Nature management, landscape and the CAP

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The integration of nature management, landscape and environmental concerns into the Common Agricultural Policy (CAP) has gained momentum with the CAP reforms adopted in June 2003. The report explores instruments and approaches that contribute to the integration of nature conservation and landscape concerns into the CAP. A broader use of the CAP instruments might help to achieve nature types in the Netherlands.

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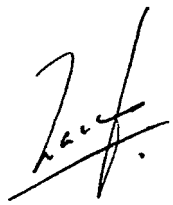
Contents

Preface

The integration of nature management, landscape and environmental concerns into sectoral policies has gained momentum. This also applies to the Common Agricultural Policy (CAP), as reflected by the CAP reforms adopted in June 2003. The achievement of nature conservation and landscape targets might be improved through a creative combination of national and EU instruments. The current report explores suitable instruments and approaches to integrate nature conservation and landscape concerns into the CAP. The study was commissioned by the Netherlands' Ministry of Agriculture, Nature and Food Quality in order to support the Nature Policy Assessment Office.

A committee supervised the project, offering advice where needed and clarifying what they expected from the study. The committee was composed of J.W. Sneep, J.M. Brand, F.H. Germs and H.F. Massink from the Ministry of Agriculture, Nature and Food Quality, and S.S.H. Ligthart from the Nature Policy Assessment Office. We gratefully acknowledge the critical remarks and useful suggestions made by this committee during all stages of the project.

The study made use of interviews with representatives from research and public policy institutes undertaken in Denmark, Germany and the United Kingdom, complemented by a study of reports. Several experts kindly contributed to this part of the work; their input is highly appreciated.



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Summary

Objectives of the report
The objectives of this report are to support the achievement of nature conservation and landscape targets, and to promote a creative combination of national and EU instruments which might help the Member States to achieve national objectives in the area of nature conservation. This report explores instruments and approaches that contribute to the integration of nature conservation and landscape concerns into the CAP. A broader use of the CAP instruments might help us to achieve nature types in the Netherlands.

CAP, nature management and landscape
A range of instruments has been adopted in the EU Member States to support the achievement of targets on nature management and landscape. The instruments used are intended to strengthen the integration of environmental, nature and landscape concerns into agricultural practices and to contribute to the integration of these concerns into the CAP. There are wide differences among Member States. Agri-environment programmes comprise one approach to integrate nature conservation and landscape into agricultural practices. Decoupled payments and cross compliance should also be considered as a tool to change farming practices. Headage and area payments are considerable in livestock production in a range of countries (e.g. beef and maize premium), and targeted measures on nature conservation and landscape could support the maintenance of a basis level.

The implementation of European legislation and cross compliance
The Birds Directive and the Habitats Directive require Member States to implement measures at the national level. Linkages with the CAP are established through cross compliance. The Birds and the Habitats Directive will also form a legislative basis for cross compliance from 1 January 2005, and farmers will be subject to the requirements for granting direct payments. In the case of the non-respect of cross-compliance requirements, direct payments would be reduced.

Agri-environment programmes and the implementation of European legislation
Several countries have put limited emphasis on agri-environment programmes that specifically aim to serve nature conservation and landscape interests. In contrast, issues on the quality of the physical environment are also controlled through incentives from agri-environmental policies. The sense of urgency concerning nature and landscape might influence the integration process. Several countries are focussing on the protection of aquatic ecosystems and mainly address nitrate and pesticides in the agri-environmental programmes developed. International obligations on nature and biodiversity are met to a large extent through command-and-control measures with legal requirements. Financial resources could be provided under the CAP through the provision of agri-environmental programmes. Agri-environmental policies were developed during the early 1990s, and the

improvement of the physical environment is a main area of concern for the agricultural sector. Agri-environmental programmes are an important tool, and are developed as such, to reverse a trend towards the intensification of production.

Participation in agri-environment programmes is limited for intensive production practices

European agriculture is diverse in terms of the intensity of production, the degree of specialisation of crop and livestock production, and the farm management practices applied. Such differences affect the appropriate strategies and means to integrate environmental concerns into agriculture. Highly intensive production systems (e.g. specialist horticulture and specialist granivores with limited size of agricultural land) tend to meet legal minimum standards through legal rules, whereas the provision of public goods by extensive production systems merit agri-environmental programmes.

The intensity of production (in terms of economic size of the farm per ha) on holdings that participate in agri-environment programmes tends to be less than that on holdings that have not entered such programmes. Since agri-environmental programmes promote changes in land-based activities, the income foregone would be too high in highly intensive production methods (in terms of production per ha).

Approaches and measures to integrate nature and landscape into the CAP

A summary is provided of the experience gained from the Netherlands, Denmark, Germany and the UK (mainly England) in considering nature and biodiversity concerns in reforming the CAP. The following table summarises the key approaches adopted in these countries to integrate nature and landscape into the CAP. Member States have considerable flexibility in the kind of programmes they establish, either through agri-environment programmes ('narrow and deep' versus 'broad and shallow'), the adoption of cross compliance (which will become compulsory only as of 2005) and modulation. In addition, different perspectives are observed regarding the link between Pillar 1 and Pillar 2.

Agri-environment programmes are used in Denmark and Germany as an instrument to protect the water quality (see following table). In contrast, agri-environment programmes in the Netherlands focus on nature and landscape, whereas England gives priority to integrating the environment into Pillar 1 and is also improving and strengthening Pillar 2. Also, several Member States have developed initiatives for public-private partnerships to promote changes in farming practices. Voluntary approaches to change farming practices through cooperation with water suppliers are important in Germany and to a lesser extent in the Netherlands. This instrument is used to only a limited extent in Denmark, and rarely in England.

Feature	Netherlands	Denmark	Germany	England
Incentives from agri-environmental programmes	'Narrow and deep' to conserve valuable vegetation and bird populations	No, because the agri-environmental programmes aim to reduce the leaching of nitrate to ground and surface waters	'Broad and shallow', with 20% of the total budget for measures to protect nature. Programmes emphasise the extensification of production, with major differences between regions	Important, with proposed two-tier system with a flat-rate and basic payment and simple eligibility conditions
Perspective on Pillar 1 and Pillar 2	Reform of CAP is important to contribute to improve quality and health standards in agriculture	Resources become scarce in Pillar 1 and options are explored to assign measures that are easy to be fulfilled		The budget for Pillar 2 needs to be enlarged
Cross compliance	Yes, but for the control of pesticide use in maize only	Abolished in 2002 for political reasons	Not adopted, emphasis is given to the formulation of Codes of Good Agricultural Practice (nutrients and pesticides)	One of the few countries to attach environmental conditions (on overgrazing and supplementary feeding) to sheep and beef premia payment under Regulation 1259/99
Modulation	No	No	No	3.5% (to rise to 4.5% in 2006).

Feature	Netherlands	Denmark	Germany	England
Change farming practice through cooperation with water suppliers	Yes, in groundwater protection zones, mainly through payment-by-result programmes	Limited, but some water suppliers encourage farmers to join agri-environmental programmes under Regulation 1257/1999	Widespread occurrence in certain Lands. Important factors are the preference of water consumers for high quality drinking water, the availability of funds and the demand to maintain a high quality of water and voluntarily agree to prevent water pollution	Rarely used, since water suppliers are heavily regulated and not in the position to pass on the cost of such agreements to the consumers.
General focus on nature and landscape in CAP reform	Agri-environment measures mainly address nature and landscape	Agri-environment is not seen as an instrument for the protection of nature, and RDP programmes put emphasis on the protection of the physical environment	Agri-environment measures mainly used to extensify production, control use of chemical inputs and reduce stocking density	Priorities given to integrating the environment into Pillar 1, and improving and strengthening Pillar 2

Three key messages emerge from the report

First, cross compliance is an instrument to strengthen the enforcement of legislative standards related to environment, nature and landscape. It is a means to express the social responsibility of the agricultural sector, which not only provides food but also has a supplementary role to play in managing the rural countryside. Cross compliance is part of the process to integrate environmental and nature concerns into the CAP, but is essentially meant to maintain the status quo rather than to promote the provision of public goods. Being part of the first pillar of the CAP, it implies that direct payments might partly be withdrawn if farmers do not respect the requirements. Of the eighteen pieces of legislation, five are environmental and will be applicable from 1 January 2005, including the Birds and the Habitats Directive. Rather than giving positive signals to farmers, cross compliance is an instrument suitable to reverse farming practices that are harmful to the environment and to nature. In doing so, it could provide a tool for the management of nature and biodiversity values that are commonly available and are provided by a wide range of farming practices.

Second, agri-environmental measures that are part of the Rural Development Programmes require measures that are beyond what is legally required, and compensatory payments could be provided for the income lost by the farmers who adopt such programmes. Such measures are beyond what is required in the Member States' definition of Good Farming Practice, which itself can go beyond the legal minimum, as it does in the United Kingdom. In the case of standards that change over time (with stricter rules that farmers need to meet at own costs), the programmes will have stricter rules as well. Nature management programmes that require farmers to respect the legal requirements under the Birds and the Habitats Directive (as part of cross compliance from 2005 onwards) offer a basis for the identification of measures beyond the minimum standards. In contrast, cross compliance measures that require farmers to maintain landscape features offer limited possibilities to compensate farmers for specific programmes for landscape management.

Third, public-private partnerships may strengthen the integration of environmental, nature and landscapes issues in the CAP. An agreement needs to be reached between the supplier of beneficiaries (the farmer supplying open landscapes or improving nature values) with the parties interested in such features (e.g. tourist organisations, nature conservation organisations and water suppliers). The cooperation between water suppliers and farmers to control agriculture-related water pollution problems has shown that it is important to consider such cooperation as a model to extend partnerships that promote changes in farming practices.

Such an approach could allow for the co-funding of CAP measures by the parties involved, mobilising the skills and sharing the experiences of parties outside the agricultural domain, and improving the public acceptance of changes in farming practices.

Three recommendations to strengthen nature and landscape in reforming the CAP

First, introduce a two-tier system in the agri-environment programmes and aim for a larger participation with a broad and shallow entry-level scheme with a flat rate payment per hectare with relatively simple measures that could protect widespread biotopes. Such a programme could build on the experience gained in the UK. The UK has faced pressure to move away from the original approach and to focus on biodiversity and increasingly to ad-

dress landscape ecological features. The financial resources provided under the CAP might be too limited in the next couple of years to establish such programmes on a large scale in the Netherlands. The budgets for agri-environment programmes, for example, might limit the measures offered in such programmes. The financial aspects have been agreed upon for the period until 2006. For 2006-2013, the overall expenditures on market intervention and direct payments are to be kept below the 2006 figure in real terms.

Second, improve the communication of the nature and landscape measures taken by farmers in the context of the CAP. This will strengthen the societal acceptance of support offered to farmers. The proper provision of public goods (e.g. biodiversity values, landscape features and environmental profiles) requires the involvement of actors outside the public domain. NGOs are involved in the UK in designing agri-environment programmes, and courses are organised for farmers on adequate measures to protect birds and to maintain landscape values. NGOs may contribute to such courses. Nature conservation plans might be a proper tool to strengthen conservation measures and to create a basis to communicate the provision of public goods to the broader public.

Third, involve actors from outside the agricultural domain in the reform of the CAP. The CAP is encouraging the agricultural sector to respond to changes in public demand, and part of this sector increasingly provides public goods in addition to food and fibre (e.g. quality products and other activities on the farm). The second pillar of the CAP promotes the transformation of agriculture into sustainable farming practices, and similar incentives are given by other actors in society. This might build on the experience gained from several countries (e.g. Germany, the Netherlands, France, Denmark) on cooperation between water suppliers and farmers. Such a cooperative approach on a voluntary basis that aims to change farming practices offers a way to strengthen the effectiveness of European water policy. Incentives are given by the water suppliers through the provision of compensatory payments for measures in agriculture that protect water resources. Such incentives are similar to agri-environmental programmes as part of the CAP. Although there is a risk of competition between programmes, it might be a model for reforming the CAP and promoting sustainable farming practices. Similarly, different groups with an interest in nature management and in strengthening biodiversity in the rural countryside (e.g. agrotourism) might be prepared to organise the provision of compensatory payments that are similar to agri-environment programmes. The involvement of such groups in reforming the CAP might then strengthen the CAP in the longer run.

The need for further research

There are no EU-wide evaluation studies on the environmental value for money from the different programmes under the CAP (e.g. agri-environment programmes). At the Member State level, few studies will be available until the mid-term evaluation of the Rural Development Programmes is released, and even then States might have limited information on the impact on the environment. This is an increasingly important area for research, in terms of both Pillar 1 and Pillar 2. Also, we do not know what the structural effects of decoupled Pillar 1 payments will be, nor in what economic climate agri-environment schemes will operate in the future - nor how attractive they will be when farmers have much more ability to react to market signals and a single farm payments is introduced.

1. Introduction

Context of the report

About 3% of total land area of the Netherlands is designated as nature area. However, the interaction between nature and society has a far broader extent, with the functions sustained by agriculture and forestry playing an important role and covering a substantially larger part of the country. About half of the territory of the European Union (EU) is managed by farmers, and a considerable size of agricultural land remains vital to the provision of such public goods.

The integration of landscape and nature management, as well as environmental concerns into sectoral policies (e.g. agricultural and fishery policies) has gained momentum. This also applies to the Common Agricultural Policy (CAP, and is observed by the numerous proposals developed over the past couple of years to improve the role the CAP could play in delivering obligations on the environment and sustainability, including valued habitats and landscapes throughout Europe which are dependent for their survival on specialised systems of livestock farming and/or crop production systems. Proposals for reforming the CAP have been developed by a range of organisations, including the conservation, countryside and environment agencies in the UK and WWF. Such integration is considered vital in the attempt to promote sustainable use of natural resources. This is expressed in the Sixth Environmental Action Programme (CEC, 2001), and builds on the Cardiff process. The Sixth Environmental Action Programme recommends the full integration of environmental requirements into all Community policies, giving full consideration of all options and instruments, and extensive dialogue between the stakeholders involved and sound science. Implementation of the integration process takes place through Biodiversity Action Programmes and reforms of the CAP.

The achievement of nature conservation and landscape targets might be improved, and a creative combination of national and EU instruments might strengthen achieving national objectives in the area of nature conservation. The current report contributes to this.

Objectives of the report

The report explores suitable instruments and approaches to integrate nature conservation and landscape concerns into the CAP. In doing so, the perspective of the effort is strengthening the achievement of nature types in the Netherlands through a broader use of the CAP instruments than are currently adopted. More specifically, the objectives of the work are threefold:

- What are the main instruments of the CAP that might support achieving targets on nature management and landscape at national or EU level?
- Do they match with the strategies of the Netherlands to strengthen the interaction between nature and agriculture?

- What options are available to strengthen the nature management and landscape aspects of agriculture without loss of income and meanwhile also meeting their objectives at EU and national level?

Chapter 2 describes the main objectives and instruments adopted in the Netherlands for achieving nature management policies. This chapter identifies instruments that are introduced in the Netherlands, and explores the attempts to integrate nature conservation objectives into the CAP. Chapter 3 will review nature management and landscape objectives in the context of reforming the CAP. This chapter offers an overview of the main instruments that are currently used in the CAP in promoting sustainable practices. In addition to that, this chapter also examines the compensatory payments provided to farmers and compares farming systems and countries. Chapter 4 reviews the achievement of nature and landscape policies adopted in three Member States (Germany, Denmark and the United Kingdom) with a view to strengthen the interaction between nature policies in the context of the CAP. To conclude, Chapter 5 provides a summary of the main findings from the study and an overview of the main items for policy.

2. Nature management in the Netherlands: objectives and instruments

2.1 Introduction

The Main Ecological Structure (Ecologische Hoofdstructuur; EHS) is at the centre of Dutch conservation policy as it was established in the 1990s. The EHS is a spatially interconnected network of larger units of nature reserves, linked to each other by connection zones. The intention is to create a web of nature reserves that will cover about 750,000 ha and throughout the whole country. Until 2018, about 150,000 ha of new nature nature needs to be established (RIVM-CBS-DLO, 2003). The network will include all national parks as well as the wetlands and the Wadden Sea. In addition, it will include production forests and farmland, such as grasslands used as breeding sites for meadow birds. While this policy concept is still the most important aspect, the developments in the policy field have moved forward. Dutch nature and landscape policy has been changing in recent years: it has been broadened, decentralized and regionalized. Meanwhile, awareness increased regarding the importance of EU policy in achieving nature conservation objectives and sustaining landscape values. The lower levels of government are playing an increasingly more important role in the implementation of conservation policy. As a result of the rise of area-orientated policy and the decentralization impulse, this role has been yet further reinforced. The region is becoming more important. In 2002, through the memorandum Natuur voor mensen, mensen voor natuur ('Nature for People, People for Nature') in particular, the Ministry of Agriculture, Nature Management and Fisheries (MLNV) gave conservation policy a new direction.

Dutch conservation policy has experienced a broadening in society (Van den Top and Van der Zouwen, 2000). The 'Nature for People, People for Nature' memorandum marked a change in Dutch conservation policy. The implementation of this memorandum is a clear broadening of conservation policy. In addition to nature, increasing attention is being devoted to characteristic landscapes and to variations in landscape types between regions (Netherlands' National Institute of Public Health and the Environment, 2002). The 'Nature for People, People for Nature' memorandum (MLNV, 2000) stressed the importance of integrating nature into the relevant sectors (including agriculture), making use of the appropriate instruments for its achievement.

This broadening comprises three elements: a broader concept of nature, a broader functionality of nature within and outside the EHS, and broader commitment from and broader responsibility on the part of other actors (government bodies and target groups) in the management and conservation of nature (including funding) (Dekker, 2002). Alongside aims regarding the preservation, restoration and development of nature and landscapes, targets will also be established regarding their socio-economic significance.

