systems from being impaired at the respective level and on the degree to which they assist in reconciling the specific requirements of the level with the various user claims on the existing agrobiodiversity.

Corresponding with the question of the suitable approach in agrobiodiversity policy the suitable spatial and institutional level must be identified in the political system. An effective policy approach to the protection of agrobiodiversity presupposes that action is taken at the specific and relevant spatial level in order to address various problems. The assignment of the policy level that is most suitable then results from the principle of **fiscal and regulatory equivalence**. According to this principle policies and institutions should be shaped in such a way that their scope best matches the scope of problems and that the circle of beneficiaries and the funding agencies can be brought into line in spatial terms. The **subsidiarity principle** states in this regard that problems should be addressed at the lowest level if a solution to them can be found there. Finally, reasons relating to manageability and implementability may require that the competence of certain levels of the political hierarchy for the conservation of agrobiodiversity is located at the corresponding bio-systematic levels.

In the following chapter we will formulate a proposal for how to integrate a spatially differentiated approach in agrobiodiversity policy into a differentiated institutional structure of the Common Agricultural Policy.

VII. Multi-stage concept proposal for an agrobiodiversity policy as part of a differentiated agricultural and regional policy

The use of rare and endangered crops and livestock is key to the conservation of agrobiodiversity. In a liberal legal system this cannot be enforced by legal requirements. Where such use is impossible because of a lack of profitability, the incentive structures must be changed. In the EU, the Common Agricultural Policy with its cross-references to regional and scientific policies sets the framework for this incentive-based approach.

The previous considerations on agrobiodiversity conservation show that agricultural policy must in the future be more strongly focused on

- avoiding incentives for developments that jeopardise agrobiodiversity;⁵

⁵ The connection between the incentive- and information-based approach of the agrobiodiversity strategy and the other elements of agricultural policy becomes clear, for example, in view of the objective of boosting the demand for a multitude of breeding aims. (BMELV 2007, p. 17). The impact of such stimuli is impaired when other transfer payments dampen the demand signals.

- creating specific incentives for the protection of agrobiodiversity;
- activating, involving and supporting local and regional knowledge as well as other resources ranging from volunteer work to producer-user-networks; and on
- choosing the appropriate level for different measures to protect agrobiodiversity.

We therefore bring up for discussion a three-stage concept proposal that is designed to shape agricultural and regional policies in the EU. Therein stage 1 corresponds to the so-called first pillar and stages 2 and 3 to the so-called second pillar of EU agricultural policy (direct payments and rural development respectively). The aim is to employ the funds of agricultural policy in a more targeted way, *inter alia* for the conservation of agrobiodiversity. The differentiation between the stages builds on the extent of generality of the requirements and tasks and on the level of the targets in the spatial hierarchy of agrobiodiversity respectively. They are linked to corresponding funding modalities based on the principle of fiscal equivalence. On this basis, of course various purposes of land use (food production, provision of environmental goods etc.) may have different priorities in each individual region.

Stage 1

Stage 1 provides direct payments that continue to cover all agriculturally used land as a basic remuneration for services which set European agriculture apart from the world market. The following points can serve as a justification:

- ◆ Requirements for resource and animal protection as well as for health and hygiene standards are more stringent on the internal market compared to non-EU countries. Here, the goal of agrobiodiversity conservation should be more firmly established and it should be indicated to what extent a higher resilience will be achieved.
- ◆ Maintenance of areas in good agricultural and ecological condition (this matters in terms of food security). Here, too, it must be regularly examined whether and how practices that are important for agrobiodiversity conservation can be integrated.
- ◆ Safeguard against ruinous income losses due to stronger fluctuations in producer prices. A safety net for emergencies and exceptional circumstances could also be conceived. From an agrobiodiversity policy perspective, the significance of this income policy component rests in its contribution to preserving the technical competence held by farmers.

- ♦ The control exercised by the Commission over the Member States that has been established with the cross-compliance regulations helps to improve the pre-conditions for an enforcement of the minimum standards in all parts of the EU.

Compared with the current payment entitlements, area based payments would be substantially reduced at stage 1. It would have to be examined on an ongoing basis in which form the services or requirements of European farming still stand out against the world market. As the differences decrease, the payments at stage 1 could also become dynamic and be further reduced subject to the results of these checks. As is the case with the current direct payments under the first pillar of the CAP, the EU would provide full funding for these payments. Against the backdrop of the spatial model introduced above, it should be highlighted in a transparent manner to what extent direct payments can contribute to the conservation of those features of agrobiodiversity that are specific to Europe.

