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**BIODIVERSITY ACTION PLAN  
FOR  
AGRICULTURE**

# **Biodiversity Action Plan**

## **For**

### **Agriculture**

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## **1. INTRODUCTION**

### **1.1. The relevant framework**

1. This document is intended to fulfil the Commission's obligation to produce a plan of action for biodiversity in agriculture. As such, it must be regarded as an important integral part of the package of community measures in support of the Community strategy to predict, prevent and eradicate the causes of significant diminution or loss of biodiversity. It must also be read in conjunction with other Community developments which impact on biodiversity, such as "Directions towards Sustainable Agriculture"<sup>1</sup>; international conventions and agreements, especially the Convention on Biological Diversity; and the member States' own national strategies and action plans.
2. On the other hand, one must stress that the environmental aspect is a major component of the new orientations for the Common Agricultural Policy, in line with the requirements of the Treaty of Amsterdam, and reaffirmed by the Heads of State and Government at the Helsinki European Council: this deals both with the integration of environmental considerations into CAP rules and with the development of agricultural practices preserving the environment and safeguarding the countryside.
3. Agenda 2000 – and in particular the provisions on rural development - provides a relevant framework to integrate environmental considerations into the agricultural policy, biological diversity being a fundamental and predominant aspect of such an integration strategy, as recalled by the Agricultural Council.<sup>2</sup>
4. An important role in this strategy, as regards the biodiversity objectives, is devoted to the agri-environmental measures, specifically aiming at supporting agricultural practices to preserve the environment, safeguard the countryside and to preserve Europe's rural heritage. These measures are the only compulsory element of the new generation of rural development programmes.

### **1.2. The concept of biodiversity**

5. The definition of biodiversity should not be restricted solely to the issue of genetic resources or the conservation of threatened species. As specified by the Convention on the Biological Diversity and the Pan-European Biological and Landscape Diversity Strategy, biodiversity is the variety of life and its processes. It includes all life forms, from single cell to complex organisms and processes, pathways and cycles that link living organisms into populations, ecosystems and landscapes.
6. Biodiversity is generally recognised on three levels:

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<sup>1</sup> Communication from the Commission to the Council and the European Parliament. COM (1999) 22; OJ EC C 173, 19.6.1999, p. 2-17.

<sup>2</sup> Council Strategy on environmental integration and sustainable development in the Common Agricultural Policy established by the Agricultural Council – Report from the Agricultural Council to the European Council of Helsinki (Council of European Union, AGRI 184 ENV 398, 13078/99)

- Genetic diversity - the variety of genetic building blocks found among individual representatives of a species;
- Species diversity – the variety of living organisms found in a particular place; and
- Ecosystem diversity - the variety of species and ecological functions and processes, both their kind and number, that occur in different physical settings.

7. A comprehensive strategy for agriculture must take all of these different levels into account throughout suitable instruments, covering the three main fields of biodiversity:

- the genetic variety of domesticated plants and animals (gene pool, natural heritage, landscapes, etc.), that appears after years (mostly centuries) of equilibrium between human activities and natural ecosystems and in any case is simpler than the:
- “wild” biodiversity (wild flora and fauna related to farmland) ; the special attention which is usually given to threatened species and ecosystems should not lead to underestimate this aspect (see Box 1).
- the life-support systems (including soil microbiota, pollinators, predators, all organisms that support the fertility and productivity of agro-ecosystems

#### **Box 1: Threats on biodiversity**

*Threats menacing Europe’s wild species have become increasingly important. Almost half the known species of vertebrates and over one third of bird species are in decline. This development also affects important habitats like wetlands. At the same time, certain species are being maintained and sometimes are even re-establishing themselves, in particular in connection with the continuation of extensive agricultural practices and the introduction of organic cropping systems. The greatest pressures come from urbanisation, infrastructure development, damage to aquatic environments (removal, pollution and eutrophication), intensive agriculture and the abandonment of farming, uniformisation of forest-tree planting, climatic and atmospheric phenomena (warming and acidification), soil impoverishment and erosion. As recalled by the 2<sup>nd</sup> Assessment on Europe’s environment, shifts in land-use, over most of Europe, have caused major change, decline and loss of diversity in natural and semi-natural habitats by disturbance, degradation and pollution and introduction of species.*

*In addition, different research results clearly demonstrated the links between the agricultural practices and biodiversity, as well exemplified by the traditional European farming systems. While both trends of agricultural intensification and marginalisation of farmland affect diverse areas in the European Union, the main issue of concern in Eastern Europe with a view to the impacts on biodiversity, is the decline of farmed areas. Major changes may arise as a result of the preparation to the accession and decrease the importance of traditional farming and the diversity and the hardiness of crops and animals in favour of more intensive agriculture.*

8. Agricultural biodiversity – a subset of biodiversity, is essential to satisfy basic human needs for food security. It is actively managed by farmers; many components of agricultural biodiversity would not survive without this human interference; indigenous knowledge and culture are integral parts of the management of agricultural biodiversity.

9. Because of the degree of human management of agricultural biodiversity, its conservation in production systems is inherently linked to sustainable use. To this end, sustainable agriculture means that farming systems must remain productive in the long run in a variety of perspectives: biological, economic and social, not just ecologically.
10. The threat to certain ecosystems as a result of the abandonment of forms of agriculture that support important types of biodiversity (e.g. non-intensive agriculture) has shown that the cessation of certain agricultural practices is as much a threat to semi-natural ecosystems as the intensification of production. Although alternative management can be a good solution (see also Box 2) in cases where farming can no longer ensure the required management (either where agriculture has become too intensive or where it is disappearing), in by far most cases farmers remain the most logical managers of the land. On the other hand in certain cases abandonment of agriculture can be positive for biodiversity (i.e. wetlands).

**Box 2: agri-environmental measures, less-favoured areas and biodiversity**

*In most Member States, agri-environment measures to preserve biodiversity have been implemented under Regulation (EEC) No 2078/92, for example, by reducing or phasing out the use of fertiliser and pesticides and by maintaining crop rotation. Examples include the introduction of organic farming, extensive management of grassland, integrated crop management, set-aside of field margins and specific measures, tested through LIFE nature programmes, aimed at particular habitats. Measures are also in place to manage farm woodlands, wetlands and hedgerows in order to benefit flora and fauna; one should also mention the protection of endangered crop varieties and animal breeds*

*Under-utilisation of agricultural land and its abandonment can have disastrous consequences for the natural environment. In mountain regions and other less-favoured areas such as drylands and northern areas, the cessation of agriculture quickly leads to the reversion of higher flora rich areas to scrubs; this affects also vertebrate and invertebrate populations.*

*What is at stake is the maintenance of relatively open semi-natural habitats, highly dependent on the continuation of appropriate farming practices. However, the continued existence of farming may not be sufficient to conserve biodiversity in the absence of appropriate practices. Thus, where managed grazing has been replaced by uncontrolled large-scale ranching systems, the semi-natural environment may deteriorate. CAP support can play a pre-eminent role in maintaining threatened agricultural systems, notably through LFA measures, where agricultural activity could otherwise disappear. In addition, agri-environment measures form a key part of the efforts to preserve farm-dependent biodiversity in the EU. Therefore, they constitute a major ongoing and practical element of the Community's approach to the protection of biodiversity.*

*Although 20% of the agricultural land in the EU is currently covered by agri-environmental measures, surpassing the initial 15% target to be achieved by the year 2000 set out in the 5th Environmental Action Programme, five Member States account on their own for 86% of the expenditure. Uptake of programmes is generally low in highly productive and intensive agricultural areas. Biodiversity in these areas may come under increasing pressure.*

*The use of CAP instruments should also be seen in the light of the implementation of other Community legislation, including Natura 2000.*

## **2. STATE OF THE ART**

### **2.1. Information sources**

11. Priorities in drawing up an action plan must be determined first on the basis of knowledge of the interactions between agriculture and biological diversity and the current status and evolution of this biological diversity.
12. At Community level, two recently published reports provide additional information on the evolution and threats on Europe's biodiversity, in relation with human activities and land use practices, namely the European Commission's report entitled "*Agriculture, Environment, Rural Development: Facts and Figures*"<sup>3</sup> and the European Environment Agency's report on the state of the environment in the European Union in 1998<sup>4</sup>, supplemented by "*Europe's Environment: the Second Assessment*"<sup>5</sup>.
13. The implementation of Regulations (EEC) No 2078/92 and, prior thereto, Article 19 of Regulation (EEC) No 797/85 has brought deeper knowledge of the (positive and negative) impacts of agriculture on biodiversity. The reports on the evaluation of Regulation (EEC) No 2078/92,<sup>6</sup> together with the leaflet entitled "*Agriculture and Environment*"<sup>7</sup> and the recent Communication on "*Directions towards sustainable agriculture*", provide a relatively comprehensive picture of the pressures on biodiversity.
14. The rural environment is first and foremost a living milieu in which fauna, flora, habitats and agricultural activities have been evolving interdependently. Over the centuries a real symbiosis has been developing: the maintenance of a number of species and ecosystems depends on the continuation of certain agricultural activities, and agriculture is also the first to benefit from biological diversity.

### **2.2. Biodiversity's benefits on agriculture**

15. The conservation of biological diversity is a decisive factor in agricultural activities: at the core of the various biological processes utilised by agriculture, biodiversity allows farmers to produce foodstuff and non-food products as well as services. Even if the search for self-sufficiency in food production has been focusing on a limited number of plant species and breeds over the last few decades, food security has been achieved primarily through the adaptation and improved germplasm, which allowed agricultural production of suitable quality to develop on an adequate scale in widely varying and at times arduous environments (e.g. the extension of maize-producing areas). Biodiversity's utilisation in agriculture thus allows the creation of new varieties and breeds for the achievement of economic, health, technical and ecological objectives.

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<sup>3</sup> Prepared by Eurostat in co-ordination with DG VI and DG XI.

<sup>4</sup> Environmental Assessment Report No 2: "Environment in the European Union at the turn of the century", EEA, 1999.

<sup>5</sup> European Environment Agency, 1998.

<sup>6</sup> Commission (DG VI) Working Paper VI/7655/98, 1998. Available on the Commission's Internet site at: [http://europa.eu.int/comm/dg06/envir/programs/index\\_fr.htm](http://europa.eu.int/comm/dg06/envir/programs/index_fr.htm).

<sup>7</sup> CAP Working Notes, Special Issue, Directorate General for Agriculture, European Commission

16. The sustainable utilisation of biological diversity in agriculture contributes to changes in certain practices, by reducing the use of insecticides through the action of beneficial insects, reducing ploughing by increasing soil's biological activity, and preserving yields by increasing pollination.

### **2.3. Agriculture's benefits on biodiversity**

17. Conversely, the evolution of agricultural activity in certain cases enriches biodiversity. It creates and maintains special ecosystems and habitats, such as the mosaic of cultivated fields and field boundaries demarcated by hedges and ditches providing refuge and sources of food for certain flora and fauna and micro-fauna. Agriculture has moulded a semi-natural environment where endemic and threatened species have often survived. This is the case, for example, of the Chough (*Pyrrhocorax pyrrhocorax*), whose survival depends on the maintenance of traditional grazing in certain areas of Europe, and the Great Bustard (*Otis tarda*), prospering in the extensive patches of cereal-growing land left fallow and grassland in Spain and Portugal, but also of great numbers of species of plants and insects depending on semi-natural grasslands (and other semi-natural habitats). For example, around 70% of the vascular plants under threat in Sweden depend on an "open" and varied agricultural landscape. (see also Box 2)
18. Non-intensive agriculture thus maintains both wild and domesticated plant and animal species, varieties or breeds, as well as ecosystems, at times under threat of extinction. Thanks to selection and research of domesticated plant and animal species, it also develops their intraspecific variability (e.g. selection of plants adapted to dry environments).
19. By managing a large part of the Community's territory, agriculture preserves in some cases many specific ecosystems that would disappear if farming activities were abandoned. Clearance of undergrowth and scrub by sheep in areas that are difficult to access, prevention of erosion from the action of water and wind through the growth of plant cover, maintenance of the diversity of flora in semi-natural grassland thanks to pasturage, preservation of biodiversity in Alpine uplands, conservation of wetlands, etc. are all examples of the benefits agriculture provides to biodiversity.