Based on an overview of recent documents, this section reviews the current status of nature conservation policies in the Netherlands vis-à-vis a range of items:

- Which natural features and landscape types are vital from the perspective of agriculture?
- What are the major areas of intervention needed to change agricultural practices in achieving nature conservation targets?
- What are the main incentives for the long-term development of the countryside?
- Which approaches are adopted in the formulation of Codes of Good Agricultural Practice?

Dutch conservation policy, in as far as it demands a contribution from the agricultural sector and/or in as far as it requires a change in agricultural practices, is described with reference to the Draft Key Planning Decision on the Green Space Structural Action Programme (Ontwerp PKB Structuurschema Groene Ruimte 2; SGR-2[1]) and the 'Nature for People, People for Nature' memorandum (henceforth 'NFPPFN memorandum') (MLNV, 2000). Relevant sections of the Fifth National Policy Document on Spatial Planning and the Fourth National Environmental Policy Plan were also used. The Fifth Spatial Plannig Plan is not approved in Parliament and it is envisaged to be reformulated in a Policy Plan Space (for submission to Parliament in 2004).

For the purposes of easy reference, conservation policy is divided into a number of components, namely:

- nature development through the purchase of land;
- agricultural nature management;
- agricultural landscape management;
- environmental conditions of nature reserves;
- [ruimtespoor] nature and landscape;
- landscape development plans;
- species protection.

Policy actions, existing policy instruments and instruments that are yet to be developed are discussed. In anticipation of the next phase of research, the discussion of each component is concluded with explanatory comments about the relevancy for the CAP. Lastly, two core concepts, to which frequent references are made in the text, are discussed, namely 'GAP' (Good Agricultural Practice) and 'Green Services'. With regard to these, a few conclusions are formulated (some provisional) with accompanying points for discussion.

2.2 The components of nature conservation policy

2.2.1 Nature development through the purchase of land

A series of policy actions fall within this category (Table 2.1).

[1] The Draft Key Planning Decision (part 1 of the SGR) is undergoing a participation and advice procedure in 2002. Procedures to complete the SGR reports were stopped in 2002, as part of the change of Cabinet in that year. SGR is envisaged to be integrated with the forthcoming Policy Plan Space. Uncertainty remains on the interpretation of the spatial policy at national level.

Table 2.1 Policy actions through purchase of land

Policy action	Target	Yet to be achieved	Yet to receive funding	To be achieved in
EHS with - function change	151,500 ha	104,510 ha	-	2018
Robust - connections	27,000 ha	27,000 ha	'Second part' (50% of the task)	2020
Purchasing - buffer green-blue veining a)	10,000 ha	10,000 ha	'Second part' (50% of the task)	2020
Grazing fenlands in cases of active wettening	Dependent on regional approach	-	Yet to receive funding	?

a) The concept of 'green-blue veining' will be explained further in the section on 'Agricultural landscape management'.

Explanation

- The definitive location of the 'EHS with function change' hectares will be fixed in the Policy Plan Space after consultation with the provincial authorities.
- Robust connections connect the large units of the EHS (complexes) with each other and/or enlarge the smaller units. The aim is to establish the location of the robust connections in the Policy Plan Space; the provincial authorities will take the lead in this.
- Of the 40,000 hectares designated for green-blue veining, 10,000 hectares are reserved as 'purchasing buffers'.
- The active wettening of grazing fenlands is an example of wet nature development. The consequence of wettening is that agricultural activities can no longer take place, and the land must be purchased (SGR-2, p.103). The decision on active wettening has yet to be taken; the provincial authorities will take the lead in this.
- Land, or plots of land with a natural function may sometimes be leased to farmers by the conservation organizations, with nature-orientated management conditions specified in the leasing contract. Forms of grazing, for example, can be included in these conditions.

The total amount of the as yet unfunded second part is estimated to be around € 1 billion.

Existing policy instruments

Purchase of agricultural land, Management Programme (management subsidies for nature conservation organizations and farmers). The Strategic Agreement, concluded in 2002, indicates that the state's purchasing budget for the EHS is to be reduced by € 90 million by placing the emphasis on agricultural management rather than the purchase of land. Farmers and private individuals play a central role in conservation, and this role needs to be reinforced (MLNV, 2002).

Policy instruments yet to be developed
Registration of the construction and management of robust connections (part 3 of the SGR-2).

CAP relevance
CAP instruments do provide facilities for the financing of the purchase of agricultural land, or for management subsidies for nature conservation organizations. Payments are available for farmers and private bodies with main functions in nature. Rural Development Programmes are used to buy agricultural land for nature conservation interests (in the context of the Main Ecological Structure, EHS).

2.2.2 Agricultural nature management

Table 2.2 offers a list of targets and actions in the context of agricultural nature management.

Table 2.2 Policy actions and targets for agricultural nature management

Policy action	Target	Yet to be achieved	To be achieved in
EHS without function change (management areas)	90,000 ha	51,091 ha	2018
Agricultural nature conservation before EHS (including Policy Document on Agriculture and Nature Conservation)	15,000 ha	8,260 ha	2020
Winter visitor accommodation and meadow bird management	30,000 ha	8,000 ha	2020
Woodlands on agricultural land	38,400 ha	33,050 ha	2020

Explanation
- Within the EHS, the definitive allocation of the management areas (including the 'Ruime Jas' area) takes place in consultation with the provincial authorities in part 3 of the SGR. Compensatory payments are available in the framework of the Agricultural Nature Management Payment Scheme (Subsidieregeling Agrarisch Natuurbeheer; SAN). There are three types of payments available: compensatory payments for changes in farm management (of which there are 26 packages, defining the nature targets to be met), payments for landscape measures (15 packages) and payments to set-up a programme (to take one-off measures in the framework of 6 management packages).
- The spatial anchoring of the areas devoted to winter visitor accommodation will take place in part 3 of the SGR, on the basis of the provincial area plans.
- 'The State encourages afforestation … through the provision of compensatory payments for planting and maintenance (Management Programme), fiscal provisions and forest certificates. In the regional plans and the land use plans, provincial authorities

and municipal councils provide sufficient space for the realization of 30,000 hectares of forest on agricultural land' (SGR-2, p. 58).

Existing policy instruments
Management Programme.

Policy instruments yet to be developed
For areas outside the EHS: green services.[1]

CAP relevance
Applicable in principle in the context of agri-environmental programmes. Parts of the Management Programme are already being financed through the second pillar of the CAP.

2.2.3 Agricultural landscape management

The distinction between agricultural landscape management and agricultural nature conservation cannot be completely clearly defined: in the framework of the SAN, there are also funds available for landscape elements. The following can be considered as agricultural landscape management (Table 2.3).

Table 2.3 Policy actions and targets for agricultural landscape management

Policy action	Target	Yet to be achieved	Yet to receive funding
Green-blue veining (without function change)	30,000 ha	30,000 ha	50% of the task ('Second part')
Grazing fenlands in cases of passive wettening	Dependent on regional approach	N/A.	
50% of the ecological connection zones	12,500 ha	12,500 ha	To be financed by provincial authorities

Explanation
- Green-blue veining 'is a connected, multifunctional network of landscape elements, connected where possible to watercourses, their banks and to recreational connections. Examples of landscape elements are hedges, hedgerows and wooded banks, watercourses, their banks and pools, broad banks, small wooded plots and untarmacked paths. (…) This green-blue veining is to take place in 400,000 hectares of agricultural landscape through the creation, restoration and subsequent management of 40,000 hectares of landscape elements' (SGR-2, p. 35-36). Of those 40,000 hectares of landscape elements, 10,000 are reserved as purchasing buffers, while the rest needs to be realized through joint management. It is not yet known exactly which demands will be made on the operational management of those hectares of landscape elements.

[1] The concept of 'green services' will be explained in Section 2.3.

- In cases of passive wettening, the water level will not follow the soil subsidence until a level of approximately 40 cm under the surface level has been reached. Agriculture is only possible in extremely non-intensive forms, for example through meadow land management. The SGR-2 proposes that farmers should receive management compensation in proportion to the height of the water level.
- The total target for the ecological connecting zones (both provincial and otherwise) is 25,000 hectares. According to the SGR-2, 50% of this will be realized through green-blue veining and robust connections; the part of the task set mentioned here remains.

Existing policy instruments
Various payment schemes for the promotion of landscape quality, including the Belvedere Incentive Scheme, Decree on Landscape Development (BOL), Management Programme and area-orientated policy payments (SGB).

Policy instruments yet to be developed
Green services (to be elaborated in part 3 of the SGR), registration of construction and management of green veining (to be crystallized in part 3)

CAP relevance
Applicable in principle.

2.2.4 Environmental conditions of nature reserves

The successful management of nature reserves requires the realization of certain environmental conditions in neighbouring areas. According to the SGR, the priority lies on action in the 'influence areas' of EHS natural nuclei, with a total surface area of approximately 350,000 hectares.

Policy action	Task	Yet to receive funding
Promoting extensification of dairy farming	Solving the nitrate problem	Up until 2010, € 204 million available
Transition to sustainable farming (Fourth National Environmental Policy Plan) in influence areas of the EHS	Solve water, ammonia and phosphate problems	?
Formulation and execution of reconstruction plans	Integral approach to sector problems and environmental problems	?

Explanation
- Making dairy farming less intensive: the approach has been elaborated in the Cabinet's response to the advice of the Koopmans Committee. The land-tied character must be achieved at local level in the period leading up to 2010 in vulnerable and valuable areas. Provincial authorities are charged with designating these vulnerable

areas and formulating an implementation programme. Farms which, with support from the government, become less intensive in their methods can be set conditions regarding the maintenance of that land-tied character. Funding can take place through modulation and the SGB (Subsidieregeling Gebiedsgericht Beleid en reconstructie concentratiegebied, 'Payment Scheme for Area-orientated Policy and Reconstruction of the Concentration area'). Research will be carried out into whether areas surrounding large natural units can be opened up for agricultural nature conservation and landscape management.
- The establishment of reconstruction plans is the responsibility of the provincial authorities.

Existing policy instruments
License granting (regarding the Ammonia and Livestock Farming Act), water level ordinances of the water boards, area-orientated policy subsidies (SGB), fund reconstruction, the regulation on farm re-establishment and closing down.

Policy instruments yet to be developed
Green services

CAP relevance
Applicable in principle.

2.2.5 Nature and landscape: the 'green contours'

The Fifth National Policy Document on Spatial Planning contains the new instrument of the 'green contour'. Within green contours, new economic activities and other interventions influencing nature and landscape quality are subject to a 'no, unless' regime. This applies to all areas which have been designated in the framework of EU Birds Directive or EU Habitats Directive, the Main Ecological Structure (EHS) and landscape (World Heritage List regions).

Not only nature reserves are to be provided with green contours,[1] but also 'elements with special landscape and cultural-historical value and qualities'. These are areas on the UNESCO World Heritage List and other yet to be specified elements, values and qualities on the basis of the Belvedère memorandum. It is as yet unclear which restrictions are to be set for agriculture in this context. The intention is for the green contours to become interwoven in the regional plans and the land use plans.

CAP relevance
Indirect through the natural and landscape qualities set down in regional and land use plans (including Main Ecological Structure).

[1] According to the Fifth National Policy Document, these are: Birds Directive areas, Habitats Directive areas, areas covered by the **Nature Conservancy Act**, defined or realized nature reserves within the robust connections, the net defined EHS including National Parks if they are located within the EHS.

2.2.6 Landscape development plans: National and Provincial Landscapes, Regional Parks

National Landscapes are 'areas of exceptional landscape, cultural-historical and recreational value which are of importance for the functioning of the main spatial network and which are currently threatened by urbanization or other spatial development, or which will be threatened in the future' (SGR-2, p. 89). These areas include: the Green Heart, the Noord-Hollands Midden (in North Holland), the Hoeksche Waard (the Hoeksche Holme), the Zeeland and South Holland delta, the river region, the Limburg hills and the Veluwe area. Together with the provincial authorities and the municipal councils, the state is designing development programmes for these areas. 'Quality zoning' will be included in the further spatial elaboration; what the consequences of this will be for agriculture is not yet clear. Where financing is concerned, the development programmes form the basis upon which the state allocates financial means. Alongside standard means for the management and conservation of nature and landscapes, this also concerns the means allocated to green-blue veining (see above) and the yet to be developed 'green services' instrument.

The SGR-2 requires provincial authorities to further define 'Provincial Landscapes' in certain search areas.[1] This concerns a selection of the Valuable Man-Made Landscape and Belvedere areas.[2] Provincial authorities and the municipal councils concerned draw up development programmes; where financing is concerned, the same applies as for the National Landscapes.

Farming remains possible in national and provincial landscapes. It is not yet clear which limitations will actually be set for agriculture. The Management Programme is in operation in the EHS areas.

Regional Parks will partly replace the current state buffer zones and will be developed on the initiative of the provincial authorities in consultation with the towns and collaborations. The locations concerned are the Delta metropolis, the HAL region (Heerhugowaard, Alkmaar, Langendijk), the 'Brabant City' urban agglomeration, KAN (Knooppunt Arnhem-Nijmegen; the 'Arnhem-Nijmegen junction'), the 'Twente City' agglomeration (Enschede, Hengelo, Borne), and Groningen-Assen.

Existing policy instruments
The distribution regulation for the renewal of the rural area; financial means for green veining.

Policy instruments yet to be developed
Green services.

[1] The Draft Key Planning Decision SGR-2 names the following as eligible search areas: Groningen-Friesland mound landscape, South-western Friesland, Northern Drenthe, the Ijssel delta/North-west Overijssel/South-west Drenthe, Vecht-Regge, Twente, Achterhoek, Central Brabant, Central Limburg.
[2] According to the SGR-2, the following Belvedere areas are eligible: areas which are proposed for Key Planning Decision status in the Belvedere Memorandum and for which legal protection as a protected landscape view is recommended.

CAP relevance
The state will prioritise the investment of means for the improvement of natural and landscape quality in the areas concerned. Programmes are developed that support provincial Landscapes.

2.2.7 Species protection

This concerns species which are protected under EU Birds Directive and EU Habitats Directive (now being implemented through the Flora and Fauna Act) and under various international agreements (the Treaties of Bern and BONN, CITES). Requirements under the Birds and Habitats Directives will be part of cross compliance as of 2005, and the full granting of payments will be linked to the respect of the statutory requirements from these standards. The NFPPFN memorandum states the following aims (p. 23): 'In 2010, a species protection plan is to be drawn up for all species and groups of species the survival of which is threatened and/or which appear on the IUCN Red List. On average, five plans are drawn up annually. Species protection plans will be in operation in 2015 for all species and groups of species for which a species protection plan has been formulated'. These matters are expected to have consequences for agricultural areas in terms of limitations on the operational management of the farm, though - as far as can be seen - on a voluntary basis.

Existing policy instruments
Flora and Fauna Act, Habitat directive, species protection plans. There is (as yet) no overlap with the requirements on spatial development.

Policy instruments yet to be developed
Green services.

CAP relevance
Compensation will be required for the demands made on the operational management of the farm that exceed the GAP level.

2.3 Green Services

The SGR-2 described green services as 'activities or management measures aimed at the achievement of further-reaching social[1] wishes for which the entrepreneur should be rewarded'.

The green services to be delivered for nature and landscape within the EHS have been defined in the form of management packages in the regulations of the Management Programmes. Outside the EHS, the following nature and landscape services are the main aspects according to the SGR:

- Species protection;
- Winter visitor management;

[1] In the field of nature, landscape, public access and water.

- Preservation and reinforcement of valuable landscapes (in particular National and Provincial Landscapes and Regional Parks);
- Optimisation of environmental and water conditions in the influence areas around the EHS;
- Water: temporary water storage, areas where wettening is under discussion (such as in grazing fenlands).

The concept of 'green services' still requires further operationalisation and the financial details needs to be added. The encouragement of collaboration between landowners will be examined in more depth, as will the opportunities for binding long-term agreements with land owners, funding by the market (jointly or wholly), adaptability to social developments and opportunities for EU-funding.

Green services and the CAP
There is an unambiguous link between CAP relevance (at least for the second pillar), GAP and 'green services': funding from the CAP is only possible for green services, which exceed the level of GAP. If the requirements and provisions of the GAP are high, the possibility to bring additional value with agri-environment measures and to obtain additional CAP funding is more limited. In short, the higher the GAP level which is to be fixed in the Policy Document Space, the lower the possible funding available from the GAP.

There may be arguments not to differentiate GAP too strongly by region. After all, it is reasonable to compensate a farmer who runs his/her business near a nature reserve, and is thus confronted with constraints regarding their farm management.

2.4 Conclusions

This chapter provided a state-of-the-art overview on the current linkages observed in the Netherlands between agriculture, nature management and landscape. Linkages are examined with the CAP, either through measures that are currently adopted, and instruments that might be introduced in the years to come. The next chapter offers a more detailed picture on nature management and landscape objectives in the context of reforming the CAP.

3. Nature management and landscape objectives in the context of the CAP

This chapter explores the main instruments from the CAP that might support achieving targets on nature management and landscape in the EU.

3.1 Integration of Environment in the CAP

The objectives of the CAP are specified in Article 39 of the 1957 Treaty of Rome, and are described as follows:

- to increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimal utilisation of the factors of production, including labour;
- thus to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earning of persons engaged in agriculture;
- to stabilise markets;
- to ensure stability of supplies;
  to ensure that supplies reach consumers at reasonable prices.