Stage 2

At stage 2, services that are rendered for the conservation and improvement of the environment with regard to soil, air (climate protection), water (water management) and biodiversity, including agro-biodiversity, can be selected and remunerated on a voluntary basis according to a pre-defined catalogue of services. Only those services that relate to agrobiodiversity will be suggested in the following (see Annex). The proposal made in the Annex therefore does not contain detailed explanations on support schemes under Natura 2000, the Water Framework Directive or on specific nature conservation measures for species protection. For example, the following structure could be used: the key components of agrobiodiversity encompass, on the one hand, genetic resources for food, agriculture, forestry and fisheries, including the habitats in which they occur, and the associated traditional knowledge systems and their further developments; and, on the other hand, the associated agrobiodiversity that sustains major ecosystem services.

The definition of the criteria and the allocation of funds are based on the experience gained with the already familiar agri-environmental programmes. The conservation of individual components of agrobiodiversity, e.g. individual species or individual levels of intra-specific diversity only makes sense according to the "gene pool concept" if the entire European habitat in which these organisms occur is taken into account.

An example of measures at stage 2: The protection of grassland sites

The vital importance of extensive and thus species-rich grassland with regard to agrobiodiversity is first of all based on its function as a habitat for the vast number of plant species occurring there (over 2000 alone in Germany) and the even larger number of animal species that are directly or indirectly reliant on grassland and on pasture plants. In addition, grassland is generally first-rate, as compared with the use of land for arable farming or horticulture, in terms of key environmental services, e.g. buffer function against nutrient leaching in groundwater and surface water bodies, erosion mitigation and as a CO₂ sink. Grassland that is rich in species, with special emphasis being placed on indigenous grassland, hosts key components of plant genetic resources in the shape of forage crops and crop wild relatives. This great importance of extensive and thus species-rich grassland contrasts sharply with the dramatic loss of these areas that occurred in Germany and other Central European countries of the EU over the past decades (approx. 90% since 1960).

Extensive pasture management currently loses competitiveness because of the cancellation of the headage premiums for animal husbandry and their inclusion in the area based payments. Besides, there is the abolition of safeguard measures to support the milk price that were more important for the income of dairy farmers than the premium which accounted for a price difference of 3 cents per litre of milk at best. On account of substitutability, the value of grassland depends *inter alia* on the price of soy on the world market.

Against this background we are confronted with two tasks. Firstly, compensatory instruments must be conceived and funded within the scope of the agri-environmental measures. Secondly, alongside measures to strengthen dairy cattle farming as a key branch of production for rural areas, also on account of job security, alternatives to the use of grassland outside of dairy cattle farming must be devised and implemented.

Stage 3

Apart from these vitally important targets, there is a host of regional problems and interests that require region-specific approaches.

In conformity with the subsidiarity principle the development of ideas and decision-making power at stage 3 should rest with the regions. Thereby the "bottom-up principle" that is already familiar from the LEADER schemes is important.

Where transnational regions form, from a technical point of view, the right level for measures for agrobiodiversity conservation, these could be constituted following the example of the INTERREG programme. The concepts should be developed together with regional actors and population if possible and be selected in a competitive process. In this context, regional budgets would be conceivable as they are being applied in some federal states in regional development or labour market policy under the European structural fund.

Stage 3	<p>Regional approaches to an integrated rural development</p> <p>Competition of ideas and concepts</p> <p>Accompanied by information on agrobiodiversity</p>	<p>Subsidiarity principle</p> <p>Bottom up</p>
Stage 2	<p>Direct payments for services of overriding interest for the protection of soil, air, water and biodiversity etc. that are of importance at EU, national or regional levels.</p> <p>Incl. services for "agrobiodiversity":</p> <ul style="list-style-type: none"> Conservation of types of cultivated landscapes and habitats Conservation of species diversity Conservation of intra-specific diversity Preservation of traditional knowledge Conservation of pollination functions Conservation of soil fertility (biodiversity) Maintenance of biological plant protection measures 	<p>Level of funding in accordance with the importance in the EU/in the Member State</p> <p>Top down</p>
Stage 1	<p>Basic remuneration for services that set European farming apart from the world market</p> <p>(observance of cross-compliance, general services for public welfare)</p>	<p>Low level of direct payments, dynamic and differentiated, as appropriate</p>

Multi-stage concept proposal for an agrobiodiversity policy

VIII. Prerequisites for success and accompanying measures

Accompanying measures to raise awareness of the problem are required in order to foster initiatives for the conservation of biodiversity and agrobiodiversity under stage 3.

It must be ensured as part of a strategic approach to agrobiodiversity conservation that the **measures are mutually coordinated at the different levels**. This can also help to in joining-up the regional contributions and in gaining momentum for the development of measures in the regions.

A **flanking trade policy** constitutes a key element of the multi-stage model as part of agrobiodiversity policy. The programmes for agrobiodiversity protection (as those for biodiversity in general) should ideally be developed further in such a way that they can provide stimuli in the difficult debate on the balance between the goals of trade and environmental policies⁶.