### **2.4. Pressures on biodiversity from farming**

20. Two major changes in agricultural practices have, however, upset the equilibrium between agriculture and biodiversity in certain situations, namely the intensification of production and the under-utilisation of land (see also Box 2). There is evidence that, for at least the last five decades, important agricultural changes have dramatically affected land use and farm structures that led directly or indirectly to significant declines and losses in biodiversity features. Semi-natural grasslands have dramatically declined in the Northwest European lowlands but also wetlands under the pressure of the same agricultural intensification (drainage and fertilisation).
21. Looking for the general causes to biodiversity deterioration that can be related to inappropriate agricultural farming, a series of interrelations with direct and indirect effects at various levels, as those cited below as examples, become clear:

- genetics: the reduction in the number of utilised species/races/varieties, including monoculture, constitutes a threat to an invaluable (animal and plant) genetic potential;
  - “wild” species: the use of herbicides affects the commensals, and the use of insecticides affects the microfauna, cycles are disrupted, equilibria altered by mechanisation, fertilisation (the most nitrophilous species are favoured);
  - habitats and ecosystems: the disappearance or degradation of wetlands, spinneys and hedges has a direct effect on the decline of dragonflies, snipe, nightingales, hedgehogs and hydrophilous plants, just to quote a few examples.
22. On the other hand, the gradual marginalisation and abandonment of farmland, particularly in certain areas where farming conditions are particularly arduous, leads to an impoverishment of ecosystems that are highly dependent on the continuation of such agricultural activities. Under-utilisation of land may lead to the progressive disappearance of the abundant flora of extensive medium-altitude pastures and pastures in northern latitudes, to the overrunning of environments and their colonisation by semi-ligneous species, for example.
23. Furthermore, pollution (resulting from excessive application of nutrients, agrochemicals) from agricultural sources has fundamental indirect effects on all the above.
24. The main agricultural practices which impact on biodiversity are the following:
- unsustainable use of fertilisers and plant protection products,
  - traditional practices giving way to more mechanisation,
  - specialisation of production systems and intensification of certain practices (abandonment of mixed cropping systems and of cereals growing in grazing systems),
  - reduction in number of species and varieties used,
  - conversion of natural ecosystems to agriculture as well as abandonment of farm land,
  - re-parcelling (larger parcel size, disappearance of field margins: hedges, ditches, etc.),
  - drainage and irrigation (especially when dimensions are not adapted to conditions i.e. overexploiting ground waters, of rivers).

These can result in:

- degradation of site conditions, in particular soil degradation and erosion (affecting soil fauna),
- simplification and homogenisation of ecosystems,
- uncontrolled spread of alien and wild species.

### **3. STRATEGIC FRAMEWORK AND CAP INSTRUMENTS FOR BIODIVERSITY CONSERVATION AND SUSTAINABLE USE**

#### **3.1. The Framework**

25. The main points needed for the drawing-up of the plan of action for the agricultural sector were outlined in the Commission Communication “Directions towards sustainable agriculture”<sup>8</sup> and confirmed by the final decisions on Agenda 2000. The environmental components play an important role in this new framework, as mentioned before, notably as regards the introduction of agricultural practices preserving the environment and safeguarding the countryside.
26. The goal of Agenda 2000 is to foster a truly sustainable agriculture within the socio-economic challenges generating competitiveness in the sector, the sustainable management of natural resources, and society’s expectations in terms of quality of the environment and of the countryside. Agenda 2000 – and in particular the provisions on rural development - thus provides the framework to integrate environmental and in particular biodiversity considerations into the agricultural policy. Following this operational framework, the measures and directions to be given priority when plans of action for biodiversity are drawn up can be identified on the basis of progress which have been made to date.

#### **3.2. Priorities**

27. Ensuring the development of current intensive farming practices towards the achievement of a reasonable or rational degree of intensification. This involves:
- developing sound agricultural practices taking biodiversity into account (throughout diversification of types of production and of cultivated varieties together with all the aspects related to crop rotation);
  - encouraging less intensive use of inputs (fertilisers and plant protection products) in certain situations;
  - promoting coherent production systems, like organic farming or integrated crop management , that are in many ways favourable to biodiversity;
  - supporting extensive methods of production, in particular in the stockfarming sector;
  - achieving sustainable management of natural resources, in particular of water.
28. Maintaining an economically viable and socially acceptable agricultural activity, by targeted and tailored measures aiming at safeguarding biodiversity, in particular in biodiversity-rich regions where such activity has been weakened.
29. Use the potential of agri-environmental measures for the conservation and sustainable use of biodiversity:

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<sup>8</sup> COM(1999) 22 final of 27 January 1999.

- the conservation of wild flora and fauna in the biodiversity-rich regions mentioned under 2;
  - the conservation of wild flora and fauna in more intensively used regions where still important values may exist in e.g. certain animal populations and/or in small landscape features;
  - the conservation of biodiversity of domestic animals and plants in situ.
30. Ensuring that an ecological infrastructure exists throughout the area. This is essential for conservation policies. Two complementary approaches should be favoured:
- (1) the implementation of the Natura 2000 Network as a coherent ecological network at Community level;
  - (2) the maintenance and development of linear features<sup>9</sup> in combination with isolated areas of variable size<sup>10</sup> or small sized<sup>11</sup>. Such areas also have other advantages for the environment in terms of reduced pollution and landscape value added. It is also vital to maintain certain open environments.
31. Supporting specific measures related to the use of genetic resources, to the maintenance of local, traditional and rustic breeds and varieties and the diversity of varieties used in agriculture.
32. Introducing specific measures for encouraging the marketing of landraces and varieties that are naturally adapted to the local and regional conditions. Benefits are in terms of diversity of farming systems and resistance to pests and diseases.
33. Implementing measures to prevent the abundance and spreading of non-native species introduced and favoured by agriculture.

### **3.3. Principles to be favoured**

34. The experience gained notably with agri-environment measures allows the identification of certain essential principles for the drawing-up of a plan of action:
- the maintenance of biodiversity is often directly dependent on the method of agricultural production which generated it, although it also depends on the actual conditions of the agro-ecosystems due to influences of factors external to agricultural practices (i.e. impacts from other economic sectors, for example the use of water polluted by industries located upstream)
  - action must be taken with regards to the whole territory in line with tasks defined in chapter 14 (promoting sustainable agriculture and rural development) of Agenda 21 (U.N. Commission for Sustainable Development). Therefore the methods and instruments may vary from area to area; this calls for an approach on the one hand overcoming the strict logic of “protected areas” in order to involve close co-

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<sup>9</sup> Such as hedges, field margins being cut late or left unfertilised and without use of pesticides, grass-covered banks of watercourses, woods and roads.

<sup>10</sup> Such as haymaking meadow and extensive grazing, heath and old orchards.

<sup>11</sup> Such as isolated trees, small stretches of water.

operation with all local players, on the other hand enabling the agricultural sector to fulfil its task of sustainable intensification of production. The ecosystem approach as defined in decision v/16 of CBD (Convention on Biological Diversity) has to be applied.

- a decentralised approach is needed where Member States will be responsible for the choice and implementation of appropriate measures
- priority must be given to a systemic and coherent approach based on complementary, inter-related agricultural and environmental Community instruments and related complementary national instruments.

35. The approach must be better co-ordinated than in the past. Such co-ordination must have the following aims :

- Compliance with the principles of subsidiarity and transparency;
- Monitoring the implementation of projects;
- Interim and final evaluation and continuation of financing;
- Avoiding overlapping among Community sources of funding.

#### **3.4. Community agricultural instruments affecting biodiversity**

36. The agri-environmental strategy put forward by the Agenda 2000 is largely aimed at enhancing the sustainability of agro-ecosystems, mainly through the rural development measures (including agri-environment scheme) and common rules applicable to direct payments within the common market organisations. It is based on the idea that farmers must be willing to respect a basic set of environmental rules without receiving any corresponding compensation. Where they supply goods or services involving more than just compliance with usual good farming practices<sup>12</sup>, they could receive a payment to offset at least the costs and income losses incurred.

37. The Plan of Action is based on the optimal use of the following instruments for the benefit of biodiversity:

- the “horizontal” Regulation<sup>13</sup>,
- the rural development agri-environmental measures<sup>14</sup>,
- the other rural development measures,

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<sup>12</sup> For the purposes of the Regulation on rural development (Art. 28 of Commission Reg.(EC) 1750/1999 laying down detailed rules for the application of Council Reg.(EC) 1257/1999), “*usual good farming practice*’ is the standard of farming which a reasonable farmer would follow in the region concerned. Member States shall set out verifiable standards in their rural development plans. In any case, these standards shall entail compliance with general mandatory environmental requirements.”

<sup>13</sup> Council Regulation (EC) No 1259/1999 of 17 May 1999 establishing common rules for direct support schemes under the common agricultural policy.

<sup>14</sup> Council Regulation (EC) No 1257/1999 of 17 May 1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations.

- the environmental components of common market organisations,
  - the Regulation on genetic resources in agriculture<sup>15</sup>
  - the environmental components of market-related instruments (quality).
38. The rural development plans provided for in the Regulation on Rural Development should form the priority framework to integrate environmental considerations related to biodiversity, taking into account the type of supported measures and their geographical coverage. The integrated rural development plans can also contribute to the coherence of different measures and to avoiding conflicting measures in the same zone. When drawing up rural development plans, it is therefore essential for the Member States to take into account the need to fulfil commitments regarding biodiversity. Hence, the last indent of point 6.1 of the Annex to Regulation (EC) No 1750/1999<sup>16</sup> sets out the need to describe [in respect of each individual rural development plan] “*the extent to which the strategy takes into account all relevant international Community and national environmental policy obligations, including those relating to sustainable development, in particular the quality and use of water, conservation of biodiversity including on-farm conservation of crop varieties, and global warming*”.
39. A summary of the main rural development measures put forward by Agenda 2000 — and those of the common agricultural policy more generally — that can be utilised for the benefit of biodiversity is given in Table 1.
40. Details of the main instruments and their relevance to the achievement of sectoral and horizontal objectives identified by the European Biodiversity Strategy<sup>17</sup> are given in the following chapter.

#### **4. THE ACTION PLAN AS A TOOL TO IMPLEMENT THE EUROPEAN COMMUNITY BIODIVERSITY STRATEGY**

##### **4.1. Horizontal and sectoral objectives to be implemented<sup>17</sup>**

41. The Community Biodiversity Strategy (COM(98)42) has been built around four major themes, also called “horizontal objectives” because, in order to be attained, they need the combined effort of a multiplicity of sectoral activities. These themes are:
- (1) Conservation and sustainable use of biological diversity, which is articulated into three sub-themes: *in situ* conservation, *ex situ* conservation and sustainable use of components of biodiversity;
  - (2) Sharing of benefits arising out of the utilisation of biological diversity;

<sup>15</sup> Council Regulation (EC) No 1467/94 of 20 June 1994 on the conservation, characterisation, collection and utilisation of genetic resources in agriculture, OJ L 159, 26.8.1994, p. 1.

<sup>16</sup> Commission Regulation (EC) No 1750/1999 of 23 July 1999 laying down detailed rules for the application of Council Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF), OJ L 214, 13.8.1999, p. 31.