Historical reforms of the CAP were triggered to a large extent by sectoral problems (e.g. production surpluses, budget deficits and trade conflicts). The 1992 MacSharry reform anticipated on the Uruguay Round Agreement on Agriculture. Regulations are the main instruments used in European agricultural policy, with key principles to be based on market unity, financial solidarity and Community preference (Lowe and Baldock, 2000). The first territorial approach of the CAP was introduced during the 1970s with the adoption of Directive 268/75/EEC (providing support for mountainous and certain less-favoured areas), which later on entered into Regulation 950/97 and more recently was integrated into the Rural Development Regulation (1257/1999). Agreement to take the environment into account in Community policies (including the CAP) was reached during the middle of the 1980s. It was expressed, among others, in the 1986 Single European Act. The 1992 reform of the CAP reduced market and price support measures, and a system of payments was introduced to compensate farmers for their loss of income. Such a system included direct payments for the production of cereals, oilseed and protein crops and for beef, sheep and goats. By that time, Member States were given the option to attach environmental protection measures to the granting of direct payments in the beef and sheepmeat sectors, but such provisions were introduced in a limited number of Member States only. Maize for fodder was also supported to the same extent as grain production, and dairy producers also were eligible for maize premiums, subject to the base area they had during the reference period (period 1989-1991). In addition, the Mac Sharry Reform introduced a system of Accompanying Measures, which compensated farmers for measures they take to protect the environment and natural resources, as well as maintenance of the countryside and the landscape (Regulation 2078/92), for afforestation of agricultural

land (under Regulation 2080/92) to reduce agricultural land, expand forest land and enhance environmental quality, as well as for early retirement programmes (Regulation 2079/92) to farmers over the age of 55 years, in the form of an abandonment premium and an annual indemnity.

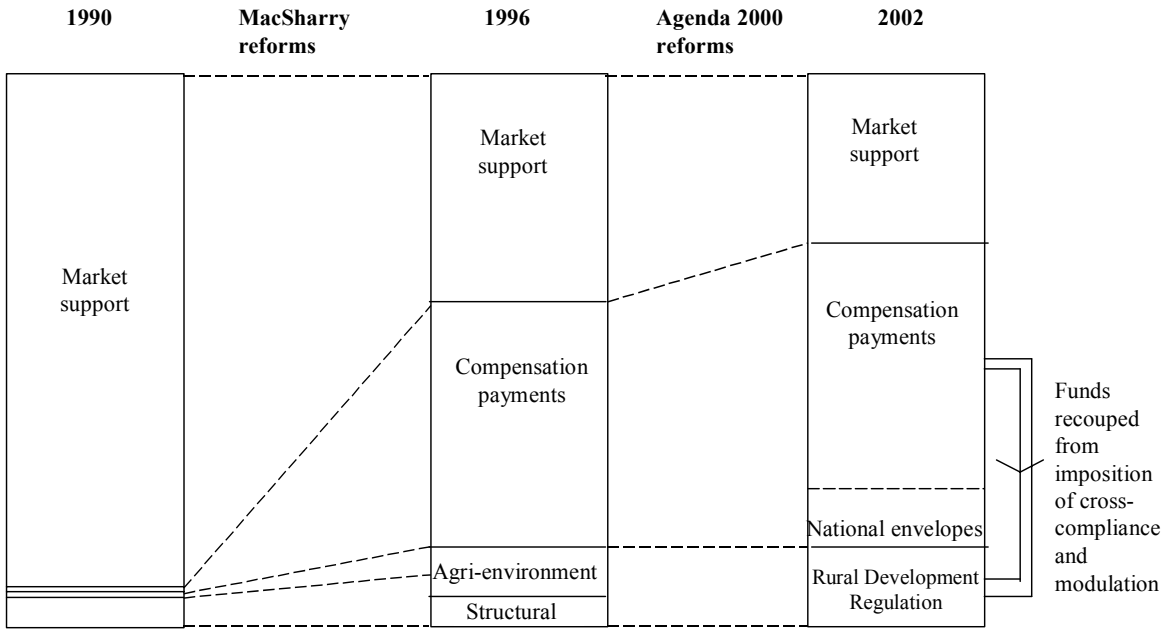

Figure 3.1 The changing architecture of the CAP, period 1990-2002

The 1999 reform of the CAP did anticipate on the future enlargement of the EU as well as the forthcoming negotiations to liberalise agricultural trade. To follow-up on that, the Commission prepared the Agenda 2000 paper and agreement was reached on that in early 1999. Agenda 2000 commits few additional resources directly for environmental supports. Indeed, agri-environment expenditure as a component of the Rural Development Regulation is subject, in principle, to a freeze on spending until 2006 (see Figure 3.1). This contrasts with the situation following the 1992 reforms of the CAP when expenditure on agri-environment and other accompanying measures was allowed to rise year on year in response to the take-up of relevant schemes by Member States. CAP expenditure on the rural development and accompanying measures is expected to reach ECU 4.38 billion in 2000, from the Guarantee Section of the EAGGF (FEOGA), around 10.5% of the total budget. By the year 2002, the proportion of the budget will have actually fallen to 9.9%. Even by 2006, rural development and the accompanying measures will still account for no more than 10.5% of the CAP budget. Even though both the Rural Development Regulation (RDR) and the commodity supports are within the EAGGF (FEOGA) Guarantee Section, decisions taken at the Berlin summit effectively segregate the expenditures on them, which will prevent any transfer of funding out of commodity support, even if savings are made in

the latter. Not all RDR support is Guarantee financed (in Objective 1 areas the non-accompanying measures are financed from the Guidance budget).

Article 3 of the horizontal regulation 1259/99 says 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 (i) support in return for agri-environmental commitments; (ii) general mandatory environmental requirements; and (iii) specific environmental requirements constituting a condition for direct payments. This will change when the 2003 reforms are implemented (see below). Member States are also authorised to modulate direct payments per farm in relation to either employment on the farm, farm profitability criteria, or the total amount of state aids received. The funds accrued from the withholding of payments under either measure will remain available to the particular Member State as an additional support for certain measures under the Rural Development Regulation, namely agri-environmental measures, LFA, early retirement and afforestation. However, the resources that may become available from penalising farmers for transgressing environmental cross-compliance conditions are likely to be neither significant nor reliable. Modulation, though, could yield significant resources by reducing supports to large farms (typically arable ones). Member States are entitled to modulate up to 20% of direct support given to farmers. Modulation up to 20% is now only implemented by the UK (started in 2001 at 2.5% up to a maximum of 4.5% in 2006) and will be replaced by compulsory EU wide modulation rising to 5% in 2007.

Rural development, thus conceived, embraces both farm and non-farm developments as well as agri-environment measures and forestry, and has the following strategic objectives:

- Supporting a viable and sustainable agriculture and forestry sector at the heart of the rural economy;
- Developing the territorial, economic and social conditions necessary for maintaining the rural population on the basis of a sustainable approach;
- Maintaining and improving the environment, the countryside and the natural heritage of rural areas.

Following Agenda 2000, arguments were given to provide a mid-term review during the 2000-2006-budget period. External reasons included negotiations on a new agricultural agreement within the WTO, enlargement of the EU, as well as agreements of Agenda 21 for a sustainable development. Also, domestic arguments became evident to reform agricultural policy, including consumer pressure reducing confidence in the safety of meat products, negative impacts of agricultural policy on environment and animal welfare, and the consideration of ecological and social benefits of agriculture.

Rural development programmes

The Rural Development Regulation lays the basis for a Community rural development policy, which aspires to be a 'second pillar' (the first one is the market policy) within the CAP. It draws together a number of existing regulations and agricultural support measures (Figure 3.2). Agri-environment is the only compulsory measure in the RDR. The RDR was

amended as part of the 2003 reforms, with additional measures, but no additional financial resources other than that provided by modulation.

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- Developing the territorial, economic and social conditions necessary for maintaining the rural population on the basis of a sustainable approach;
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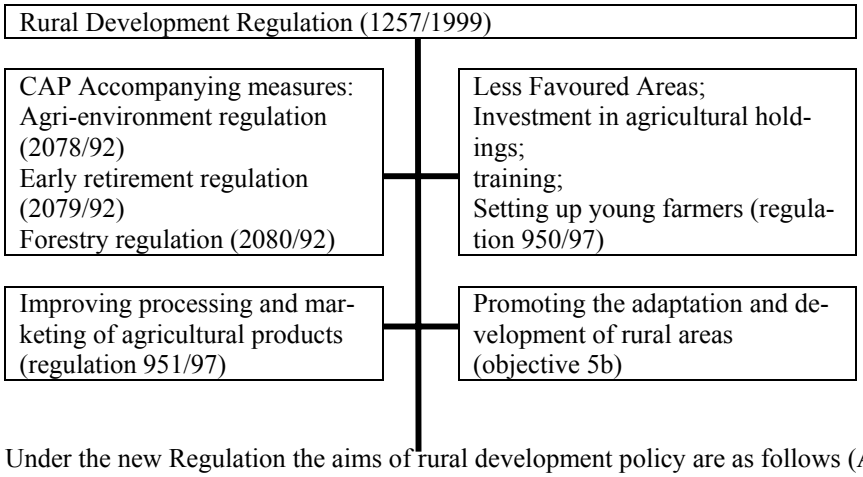
The new regulation is based on and supersedes a number of existing regulations and support measures:



Under the new Regulation the aims of rural development policy are as follows (Article 2):

- the improvement of structures in agricultural holdings for the processing and marketing of agricultural products;
- the conversion and reorientation of agricultural production potential, the introduction of new technologies and the improvement of product quality;
- the encouragement of non-food production;
  sustainable forest development;
- the diversification of activities with the aim of complementary or alternative activities;
- the maintenance and reinforcement of a viable social fabric in rural areas;
- the development of economic activities and the maintenance and creation of employment with the aim of ensuring a better exploitation of existing inherent potential;
- the improvement of working and living conditions;
- the maintenance and promotion of low-input farming systems;
- the preservation and promotion of a high nature value and a sustainable agriculture respecting environmental requirements;
- the removal of inequalities and the promotion of equal opportunities for men and women, in particular by supporting projects initiated and implemented by women.

Figure 3.2 The Rural Development Regulation

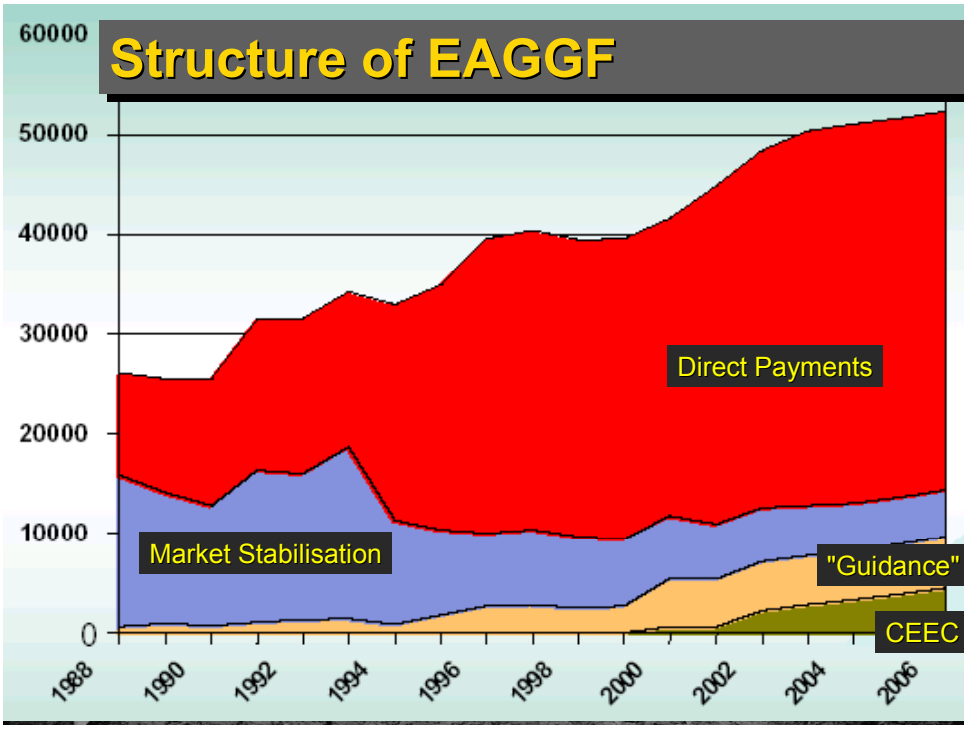


Figure 3.3 Structure of EAGGF (source: European Commission).

A major reform of the CAP was adopted by the Council of Ministers of Agriculture in June 2003. Some elements of the reformed CAP include:

- A single farm payment for farmers, independent from production with limited coupled elements.
- This payment will be linked to the respect of environmental, food safety, animal and plant health and animal welfare standards, as well as the requirement to keep all farmland in good agricultural and environmental condition ('cross compliance'). Enforcement of 18 pieces of legislation (including the Birds and Habitats Directives) will be part of cross compliance, from 2005 onwards.
- A strengthened rural development policy, with more EU money, new measures to promote the environment, quality and animal welfare and to help farmers to meet EU production standards starting in 2005.
- The introduction of compulsory EU wide modulation.

Direct payments have gained major importance since MacSharry reform, introducing hectare payments in cereals, oilseeds and protein crops, and headage payments in the beef and sheep sectors (Figure 3.3). As part of the CAP reform agreement from 2003, direct payments will be reduced for bigger farms in the years to come. Starting in 2005, farms with direct payments above € 5000 per year will face a cut of 3%, which will increase to 4% (2006) and 5% (from 2007 onwards). During the period 1989/91, direct payments were only 10% of total EAGGF-Guarantee expenses, whereas this is envisaged to increase to reach a level of 68% in 2006. Such direct payments would gain significant importance with a further reform of the CAP, for example by introducing headage premiums in dairy pro-

duction. The recent CAP reform from 2003 compromise and its results is not taken into account in the estimate presented in Figure 3.3. In parallel, market support measures are scheduled to reduce from 90% (period 1989/91) to only 21% in 2006. In addition, rural development programmes are foreseen to reach a share of 11% in total EAGGF-Guarantee expenses. The increase of direct payments under Agenda 2000 was supposed to help ensure the level and stability of the income from farmers. At farm level, the premia were linked to production (number of beef cattle, or sheep number). They are an important element of farm income, and management decisions increasingly are constrained by eleigibility requirements for headage premia and extensification payments. However, actual payments were poorly targeted (regarding production structures, external effects and regional requirements), with high compliance and transaction costs, and not fully decoupled from production.

A graphical representation of the public policy measures for sustainability in farming is presented in Figure 3.4. Such public policy measures may interact with other measures that put constraints on production. Cross-compliance measures may be applied in different ways. Figure 3.4 presents cross-compliance as requirements beyond regulatory standards. According to the Mid-Term Review Proposal from the European Commission, cross-compliance will be based on mandatory EU legislation only. In addition, there will be land management requirements.

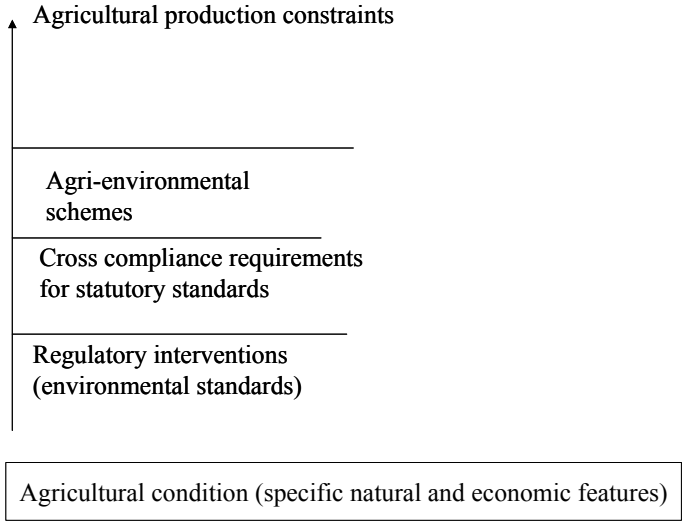


Figure 3.4 The relationship between the basic agricultural conditions, public policy instruments and CAs to promote environmental quality within a given region

3.2 Agri-environmental programmes in the EU

This section explores the adoption at farm level of agri-environmental programmes in the EU. It will be the basis to identify instruments that could strengthen the position of agriculture in their attempt to achieve objectives on nature and landscape. Analysis of agri-environment payments in the EU, based on the Farm Accountancy Data Network. This

analysis allows to identify trends in payments provided to farmers relative to the farm management practices, structural features of agriculture and their economic performance. In addition, a comparison is made between modulation, cross-compliance, national envelopes and rural development programmes. Link policy objectives for nature and landscape with the objectives of the CAP, and explore options for reform that promote changes in farm management practices. This work will also build on FADN. Analysis of agri-environment payments in the EU, based on the Farm Accountancy Data Network (FADN).

The expenditures for agri-environmental programmes in 1997 were about € 1.5 billion, which corresponds to 4% of the total EAGGF guarantee section. This amount is complemented with co-funding by Member States.

The share of expenses for agri-environment programmes in total CAP expenses show a wide variation across the EU:

- Minor, with a share of less than 2% in Belgium, Denmark, France and the Netherlands;
- Limited, with a share of between 2% and 5% in Greece, Spain and the UK;
- Moderate, with a share between 5% and 10% in Germany;
- Considerable, with a share of more than 10% in Ireland, Italy, Luxembourg, Austria, Portugal, Finland and Sweden.

This diversity might result from a combination of political agreements on CAP budgets, national interests for specific programmes and diversity in agricultural practices.

Table 3.1 Aggregated total of FADN versus data from DG AGRI

Country	Aggregated total in 1999 (million €) (source: FADN)	Average annual expenditure (1994-99) from CAP budget, (million €)	Expenditures for agri-environmental measures in the second pillar (million €)
Belgium	1	3	5
Denmark	31	12	13
Germany	527	419	364
Greece	1	6	18
Spain	4	59	121
France	236	213	162
Ireland	218	93	167
Italy	576	325	578
Luxembourg	10	4	5
Netherlands	44	17	13
Austria	508	433	307
Portugal	116	62	89
Finland	294	222	160
Sweden	212	115	168
United Kingdom	210	63	86
EU 15	2,988	2,043	2,258

Source: FADN - CCE - DG Agriculture/A-3; adaptation LEI.