The **monitoring** of biodiversity policy targets must also be improved. The contribution made by the various elements of agricultural policy to the conservation of species diversity and its intra-specific diversity (varieties, breeds, populations) over time should be verified. Apart from the collection of relevant data on the status of agrobiodiversity, this requires an impact model on the connections between the measures and programmes of agricultural policy and the development of species diversity. **Reporting duties** to this end should be further developed⁷. This also requires the consolidation and further build-up of corresponding **capacities**. For currently important crops such as winter barley and wheat, studies on the **inventory of genetic diversity over time within variety assortments** have been conducted as part of research projects. These studies involve a great effort and must be coordinated and concerted especially in view of declining staff levels in agricultural research as a whole. Better targeted incentive programmes therefore hinge on the maintenance or build-up of technical capacities. It needs to be discussed elsewhere whether the establishment of a *Technical Agency on Agrobiodiversity* would be an effective and efficient way to secure the necessary expertise and to organise the diverse projects required.

⁶ Within the scope of the WTO negotiations in Doha that had been declared a "development round", a substantial dismantling of protection by customs duties is expected. However, it will still be possible presumably to exempt a limited number of tariff lines from the reduction commitments and thus protect "sensitive products". According to the Advisory Board, criteria of agrobiodiversity conservation should be taken into account when selecting the "sensitive products", for the maintenance of extensive dairy cattle farming on grassland sites for instance.

⁷ Cf. on this issue volume 27 "Monitoring and indicators of agrobiodiversity" of the series "Agrobiodiversity" published by the Information and Coordination Centre for Biological Diversity (IBV).

IX. Summary of the recommendations

The further development of general agricultural policy is of key importance to the conservation of agro-biodiversity. Given an increasing integration of agricultural markets into global trade, volatile agricultural markets with producer prices tending upwards and sustained pressure from fiscal policy, the protection of agrobiodiversity needs to be integrated into agricultural policy. It is true that the previous reforms of the Common Agricultural Policy with the decoupling of premiums from production and their link-up with minimum standards have removed some major contradictions between income and environmental policy goals. With a view to a focus on causes and policy integration, however, agricultural policy must make a greater positive contribution to the conservation of agro-biodiversity in the future. In this context it turns out to be a favourable circumstance that the different objectives of agrobiodiversity protection at the European, national and regional levels are matched by distinct institutionalised levels of intervention in the political system of multi-level governance. This allows us to classify the targets and measures of agrobiodiversity policy at the different levels according to the principle of fiscal equivalence and the principle of subsidiarity. Such a systematic classification must be further elaborated in detail however.

Against this backdrop, the Advisory Board brings up for discussion a three-stage model for the further development of European agricultural policy. At stage 1, farmers receive a basic remuneration for services that set European farming apart from the world market. Here, the precise contributions made by farmers to agrobiodiversity still need to be evidenced. At stage 2, farmers receive direct payments for services that protect the environment, including agrobiodiversity. The challenge here lies in elaborating an operationalised and controllable menu of services eligible for remuneration. Regional approaches to an integrated rural development will be financed at stage 3. The point here is to get the regional actors interested by providing information and incentives for projects for agrobiodiversity conservation.

Irrespective of how our proposal will be received, the Advisory Board deems it imperative to review all elements of agricultural policy for their contribution to the conservation of biodiversity and specifically agrobiodiversity given the forthcoming discussions on the future development of European agricultural policy. Measures with declared but uncertain impact should be critically assessed for alternatives. This review should, in principle, focus on the general criteria of effectiveness, efficiency and consistency, according to which governmental measures must be necessary, suitable and adequate.

Annex

Overview of services rendered by farming

Services rendered by farming on a voluntary basis for the conservation and improvement of the environment can affect different areas: soil, air, water and biodiversity, including agrobiodiversity (as defined in the preliminary remarks). The following overview explicitly concentrates on services for the conservation of agro-biodiversity. We identify different areas by way of example in which services are being rendered which we classify under the two groups "genetic resources" and "ecosystem services of agrobiodiversity".

Genetic resources

1 – Conservation of types of cultivated landscapes and habitats

- Grassland
 - conservation of autochthonous grassland
 - conservation of extensive grassland and upkeep of its use respectively
 - conservation of green wetland
 - conservation of dry grassland meadows/oligotrophic grassland and
 - conservation of species-rich tall oat meadows/golden oat meadows
 - conservation of alpine grassland
- Arable land
 - maintenance of multi-annual or annual fallows
 - planting one-year ecotonal structures
 - planting and preserving multiannual ecotonal structures
- Fruit growing and viticulture
 - maintenance of scattered orchards
 - maintenance of viticulture on steep slopes and terraces
- Forestry
 - conversion and further development of pure stands or of stands that are unsuited to the site
 - further development and restoration of semi-natural forest communities
 - shaping and tending of semi-natural forest edges
 - preservation and resumption of historical types of forest use