<sup>17</sup> As defined by the EC Biodiversity Strategy (COM(98) 42)

- (3) Research, identification, monitoring and exchange of information;
  - (4) Education, training and awareness.
42. Sectoral objectives are on the other hand linked to each single policy area of the Strategy<sup>18</sup>. However, some of them such as, e.g., those regarding “genetic resources” and “trade”, need co-operation between different sectors and Community policies, including the different Plans of Actions for biodiversity. This is mainly due to the cross-sectors expertise required and to the political delicacy of the issues.
43. The Strategy (COM(98) 42) listed three groups of sectoral objectives in agriculture. The first group refers to genetic resources, the second to the conservation and sustainable use of agro-ecosystems and the third one to the impact of trade policies on agricultural production and land use (See Box 3).
44. The following sub-chapters will analyse how the main relevant agricultural instruments are facing the challenges posed by the implementation of the sectoral objectives of the Strategy. A separate sub-chapter will then assess the achievement of horizontal objectives.

## **4.2. Conservation and sustainable use of agro-ecosystems (sectoral objective n°2)**

### *4.2.1. The “Horizontal” Regulation*

45. Article 3 of Reg.(EC) 1259/1999 (environmental protection requirements) provides that “Member States shall take the environmental measures they consider to be appropriate in view of the situation of the agricultural land used or the production concerned and which reflect the potential environmental effects. These measures may include:
- support in return for agri-environmental commitments,
  - general mandatory environmental requirements,
  - specific environmental requirements constituting a condition for direct payments.”
46. Member States which choose to apply the third of these options may, in the event of a failure to comply with environmental provisions, allocate the resources which are freed to CAP “accompanying measures” (agri-environmental measures, early retirement, less favoured areas and afforestation).
47. The application of so-called “cross-compliance” by Member States is one possible tool for ensuring a balance between intensive agriculture and the conservation and sustainable use of natural resources. There is a need to prevent biodiversity improvements achieved for certain holdings and regions, from being wiped out by other production practices generating degradation in the same area.

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<sup>18</sup> The policy areas identified by the Strategy are: Conservation of Natural Resources, Agriculture, Fisheries, Regional policies and spatial planning, Forests, Energy and transports, Tourism, Development and economic co-operation.

**Box 3: Sectoral objectives in agriculture  
as defined by the Community Strategy on Biodiversity (COM(1998) 42)**

**1. Plant and Animal Genetic resources. Objectives are:**

1.1 To formulate policy measures, programmes and projects which promote the implementation of the Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture.

1.2 To promote the development of technologies assessing levels of diversity in genetic resources.

1.3 To reinforce the policy of conservation -in situ and ex situ- of genetic resources of actual or potential value for food and agriculture.

1.4 To promote the development of adequate gene-banks useful for the conservation in situ and ex situ of genetic resources for food and agriculture so that they will be available for use.

1.5 To ensure that legislation does not obstruct the conservation of genetic resources.

**2. Conservation and sustainable use of agro-ecosystems. Objectives are:**

2.1 To encourage the ecological function of rural areas.

2.2 To integrate biodiversity objectives into the relevant instruments of the CAP.

2.3 To promote farming methods enhancing biodiversity, with the option of linking agricultural support to environmental conditions where appropriate.

2.4 To promote standards good agricultural practice with a view to reducing the risk of pollution and of further damage to biodiversity.

2.5 To increase awareness among all producers of the polluting potential of specific agricultural practices both short and long term and the need for all producers to be protectors of both environment and biodiversity. This includes the development of integrated and sustainable strategies for the use of plant protection products.

2.6 To promote and ensure the viability of those crop species and varieties and domestic animal races which have to be farmed to conserve the ecosystems of priority wild species.

2.7 To promote and support low-intensive agricultural systems especially in high natural value areas.

2.8 To further develop the agri-environment measures to optimise benefits on biodiversity by:

- reinforcing targeted agri-environment measures

- assessing its performance against a specific set of biodiversity indicators

- using the relevant budget and resources appropriately, as laid down in Agenda 2000 decisions.

2.9 To increase soil fertility as a basis of ecosystem functionality

**3. Impact of trade on agriculture. Objectives are:**

3.1 To promote trade related agricultural policies and disciplines which respect the needs for conservation and sustainable use of biodiversity as well as the principles of the World Trade Organisation.

48. In particular, it addresses the objectives n°2.3 and n°2.4 (see box 3 p.12); it contributes also to achieve objectives n°2.8, n°2.5 and n°2.2, and in a less extent n°2.1, n°2.6 and n°2.7.

#### 4.2.2. *Agri-environmental measures*

49. The application of agri-environment measures since 1992 has concerned 1 farmer in every 7 and delivered environmental services over 20%<sup>19</sup> of European territory. Despite an uneven distribution and sometimes modest results, the agri-environment programmes has proved to generate substantial environmental benefits and in particular on biodiversity. There are many examples (as the Corncrake in Ireland) which testify that the active maintenance and enhancement of biodiversity and landscapes may not prejudice the farm incomes and to the contrary may give a concrete illustration of the “joint products” that agriculture is able to deliver.
50. The agri-environment measures cover ways of using agricultural land, which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic resources. This includes several options benefiting the biodiversity, among which special nature protecting schemes (e.g., the German “Vertragnaturschutz- Programme”), organic farming, low-input farming techniques, environmental maintenance of abandoned farmland, rearing of threatened farm animal breeds or cultivation of local traditional varieties. They offer payments<sup>20</sup> to farmers who, on a voluntary and contractual basis, undertake an environmental service for a 5 years period. Payments (based on the costs incurred and income foregone) will only be made for the measures, which go beyond the application of usual good agricultural practices, (entailing at least compliance with general mandatory environmental requirements). The development of guidelines or codes highlighting what should be the good agricultural practices as regards biodiversity in a given region could be explored and might become an essential task for the EU Member States.
51. The implementation of targeted agri-environmental measures on the whole EU’s territory constitutes now the core of the Community’s environmental strategy. As the only compulsory element in each of the Rural Development Plans, designed by the Member States, these measures play an essential role in the achievement of Community’s biodiversity objectives. The move towards greater subsidiarity allowing each Member State to develop a decentralised system of management has authorised a flexible administrative framework and fits with the need for a targeted approach. This can truly enable to issue appropriate and well-tailored schemes for the very site-specific biodiversity challenges.
52. These measures are aimed at achieving in particular objective n°2.8, and also 2.1, 2.2, 2.4, 2.5, 2.7 (see box 3 p.12). Moreover, they also seek to accomplish some of the objectives grouped within the “Genetic resources” heading, i.e. 1.1 and 1.3, as regards “in situ” conservation.

#### 4.2.3. *Less-favoured areas and areas with specific environmental constraints*

53. Outside the agri-environment measures, the Regulation on Rural Development provides several possibilities for action in favour of biodiversity. The compensatory allowance is, in this respect, the most significant of such support schemes.

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<sup>19</sup> Overshooting the target set in the 5<sup>th</sup> Environmental Action Programme of 15 %

<sup>20</sup> Maximum annual amounts eligible for Community aid: EUR 600/ha for annual crops, EUR 900/ha for specialised permanent crops and EUR 450/ha for other uses of land.

54. The main objective of the compensatory allowance is to compensate for the natural and structural drawbacks of farming land and continuing to utilise it sustainably in mountain and other less-favoured areas. This allowance<sup>21</sup> is the Community's preferred instrument for preventing the abandonment of agricultural land (although this objective will be achieved by using a whole set of measures depending on rural development schemes and CMO's provisions). Continuing to use agricultural land in accordance with local conditions and good farming practice compatible with the requirements of preserving the countryside is essential to preserving its economic and environmental potential (in particular as regards landscape and biodiversity).
55. As a result of the CAP reform, some new aspects of this scheme, relevant for the biodiversity objectives must be emphasised :
- The payment of compensatory allowance is subject to the observance of good agricultural practices
  - The payments previously based on a headage system have shifted to an area-based system; this could enable a more adequate support for low-input farming which usually shelters a richer biodiversity.
  - A new instrument was created within this scheme, with a specific environmental purpose. **Compensatory payments** may also be granted in areas facing special environmental requirements laid down by Community law. The Member States may thus include there the implementation of Natura 2000. The size of these categories of areas has been raised from 4 % to 10 % of the surface of the Member State concerned.
56. Measures on LFAs will contribute to the achievements of the objectives 2.1, 2.3, 2.4, 2.6, 2.7 and 2.2 (see box 3 p.12).

#### 4.2.4. *Other rural development measures*

57. Other rural development measures may be utilised by the Member States for the benefit of biodiversity; they are summarised in table 1. Among them, it is worth quoting the training scheme. It seeks in particular "*to prepare farmers for qualitative reorientation of production, the application of production practices compatible with the maintenance and enhancement of the landscape, the protection of the environment,(...)*". The training scheme will contribute in particular to attain objective n°5.
58. Among the forestry measures, one should also mention the new possibilities offered by article 32 of the Regulation on the Rural Development: it provides Member States with a financial instrument for the support subject to sustainable management, of woodlands of high environmental value and poor economic profitability.

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<sup>21</sup> The allowances range from EUR 25 to EUR 200 per hectare.

4.2.5. *Environmental components of Common Market Organisations (see also table 1)*

59. In the arable crops sector, the overall aim is the optimisation of agricultural inputs started in 1992, by reducing prices, de-coupling aid and introducing the set-aside scheme.
60. Specifically, the environment is covered by a general provision in the Regulation on Arable Crops<sup>22</sup>. The set-aside arrangements in particular provide significant scope to support biodiversity. The agreement reached in Berlin provides for the compulsory set-aside arrangements to be maintained (basic rate: 10%) for the 2000/01 to 2006/07 marketing years. Management of the land left fallow — which qualifies for the area payment — must always fulfil environmental conditions. Furthermore, the rules of implementation introduce some flexibility into the detailed rules on set-aside, which should allow special environmental situations (e.g. management of watercourses banks) to be taken into account. In addition, one should emphasise the evident benefit for biodiversity of voluntary set-aside. Based on five-year commitments, about half a million hectares is set-aside in the EU following this scheme.
61. The Common Market Organisation for beef and veal<sup>23</sup> provides for incentives for extensification that may support biodiversity goals. Producers must satisfy strict requirements, in particular as regards stocking density. On the one hand, as far as the basic premium for beef/veal is concerned, payments are only made in respect of up to 2 LU/ha (of the forage area of the holding used to feed the livestock held on the holding). On the other, an extensification premia is granted to producers who do not exceed a stocking density of more than 1.4 LU/ha on the holding concerned. Payments amount to EUR 100 per special premium (male bovine animals) and suckler cow premium granted. To calculate the stocking density, all livestock on the holding are included and at least 50% of the forage area must be pasture.
62. In view of the fact that extensive management of grazing land has proved worthwhile for maintaining diversity of flora, fauna and micro-fauna, the provisions encouraging extensification of stockfarming are particularly relevant.
63. Furthermore, Member States may grant additional payments under this market organisation and under the CMO for milk and milk products<sup>24</sup>. Such payments, which are based on objective criteria, may be granted per head or per hectare, and according to conditions that take into account the impact on the environment of the type of production concerned and the environmental sensitivity of the land. It is accordingly perfectly feasible to contemplate introducing additional schemes at Member State level to encourage production systems whose environmental impact is favourable to the maintenance and enhancement of biodiversity (e.g. extensive stock-farming in mountain areas).
64. These measures will globally contribute to implement many of the objectives grouped under the priority “Conservation and sustainable use of agro-ecosystems” and in particular, objectives 2.2, 2.3, 2.5 and 2.7 (see box 3 p.12).

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<sup>22</sup> Article 8 of Council Regulation (EC) No 1251/1999 of 17 May 1999 establishing a support system for producers of certain arable crops states that “*Member States shall take the necessary measures to remind applicants of the need to respect environmental legislation.*”

<sup>23</sup> Council Regulation (EC) No 1254/1999 of 17 May 1999, OJ L 160, 26.6.1999, p. 21.

<sup>24</sup> Regulation (EC) No 1255/1999 of 17 May 1999, OJ L 160, p. 48.