Details presented in this chapter mainly draw from the Farm Accountancy Data Network (FADN), containing farm level data on the structure of the farm (economic size, agricultural area and livestock population), total output, income and the main sources. FADN is based on the annual accounting results of a sample of commercial farms in the EU Member States. The total sample has about 60,000 holdings, which are stratified according to region, economic size and farming type in order to reflect the heterogeneity adequately. FADN enables to explore the adoption of CAP measures by farming type. FADN distinguishes between 104 regions. It needs to be mentioned FADN is principally concerned with agriculture. However FADN farm return data has some non-agricultural income variables (including farm tourism, revenues from other products and receipts and forestry), but it does not include non-farming activities.

In addition to direct payments (based on area of arable crops, potato starch, rice, seeds and dried fodder; and on number of beef and sheep headage), other payments are provided (also including agri-environment programmes).

Table 3.2 shows the aggregated sum of payments to farmers joining agri-environmental programmes and thus fulfilling special or additional environmental requirements; figures are presented for the accounting year 1999 (in million euro). It presents a distribution of payments by farming type. More than 40% of total agri-environment payments are for specialist dairy farms (type 41) in Belgium, Denmark, Germany, Luxembourg and Sweden. It is 39% in the Netherlands, and the average of the EU-15 is 27%. Shares are also high on type 44 (sheep, goats and other grazing livestock) in the Netherlands and the United Kingdom.

Table 3.2 Payments to farmers for joining agri-environmental programmes in 1999 by major farming types

Country	All holdings	Specialist cereals, oilseed and protein crops (type 13)	General field cropping (type 14)	Specialist dairying (type 41)	Specialist cattle-rearing and fattening (type 42)	Sheep, goats and other grazing livestock (type 44)	Field crops-grazing livestock combined (type 81)
	in million euro						
Belgium	1		0	0	0		0
Denmark	31	4	7	13			2
Germany	527	29	63	227	10	21	95
Greece	1	0	0	0	0	0	0
Spain	4	0	0	0	0	0	0
France	236	3	2	58	94	42	8
Ireland	218	2	4	42	98	59	6
Italy	576	79	35	44	9	39	22
Luxembourg	10			6	1		1
Netherlands	44		4	17	0	15	1
Austria	508	48	50	160	9		30
Portugal	116	6	2	8	11	11	11
Finland	294	78	33	94	23		13
Sweden	212	13	16	108	19		39
United Kingdom	210	19	15	29	27	100	16
EU 15	2,988	281	231	807	302	301	243

Table 3.2 Payments to farmers for joining agri-environmental programmes in 1999 by major farming types (continuation)

Country	All holdings	Specialist cereals, oilseed and protein crops (type 13)	General field cropping (type 14)	Specialist dairying (type 41)	Specialist cattle-rearing and fattening (type 42)	Sheep, goats and other grazing livestock (type 44)	Field crops-grazing livestock combined (type 81)
	In percentages						
Belgium	100		7	43	17		14
Denmark	100	13	22	43			6
Germany	100	6	12	43	2	4	18
Greece	100	0	0	0	0	7	0
Spain	100	9	1	0	1	9	0
France	100	1	1	25	40	18	3
Ireland	100	1	2	19	45	27	3
Italy	100	14	6	8	1	7	4
Luxembourg	100			57	10		10
Netherlands	100		9	39	0	34	3
Austria	100	9	10	31	2		6
Portugal	100	5	2	7	10	9	9
Finland	100	26	11	32	8		4
Sweden	100	6	8	51	9		18
United Kingdom	100	9	7	14	13	48	8
EU 15	100	9	8	27	10	10	8

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Following this table, a selection is made to focus on specialist dairying (farming type 41) and sheep, goats and other grazing livestock (farming type 44).
A considerable amount of the payments for agri-environment programmes is going to farms located in less favoured areas (LFAs) (Table 3.3). The Less Favoured Area Scheme was adopted in 1975 as a significant measure of agricultural policy for structural support. The scheme has three categories:

- Mountain areas where altitude and slopes reduce the growing season and the scope for mechanisation, in total making up about 20% of the total agricultural area (Area 3.3);
- LFAs with low agricultural productivity (due to poor soil conditions), low agricultural income levels and low population densities, and accounting for about a third of total agricultural area in the EU (Article 3.4);
- LFAs with 'specific handicaps', relating to the environment, landscape development or coastal areas where agriculture should be preserved to maintain the countryside (Article 3.5).

Table 3.3 Agri-environment payments to farmers for joining agri-environmental programmes inside and outside LFAs in 1999 (in million euro)

Country	Normal areas	Less Favoured Areas			Total areas
		Mountain LFA	Other LFA	Total LFA	
Belgium	0		1	1	1
Denmark	31				31
Germany	148		379	379	527
Greece	0	0	1	1	1
Spain	3	1	0	1	4
France	32	112	92	204	236
Ireland	40		179	179	218
Italy	304	211	61	271	576
Luxembourg	0		10	10	10
Netherlands	44				44
Austria	202	239	67	306	508
Portugal	19	47	50	96	116
Finland	66	148	81	229	294
Sweden	72	42	99	141	212
United Kingdom	81		130	130	210
EU 15	1,042	800	1,146	1,946	2,988

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

The proportion of LFAs in total utilised agricultural area has increased from about a third (during the mid 1970s) to about 56% in 1996[1]. Because production costs are

[1] In the Netherlands some 6% of utilised agricultural area is designated as LFAs. In this country, FADN does not distinguish between normal areas and Less Favoured Areas.

higher and productivity poor, farmers in less-favoured areas may receive specific support through compensatory allowance per animal and/or per hectare to offset natural handicaps). Currently, it is no longer possible to pay LFA per animal, as the RDR made it per hectare only. In addition, investment aid could be higher than elsewhere. The LFA scheme is only applied on very limited areas in the Netherlands, primarily to serve environmental objectives. Throughout Europe, high nature value farming systems largely coincide with LFAs, and appropriate land management practices are required to maintain the existing biodiversity in such areas. Some two thirds of total agri-environmental payments are in LFAs (Table 3.3). Such shares exceed 80% in Belgium, Greece, France, Ireland, Luxembourg and Portugal).

Participation into agri-environmental programmes by farming type

About 19% of all holdings represented by FADN participate into agri-environmental programmes. Shares are below average of the EU in farms specialised in crop production (e.g. specialist cereals and general field cropping). Only 1% of the specialist horticulture participates in agri-environmental programmes. Here, the intensity of production might be too high to compensate for the income foregone. Participation in such programme is considerably above the average of the EU in specialist dairying and cattle dairying, rearing and fattening combined. More than 40% of these farms have entered into the agri-environmental programmes. Almost 30% of farms with sheep, goats, and other grazing livestock have joined such programmes (Table 3.4). Some 20% of specialist granivores have entered into agri-environmental programmes, mainly in Finland and Austria (more than 90%), but also in Sweden (almost 50%) and Germany (30%). Participation in such programmes is very limited in the intensive production regions in Belgium, Denmark, Spain, France, Italy, the Netherlands and the United Kingdom. Here, the intensity of production might be to high to fully compensate for the income foregone should they decide to join programmes that encourage agricultural extensification, reduce agricultural pollution and landscape degradation.

Table 3.4 Share of holdings joining agri-environmental programmes in total number of holdings for major farming types in 1999 (%)

Country	All holdings	Specialist cereals, oilseed and protein crops (type 13)	General field cropping (type 14)	Specialist vineyards (type 31)	Specialist dairying (type 41)	Specialist cattle-rearing and fattening (type 42)	Cattle-dairying, rearing and fattening combined (type 43)	Sheep, goats and other grazing livestock (type 44)	Specialist grainvores (type 50)
Belgium	5				9				
Denmark	12	7	16		22				7
Germany	46	25	40	24	61	44	47	83	30
Greece									
Spain	0	0							
France	19	4	3		31	56	28	65	
Ireland	34				23	34		53	
Italy	16	14	6	31	33	24	40	21	
Luxembourg	94			81	96	93	94		
Netherlands	19		13		28				8
Austria	99	100	100	100	100	96	99		94
Portugal	21			16	22	49		29	
Finland	93	97	100		97	100	100		96
Sweden	83	57	77		98	94			46
United Kingdom	20	13	17		15	23		39	
EU 15	19	13	10	19	42	36	44	28	21

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Table 3.5 compares the intensity of holdings with and without agri-environmental programmes. Figures provided are based on the European Size Unit (ESU). The economic size of a holding (or the total standard gross margin) is determined on the basis of the overall standard gross margin of the holding. It is expressed in European Size Units (ESU). The gross margin of an agricultural enterprise means the monetary value of gross production from which corresponding specific costs are deducted. The Standard Gross Margin (SGM) means the value of gross margin corresponding to the average situation in a given region for each agricultural characteristic. The Economic size of a holding includes (a) the different enterprises are valued (multiplied) by the economic parameters called Standard Gross Margins (SGM) coefficients in ECU, and (b) the results of these valuations that are summed up. This sum (total SGM of the holding) is converted into European Size Units (1 ESU = 1,200 ECU) and used as a measure of the economic size of the holding.

Table 3.5 Intensity of farming on holdings with and without agri-environmental programmes for major farming types in 1999 (European Size Units per hectare of Utilised Agricultural Area)

Country	Farms with and without compensatory payments	All holdings	Specialist cereals, oilseed and protein crops (type 13)	General field cropping (type 14)	Specialist vineyards (type 31)	Specialist dairying (type 41)	Specialist cattle-rearing and fattening (type 42)	Cattle-dairying, rearing and fattening combined (type 43)	Sheep, goats and other grazing livestock (type 44)	Specialist granivores (type 50)
Belgium	With	1.3				1.4				
	Without	2.2		1.3		1.8	1.2	1.5		8.7
Denmark	With	1.2	0.6	0.7		1.4				2.7
	Without	1.4	0.7	0.9		1.6				2.8
Germany	With	0.9	0.5	0.8	3.4	1.0	0.5	0.8	0.4	1.8
	Without	1.1	0.6	0.9	4.7	1.2	0.7	0.9		1.8
Greece	With									
	Without	1.4	0.5	1.3	2.1	1.6	2.8		2.2	40.7
Spain	With	0.7	1.3							
	Without	0.5	0.3	0.7	0.5	1.1	0.2	0.6	0.3	5.6
France	With	0.5	0.5	1.0		0.5	0.4	0.5	0.4	
	Without	1.0	0.6	1.0	3.1	0.8	0.6	0.7	0.5	3.0
Ireland	With	0.4				0.8	0.3		0.3	
	Without	0.6	0.6			1.0	0.3	0.7	0.3	
Italy	With	1.0	0.8	1.0	2.2	0.8	0.3	0.6	0.3	
	Without	1.2	0.8	1.3	1.8	1.3	0.5	1.0	0.3	5.4
Luxembourg	With	0.8			4.8	0.8	0.4	0.7		
	Without	1.3								

Table 3.5 Intensity of farming on holdings with and without agri-environmental programmes for major farming types in 1999 (European Size Units per hectare of Utilised Agricultural Area) (continuation)

Country	Farms with and without compensatory payments	All holdings	Specialist cereals, cereals, oilseed and protein crops (type 13)	General field cropping (type 14)	Specialist vineyards (type 31)	Specialist dairying (type 41)	Specialist cattle-rearing and fattening (type 42)	Cattle-dairying, rearing and fattening combined (type 43)	Sheep, goats and other grazing livestock (type 44)	Specialist granivores (type 50)
Netherlands	With	2.8		1.7		2.9				11.0
	Without	5.0		2.0		3.3	4.3			19.1
Austria	With	0.9	0.5	0.8	1.7	0.9	0.6	0.8		1.7
	Without	1.5								
Portugal	With	0.4			0.9	0.6	0.2		0.3	
	Without	0.8	0.4	1.2	1.0	1.6	0.3	0.7	0.3	31.0
Finland	With	1.0	0.4	0.7		1.4	0.8	1.3		1.9
	Without	5.4								
Sweden	With	0.5	0.4	0.4		0.7	0.3			1.3
	Without	0.4	0.3	0.4						2.0
United	With	0.3	0.7	1.0		0.9	0.3		0.1	
Kingdom	Without	0.8	0.7	1.0		1.3	0.4	0.8	0.2	5.8
EU 15	With	0.7	0.5	0.8	1.9	1.0	0.4	0.7	0.2	2.1
	Without	1.0	0.5	1.1	2.3	1.3	0.4	0.8	0.3	5.1

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Regional distribution of agri-environmental programmes

The regional distribution of agricultural support measures from agri-environmental programmes in the EU is presented in Figure 3.5. These payments (that include contributions from Member States) compensate farmers for measures they take beyond legal requirements. On average, payments are highest in Northern Europe (Finland and northern part of Sweden), Austria and some parts of Italy. In these regions, compensatory payments on average exceed 100 euro per ha, which is due to a combination of high participation rates and payments per ha. The uneven distribution of the implementation of agri-environmental programmes is better presented in Figure 3.6. More than three quarters of the farmers have joined these programmes in Finland, Austria, most of Sweden and parts of Germany (Bavaria and Baden-Wuerttemberg). Here, the programmes also tend to be broad and shallow with a considerable number of farmers who meet the requirements adopted in the programmes.

The compensatory payments from agri-environmental programmes on holdings who joined those programmes remain limited in large parts of France, Spain and Greece, but also in Germany and the UK (Figure 3.7).

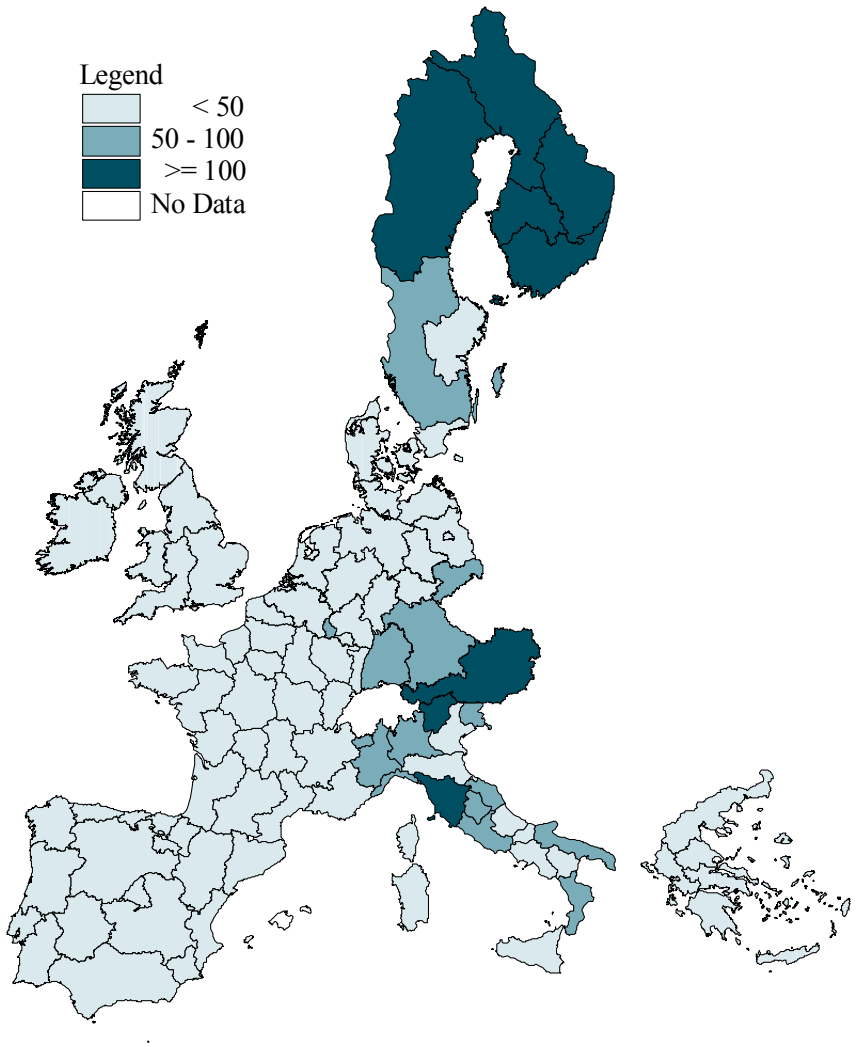


Figure 3.5 Agricultural support measures from agri-environmental programmes in 1999 on all holdings (euro per ha)