- Water bodies
 - tending of pond landscapes
 - preservation of small water bodies and glacial lakes
 - preservation of water bodies in their natural/semi-natural state
 - semi-natural development of flowing water bodies
 - environmentally-adapted management of dams and artificial water bodies (mining lakes etc.)
- Conservation of special sites
 - landscape conservation with sheep (heathland and forest areas, dykes, mountain areas)
 - keeping cattle on marginal sites (Black Forest, the Harz mountains, for example)
 - ...
- Conservation of elements of agricultural landscapes
 - tending of hedgerows
 - conservation of field copses
 - conservation of green lanes and road margins
 - conservation of hollow roads
 - conservation of forest monuments
 - conservation of traditional cottage gardens
 - ...
- Conservation of buffer zones
 - planting and tending of buffer strips (grassland, strips of woody plants) alongside water bodies in agricultural landscapes
 - planting and tending of buffer strips (grassland, strips of woody plants) for other small-sized structures (hedges, field copses, oligotrophic grassland, ...) in agricultural landscapes
- Preservation of habitats for typical forms of agricultural landscapes
 - specific conservation measures (feeding areas and nesting protection sites) for typical but endangered species in cultural landscapes (brown hare, partridge, skylark, field hamster, red kite,)

2 – Preservation of species diversity

- Preservation of crop species diversity
 - all species of protein crops
 - all species of dye plants

- all species of fibre plants
- selected species of other arable crop groups
- Preservation of arable weeds
- Preservation and introduction of rare tree species to forests
- Resettlement and stock rebuilding schemes for extinct / endangered species in fisheries

3 – Conservation of intra-specific diversity

- Animal genetic resources
 - breeding and husbandry of endangered indigenous livestock breeds
 - implementation of conservation breeding programmes for endangered indigenous livestock breeds
- Plant genetic resources
 - cultivation of region-specific crop varieties threatened by genetic erosion
 - conservation varieties
 - amateur varieties
 - mixtures of conservation varieties in the case of forage crops
 - Protection and management of the genetic diversity of crop wild relatives (CWR) in their natural habitat
 - Establishment and further development of basic populations (co-operative breeding programmes)
- Forest genetic resources
 - use of region-specific provenances in forestry
 - use of natural regeneration
- Aquatic genetic resources
 - breeding and conservation of endangered stocks in aquaculture
 - conservation and breeding of endangered wild populations of fish species
 - use of region-specific origins in stocking (fisheries)
 - use of region-adapted origins in the management of artificial water bodies

4 – Preservation of traditional knowledge

- continuation of traditional production methods
- processing of products derived from traditional species/varieties/breeds
- marketing of products derived from traditional species/varieties/breeds

- evaluation, characterisation and documentation of genetic resources and of their ingredients and properties
- public relations work on the conservation and sustainable use of agrobiodiversity

Ecosystem services of agrobiodiversity

5 – Conservation of pollination functions

- establishment or conservation of nesting sites and feeding areas for pollinators
 - establishment of areas sown with flowering plants or of strips sown with flowering plants or protection strips
 - establishment and conservation of field edges
 - establishment and tending of hedgerows
 - establishment and conservation of structural elements such as field copses, hollow roads, green lanes, deadwood, field clearance cairns, ...
- Dispensing with or reduction of chemical plant protection to protect insect pollinators
 - use of methods of biological and biotechnical plant protection respectively
 - organic farming
 - integrated crop production

6 – Preservation of soil fertility (impact on the soil biota)

- Improvement of the humus content
 - humus-forming crop rotation
 - combined cropping
 - use of livestock manure (farmyard manure)
 - cultivation of leguminosae
 - reducing the intensity of soil tillage (e.g. mulch seeding, no-plough soil tillage)
 - reducing the fertilizer application in order to enhance biodiversity in soils
- Erosion control
 - mulch seeding methods
 - establishment and tending of hedgerows, shelterbelts, ...
 - conversion of arable land into grassland
 - combined cropping/undersowing
 - greening of permanent crops

- avoidance of soil compaction (no heavy machinery)
- grass verges

7 – Maintenance of biological plant protection (beneficials)

- establishment and conservation of nesting sites and feeding areas for beneficials
 - establishment of areas sown with flowering plants or of strips sown with flowering plants or protection strips
 - establishment and conservation of field edges respectively
 - establishment and tending of hedgerows
 - establishment and conservation of structural elements such as field copses, hollow roads, green lanes, deadwood, field clearance cairns,...
- dispensing with or curbing chemical plant protection in order to protect beneficial species
 - use of methods of biological and biotechnical plant protection respectively
 - organic farming
 - integrated crop production