**TABLE 1: CAP PROVISIONS THAT MAY BE USED IN FAVOUR OF BIODIVERSITY****Regulation (EC) No 1259/1999 (common rules for direct support schemes)**

Article 3 Environmental protection requirements	Member States take the appropriate measures in view of the situation of agricultural surfaces used or in view of the productions concerned and which correspond to the potential effects of these activities on the environment. This may allow the Member State to link the granting of aid to compliance with basic environmental requirements relating to biodiversity. Possibility of penalties for certain practices (with adverse impacts on biodiversity)
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**Regulation (EC) No 1257/1999 (rural development): support measures (conditions of eligibility are in italics)**

Title II, Chapter I <b>Investments</b>	Investment in infrastructure with an ecological role Compliance with minimum environmental conditions (avoiding adverse effects on biodiversity)
Title II, Chapter II <b>Young farmers</b>	Compliance with minimum environmental conditions
Title II, Chapter III <b>Training</b>	Knowledge of ecosystems, fauna and flora management plans, etc.
Title II, Chapter IV <b>Early retirement</b>	Reallocation of land freed with a view to the protection of ecosystems
Title II, Chapter V Less-favoured areas and areas with environmental restrictions	Maintenance of extensive systems Support to agriculture in Natura 2000 zones Compliance with environmental requirements in particular through sustainable farming systems <i>Application of good farming practice compatible with the requirements of preserving the landscape</i>
Title II, Chapter VI <b>Agri-environment</b>	Reducing fertilisers used (management of equilibrium in terms of flora) Reducing the overall risks related to the use of plant protection products.  Re-establishing certain species of insects, small mammals, etc. Extensification, maintenance of extensive systems Threatened rustic breeds and cultivated species Management of linear and small landscape features: grass-covered strips, hedges, wooded riverbanks, banks of watercourses, headlands, spinneys, small walls, etc. (ecological compensation areas) Management of rotation, introduction of certain crops, adapted practices (late cutting, etc.) Integrated production systems, organic farming <i>Going further than merely applying usual good farming practice</i>

Title II, Chapter VII Processing and marketing	Fostering processing and marketing chains of organic food like organic farming <i>Compliance with minimum environmental conditions</i>
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**Regulation (EC) No 1257/1999 (rural development): support measures (cont.)**  
*(conditions of eligibility are in italics)*

Title II, Chapter VIII <b>Forestry</b>	Investments to improve biological value: improving existing stands, diversification of species planted, etc. Multi-functional management with a view to improving biodiversity: criteria for sustainable management affecting felling, culling, etc. Restoring mineral fertility of soil Management plans Assistance to foresters on sustainable management rules Preserving and improving ecological stability of forests Upkeep of fire-breaks
Title II, Chapter IX Development of rural areas	Maintaining habitats and ecosystems Management of infrastructure (in particular water management works) Maintaining traditional extensive systems Repairing damage caused by natural disasters  Marketing of quality products

**Regulation (EC) No 1251/1999 (arable crops)**

Article 2(3) and Article 6	Compulsory set-aside for applicants with suitable management from environmental viewpoint Additional rules allowing non-rotational set-aside for five years, voluntary set-aside, setting aside of small parcels, inclusion of agri- environmental measures, etc. components of ecological network (field margins, small parcels, riverbanks, etc.)
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**Regulation (EC) No 1254/1999 (beef/veal)**

<b>Article 12</b> Stocking density	Incentive to comply with a ceiling of 2 LU/ha forage area
<b>Article 13</b> Extensification <sup>25</sup>	Incentive to reduce stocking density or to maintain existing practices (ceiling: 1.4 LU/ha); maintaining equilibrium in respect of flora and fauna (including micro-fauna) associated with grazing land

<sup>25</sup> Payment of EUR 100 per special premium (male bovine animal) or suckler cow premium granted; density calculated in respect of total bovine animals, sheep and goats; pastureland (i.e. grazing of animals) to amount to at least 50% of forage area.

<b>Article 14</b> Additional payments	These (headage or area) payments may take environmental criteria into account.
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**Regulation (EC) No 2200/1996 (fruit and vegetables)**

<b>Article 15</b> Operational funds	Support granted to groups for the implementation of measures in favour of the environment, including organic production.
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*4.2.6. The environmental components of market-related instruments (Quality policy)*

65. Quality policy instruments<sup>26</sup> may play an indirect role in biodiversity enhancement, which should not be underestimated. By limiting the use of certain terms to a limited number of products prepared with local and traditional resources, the policies relating to quality contribute towards the conservation of biodiversity. Quality indications boost the demand for the products themselves and for the natural resources utilised for their processing. Thus, conservation of such resources is enhanced through their increased use. Accordingly, Monteleone spelt (Italy) was recently authorised as a PGI (protected geographical indication). Thus, a forgotten crop, spelt has been rehabilitated as a source of healthy, natural food. In this context, organic farming and the marketing of organic food are also worth to be mentioned. Establishing a quality produce label on the basis of traditional farming practices in less favoured areas is a good example of joint products which favour both environmental values and employment, as well as regional attractiveness and viability of rural communities, which are essential for the continuation of biodiversity assets.
66. These policies will particularly contribute to the achievements of objectives 6 and 7 (see box 3 p.14).

*4.2.7. Legislation on Plant Protection Products*

67. As the introduction of agrochemical inputs into ecosystems may cause irremediable damages, plant protection products authorisations and use is an essential prerequisite for the biological diversity. In order to protect animal health and nature throughout Europe, the Community has adopted specific standards to control the placing on the market and use of plant protection products<sup>27</sup> as well as potential residues of these products in foodstuffs, water and the environment. The legislation ensures that only products which meet strict requirements with regard to effectiveness and safety for man and the environment<sup>28</sup> may be used by farmers following good plant-health practices in compliance with the conditions laid down in the authorisation which is issued for each product. Community legislation lays down strict standards for potential plant protection products residues in plants, plant and animal products and water, to ensure that these products are not a danger to consumers.

<sup>26</sup> A list of policies relating to quality is given in Annex II.

<sup>27</sup> Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market OJ L 230, 19/08/1991

<sup>28</sup> In particular, the Council Directive 97/57/EC of 22 September 1997 establishing Annex VI to Directive 91/414/EEC OJ L 265, 27/09/1997, is setting criteria for assessing the impacts on non-target species

68. However, there is a consensus for the need of additional European Community plant protection risk reduction policy instruments.<sup>29</sup> The Commission intends thus to issue a Communication entitled “Towards a sound use of Plant Protection Methods”, jointly prepared by the concerned Directorates General, which will analyse, among other items, how to ensure a more environmentally friendly use of plant protection products.
69. The availability of certain plant protection products is necessary for the production of many minor crops. Biodiversity in agriculture is closely related to a diversity of crops. This has to be taken into account for the development of new risk reduction measures, because the plant protection industry has already announced that they will mainly focus on only a few major crops in the future. It is up to the Commission and the EU Member States to develop strategies to deal with that problem. Otherwise the reduction of available plant protection products for minor crops leads to an obstacle for biodiversity in agriculture.
- 4.2.8. *Enlargement of the European Union and SAPARD instrument*
70. Following the demise of the centrally planned economy, major evolutions were recorded on agriculture and biodiversity within the 10 Eastern and Central countries, which are now applying for accession to the European Union. Changes in land uses as well as farm structures already occurred: if the maintenance of environmental stability is challenged by several evolutions like specialisation and concentration of crop and livestock production or major re-parcellings, some good prospect for biological diversity are equally in place. First, accession into the EU will require preventing habitat and species losses within the candidate countries as well as preparing the agricultural economies to internal (EU) and external competition, while adopting the ‘Acquis Communautaire’. Such an approach will encourage a reasonable intensification as regards the use of natural resources. Second, the 10 applicant countries have generally a well-developed conservation policy and are keen to develop the rich natural potential of their rural areas as a strength to support and accompany diversification strategies.
71. Due attention should be paid to the survival of those forms of land use that support high biodiversity values. This should be taken into consideration when determining the desirable agricultural development and the possible granting of transition periods (and their length) for the integration of the accession countries’ markets into the internal market. Similarly attention should be paid to good overall environmental quality of E.U. farmland, also outside biodiversity-rich areas, which in turn is also supportive to the quality of ground water and surface waters and hence to the biodiversity of ground water dependent areas, rivers, wetlands, Baltic and Black seas. In a somewhat more distant future also EU-15 agriculture may have to face a new situation due to the enlargement of the EU farmland by 50%.

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<sup>29</sup> As recommended by the 2<sup>nd</sup> Workshop on a Framework for a Sustainable Use of Plant Protection Products in the European Union, held in Brussels, 12-14 May 1998 (organised jointly by the European Commission and the Dutch Ministry of Environment)

72. The SAPARD instrument<sup>30</sup> (Special Accession Programme for Agriculture and Rural Development) has thus a strategic role concerning agriculture and biodiversity. With an annual budget of 529 Mio € (at year 2000 prices),<sup>31</sup> it will be managed in a fully decentralised way, covering a wide range of possible actions. The protection of environment has been taking account through specific provisions addressing the Community standards, the environmental impact assessment and the involvement of environmental partners. Furthermore, pilot agri-environment schemes will be implemented in almost all the SAPARD programmes. The management of nature conservation areas, the development and promotion of organic farming, the prevention of erosion and pollution and the maintenance of farming (especially extensive grazing) in high natural value areas are part of the measures already tabled by the applicant countries in this agri-environment Scheme. Given the available budgets, what is expected is to introduce progressively the design and the management of agri-environment measures, as those developed by the revised CAP in the European Union.
73. Within the pre-accession period, the ecological stability of the Applicant Countries would need a good monitoring. Even if the agri-environment schemes within the Rural Development will increasingly support environmentally sensitive areas, much will depend on the further evolutions in the nature and level of agricultural supports within the European Union. The main challenge is to ensure the continuation of viable farming activities, capable to provide with a balanced countryside and landscape management. The compliance with general or specific mandatory environmental rules will also be an issue.

#### **4.3. Genetic resources (sectoral objective n°1)**

##### *4.3.1. The Regulation (EC) n°1467/94 on the conservation, characterisation, collection and utilisation of genetic resources in agriculture.*

74. The first five-year programme for the implementation of the Regulation n° 1467/94 which came to an end in 1999 has essentially concentrated on the *ex-situ* conservation of genetic resources and was particularly concerned with the characterisation of genetic resources available in the gene bank collections. This approach represents a vital element of any strategy aiming at the conservation of biodiversity enabling to safeguard varieties neglected by farmers for food production. Thanks to research and selection carried out by the institutions responsible for the conservation of genetic material, the characteristics of local varieties have been improved. They represent however at the same time the indispensable conditions for the conservation of the genetic resources necessary for the future in the context of a modern agriculture. Experience demonstrates that this approach is particularly important for (intending) users of the results of this programme. Their active participation to several projects constitutes outstanding evidence in this respect.

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<sup>30</sup> Council Regulation (EC) n°1268/1999 of 21 June 1999 on Community support for pre-accession measures for agriculture and rural development in the applicant countries of central and eastern Europe in the pre-accession period. OJ L 161 of 26.6.1999, p.87

<sup>31</sup> Commission Decision 1999/595/EC of 20 July 1999 on the indicative allocation of the annual Community financial contribution to pre-accession measures for agriculture and rural development OJ L 226 of 27.8.1999

75. The first programme has mainly dealt with plant genetic resources (17 projects from 24 projects in total). Nevertheless, the Community institutions have recognised the vital role that the Regulation 1467/94 has to perform in the conservation of breeds of farm animals and agricultural plants.
76. The European Community Biodiversity Strategy Progress Report on its Implementation<sup>32</sup> states moreover that “following the recommendations of the European Parliament and the Council in response to the mid-term report (1997) on the first work programme of this Regulation, the financial endowment of Reg. 1467/94 should be further ensured, while considering the elaboration of the Action Plan on Agriculture.”
77. The regulation aims at contributing to almost all the objectives of the European Community Biodiversity Strategy listed under the “Genetic resources” heading, therefore adequate financial means for its implementation must be ensured.
78. However, if Regulation 1467/92 is to be able to make an effective contribution towards achieving the objectives of the Community biodiversity strategy, it is essential that a future programme should make a major contribution to *in situ* conservation and on farm management, thus making it possible to take account of the specific features of eco-regions and the conservation and evolution of species/races specific to such regions or to natural habitats. This also entails greater integration of NGOs and farmers in the genetic resource conservation process.<sup>33</sup>

<sup>32</sup> Commission Staff Working Paper SEC(1999) 1290 of 4 August 1999.