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

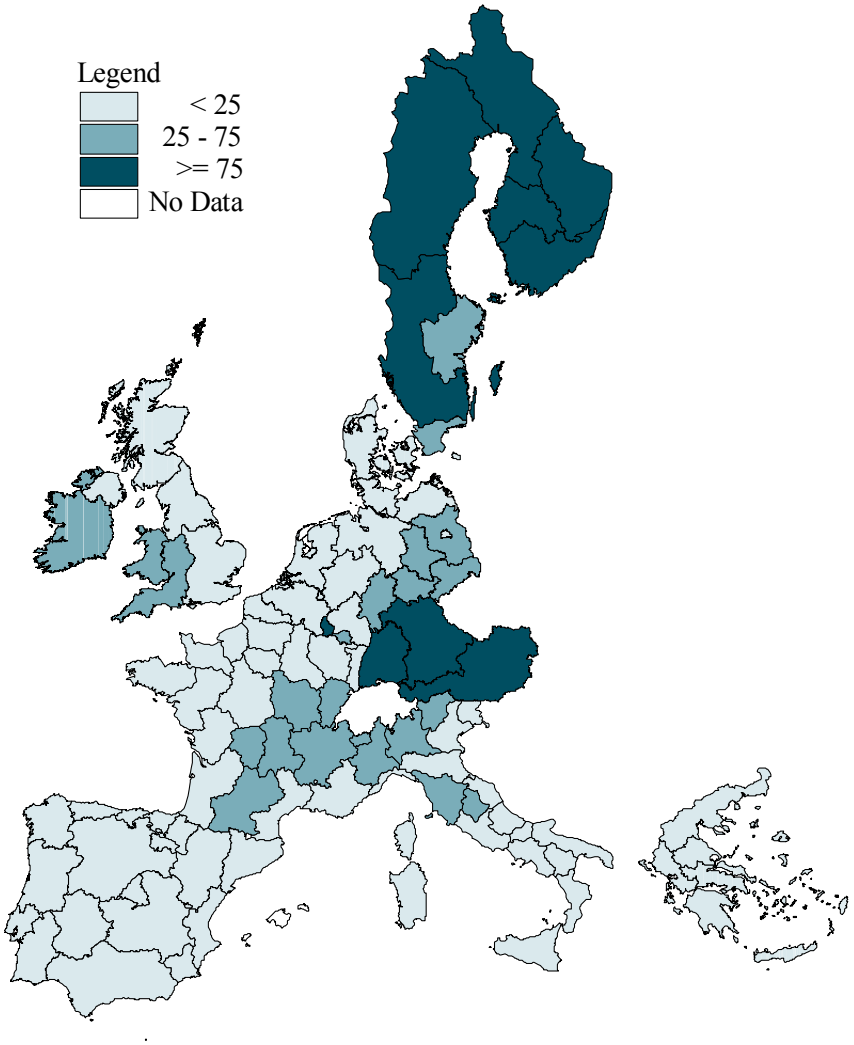


Figure 3.6 Share of holdings joining agri-environmental programmes in total number of holdings in 1999 (%)

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

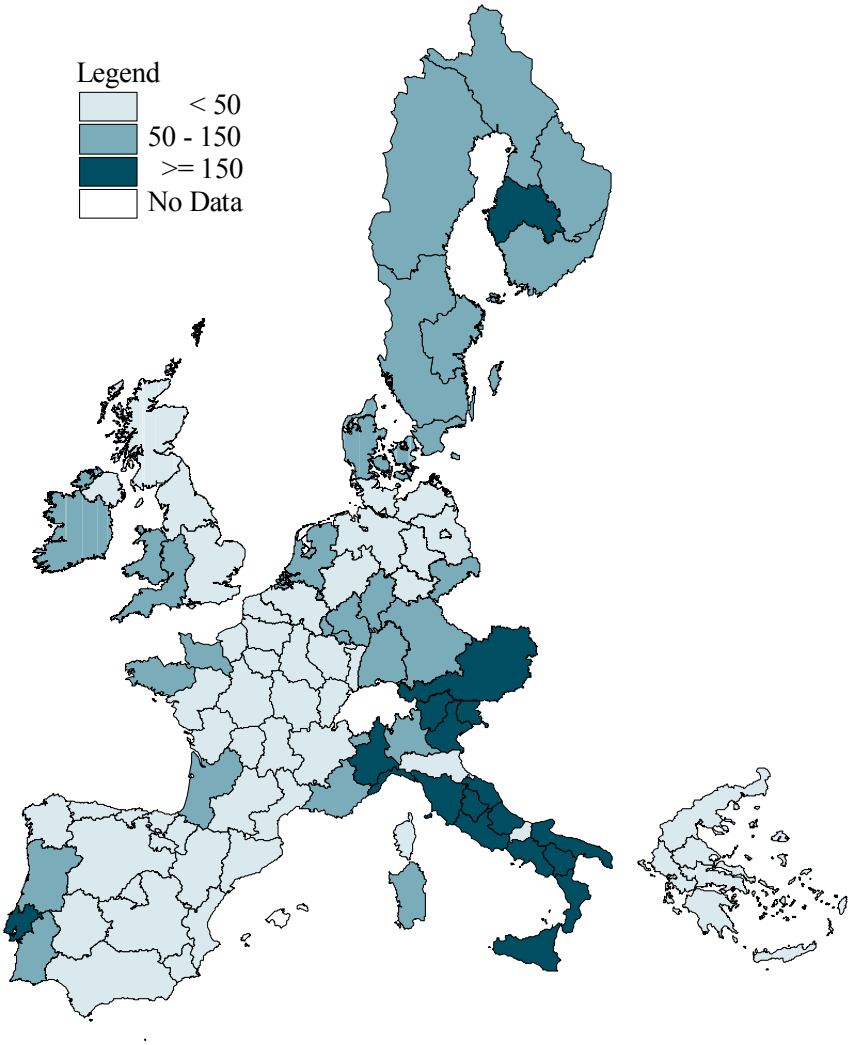


Figure 3.7 Agricultural support measures from agri-environmental programmes on holdings with such programmes in 1999 (euro per ha)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI

3.3 Incentives from agri-environment programmes

Decisions on whether or not to join agri-environment programmes also depend on alternatives available to farmers, and the total payments made available to farmers needs to be taken into account to understand the incentives from CAP to change farming practices. Payments for agri-environment programmes are compared in the following with direct payments compensating farmers for the price reductions they faced over time among others for cereals, beef and sheep production. A distinction is made between direct payments on crops and on livestock, and subsidies for production, which fulfils special or additional en-

vironmental requirements (agri-environment payments). This information allows comparing the incentives provided to farmers for joining add-on instruments (e.g. agri-environmental programmes) versus add-on objectives through additional requirements that need to be fulfilled (e.g. cross-compliance). In doing so, a comparative analysis is offered of the scope and limitations of various approaches to integration of environmental and nature conservation interests into the CAP. The comparison is made in terms of add-on-instrument approaches (e.g. targeted agri-environmental measures) and add-on objective approaches (e.g. cross-compliance by putting additional constraints to the eligibility of farmers for receiving direct payments), in terms of (a) the implications on farm income and structures, and (b) the compatibility and complementarity of integration approaches with respect to environmental and nature conservation interests. A comparison is made across individual farms of the product related support measures with targeted agri-environment payments, in terms of their shares in farm income. We will assess the importance of current measures taken by the farming community for environmental protection and nature management, and its interaction with farm income and farm structure. More than half of total package of direct payments and compensatory payments originate from agri-environmental support in limited parts of the EU only (Figure 3.8).

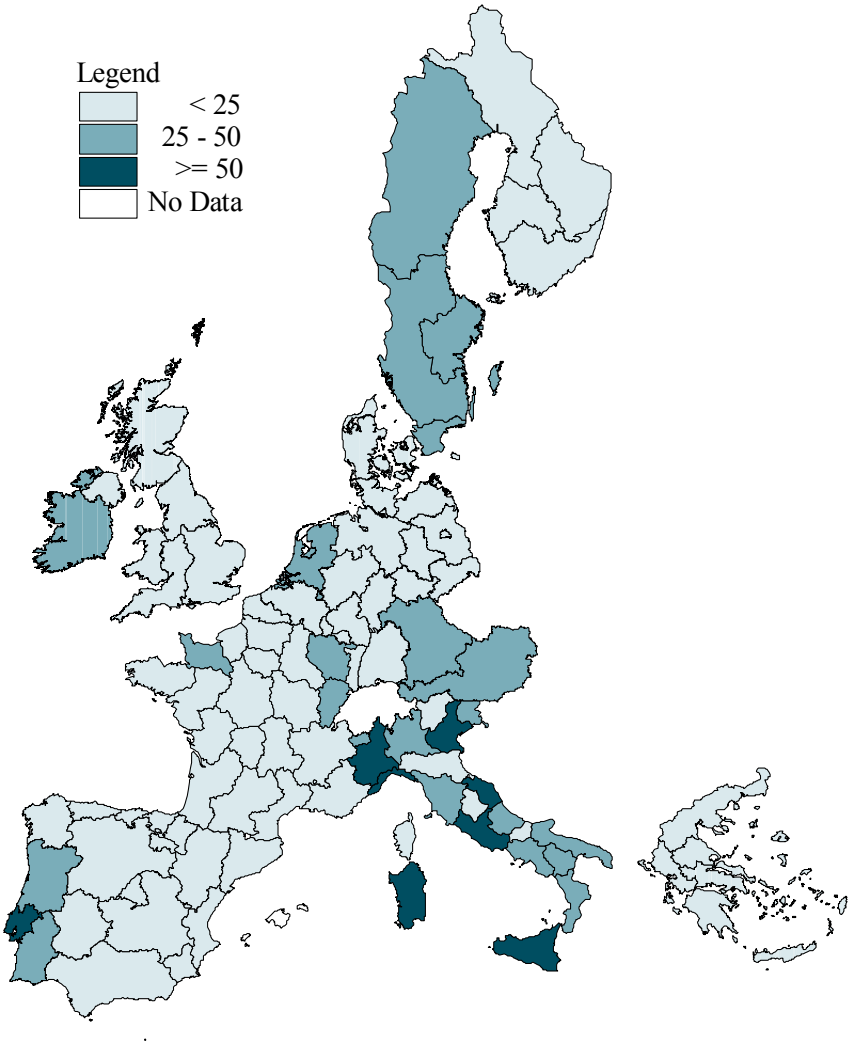


Figure 3.8 Share of support from agri-environmental programmes in total direct payments on holdings with such programmes in 1999 (%)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Environmental conditions that are attached to direct payments on crops and livestock also have the potential to provide incentives to farmers in the field of environment, nature management and landscape. For most of the EU, direct payments from crops and livestock exceed payments from agri-environment programmes. Holdings that joined agri-environment programmes have a share of environmental payments from these programmes in the total of direct and compensatory payments that exceed 50% in limited parts of Italy only. Headage and area payments have a share of at least three quarters in total direct payments in large parts of Spain, France, Germany, Denmark, the UK, Finland and Greece. Support from agri-environmental programmes at holdings with environmental subsidies

has a share of at least 50% in family farm income on holdings in some parts of the EU, including the northern part of the UK, Denmark, Sweden, as well as limited parts of Germany and France (Figure 3.9). In such conditions, the incentives they give to meet the requirements of the programmes might be considerable.

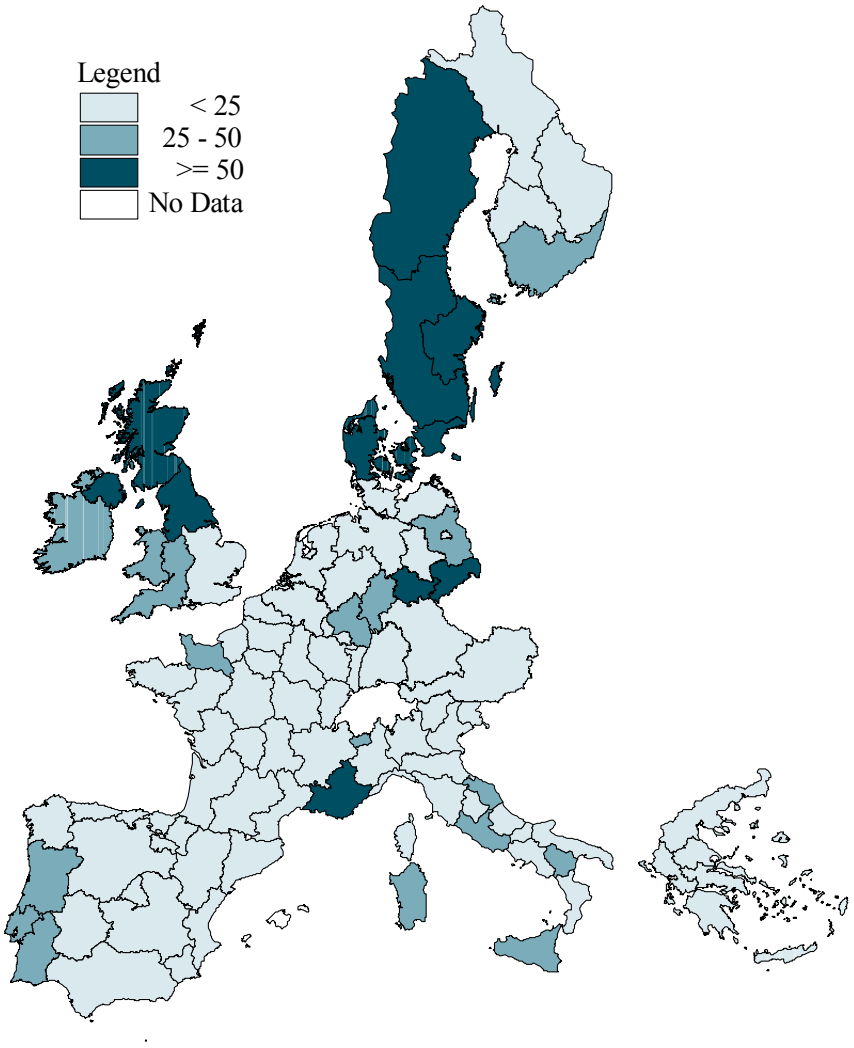


Figure 3.9 Share of support from agri-environmental programmes in family farm income on holdings with such programmes in 1999 (%)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI

Buller (2000) distinguished three broad 'models' of programmes adopted:

- Targeted or zonal measures that focus on specific landscape types that are made available for farmers operating in the selected zones. Examples are the Environment

Sensitive Area Schemes in Denmark and the UK, or the French land management contracts.

- Horizontal schemes that are 'wide and shallow' that operates over the full country or regional territory. Examples are the French Prime à l'herbe or the Swedish grassland measure.
- Add-on schemes, with a basic payment and additional payments for further constraints. Examples are the MEKA programme in Baden-Wurttemberg (Germany), REPS (Ireland), GAEPS (Finland), as well as green services and management programmes adopted in the Netherlands.

3.4 Support programmes by farming types

A more detailed assessment on support programmes is offered in this section. Emphasis is given to specialist dairying (farming type 41) and farms with sheep, goats and other grazing livestock system (farming type 44). Subsidies for production which fulfils special or additional environmental requirements (i.e. agri-environment payments) in 1999 exceeded 1.l billion euros. Farming type 41 (more than 800 million euro in the EU) and farming type 44 (a total of around 300 million euro in the EU) (Table 3.2) were relatively important in the Netherlands, having a share of in total more than 70% of total payments for farmers in the Netherlands. A comparison is made with farming systems in Denmark, Germany and the UK.

This analysis draws on the individual data from the Farm Accountancy Data Network (FADN) of the European Commission (accounting year 1999/2000). This source offers evidence on the identification groups of farms (e.g. farming types) that would be given incentives to change management practices from the implementation of add-on instrument approaches. Such instruments offer support for targeted agri-environmental measures, especially by the provision of direct aids to agricultural production methods designed to protect the environment and maintain the countryside. In addition, it also allows identifying groups of farms (e.g. farming types) with direct payments to be an important element of farm income. This would evidence that such farms could be given incentives to change farming practices through cross-compliance. Surely, the effect on farms with a high proportion of direct payments depends on how demanding the cross-compliance requirements would be. Even if they are just compliance with legal requirements, it would be a strong incentive to make sure the farmers do comply (and some probably would have to change their practice to do so). Structural characteristics (in terms of farm size, crop and animal production) of such farms will also be identified, providing the basis to examine what structural features would hamper or stimulate the use of add-on instrument approaches and add-on objective approaches.

3.4.1 Specialist dairying

A broad picture in the EU

Some features on the adoption of agri-environment programmes by specialist dairying are presented in Box 3.1. The characteristics draw on the findings from Figure 3.10 - Figure 3.14, as well as Table 3.6.

Box 3.1 Characteristics of specialist dairying farms that join agri-environment programmes

Characteristics	Features across the European Union
Payments for agri-environment programmes exceed 100 euro per ha (Figure 3.10)	Payments from agri-environment programmes on average exceed 100 euro per ha in Austria, Finland, Bavaria, northern part of Sweden and some regions in the northern part of Italy. Average payments per ha at regional level are highest in regions with high participation into agri-environment programmes.
High participation rates in agri-environment programmes (Figure 3.11)	Participation in agri-environment programmes are highest (exceeding 75% of all specialist dairying) in Austria, Luxembourg, Finland, Sweden, parts of Germany (Bavaria and Baden-Wuerttemberg), France and Italy. Measures tend to be broad and shallow and programmes are adopted that could be implemented at reasonable costs.
Payments from agri-environment programmes exceed direct payments (headage and acreage payments) (Figure 3.13)	The share of support from agri-environment programmes at specialist dairying with agri-environment programmes exceeds the direct payments (for crop and livestock) in Austria, Ireland, the Netherlands, as well as in parts of Italy, Portugal, Sweden and Italy. It might imply that the incentive for enhancing the integration of environment, nature and landscape in farming practices is strongest from such agri-environment programmes, since not meeting the requirements would imply leaving the agri-environment programme. Adding additional (nature and landscape) restrictions to the provision of direct payments might be considerable in large parts of the UK, Germany, France, Finland, Spain, Italy and Greece. In such countries the provision of direct payments is considerably higher than the amounts from agri-environment programmes.
Payments from agri-environment programmes has a share of more than half of family farm income (Figure 3.14)	The support from agri-environment programmes has a share of more than half of family farm income in Sweden and some parts of Germany only. Meeting the conditions for joining these agri-environment programmes are then important for viability of farming and not meeting the requirements would be a high risk in terms of a considerable income loss.
Compensatory payments for agri-environmental programmes exceed 5000 euro per holding	Subsidies from agri-environmental programmes at holdings that joined such programmes has more than doubled during the second half of the 1990s, to reach a level of some 1800 euro per holding (situation 1999). Highest payments (more than 5,000 euro per holding) are provided in Luxembourg, Austria and Sweden.