<sup>33</sup> One approach to maintain and/or to enhance genetic diversity is through *in situ* conservation, i.e. the maintenance of a species in its natural habitat. In contrast to *ex situ* conservation, *in situ* conservation permits populations of plant species to be maintained in their natural or agricultural habitat, allowing the evolutionary processes that shape the genetic diversity and adaptability of plant populations to continue to evolve. *On farm* conservation or *farm management* - a subset of *in situ*, requires maintenance of the agroecosystem and the human element - the selection pressures imposed by the farmer, and thereby, provides opportunities for continuous crop adaptation and improvement.

Strengthening the *on farm* conservation of landraces and traditional varieties calls for the design of programs that simultaneously increase income and sustainable production but do not rely on the displacement of genetic diversity. The dynamics of complex farming systems have to be better understood and several cultural and socio-economic factors have to be addressed simultaneously. *On farm* conservation programs should build upon, and strengthen the local systems of knowledge and management, local institutions and social organisation. All these are heavily dependent on the existence of an appropriate macro-economic and policy environment.

Roughly, *on farm* management activities might be grouped into two provisional categories:

**sector - wide approaches**, involving changes in the policies, and in extension services, to promote on-farm conservation, and

**targeted approaches**, involving a focus on the conservation of landraces and traditional varieties of particular significance at local/national levels. Conservation is a primary purpose, linked to utilisation by reintroducing old cultivars into mainstream production, into organic agriculture or as “niche” crops, to the production of specific quality products, or to develop new varieties with high levels of diversity. Participatory approaches to plant breeding may be established, employing additional users, beyond the breeding sector with increased demand for material from gene banks. The use of dynamic - locally adapted breeding populations as source material, may be regarded as a kind of *in situ* population of locally adapted enhanced germplasm. Such mass reservoirs of genes represent a very cheap and efficient way of maintaining useful alleles and allelic combinations, which are readily available to breeders.

#### 4.3.2. *Seed legislation*

79. The conservation and improvement of *in situ*/on farm plant genetic resources also depends on the effective possibility of sustainable uses and hence on legislation which makes it possible to market diversified genetic materials.
80. Directive 98/95/EC of 14 December 1998 created the legal framework needed to open up, in the future, the possibility of allowing the marketing of varieties arising from *in situ* conservation and not included on the official lists of seeds complying with the DUS criteria. Also, this directive contributes to the *in situ* conservation and the sustainable use of plant genetic resources, through growing and marketing of landraces and varieties, which are naturally adapted to the local and regional conditions and which are threatened by genetic erosion.
81. These specific conditions include in particular the following points:
- The landraces and varieties shall be accepted for listing in accordance with the provisions of Council Directives 70/457/EEC and 70/458/EEC where appropriate. The procedure for official acceptance shall take into account specific quality characteristics and requirements. In particular the results of unofficial tests and knowledge gained from practical experience during cultivation, reproduction and use and the detailed descriptions of the varieties and their relevant denominations as notified to the Member State concerned shall be taken into account, and if conclusive, shall result in an exemption from the requirement of official examination. Upon acceptance of such a landrace or variety, it shall be indicated as a **“conservation variety”** in the common catalogues;
- The provenance of the landrace or variety and the areas of marketing of seed thereof shall be specified;
  - The seed of such landraces or varieties, which may be marketed in given periods, shall be subject to appropriate quantitative restrictions.
82. Specific conditions may also be established for the marketing of seed mixtures of species provided that these species include one or more of those listed in Article 1 of Council Directive 70/457/EEC, if associated with specific natural and semi-natural habitats and threatened by genetic erosion.
83. The implementing regulation needed to exploit this new possibility has not yet been established.

#### 4.3.3. *Genetically Modified Organisms*

84. The main EU legislation on environmental safety of the release of GMOs in the environment is the “Deliberate Release Directive”<sup>34</sup>, while the “Contained Use Directive”<sup>35</sup> concerns genetically modified micro-organisms being released accidentally or incidentally in the environment. These acts constitute the framework

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<sup>34</sup> Council Directive 90/220/EEC of 23 April 1990 on the deliberate release into the environment of genetically modified organisms (OJ L 117, 8/5/1990).

<sup>35</sup> Council Directive 90/219/EEC of 23 April 1990 on the contained use of genetically modified micro-organisms (OJ L 117, 8/5/1990).

legislation for GMOs in relation with the protection of health and the environment. They are complemented, on the food safety side, by the Novel Food Regulation<sup>36</sup>. This framework legislation has to be revised and modified following the adoption of the Cartagena Biosafety Protocol.

85. The use in agriculture of genetically modified organisms ("GMOs") is extremely delicate and politically sensitive. The E.U. has to face various challenges emerging from the public debate and the conflicting interests of multiple stakeholders. As far as the debate on the environment, and in particular on biodiversity, is concerned, key issues are the following:

- Beneficial uses of modern science and techniques, in conjunction with traditional knowledge, to reduce adverse environmental impacts of agriculture
- Use of modern molecular and genetic techniques to identify and characterise genes of interest to agriculture, in cultivated or wild species and in pathogens, and exploitation of such knowledge
- Environmental safety of GM crops; impact on ecosystems
- Likelihood and effects of unintended transfer of genes between cultivated and wild species
- "transgenic" traits of GM crops, implications for pesticide use
- Impact on conservation and sustainable use of biodiversity
- Impact assessment (centres of origin; areas with valued biodiversity)

#### **4.4. Impact of trade on agriculture (sectoral objective n°3)**

86. Progressive liberalisation of agricultural markets would expose EU agriculture to a higher level of competitive pressure. This would favour agricultural production on the best soils whereas farmers in marginal areas would seriously suffer from an increasing cost-price squeeze. The resulting adjustments of agricultural structure would lead to a marginalisation or even abandonment of agricultural land use with negative effects on biodiversity and high nature value landscapes.

87. There is little evidence that the liberalisation of farm policy will, *per se*, lead to any enhancement of conservation capital on farms. To the contrary, structural change being the dominant long-term economic response to liberalisation would have negative environmental consequences. Therefore, it is imperative for the EU to undertake appropriate measures with a view to ensure continued land management and the preservation of biodiversity and landscape features.

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<sup>36</sup> Regulation (EC) No 258/97 of the European Parliament and of the Council of 27 January 1997 concerning novel foods and novel food ingredients (OJ L 43, 14/2/1997).

#### 4.5. Achievement of the horizontal objectives of the European Community Biodiversity Strategy

88. A proper achievement of the horizontal objectives needs the combined and co-ordinated effort of various Community policies and various sectoral activities.

##### 4.5.1. Conservation and sustainable use of biological diversity

89. The major objective includes both *in situ* and *ex situ* conservation and sustainable use. Its realisation involves intensive co-operation between pure conservation policies, other environmental legislations and sectoral policies (including agriculture). Of course, the implementation of the Wild Birds Directive and of the Habitats Directive and the setting up of the Natura 2000 Network, should remain a priority in this area. At the beginning of 1999, Member States' proposed contributions to this network covered 9% of the European Union territory. The list of proposed sites has not been complete yet and therefore the development of the network is progressing slower than expected. Besides the establishment of the national lists of sites the drawing up of management plans<sup>37</sup> is an urgent task which may call for an intervention of cross-sectoral policies. The use of agricultural payments (agri-environment, compensatory allowances or payments) could be a strategic tool under certain circumstances. Indeed "*of 198 habitat types listed in annex I of the Directive 92/43, 65 are threatened by intensification of pastoral activities and 26 are at risk from cessation of traditional activities*"<sup>38</sup> This at least emphasises the important role devoted to some agricultural activities which can be supported by the choice of appropriate instruments at the level of regional and national programming.

90. The design and the implementation of environmental legislations for the management and the protection of natural resources like water and soil shall also contribute to the nature conservation objectives.

91. Finally, the general objectives of environmental protection and sustainability requirements into sectoral policies – and notably in the agricultural policies- is a key element for maintaining and enhancing the biological diversity. The Common Agricultural Policy following the Agenda 2000 agreement enables now to deliver a framework encouraging a better global balance for biodiversity, aiming at optimising the benefits of farming activities and especially low-intensive agricultural systems and minimising the negative impacts. The Agricultural Council reaffirmed this strategy for the European Council of Helsinki in December 1999.

##### 4.5.2. Sharing of benefits arising from the utilisation of biological diversity

92. The main diversity centres of the world are indeed located in developing countries. Some developing countries are the main suppliers of genetic material worldwide for research and breeding activities. Compensation to local farmers who are the ultimate providers of this material is hence needed in terms of access to the enhanced material and sharing of the benefits rising from the enhancement, which should be anyway

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<sup>37</sup> As required by Article 6 of Habitats Directive (EC Directive 92/43)

<sup>38</sup> Ostermann, 1998 as quoted by IUCN, 1999 Background Study for the development of an IUCN policy on agriculture and biodiversity, co-ordinated by Wye College, University of London, P. Nowicki

performed in a participatory manner. Therefore inter-linkage between the present orientations and the ongoing “economic and development co-operation biodiversity action plan” should be furthered.

#### 4.5.3. *Research, identification, monitoring and exchange of information*

93. Filling the gaps of knowledge will be essential to successfully achieve the objectives of the Community Strategy on Biodiversity. Basic research has to be strengthened, in particular on the monitoring and assessment of conservation status and trends of components of biodiversity, including the main driving forces which affect this evolution. The development of a system of indicators should be a prior task, involving the relevant Commission services, as well as the European Environmental Agency. The partnership with other relevant stakeholders should also be ensured (OECD, UN-organisations, Member States, private institutes NGOs) as much of the available and relevant data, as well as accurate expertise, is owned by the latter. The integration of biodiversity research actions within the 5<sup>th</sup> RTD will certainly contribute to these needs (see Box 4).

#### **Box 4: Research programmes on biodiversity and agriculture**

In the specific programme for research on “*Quality of life and management of living resources*”<sup>1</sup> (RTD priorities of Key Action 3: “*the cell factory*”), research actions on “*biodiversity and ecological dynamics of natural and introduced populations*” (including *assessment and reduction of ecological impact*) and on “*identification and sustainable use of metabolic and genetic diversity as a source of new valuable products*” are in progress ;

The RTD priorities of Key Action 5 (“*sustainable agriculture, fisheries and forestry, and integrated development of rural areas, including mountain areas*”) address research on protecting and improving the genetic diversity in agriculture, plant and animal breeding, including relevant application-oriented genome research, and diversity of genetic resources, sustainable production systems with the reduction of impact on ecosystems and diversification of cultivated species

- In the specific programme for Research on “*Energy, environment and sustainable development*”<sup>1</sup>, research actions (under Key Action 2: “*global change, climate and biodiversity*”), on ecosystem vulnerability will seek better understanding of the interactions between anthropogenic impacts and changes in biodiversity. Work on “*assessing and conserving biodiversity*” will be carried out that will help to conserve biodiversity in a context of changing land use patterns and the sustainable use of biological resources ; finally in a 3<sup>rd</sup> area (“*reconciling the conservation of biodiversity with economic development*”), projects will develop and apply strategies to reconcile the conservation of biodiversity with potentially conflicting human activities.

94. The European Environmental Agency (EEA) is also setting up a Community Clearing-House Mechanism (CHM) in order to make available biodiversity-related information via Internet. This will also contribute to the implementation of the CBD, requiring the establishment of Clearing-House Mechanisms by Member Parties at its article 18(3).

#### 4.5.4. *Education, training and awareness*

95. Public (and especially) farmers awareness is essential to ensure the success of the actions to be taken within the present approach. Therefore, the Rural Development Regulation has introduced a specific scheme (Training), which can directly be targeted on environmental improvements, including biodiversity. The involvement and participation of NGOs in the elaboration and implementation of the Rural Development Plans should in any case be supported by the Member States.

#### 4.6. **Progress in meeting priorities monitoring and evaluation**

96. Several priorities have been identified in the present paper with a view, first, to strengthening the role of agricultural activities for the benefit of biodiversity, and secondly, to reducing their negative effects. The Common Agricultural Policy provides significant potential for action in this area, at the heart of which lies the Rural Development policy.

97. The monitoring and evaluation of Rural Development Plans and agri-environmental measures will call for suitable instruments reflecting the specific characteristics of the sites concerned and the programme criteria. Such agri-environmental indicators must allow assessing the effectiveness of the strategy followed.

##### 4.6.1. *Developing an integrated framework for agri-environmental indicators*

98. Agri-environmental indicators should be tools which permit a better understanding of the complex questions linking agriculture and the environment. They should indicate trends and supply quantitative information. For agriculture the development of indicators should encompass all positive and negative effects of the activity throughout the area concerned. Targeting only biodiversity, for example, would not show the complete picture. A systemic approach based on the wider concept of countryside, viewed as a cultivated, partly semi-natural space where agricultural production takes place and which is characterised by all its features, both biophysical and those relating to the crops grown, could provide a suitable context for the agri-environmental indicators.

99. The development of indicators for agriculture and environment needs a differentiated approach which reflects the regional diversity of both economic structures and natural conditions. This is one of the priorities of the Commission's current work, but also adds a dimension of complexity to the work. The recent Communication on agri-environmental indicators<sup>39</sup> provides with a review of these different initiatives<sup>40</sup>, and aims at identifying the main gaps in the different existing sets. It proposes an overall framework and an outlook for the completion of missing indicators. This work highlights the importance of developing a set of agri-environmental indicators relating to biodiversity. However, it is also important to avoid the creation of an excessive number of indicators, too many of which would tend to cloud rather than clarify the issues.

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<sup>39</sup> Communication from the Commission to the Council and the European Parliament « Indicators for the Integration of Environmental concerns into the CAP, COM(2000) 20 final

<sup>40</sup> In co-operation with OECD, a set of indicators is being developed by the Commission services e.g. Eurostat, the Joint Research Centre, the European environment Agency, Community research projects like ELISA (Concerted Action FAIR CT96 -3448).

100. For biodiversity in particular, the gap between the development of a wish-list of indicators and a final set of working indicators, complete with operational definitions, reliable data, etc. is great. If this gap is to be closed, a concerted effort, including efforts and contributions from Member States in this area, as well as more resources both within the Commission and within the Member states are needed. A long-term strategy on data/information needs will be necessary.

#### 4.6.2. *Monitoring and evaluation of biodiversity objectives*

101. A site-specific approach is necessary in order to offer an accurate picture of the interrelations between local farming activities and specific biodiversity assets. Moreover this approach will normally fit with the level of design and implementation of agri-environmental policies (within the rural development plans). However, as a result, this emphasis on differentiation will generate specific difficulties in developing appropriate indicators, while the global stock of species or natural habitats can only reflect cumulative effects.

### **Monitoring**

102. In this context, the document drawn up by the Commission on the monitoring of rural development plans should be mentioned. Article 43(1) of the *Rural Development Regulation* states that rural development plans shall include “*provisions to ensure the effective and correct implementation of the plans, including monitoring and evaluation*”. Article 48(2) of the same Regulation foresees that “*monitoring shall be carried out by reference to specific physical and financial indicators*”. Therefore the Commission has presented a set of common indicators to the Member States, as well as a common structure for such indicators. (see annex III)
103. Even if this information cannot give a complete picture of the expected impact on biodiversity, it will provide a basic level of harmonised data on the implementation of rural development measures in Member States and regions. This information can be aggregated to a community level, with a special view to measures implemented within the Member States to develop and safeguard biodiversity. This will enable to indicate the progress of the measures applied in Member States/regions, and to elaborate annual progress reports.
104. In addition, the "horizontal" *Regulation* (Regulation 1259/1999) requires Member States to inform the Commission in detail on the measures taken to implement the regulation, including cases of non-compliance with environmental requirements. Some work is needed to harmonise this work in order to produce indicators that are meaningful at an EU level.

### **Evaluation**

105. While the Rural Development Plans will form the main tool to implement measures in favour of biodiversity in agriculture, information provided by the monitoring must be carried further by indicators relating to the assessment of the different measures and biodiversity objectives. Rural development programmes and payments under the support schemes are therefore subject to evaluation (*ex-ante*, *mid-term* and *ex-post*) designed to appraise their impact, including on biodiversity.

106. The elaboration of appropriate indicators to assess the effectiveness of these programmes and policies focusing on results and impact has been set out by the Commission with the Member States. Biodiversity is one of the chapters that has been singled out for environment. The requirements concerning evaluation at the *ex ante*, *mid term* and *ex post* stages of the programmes are set out in Articles 42-45 of Commission Regulation (EC) No 1750/1999. These rules substantiate the general requirements about evaluation in Article 43(1) and above all, Article 49 of the Council Regulation (EC) No 1257/1999 on support for rural development from the European Agricultural Guidance and Guarantee Fund. They are further specified in the Guidelines for Evaluation of Rural Development Programmes 2000-2006 supported from EAGGF (DOC VI/8865/99-REV.) and a set of common evaluation questions with indicators are being elaborated. (See annex IV).
107. Monitoring and evaluation exercises which operate within the Rural Development area will be used to measure the achievements of the targets set by this Plan of Action for biodiversity, together with the overall framework developed within the Community or within forums like OECD.

## **5. ENSURING CONSISTENCY IN MEASURES**

### **5.1. Integrated programming**

108. In view of the potential offered by the rural development instruments (including the agri-environmental measures), a strategy must be drawn up as a priority on the basis of those features. It must, however, be more than just a set of support measures thrown together. The rural development policy must seek to develop integrated development programmes, alongside and in addition to market policies.
109. In this context the design and implementing of rural development plans is a key element. Such plans cover a seven-year period commencing on 1 January 2000<sup>41</sup>. They must be worked out at the geographical level considered to be the most appropriate<sup>42</sup>. Their preparation must ensure that all responsible authorities, including the environmental ones, will be associated. It is essential to clearly identify the possibilities of interaction between different measures as regards biodiversity. This will enable the development of synergies and avoid contradictory approaches. The plan's overall consistency can only be assessed on a regional scale, if account is to be taken of the specific and local issues that conservation of biodiversity most often raises.
110. A regional strategy for agriculture enhancing biodiversity must thus be considered as a priority under those rural development plans (which must include agri-environmental measures and, where appropriate, measures on less-favoured areas and areas facing environmental constraints). This concern must constantly remain, also in connection with Objective 1 (and Objective 2) programming<sup>43</sup>.

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<sup>41</sup> Article 42 of Regulation (EC) No 1257/1999.

<sup>42</sup> Article 41 of Regulation (EC) No 1257/1999.

<sup>43</sup> The rural development measures financed by the EAGGF Guidance Section are incorporated in programming for Obj. 1 regions in accordance with Reg. 1260/1999. Certain measures (other than so-called "accompanying measures") may be incorporated in programming for Obj. 2 regions.

111. The provisions on the content of the rural development plans<sup>44</sup> encourage programming of measures that takes into account the environmental situation at the appropriate geographical level. The Member States are also explicitly called on to state *“the extent to which the strategy takes into account all relevant international Community and national environmental policy obligations, including those relating to sustainable development, in particular the quality and use of water, conservation of biodiversity including on-farm conservation of crop varieties”*<sup>45</sup>.

## **5.2. Full area coverage**

112. It is vital to work out guidelines for biodiversity support throughout the rural area of the Community. The rural development policy implemented from the beginning of the year 2000 covers all rural areas (see Annex I). Furthermore, Member States’ plans make provision for agri-environmental measures in respect of their whole area and in accordance with their special needs<sup>46</sup>. Care must also be taken to ensure balance between the various support measures provided for in their plans.
113. These provisions are parts of a multi-functional integrated approach to rural development that recognises agriculture’s vital role in maintaining the socio-economic, cultural and environmental assets of the regions and emphasises the need to create alternative sources of income to bolster the viability of rural income-generating activities.

## **5.3. Compatibility and consistency**

114. Support for rural development is only granted in respect of measures complying with Community law. This obviously includes environmental legislation. Therefore the plans and programmes for 2000-2006 are expected to take into account legislation on biodiversity. At the Community level, this is currently based on the implementation of a European network of protected sites (Natura 2000) including protection zones designated pursuant to the two Directives on habitats and birds<sup>47</sup>.
115. Payments may not be made in respect of the same measure under the Rural Development Regulation and under another Community support scheme<sup>48</sup>. However, that rule does not prejudice support from different Community Funds (EAGGF, Structural Funds and LIFE) for the conservation of biodiversity. CAP measures promoting biodiversity can only be a complement in the broader context of environmental legislation and, in eligible areas, structural funds measures.
116. A good example of complementarity is provided by LIFE and the agri-environmental measures under Regulation 2078/92. The LIFE programmes have had a test case character for nature protection measures and as such have acted as pilot programmes to be applied on a wider scale under the agri-environmental measures.

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<sup>44</sup> Article 43 of Regulation (EC) No 1257/1999 and Article 33 of implementing Regulation 1750/1999.

<sup>45</sup> Point 6.1 of the Annex to Commission Regulation (EC) No 1750/1999.

<sup>46</sup> Article 43(2) of Regulation (EC) No 1257/1999.

<sup>47</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds.

<sup>48</sup> Article 38 of Regulation (EC) No 1257/1999.

#### **5.4. Conclusion - Setting targets and timetable**

117. The rhythm of biodiversity integration into the CAP will be largely set by the implementation of Agenda 2000. The timetable is largely dominated by the elaboration and implementation of the Rural Development Plans by the Member States. A suitable biodiversity strategy within the plans should therefore be an urgent and crucial task. Much of the expected outcomes on biodiversity should be delivered through the implementation of agri-environmental measures (which cover typically a 5 year period), most of the targets will be assessed by the ex-post evaluation exercise at the end of the programming period.
118. The table below (table 2) brings together concrete priorities (as defined in paragraph 3.2), sectoral and horizontal objectives as specified by the Community Strategy on Biodiversity, with the relevant instruments to meet these objectives. Targets and practicable indicators are proposed, as far as possible, together with an indicative timetable.
119. Several actions are undertaken, within the Commission, the Member States or the OECD, aiming at refining the biodiversity indicators, and also the land use, land cover and landscape indicators. It will be essential to ensure a constant synergy between these findings and the ongoing agricultural initiatives on biodiversity.
120. The member States have an obligation to make a report before 2002 to define the present obstacles to improve the biodiversity in agriculture.