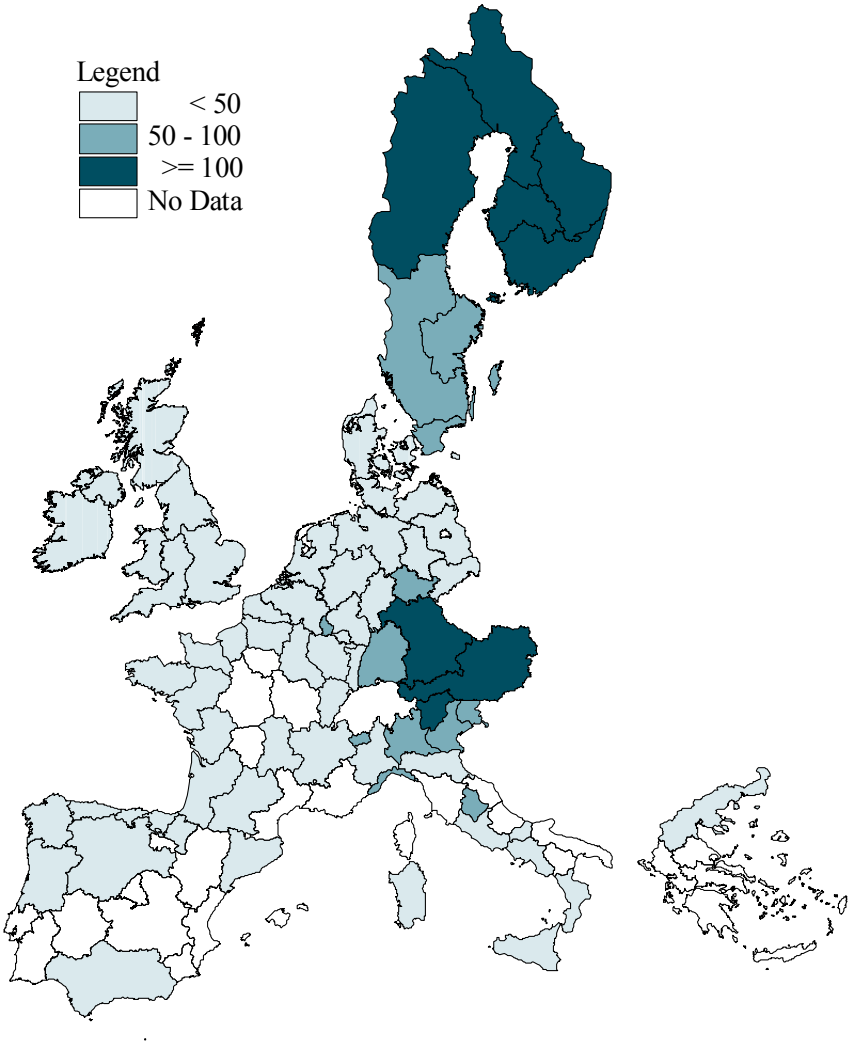


Figure 3.10 Agricultural support measures from agri-environmental programmes on all specialist dairying farms in 1999 (euro per ha)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

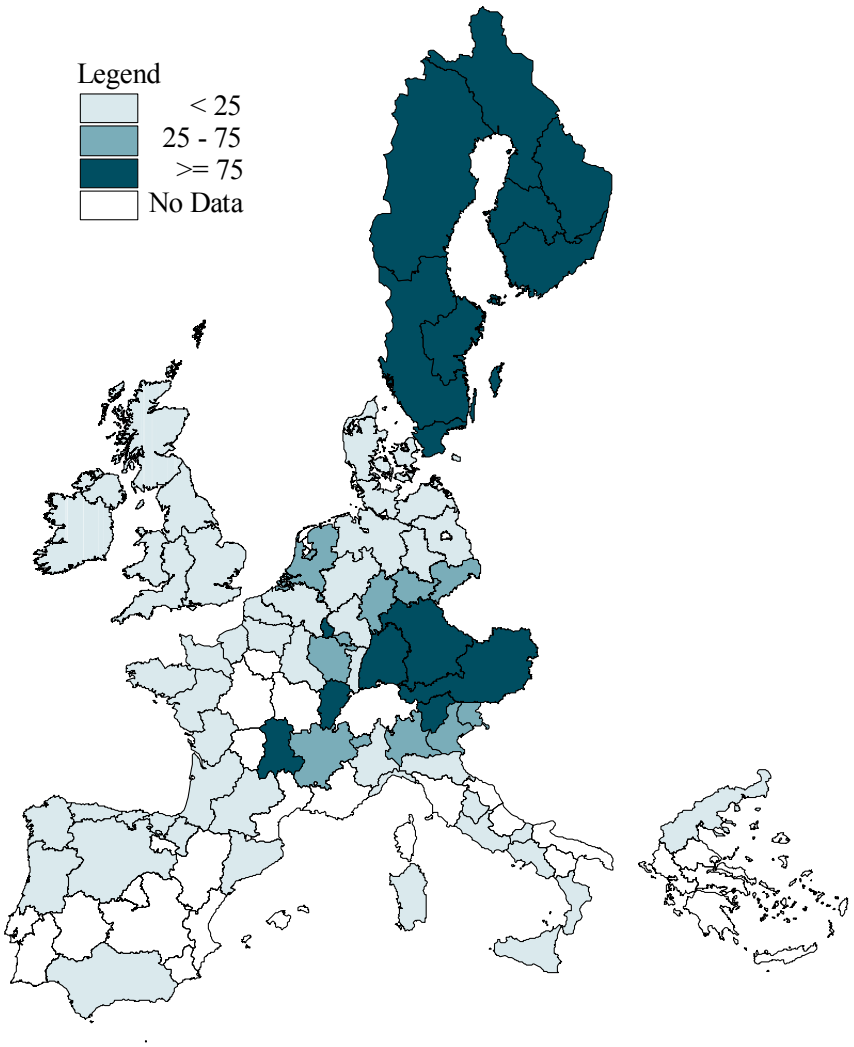


Figure 3.11 Share of holdings with agri-environmental programmes in total number of specialist dairying farms in 1999 (%)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

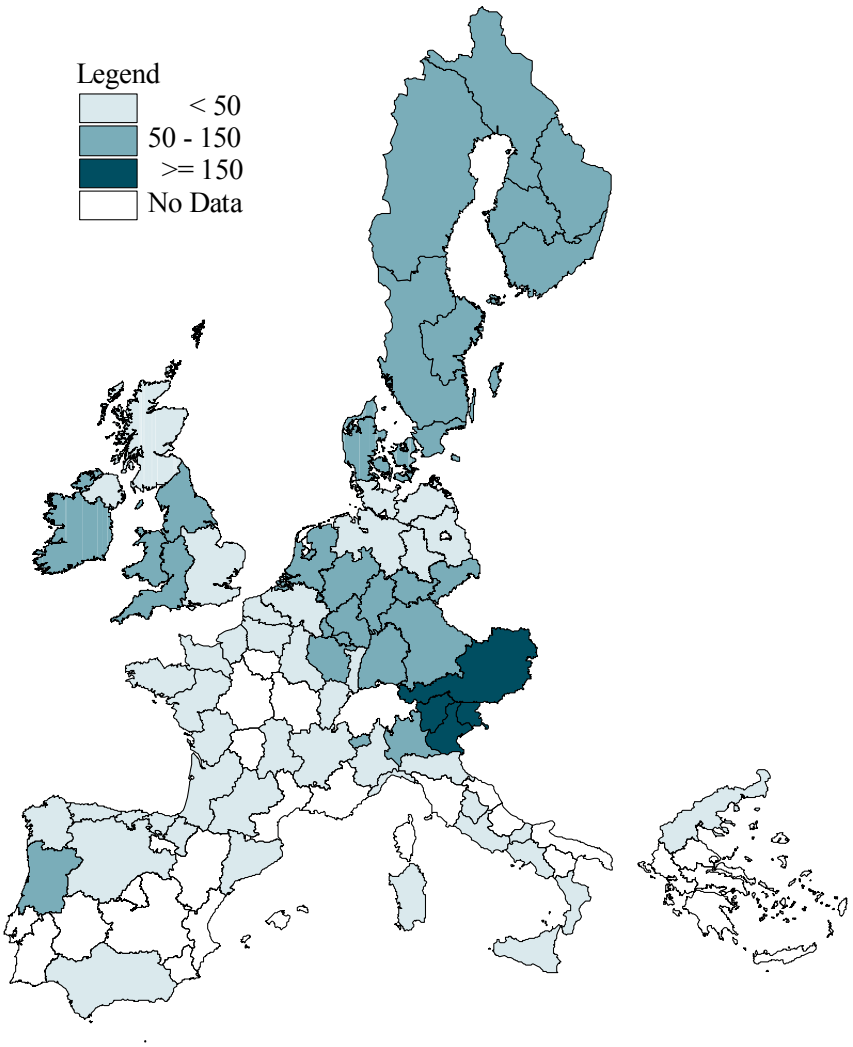


Figure 3.12 Agricultural support measures from agri-environmental programmes on specialist dairying farms with such programmes in 1999 (euro per ha)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

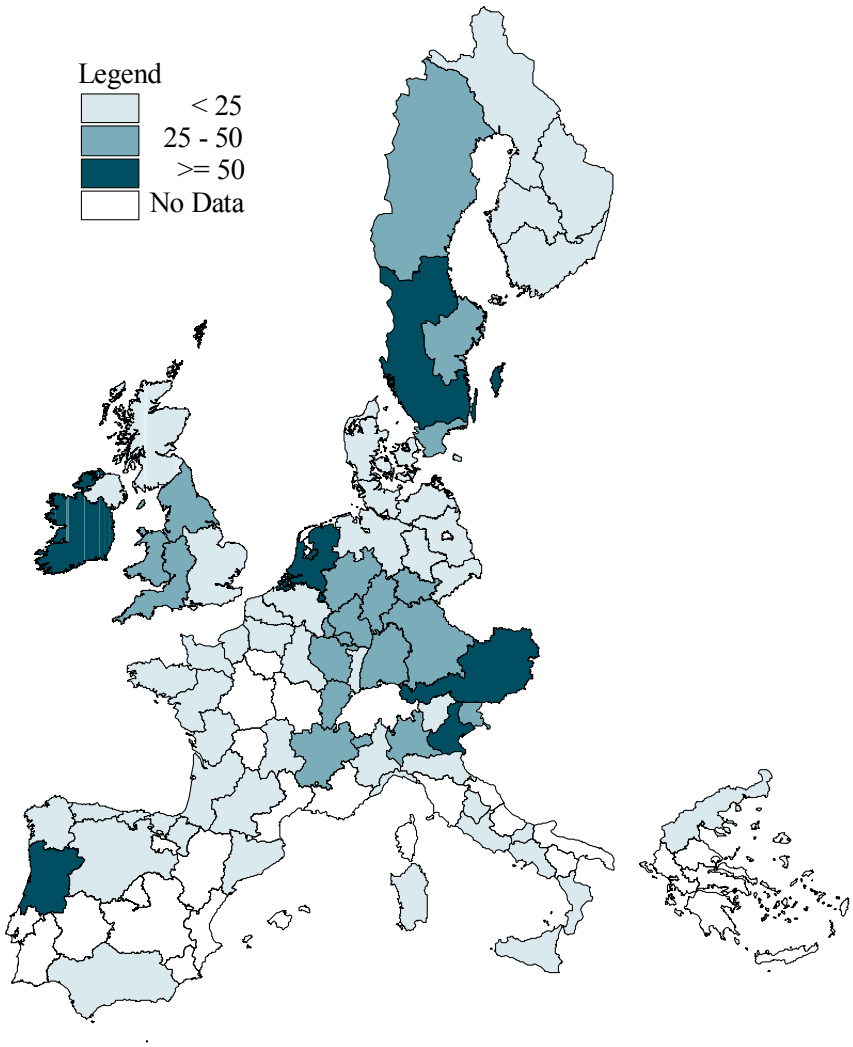


Figure 3.13 Share of support from agri-environmental programmes in total direct payments on specialist dairying farms with such programmes in 1999 (%)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

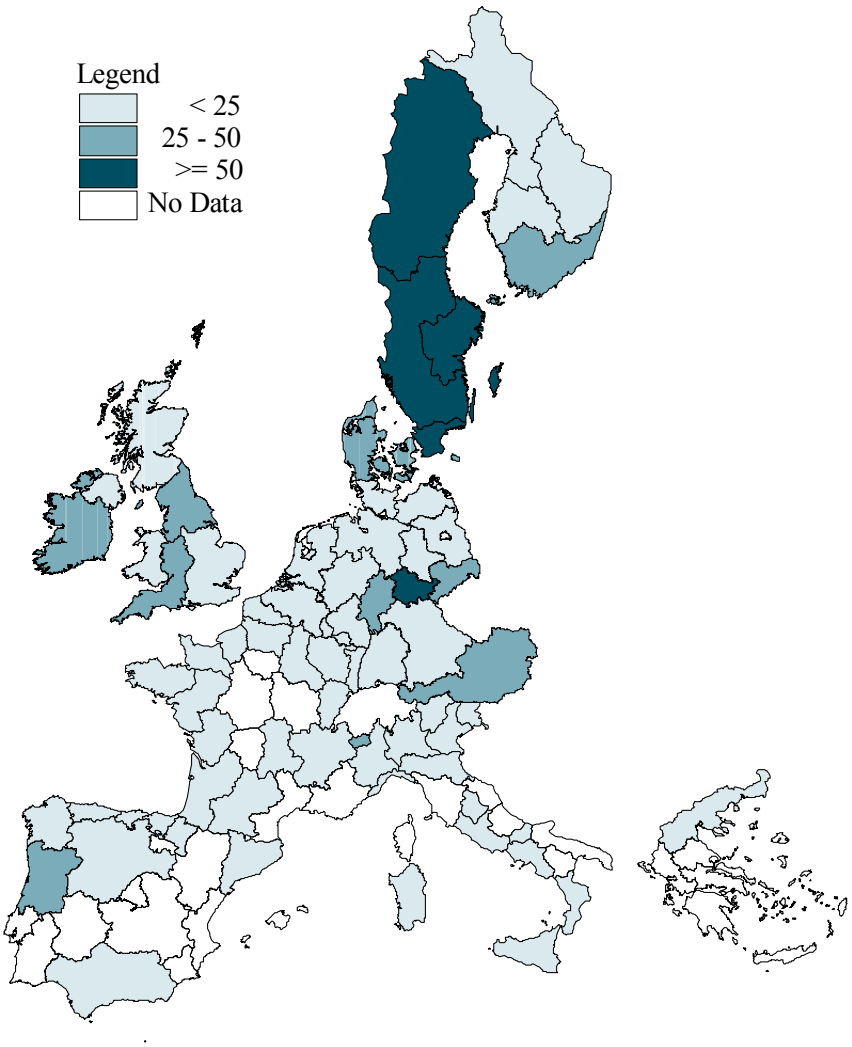


Figure 3.14 Share of support from agri-environmental programmes in family farm income on specialist dairying farms with such programmes in 1999 (%)

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Table 3.6 Compensatory payments for agri-environmental programmes on specialist dairying farms (type 41) in 1995 and 1999 (euro per holding)

Country	1995					1999				
	Total a)	Direct payments on crops b)	Direct payments on livestock c)	Compensatory payments d)	Other payments e)	Total a)	Direct payments on crops b)	Direct payments on livestock c)	Compensatory payments d)	Other payments e)
Belgium	5,527	2,643	1,741	0	1,143	7,061	2,649	660	36	3,716
Denmark	12,383	8,879	1,441	374	1,689	15,813	11,041	842	1,321	2,610
Germany	9,394	3,823	731	1,307	3,533	9,431	4,179	664	2,203	2,385
Greece	2,390	1,047	1,343	0	0	2,555	1,102	1,453	0	0
Spain	729	137	375	0	218	853	387	305	0	161
France	8,126	5,038	1,181	538	1,369	8,975	5,489	1,030	836	1,620
Ireland	3,855	240	3,436	0	179	5,976	343	4,030	1,259	344
Italy	3,326	1,601	397	1	1,327	5,092	1,915	107	1,090	1,980
Luxembourg	13,850	4,375	2,207	169	7,099	22,518	5,472	2,506	5,947	8,593
Netherlands	3,251	1,234	426	260	1,331	2,484	1,582	281	613	8
Austria	13,881	4,106	1,542	5,266	2,966	10,542	811	997	5,654	3,079
Portugal	3,396	564	2,067	40	726	3053	980	933	539	601
Finland	25,521	2,947	14,576	3,264	4,733	25,523	2,515	12,901	4,154	5,952
Sweden	9,588	2,715	0	0	6,873	18,546	4,189	6,649	7,708	0
United Kingdom	7,947	2,355	5,023	285	283	11,075	2,765	7,019	1,020	270
EU 15	7,763	2,838	2,039	874	2,012	8,588	2,980	2,108	1,798	1,702

a) Total of Direct payments on crops, Direct payments on livestock, Compensatory payments and Other payments
b) All farm direct payments on crops, including compensatory payments and set-aside premiums
c) All farm direct payments on livestock and livestock products
d) Compensatory payments for production, which fulfils special or additional environmental requirements
e) Other payments received, in particular for activities relating to forestry and tourism, afforestation programmes, structural aid. Include also grants and subsidies for disasters or extraordinary (BSE, agrimonetary compensation payments, etc)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Direct payments for crops and livestock at holdings with agri-environmental programmes tend to be larger than at holdings that do not join such programmes. The payments are bigger because the farms are bigger.

Support measures in the Netherlands, Germany, Denmark and the UK
Conditions in the Netherlands are compared with Denmark, Germany and the UK. Emphasis is given to specialist dairying. Box 3.2 provides a summary of the main features from Figure 3.15 - Figure 3.20, Table 3.7 and Table 3.8.

Box 3.2 Characteristics of specialist dairying farms in the Netherlands vis-à-vis Niedersachsen, Denmark and England-West

Characteristic	Features in four regions
Agri-environment payment per unit of production	In the Netherlands, the subsidies from agri-environment programmes per unit of cow milk produced are considerably below that in Denmark, Niedersachsen en England-West. In Denmark and England-West, payments are more than double that of the Netherlands. Here, programmes are very much targeted at Environmentally Sensitive Areas (ESAs).
Trend in support for environmental measures	The number of holdings without support for environmental measures reduced during the second half of the 1990s. In contrast, the number of holdings with payments increased. The number of holdings receiving support increased. Holdings with support of more than 5000 euro increased in the Netherlands, Denmark and England-West.
Support for agri-environmental programmes versus subsidies on crops and livestock	Subsidies on crops and livestock exceed environmental subsidies in Niedersachsen, Denmark and England-West. Given the importance of direct payments for beef (England-West), cereal crops (including maize premium) (Denmark), as well as the maize premium and to a lesser extent beef premium (Niedersachsen), cross compliance measures might give a strong incentives to such farms should measures for eligibility of such direct payments be introduced. In contrast, in the Netherlands, environmental subsidies exceed subsidies on crops and livestock (mainly maize premium).
Structural characteristics of holdings with environmental subsidies	Stocking density of livestock production tends to be lowest at holdings with environmental subsidies.
Total subsidies relative to family farm income	Total subsidies linked to production (crops, livestock and other subsidies) have a share of a third of family farm income in the Netherlands at most. In contrast, total subsidies may exceed family farm income in Denmark (except group of farms without environmental subsidies), and England-West (group of holdings with environmental subsidies that exceeds 5,000 euro per holding).
Environmental subsidies and the provision of public goods and services	Environmental subsidies may exceed 5,000 euro per holding in the Netherlands (1,000 holdings), Denmark (950 holdings) and England-West (around 800 holdings). In these countries, regionally targeted programmes with higher payments in designated ESAs, or the eligibility of payments in ESAs (in Denmark), targeted conservation in ESAs and the protection of wildlife habitats in the wider countryside through Countryside Stewardship Schemes (in the UK).

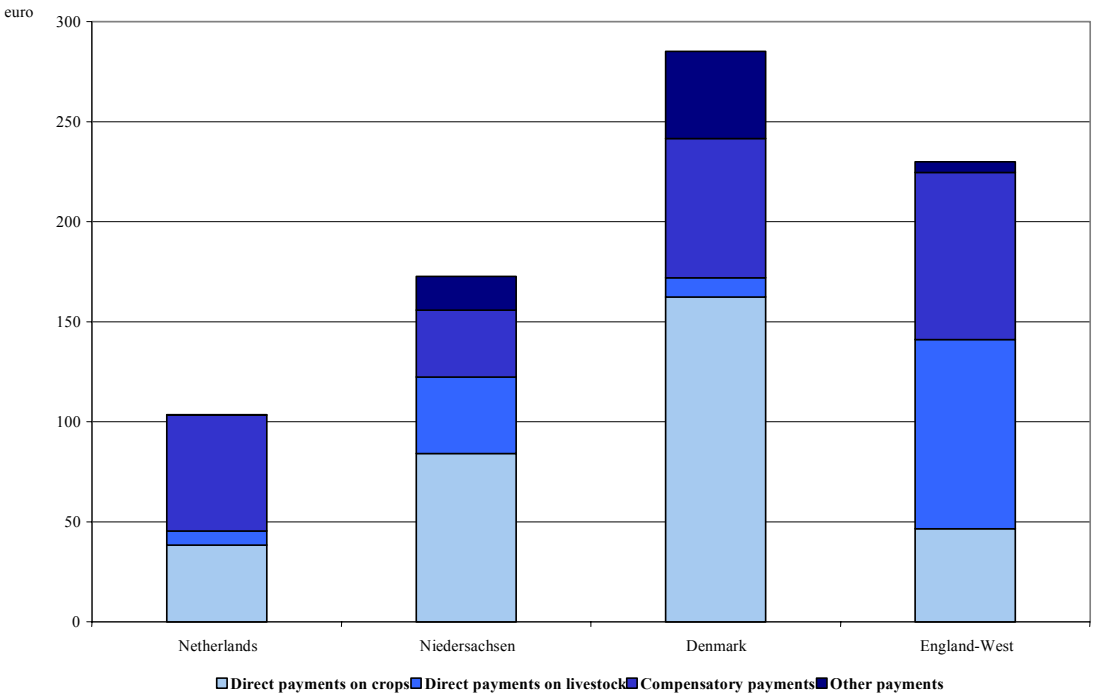


Figure 3.15 Support on specialist dairying farms with environmental payments (euro per ha) in the Netherlands, Niedersachsen, Denmark and England-West in 1999

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

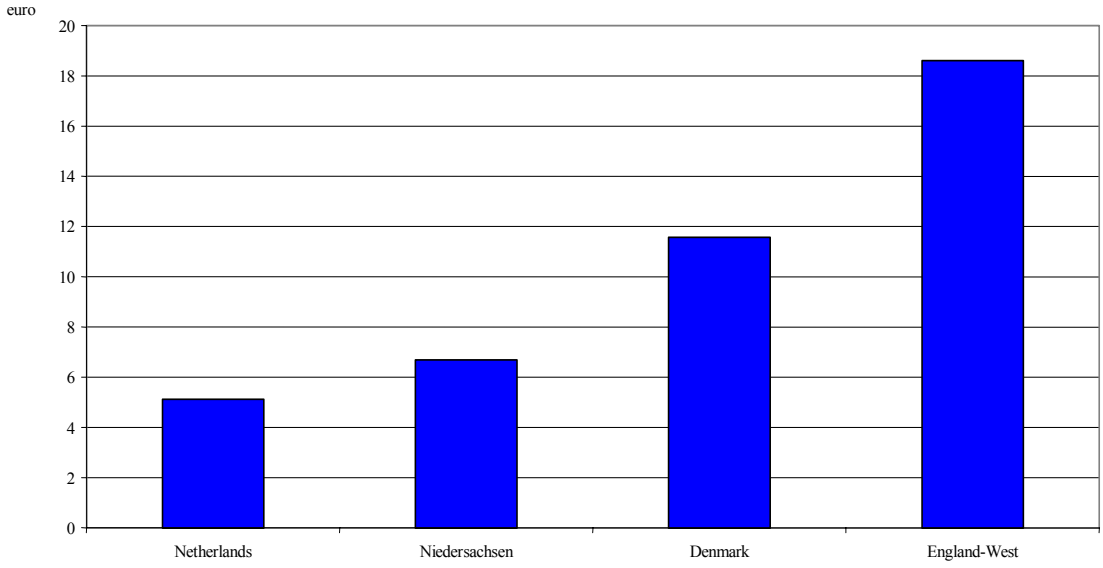


Figure 3.16 Support for environmental measures on specialist dairying farms with payments for joining agri-environmental programmes (euro per 1,000 kg of cow milk) in 1999

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

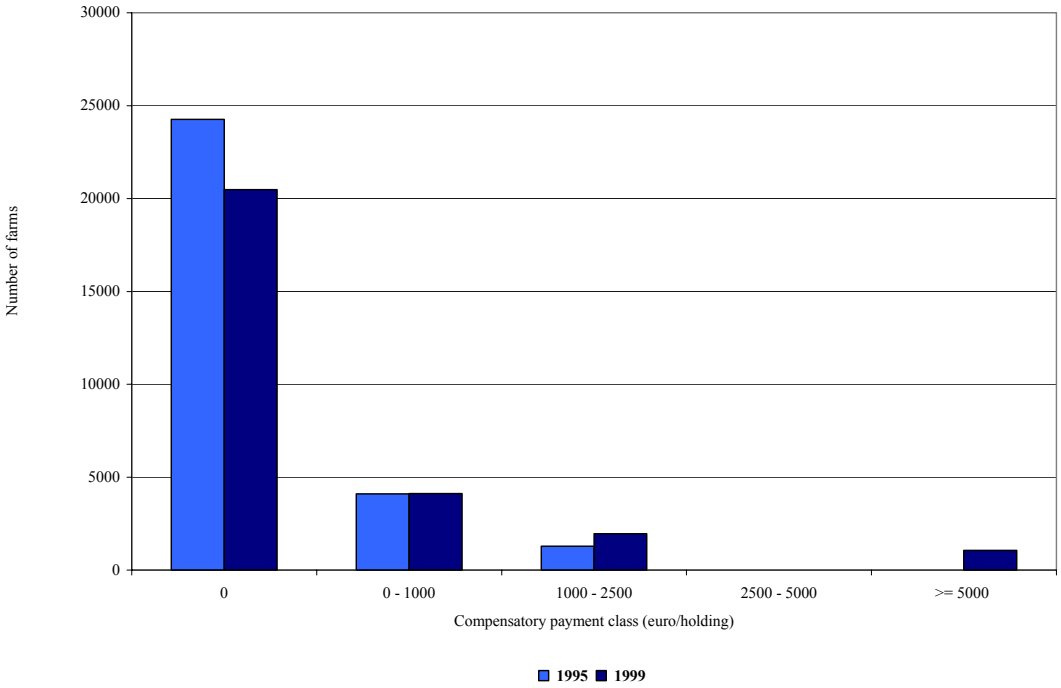


Figure 3.17 Number of specialist dairying farms with payments for joining agri-environmental programmes by level of support in the Netherlands (euro per holding) in 1995 and 1999
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

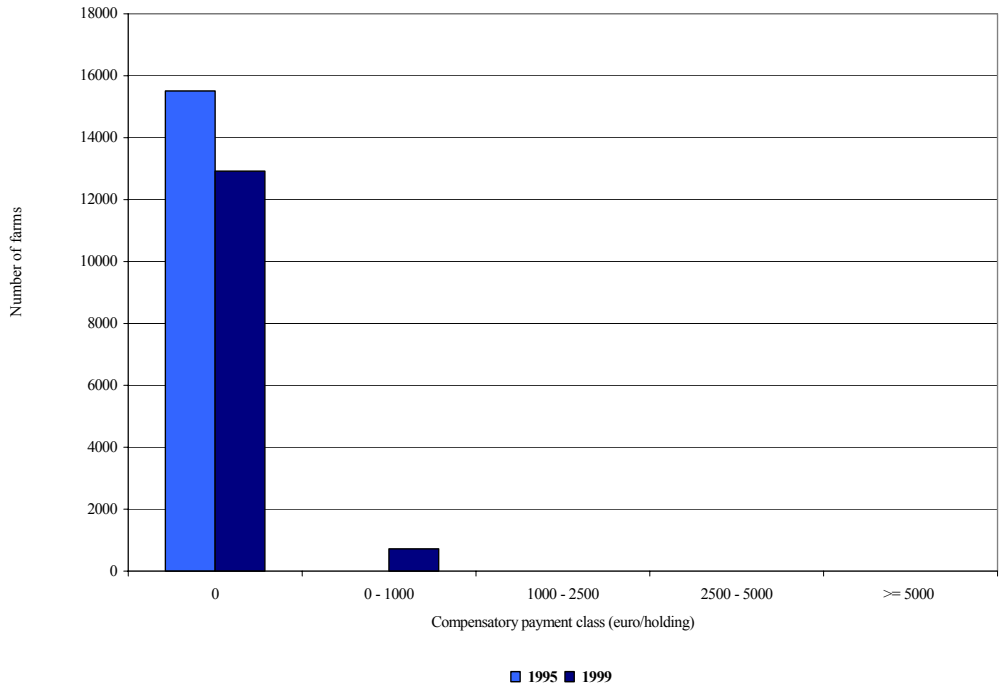


Figure 3.18 Number of specialist dairying farms with payments for joining agri-environmental programmes by level of support in Niedersachsen (euro per holding) in 1995 and 1999
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

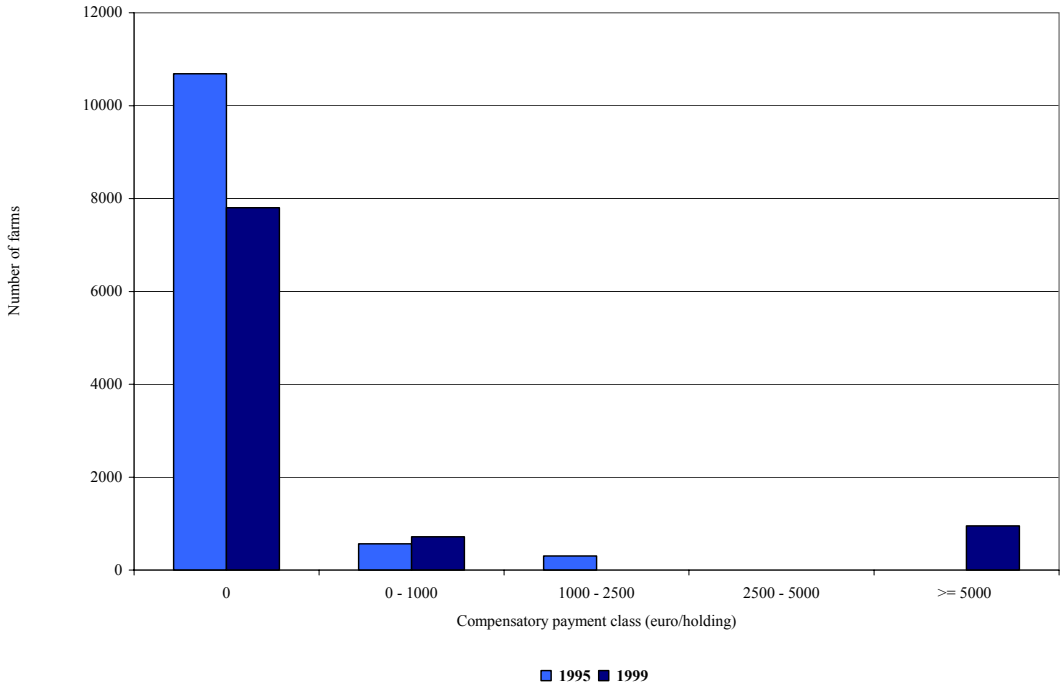


Figure 3.19 Number of specialist dairying farms with payments for joining agri-environmental programmes by level of support in Denmark (euro per holding) in 1995 and 1999
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

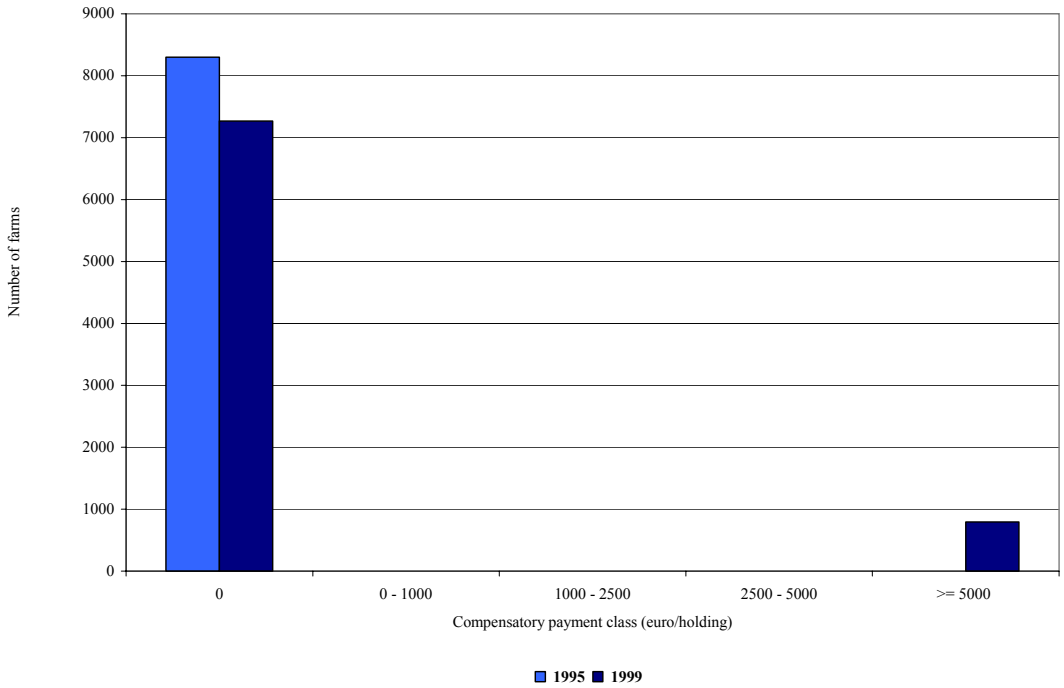


Figure 3.20 Number of specialist dairying farms with payments for joining agri-environmental programmes by level of support in England-West (euro per holding) in 1995 and 1999
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Table 3.7 Structural features of specialist dairying farms (type 41) with and without payments for joining agri-environmental programmes in 1995 and 1999

Country / Variable	Farms with compensatory payments		Farms without compensatory payments	
	1995	1999	1995	1999
Netherlands				
Farms represented (No)	6,107	7,944	24,263	20,476
Utilised agricultural area (UAA) (Ha)	34	38	33	35
Total livestock population (LU)	105	93	101	104
Livestock density (LU / Ha UAA)	3.1	2.5	3.1	3.0
Direct payments on crops and livestock (Euro)	1,919	1,727	1,595	1,915
Compensatory payments (Euro)	1,295	2,192	0	0
Compensatory payments per 1000 kg cow milk and milk products (Euro)	3	5	0	0
Compensatory payments in % of family farm income (%)	4	7	0	0
Niedersachsen				
Farms represented (No)	1,992	1,497	15,508	12,923
Utilised agricultural area (UAA) (Ha)	42	53	46	53
Total livestock population (LU)	59	85	74	91
Livestock density (LU / Ha UAA)	1.4	1.6	1.6	1.7
Direct payments on crops and livestock (Euro)	3,286	6,528	4,148	5,380
Compensatory payments (Euro)	2,936	1,784	0	0
Compensatory payments per 1000 kg cow milk and milk products (Euro)	17	7	0	0
Compensatory payments in % of family farm income (%)	15	6	0	0