**Table 2: implementation of measures necessary for the achievement of action plan priorities: targets and timetable**

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / <i>Tentative Indicators</i> (subject to further investigation)	Timetable
<p><b>Integration of the environment (especially biodiversity) into the CAP.</b></p>	<p>To encourage the ecological functions of rural areas</p> <p><i>To integrate biodiversity objectives into the relevant instruments of the CAP</i></p> <p><i>To further develop agri-environment measures</i></p>	<p>General environmental strategy developed by the reformed CAP</p>	<p>1- Development of Specific Headline indicators (cf COM(2000) 20). Continue work on the development of a fully operational set of policy relevant indicators. For the more difficult areas, carry out pilot studies to assess feasibility and cost effectiveness of such indicators.</p> <p>2- Report on the integration of biodiversity objectives within the rural development plans</p> <p><i>✓ Share of biodiversity-related measures in each RDP (and list of relevant measures)</i></p> <p><b>3- Stimulate the use of possible options under Article 3 of regulation (EC) N° 1259/1999 by Member States, for biodiversity</b></p>	<p>Ongoing</p> <p>2001</p> <p>CAP until 2006??</p>

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / Tentative Indicators (subject to further investigation)	Timetable
			<b>targets</b>	
<b>Development of good farming practices.</b> <b>Compliance with environmental standards as regards biodiversity protection</b>	<i>Promotion of good agricultural standards with a view to reducing the risk of pollution and of further damage to biodiversity</i>  <i>To promote farming methods enhancing biodiversity, as a condition for direct payments where appropriate</i>	Application of Article 3 of Reg. 1259/1999 by Member States <sup>49</sup>  <b>Essential under Art.14 and 23 of Reg. 1257/1999 for the approval of several support schemes for holdings put forward (also Article 28 of and the Annex to implementing Reg. 1750/1999)</b>	1-Elaboration of codes of GAP for bio-diversity” or guidelines by the MS, where appropriate  2- Increase of crops/breeds diversity; Monitoring of crop rotation  3- Report on the implementation of Article 3 by Member States  ✓ <i>Existence in each MS/region of provisions on biodiversity (codes or mandatory requirements)</i>  ✓ <i>Crop rotation indicator</i>  ✓ <i>Share of 5 main varieties /crops</i>  <b>4 – Periodic review and publication of GAP codes including measures on biodiversity conservation</b>	Mid-term evaluation of rural development plans (2003)

<sup>49</sup> This provision of Regulation (EC) No 1259/1999 may apply, where appropriate, to any environmental requirement deemed “appropriate” by the Member State.

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / <i>Tentative Indicators</i> ( <i>subject to further investigation</i> )	Timetable
<p><b>Voluntary reduction of inputs</b></p>	<p><i>To increase awareness among all producers of the polluting potential of specific agricultural practices both short and long term and the need for all producers to be protectors of both environment and biodiversity. This includes the development of an integrated strategy for the sustainable use of plant protection products.</i></p>	<p>Agri-environmental measures (Chap. VI of Reg. 1257/1999)</p> <p><b>Environmental programmes for fruit and vegetables (Reg. 2200/1996)</b></p> <p>Plant protection products legislation</p> <p><b>Additional initiatives (ongoing Communication “towards a sound use of agricultural pesticides”)</b></p>	<p>1.-Reduction of plant protection products risks for species and ecosystems</p> <p>2- Decrease of nitrogen and phosphorus surpluses</p> <p>✓ <i>Plant protection product risks indicators,</i></p> <p>✓ <i>Nutrients balances</i></p> <p>✓ <i>Evaluation indicators (see annex IV)</i></p> <p>3- Foster the organic agriculture and integrated pest management, by supporting capacity building and market tools</p> <p>4- Foster actively local and regional practices based on low intensive agriculture, particularly for accession countries and extensive agriculture use in Mediterranean region</p>	<p>End of programming period (2006)</p>
<p><b>Promotion of integrated or organic farming systems and specific cultivation methods</b></p>	<p><i>To promote farming methods enhancing biodiversity</i></p> <p><i>To promote and support low-intensive agricultural systems</i></p> <p><b>Integrated strategy for the sustainable use of</b></p>	<p>Agri-environmental measures (Reg. 1257/1999)</p> <p>Processing and marketing (Chap. VII of Reg. 1257/1999)</p> <p>Reg. (EC) No 2200/1996 (fruit</p>	<p>1. Increasing share of farmers practising organic farming, integrated farming, or traditional farming systems enhancing biodiversity (figures for each category)</p>	<p>End of programming period (2006)</p>



Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / Tentative Indicators (subject to further investigation)	Timetable
		<b>1254/1999 and No 1255/1999)</b>		
<b>Support for less-favoured areas</b>	<p><i>Support of low-intensive agricultural systems in high natural value areas</i></p> <p><b><i>Good agricultural practice standards</i></b></p>	Compensatory allowances (Chap. V of Reg. 1257/1999)	<p>1- Improving/maintaining the biodiversity values of LFAs</p> <p>2- Reduction in area of land threatened by abandonment or encroachment</p> <p>✓ <i>Evolution (numbers or index) of “key” species : birds, certain plants</i></p> <p>✓ <i>Land use changes in LFAs</i></p> <p>✓ <b><i>Land cover changes in LFAs</i></b></p>	End of programming period (2006)
<b>Ecological infrastructure. Maintenance of open environments</b>	<p><i>To promote farming methods enhancing biodiversity</i></p> <p><i>To promote good agricultural practice standards</i></p> <p><i>To promote and support low-intensive agricultural systems</i></p> <p><i>To increase awareness</i></p> <p>Horizontal objective :</p> <p><b><i>In situ conservation and sustainable use of components of biodiversity</i></b></p>	<p>Investments (Ch.I Reg.1257/1999)</p> <p>Training (Ch.III Reg.1257/1999)</p> <p>Compensatory allowances (Chap. V of Reg. 1257/1999)</p> <p>Agri-environmental measures (Chap. VI of Reg. 1257/1999)</p> <p>Forestry (Ch.VIII Reg. 1257/1999)</p> <p>Development of rural areas (Chap. IX of Reg. 1257/1999)</p> <p><b>Set-aside (Reg. 1251/1999)</b></p>	<p>1-Maintenance/increase of biodiversity-rich areas</p> <p>2-Protection of wetlands</p> <p>3-Increase patch density / diversity</p> <p>4-Protection of threatened wild species or habitats, by concrete measures, such as minimum height for mowing, reduced use of fertiliser and preference for organic fertiliser, hedges, reduced ploughing, etc.</p> <p>5- Prevention of closeness of landscapes</p>	End of programming period (2006)

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / <i>Tentative Indicators</i> ( <i>subject to further investigation</i> )	Timetable
			<ul style="list-style-type: none"> <li>✓ <i>Area of High Nature Values farmland under specific conservation (mandatory or voluntary schemes)</i></li> <li>✓ <i>Area of wetlands adequately managed</i></li> <li>✓ <i>Landscape indicators (spatial distribution)</i></li> <li>✓ <i>Evolution of 'species' or 'ecosystems' indexes</i></li> </ul>	
<p><b>Maintenance and development of linear and isolated features</b></p>	<p><i>To promote farming methods enhancing biodiversity</i></p> <p><i>To increase awareness</i></p> <p>Horizontal objective :</p> <p><b><i>In situ conservation and sustainable use of components of biodiversity</i></b></p>	<p>Training (Ch.III Reg. 1257/1999)</p> <p>Agri-environmental measures (Chap. VI of Reg. 1257/1999)</p> <p><b>Development of rural areas (Chap. IX of Reg. 1257/1999)</b></p>	<p>1-Increase of the length of hedges and other biodiversity-rich linear features (field boundaries)</p> <p>2-Increase of density of valuable isolated features</p> <ul style="list-style-type: none"> <li>✓ <i>Length by type of feature</i></li> <li>✓ <i>Evolution of species diversity of hedges</i></li> </ul> <p><b>3- Support European and international initiatives in the field of ecological corridors</b></p>	<p>End of programming period (2006)</p>
<p><b>Implementation of Natura 2000</b></p>	<p>Horizontal objective :</p> <p><b><i>In situ conservation and sustainable use of components of biodiversity</i></b></p>	<p>Early retirement (Chap. IV of Reg. 1257/1999)</p> <p>Compensatory allowances</p>	<p>1-Speeding up the implementation of Natura 2000</p> <ul style="list-style-type: none"> <li>✓ <i>Farmland covered by nature</i></li> </ul>	<p>Mid-term evaluation of rural development plans (2003)</p>

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / Tentative Indicators (subject to further investigation)	Timetable
		(Chap. V of Reg. 1257/1999)  <b>Forestry (Chap. VIII of Reg. 1257/1999)</b>	<i>protection schemes (mandatory or voluntary)</i>  ✓ <i>Natura 2000 barometer</i>  ✓ <i>% of Natura 2000 network covered by appropriate management plans</i>	
<b>Enlargement; targeted actions</b>	Reg. 1266/1999, Reg. 1268/1999,  EC E.C. Biodiversity Strategy: <i>“In this context, the Action Plan on agriculture should build upon the existing policies and those foreseen in Agenda 2000 and complement them so that they contribute to biodiversity”.</i>	Agreements with accession countries	1-The European Commission should explore how to foster the exchange of information and visits between agricultural biodiversity experts, policy makers, extension officers and practitioners to promote best practice for wildlife protection in Eastern and Western Europe  <b>2- In particular, within the current Agenda 2000 policy framework options for achieving the necessary implementation of nature conservation legislation in the Eastern and Central Europe region should be explored (funding, information tools, planning tools, share of experiences with rural development plans in Western countries, etc.)</b>	Pre-accession
<b>Research priorities</b>	5 <sup>th</sup> Framework Research Programme, Biosafety Protocol  EC Biodiv. Strategy: <i>Technical and scientific co-</i>		1- Allocate resources for baseline studies of important biodiversity indicator species on agricultural land	

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / <i>Tentative Indicators</i> ( <i>subject to further investigation</i> )	Timetable
	<i>operation should in particular aim at strengthening the basic capacities in developing countries for the conservation and sustainable use of biodiversity and its components and the establishment of joint research programmes, in particular as regards identification, monitoring and exchange of information.</i>		in the EU;  <b>2- Regarding the regulation on the conservation, characterisation, collection and utilisation of genetic resources in agriculture and the commerce with GMOs and LMOs, the EC-Agricultural Action Plan on Biodiversity should expressively support research programmes to make the impact of GMOs and LMOs on nature and human health fully accountable</b>	
<b>Training and communication</b>	EC-Biodiversity Strategy, EU-Directive 90/313		Following the mandate of Article 22 of the EC-Biodiversity Strategy, all measures and programmes of this EC-Agricultural Action Plan on Biodiversity are made available as part of the Agro-biodiversity section in the EC Clearing-House Mechanism	
<b>Use of sound technologies</b>	<i>To promote the development of technologies assessing levels of diversity in genetic resources</i>		Providing conservation targeted investment aid to farmers, capacity-building programmes on in-situ conservation methods and landscape management etc.	
<b>Monitoring and reporting</b>	EC Biodiv. Strategy (see research)		1-Agro-biodiversity reporting is part of the implementation process of Agenda 2000 ;  <b>2- Establish a monitoring system</b>	

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / Tentative Indicators (subject to further investigation)	Timetable
			<b>that describes the state and changes of agricultural ecosystems in a representative and state-of-the-art way</b>	
<b>Support to market tools</b>			1- Provide support to the introduction of conservation standards into marketing schemes for regional products, food quality assurance schemes and rural tourism programmes.  2- Gained know-how on the marketability of these products needs to be regularly assessed and shared by stakeholders, research institutes and public authorities	
<b>Conservation of threatened hardy breeds/varieties</b>  “domestic” biodiversity  <b>Preservation of local varieties</b>  Ex-situ conservation	<i>To ensure the viability of those crop species/ varieties and domestic animal races which have to be farmed to conserve the ecosystems of priority wild species.</i>  <i>All objectives for genetic resources</i>  Horizontal objective :  <i>In- situ and ex-situ conservation</i>  <i>Research on the interdependence of species for the conservation of ecosystems</i>	Agri-environmental measures (Chap. VI of Reg. 1257/1999)  Quality policy  Regulation 1467/1994  Seed legislation: not effective enough, thus suggestion to refer to FAO work on assessment as well as sustainable use of plant and animal genetic resources.  <b>Include legislation on natural resources management such as water directive, since only with the protection of these</b>	1- Increase the crops/animal diversity  2- Prevent any biodiversity losses in cultivated/reared varieties/breeds  ✓ <i>Share of each crop and breed per programming region</i>  ✓ <i>Number of endangered breeds/ of plant varieties under threat of genetic erosion (of which : number covered active protection measures)</i>  ✓ <i>list of registered local and traditional varieties</i>	End of the programming period  <b>(2006)</b>

Priorities	Sectoral /horizontal objectives (COM(98)42)	Relevant instruments/measures	Targets / <i>Tentative Indicators</i> ( <i>subject to further investigation</i> )	Timetable
		<p><b>resources a lot of local varieties and unique ecosystems can survive, such as the dry grasslands (that are linked with extensive pastures, and account for high species diversity).</b></p>	<p>✓ <i>list of ex-situ conservation measures</i></p> <p>3. The EU could set up a database of projects in which local traditional varieties are cultivated and used, the conservation of genetic resources is assessed and monitored, and the inter-dependence between cultivated varieties and wild species is being analysed.</p>	

## **Annex I - EAGGF Guarantee Section allocation for Rural Development**

Community support for early retirement, less favoured areas and areas facing environmental constraints, agri-environmental and forestry measures throughout the Community is financed by the EAGGF Guarantee Section.

Community support for other rural development measures is financed by the EAGGF Guidance Section in Objective 1 areas and by the EAGGF Guarantee Section in non-Objective 1 areas<sup>50</sup>.

The indicative allocations per Member State from the EAGGF Guarantee Section for 2000-06 are set out below (following the conclusions of the European Council held in Berlin in March 1999).

EUR 30 370 million has been allocated for the programming period (i.e. approximately EUR 4 339 million a year).

Member State	EAGGF Guarantee Section allocation for rural development (EUR million - annual average)
Belgium	50
Denmark	46
Germany	700
Greece	131
Spain	459
France	760
Ireland	315
Italy	595
Luxembourg	12
Netherlands	55
Austria	423
Portugal	200
Finland	290
Sweden	149
United Kingdom	154
TOTAL	4 339

<sup>50</sup> Article 35 of Regulation (EC) No 1257/1999 (EAGGF assistance).

**Annex II - Policies relating to quality**

Policy	Regulation	Features
Protected designation of origin (PDO)	Council Reg. (EEC) No 2081/92 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs, OJ L 208, 24.7.1992	Designates the name of a product the production, processing and preparation of which must take place within a defined geographical area using recognised, established know-how
Protection geographical indication (PGI)	Council Reg. (EEC) No 2081/92 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs, OJ L 208, 24.7.1992	The link with the area still applies at least at one of the stages of production, processing or preparation.
Traditional speciality guaranteed (TSG)	Council Reg. (EEC) No 2082/92 on certificates of specific character for agricultural products and foodstuffs, OJ L 208, 24.7.1992	The purpose of this term is to turn to account a traditional composition of the product or a traditional method of production.

### **Annex III - Monitoring indicators**

These indicators were presented by the Commission in the context of the Rural Development Regulation.

#### **• Less-favoured areas and areas with environmental restrictions**

Breakdown by type of compensatory payment associated to different areas (Mountain areas, other less-favoured areas, areas affected by specific handicaps, areas with environmental restrictions) and by type of area (Natura 2000 etc) of the following figures:

- Number of beneficiaries of compensatory allowances
- Number of hectares enjoying compensatory allowances
- Average amount of payment (per holding and per ha)
- Total public expenditure (of which: EAGGF contribution)

Breakdown by areas with environmental restrictions of compensatory allowances:

- Classified agricultural surfaces (ha)
- % of those surfaces enjoying compensatory allowances (of which: mountain areas, other less-favoured areas, areas affected by specific handicaps, areas with environmental restrictions)

#### **• Agri-environment**

Environmental indicators. Breakdown by action and by type of land use of:

- Codification of undertakings
- Objective of the action (Protection of natural resources, biodiversity, and/or landscapes)
- Mineral fertilisation level (of which N, P, K): level fixed by the undertaking (Kg/ha) / reference level
- Organic fertilisation: level fixed by the undertaking (t/ha) / reference level
- Livestock density: level fixed by the undertaking (LU/ha) / reference level

Uptake indicators. Breakdown by type of land use (annual crops, permanent crops, other land uses) / action / objective (biodiversity, landscape, natural resources), of the following figures:

- Number of beneficiaries
- Number of units<sup>51</sup> eligible to the engagements/achieved
- Average premium per unit of payment
- Premium linked to non-remunerative investment (%)
- Total public expenditure (of which EAGGF contribution)

Other indicators:

- Areas environmentally sensitive: ha of classified surfaces (of which: surfaces (%) covered by an agri-environmental contract)
- Plant varieties under threat of genetic erosion: ha of cultivated areas (of which surface (%) covered by an agri-environmental contract)
- Endangered breeds: number in the region (of which: number covered by an agri-environmental contract)

### **Rem: complementary national measures**

National measures that are supporting the same goal of maintaining/restoring biodiversity on farm land should be taken into consideration as well.

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<sup>51</sup> The «reference unit» used in respect of agri-environmental undertakings mainly refers to concerned Ha, but it can also be LU (actions relating to endangered breeds) or km (creation of hedgerows etc).

## Annex IV - Indicators for evaluation

These indicators are currently discussed with the Member States in the context of the Rural Development Regulation.

Questions	Criteria	Indicators	Target levels
1.1. To what extent has biodiversity ( <i>species diversity</i> ) been maintained or enhanced thanks to agri-environmental measures through the protection of flora and fauna on farmland?	1. Reduction of agricultural inputs (or avoided increase) benefiting flora and fauna has been achieved	1.1. Area with assisted input-reducing actions (hectares) (a) of which with reduced application per hectare of plant protection products (%) (b) of which with reduced application per hectare of fertiliser (%) (c) of which with avoidance of specific inputs at critical periods of the year (%)	1.1. Area under agreement $\geq$ X% of potentially eligible area
		1.2. Reduction of agricultural input per hectare thanks to agreement (%)	1.2. Reduction $\geq$ X kg/ha
		1.3. Evidence of a positive relationship between assisted input reduction measures on the targeted land and species diversity (description, where practical involving estimates of species abundance)	1.3. The positive relationship should be apparent
	2. Crop patterns (types of crops, crop rotation, cover during critical periods, expanse of fields) benefiting flora and fauna have been maintained or reintroduced	2.1. Area with beneficial lay out of crops (types of crop, crop-combinations and size of uniform fields) maintained/reintroduced thanks to assisted actions (hectares)	2.1. Area under agreement $\geq$ X% of potentially eligible area
		2.2. Area with beneficial vegetation/crop-residues at critical periods thanks to assisted actions (hectares)	2.2. Area under agreement $\geq$ X% of potentially eligible area
		2.3. Evidence (by key type of farmland) of a positive relationship between the layout of crops or cover on the farmland under agreement and the impact on species diversity (description, and where practical, estimates of numbers of nest (of birds, mammals, etc) or species abundance (or observation frequency)	2.3 The positive relationship should be apparent, and the estimate of the number of individuals or nests protected should be above a predefined threshold

Questions	Criteria	Indicators	Target levels
	3. Species in need of protection have been successfully targeted by the supported actions	3.1. Area of farmland under agreements targeting particular wildlife species or groups of species (hectares and specification of species) <ul style="list-style-type: none"> <li>(a) of which widespread species (%)</li> <li>(b) of which specialist species (%)</li> <li>(c) of which declining species (%)</li> <li>(d) of which stable or increasing species (%)</li> <li>(e) of which soil-organisms (%)</li> <li>(f) of which species figuring on international lists of endangered species (%)</li> </ul> 3.2. Trend in populations of target species on the specifically targeted farmland (cf., indicator 3.1) (where practical involving estimates of population size) <i>or</i> other evidence for a positive relationship between the supported actions and the abundance of the targeted species (description).	3.1. At least a total of X hectares on at least Y sites of which Z% targeting rare species  3.2. At least X individuals present per hectare [ <i>or</i> , at least X individuals observable under specified conditions per hectare] <i>or</i> otherwise apparent positive relationship
1.2. To what extent has biodiversity been maintained or enhanced thanks to agri-environmental measures through the conservation of high nature-value farmland habitats, protection or enhancement of environmental infrastructure or the protection of wetland or aquatic habitats adjacent to agricultural land ( <i>habitat diversity</i> )?	1. “High nature-value habitats” on farmed land have been conserved	1.1. High nature-value farmland habitats that have been protected by supported actions (number of sites/agreements; total hectares, average size) <ul style="list-style-type: none"> <li>(a) of which resulting from specific land-uses or traditional farming systems (%)</li> <li>(b) of which resulting from prevention of encroachment (colonisation by scrub, etc) or abandonment (%)</li> <li>(c) of which located in Natura 2000 areas (%)</li> <li>(d) of which habitats that in particular benefit specific species or groups of species (%)</li> <li>(e) of which considered rare habitats at the relevant geographical level (%)</li> </ul>	1.1. Protected area $\geq$ X% of total area of the relevant type(s) of habitats within programme area

Questions	Criteria	Indicators	Target levels
	<p>2. Ecological infrastructure, including field boundaries (hedges...) or non-cultivated patches of farmland with habitat function have been protected or enhanced</p>	<p>2.1. Assisted ecological infrastructure with habitat function or non-farmed patches of land linked to agriculture (hectares and/or kilometres and/or number of sites/agreements)</p> <p>(a) of which linear features (hedges, walls, etc) (% , kilometres)</p> <p>(b) of which patches or areas of non-farmed land (i.e. ecological set-aside, other non-cropped areas, etc.) or partly non-cultivated land (unweeded and/or unfertilised edges of fields) (%)</p> <p>(c) of which isolated features (patches of trees, etc) (number)</p> <p>(d) of which enhancing existing high nature-value habitats by alleviating their fragmentation (%)</p>	<p>2.1. Area, kilometres or number under agreement <math>\geq</math> X% of total area/length/number of the relevant type(s) of ecological infrastructure or non-farmed patches within the programme area</p>
	<p>3. Valuable wetland (often uncultivated) or aquatic habitats have been protected from leaching, run-off or sediments originating from adjacent farmland</p>	<p>3.1. Area under assisted farming systems or practices that reduce/prevent leaching, run-off or sedimentation of farm inputs/soil in adjacent valuable wetland or aquatic habitats (hectares)</p> <p>(a) of which input reduction techniques (%)</p> <p>(b) of which run-off and/or erosion prevention (%)</p> <p>(c) of which reduction of leaching (%)</p> <p>3.2. Adjacent valuable wetland or aquatic habitats that have been protected thanks to the assisted actions (hectares)</p> <p>(a) of which protected from eutrophication and/or sediment flows (%)</p> <p>(b) of which protected from toxic substances (%)</p> <p>(c) of which in Natura 2000 areas</p> <p>(d) of which habitats that particularly benefit specific species or groups of species (%)</p> <p>(e) of which considered rare habitats at the relevant geographical level (%)</p>	<p>3.1. Area under agreement <math>\geq</math> X% of total relevant farmland within the relevant catchment area(s)</p> <p>3.2. Protected area <math>\geq</math> X% of total area of the relevant type(s) of habitats within programme area</p>

Questions	Criteria	Indicators	Target levels
<p>1.3. To what extent has biodiversity (<i>genetic diversity</i>) been maintained or enhanced thanks to agri-environmental measures through the safeguarding of endangered animal breeds or plant varieties?</p>	<p>1. Endangered breeds/varieties are conserved</p>	<p>1.1. Animals/plants reared/cultivated under agreement (number of individuals or hectares broken down to breed/variety)</p> <p>(a) of which figuring on EU or international lists: World Watch List of FAO; International Undertaking on Plant Genetic Resources for Food and Agriculture (pending)</p> <p>(b) of which conserved within the farming system they traditionally are part of (%)</p>	<p>1.1. Number of individuals or hectares under agreement <math>\geq X</math> (by breed/variety);</p> <p><i>and (where relevant):</i></p> <p>Number of individuals or hectares under agreement <math>\geq X\%</math> of total existing population of the breeds/varieties at the relevant geographical level</p>

## **Glossary**

CAP = Common Agricultural Policy

CMO = Common Market Organisation

EAGGF = European Agricultural Guidance and Guarantee Fund

ECC = Eastern and Central Countries

GFP = Good Farming Practice

GMO = Genetically Modified Organisms

HNV = High Nature Value

IPM = Integrated Pest Management

LFA = Less-Favoured Areas

LU = Livestock Unit

PPP = Plant Protection Product