Table 3.7 Structural features of specialist dairying farms (type 41) with and without payments for joining agri-environmental programmes in 1995 and 1999 (Continuation)

Country / Variable	Farms with compensatory payments		Farms without compensatory payments	
	1995	1999	1995	1999
Denmark				
Farms represented (No)	1,313	2,187	10,688	7,803
Utilised agricultural area (UAA) (Ha)	71	87	50	58
Total livestock population (LU)	113	125	89	98
Livestock density (LU / Ha UAA)	1.6	1.4	1.8	1.7
Direct payments on crops and livestock (Euro)	13,721	14,943	9,902	11,024
Compensatory payments (Euro)	3,416	6,031	0	0
Compensatory payments per 1000 kg cow milk and milk products (Euro)	9	12	0	0
Compensatory payments in % of family farm income (%)	12	36	0	0
England-West				
Farms represented (No)	970	1,671	8,300	7,269
Utilised agricultural area (UAA) (Ha)	97	88	77	72
Total livestock population (LU)	116	116	134	135
Livestock density (LU / Ha UAA)	1.2	1.3	1.7	1.9
Direct payments on crops and livestock (Euro)	8,914	12,376	7,075	11,407
Compensatory payments (Euro)	4,068	7,346	0	0
Compensatory payments per 1000 kg cow milk and milk products (Euro)	10	19	0	0
Compensatory payments in % of family farm income (%)	8	29	0	0

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Table 3.8 Structural features of specialist dairying farms (type 41) by payment class in 1999

Country / Variable	Farms with compensatory payments (in euros)					Farms without compensatory payments
	Total	>0-<1000	>=1000-<2500	>=2500-<5000	>=5000	Total
Netherlands						
Farms represented	7,944	4,123	1,957		1,056	20,476
Size (ha UAA)	38	37	35		50	35
Stocking density (LU/ha UAA)	2.5	2.8	2.3		1.8	3.0
Cow milk production (1,000 kg)	428	455	422		363	428
Family farm income (euro)	30,021	28,168	27,435		34,135	24,635
Total direct payments linked to production (euro)	3,928	2,515	2,943		11,064	1,924
direct payments on crops	1,457	1,837	946		1623	1,631
direct payments on livestock	270	265	286		414	284
compensatory payments	2,192	400	1,704		9,027	0
other payments	9	13	7		0	8
Compensatory payments (euro per ha)	58	11	49		179	0
Compensatory payments (% of FFI)	7	1	6		26	0
Niedersachsen						
Farms represented	1,497	720				12,923
Size (ha UAA)	53	54				53
Stocking density (LU/ha UAA)	1.6	1.8				1.7
Cow milk production (1,000 kg)	266	305				298
Family farm income (euro)	29,507	31,490				26,604
Total direct payments linked to production (euro)	9,214	8,166				5,966
direct payments on crops	4,486	5,431				3,561
direct payments on livestock	2,042	2,126				1,819
compensatory payments	1,784	470				0
other payments	902	139				587
Compensatory payments (euro per ha)	33	9				0
Compensatory payments (% of FFI)	6	1				0

Table 3.8 Structural features of specialist dairying farms (type 41) by payment class in 1999 (continuation)

Country / Variable	Farms with compensatory payments (in euros)					Farms without compensatory payments
	Total	>0-<1000	>=1000-<2500	>=2500-<5000	>=5000	Total
Denmark						
Farms represented	2,187	719			951	7,803
Size (ha UAA)	87	68			108	58
Stocking density (LU/ha UAA)	1.4	1.6			1.3	1.7
Cow milk production (1,000 kg)	521	409			576	402
Family farm income (euro)	16,868	15,667			11,558	21,548
Total direct payments linked to production (euro)	24,748	16,225			33,590	13,308
direct payments on crops	14,104	11,754			16,873	10,182
direct payments on livestock	839	776			574	842
compensatory payments	6,031	506			12,293	0
other payments	3,774	3,189			3,850	2,283
Compensatory payments (euro per ha)	69	7			114	0
Compensatory payments (% of FFI)	36	3			106	0
England-West						
Farms represented	1,671				794	7,269
Size (ha UAA)	88				112	72
Stocking density (LU/ha UAA)	1.3				1.2	1.9
Cow milk production (1,000 kg)	395				459	580
Family farm income (euro)	25,594				25,461	25,798
Total direct payments linked to production (euro)	20,171				25,716	11,478
direct payments on crops	4,087				3,262	3,997
direct payments on livestock	8,289				9,969	7,411
compensatory payments	7,346				12,263	0
other payments	449				223	71
Compensatory payments (euro per ha)	84				109	0
Compensatory payments (% of FFI)	29				48	0

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

3.4.2 Sheep, goats and other grazing livestock farms

Some features on the adoption of agri-environment programmes by sheep, goats and other grazing livestock are presented in Box 3.3. The characteristics draw on the findings from Figure 3.17, as well as Table 3.9- Table 3.11.

Table 3.9 Payments on sheep, goats and other grazing livestock farms (type 44) in 1995 and 1999 (euro per holding)

Country	1995					1999				
	Total a)	Direct payments on crops b)	Direct payments on livestock c)	Compensatory payments d)	Other payments e)	Total a)	Direct payments on crops b)	Direct payments on livestock c)	Compensatory payments d)	Other payments e)
Belgium										
Denmark										
Germany	31,703	3,416	11,704	8,205	8,379	29,812	2,993	11,134	8,401	7,285
Greece	4,864	604	4,260	0	0	5,250	1,030	4,216	1	3
Spain	9,061	507	8,475	4	75	9,251	573	8,580	10	88
France	18,405	2,388	10,154	1,697	4,166	20,643	2,679	10,323	2,229	5,412
Ireland	9,064	327	8,046	15	677	13,151	320	9,631	2,665	535
Italy	2,917	542	1,249	18	1,107	3,292	560	695	1,188	850
Luxembourg										
Netherlands	4,861	384	2,521	1,767	190	8,469	468	5,495	2,506	0
Austria										
Portugal	3,882	541	1,903	214	1,224	4,970	1,009	2,617	608	735
Finland										
Sweden										
United Kingdom	32,127	823	29,358	1,461	485	38,460	971	33,250	3,617	623
EU 15	11,829	807	9,313	587	1,123	13,303	965	9761	1,550	1,027

a) Total of Direct payments on crops, Direct payments on livestock, Compensatory payments and Other payments
b) All farm direct payments on crops, including compensatory payments and set-aside premiums
c) All farm direct payments on livestock and livestock products
d) Compensatory payments for production which fulfils special or additional environmental requirements
e) Other payments received, in particular for activities relating to forestry and tourism, afforestation programmes, structural aid. Include also grants and subsidies for disasters or extraordinary (BSE, agrimonetary compensation payments, etc)
Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

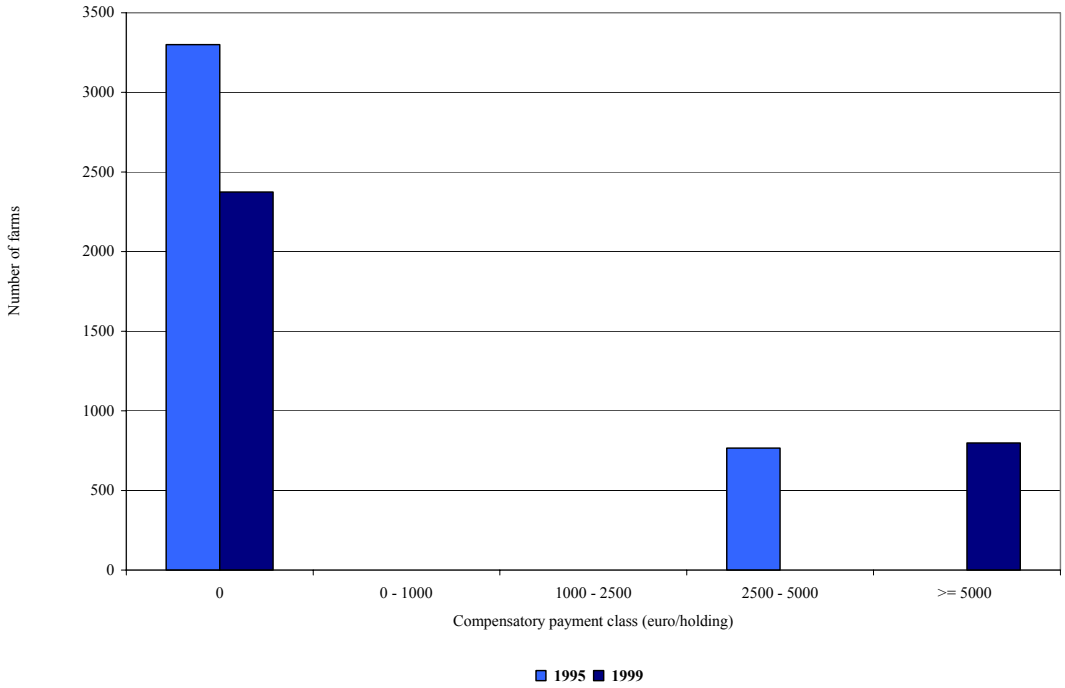


Figure 3.21 Number of sheep, goats and other grazing livestock farms with environmental subsidies by level of support in England-West (euro per holding) in 1995 and 1999

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Box 3.3 Characteristics of farms with sheep, goats and other grazing livestock that join agri-environment programmes

Characteristics	Features
Payments for agri-environment programmes	Environmental subsidies have gained importance during the second half of the 1990s throughout the EU. By 1999, these subsidies (in euro per holding) are highest in Germany (8,400 euro), UK (3,600 euro), Ireland (2,600 euro) and the Netherlands (2,500 euro).
Trend in support for agri-environmental programmes	Environmental subsidies in England-West are paid on around 1,900 farms with sheep, goats and other grazing livestock. On average reached almost 6,000 euro per holding in 1999. A group of some 800 holdings received around 11,000 euro per holding.
Support for agri-environmental programmes versus direct payments on crops and livestock	Support on crops is negligible. Average total support linked to production is 38,500 euro (on farms with agri-environmental payments). It is 23,500 euro on farms without agri-environmental payments. Main difference is due to the direct payments on livestock that represent about three quarters of total payments in most cases.
Structural characteristics of holdings with agri-environmental payments	Farm size (ha utilised agricultural area) at holdings with agri-environmental payments (114 ha on average) exceeds that of holdings without such payments (78 ha on average). Farm size has dropped considerably during the second half of the 1990s, especially at holdings without agri-environmental payments.
Total payments relative to family farm income	The share of agri-environmental payments (around 6,000 euro per holding on average) in family farm income on average is 45%. At the group of holdings with highest payments (over 11,000 euro per holding), it remains a same level. Family farm income at that group is considerably above that of the average from all farms with agri-environmental payments in England-West.

Table 3.10 Characteristics of sheep, goats and other grazing livestock (type 44) with and without payments for joining agri-environmental programmes in 1995 and 1999

Country / Variable	Farms with compensatory payments		Farms without compensatory payments	
	1995	1999	1995	1999
England-West				
Farms represented (No)	2,349	1,925	3,301	2,375
Utilised agricultural area (UAA) (Ha)	112	114	105	78
Total livestock population (LU)	126	148	102	121
Livestock density (LU / Ha UAA)	1.1	1.3	1.0	1.6
Direct payments on crops and livestock (Euro)	29,177	32,035	22,219	22,373
Compensatory payments (Euro)	4,716	5,993	0	0
Compensatory payments in % of family farm income (%)	21	45	0	0

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

Table 3.11 Structural features of sheep, goats and other grazing livestock farms (type 44) payment class in 1999

Country / Variable	Farms with compensatory payments (in euros)					Farms without compensatory payments
	Total	>0-<1000	>=1000-<2500	>=2500-<5000	>=5000	Total
England-West						
Farms represented	1,925				798	2,375
Size (ha UAA)	114				181	78
Stocking density (LU/ha UAA)	1.3				1.2	1.6
Family farm income (euro)	13,468				25,092	6,710
Total direct payments linked to production (euro)	38,598				60,734	23,654
Direct payments on crops	438				864	2,578
Direct payments on livestock	31,597				47,444	19,794
Compensatory payments	5,993				11,591	0
Other payments	571				834	1,281
Compensatory payments (euro per ha)	53				64	0
Compensatory payments (% of FFI)	45				46	0

Source: FADN-CCE-DG Agriculture/A-3; adaptation LEI.

3.5 Conclusions

A range of instruments is adopted in the EU Member States to support the achievement of targets on nature management and landscape. Instruments used aim to strengthen the integration of environmental, nature and landscape concerns in agricultural practices and contribute to the integration of these concerns in the CAP. Wide differences are observed among Member States in the efforts to integrate environmental and nature concerns as well as landscape issues in agricultural practices. A range of factors could clarify such differences.

The analysis indicates the wide diversity in agriculture regarding the intensity of production, the degree of specialisation of crop and livestock production and farm management practices used. This is important as it affects the interests of farmers to take measures beyond what is legally required, for example in the context of agri-environment programmes. The acknowledgement of such differences is relevant as it affects the appropriate strategies and means to integrate environmental concerns in agriculture. Highly intensive production systems (e.g. specialist horticulture and specialist granivores with limited size of agricultural land) tend to meet legal minimum standards through legal rules, whereas the provision of public goods by extensive production systems merit agri-environmental programmes.

The intensity of production (in terms of economic size of the farm per ha) for holdings that participate in agri-environment programmes tends to be smaller than at holdings that have not entered into such programmes. Since agri-environmental programmes promote changes in land-based activities, the income foregone would be too high in highly intensive production methods (in terms of production per unit of land).

The degree of integration of environment, nature and landscape in agriculture interacts with national and European policies. The Bird and Habitats Directives require Member States to implement measures at national level. Linkages with the CAP are established through cross-compliance. The Bird and Habitats Directives will also be a legislative basis for cross-compliance from 1 January 2005, and farmers will be subject to the requirements for granting direct payments. In the case of non-respect of cross-compliance requirements, direct payments would be reduced. This chapter shows the importance of direct payments on crops in Niedersachsen and Denmark, and on livestock in England-West.

While considering the legal requirements at European level, several countries have hardly developed agri-environment programmes that specifically aim to contribute achieving nature conservation and landscape interests. In contrast, issues on quality of the physical environment are also controlled through incentives from agri-environmental policies. Agri-environment programmes in Denmark, for example, mainly focus on the control of the physical environment, and the incentives to meeting nature conservation and landscape requirements are mainly addressed through the legal requirements from national and EU rules.

The sense of urgency on nature and landscape might influence the integration process. Several countries focus on the protection of aquatic ecosystems and mainly address nitrate and pesticides in the agri-environmental programmes developed. International obligations on nature and biodiversity are met to a large extent through command-and-control measures with legal requirements. Financial resources could be provided from the CAP

through the provision of agri-environmental programmes. Agri-environmental policies are developed during the early 1990s, and the improvement of the physical environment is a main area of concern from agriculture. Agri-environmental programmes are (developed as) an important tool to reverse a trend towards intensification of production.

Indirect beneficial effects for nature management and landscape might come from farm management practices that extensify production (e.g. reduce intensity of livestock production, limit the period of the year mowing of land is allowed to respect the breeding season of birds) and limit the use of nutrients and pesticides. Nature and landscape could gain from such measures taken to extensify production.

Agri-environment programmes are one approach to integrate nature conservation and landscape in agricultural practices. Decoupled payments and cross-compliance also need to be considered as a tool to change farming practices. Headage and area payments are considerable in livestock production in a range of countries (e.g. beef and maize premium), and targeted measures on nature conservation and landscape could support maintenance of a basis level.

The provision of compensatory payments is based on the income foregone. This however, might be an insufficient basis to promote farmers that consider establishing new activities.

A more detailed picture will be provided in the next chapter, focussing on a few countries that experienced different approaches to integrate environment, nature and landscape concerns in agriculture. Emphasis is given on Denmark, Germany and the United Kingdom.

4. Integration strategies: the Netherlands vis-à-vis Germany, Denmark and THE UK

This chapter explores options to strengthen the nature management aspects in the context of CAP reform. The achievement of nature management policies is examined in three Member States (Germany, Denmark and the UK) with a view to strengthen the nature management and landscape policies in the context of the CAP. Interviews are undertaken in Germany, Denmark and the UK, and responses have been collected on the following questions:

- If any, what specific nature conservation and biodiversity conditions are identified under a Good Agricultural Practice in your country?
- Are such conditions considered for direct income support (e.g. modulation)?
- What usage is made of nature, landscape and water management in GAP, if any?
- What regional perspective is considered to the adoption of GAP? Is usage made of vulnerable zones or high-valued areas? GAP does distinguish between regions?
- What farming types are promoted to change their practice? What analytical work is available to assess the incentives for GAP?
- Is usage made of public-private co-operation in achieving objective for nature and landscape? If so, how?
- What is main debate towards public services for landscape and nature?
- What is known about costs for enforcement?
- What linkages exist between CAP measures and other measures to achieve landscape and nature objectives?
- What research would you recommend for consideration in the study?

4.1 Approaches to link nature management and landscape in the CAP

Essentially, three approaches might be adopted to link nature management issues and landscape concerns in the CAP:

- Whole farm approach. A whole farm approach may include a comprehensive list of individual measures. Such a list might include a large number of measures. In England, some ESAs have adopted a whole farm approach. FWAG, for example tends to follow a whole farm approach in the advice they offer to farmers. Such whole farm approaches would be expensive to monitor, and transaction costs for implementation and enforcement might be substantial. Transaction costs tend to reach around a quarter of total operational costs, and public authorities put pressures to reduce them.
- Target specific farm practices. Most of the programmes include measures that target on specific farm practices (among others, including measures to reduce the use of agrochemical inputs, reduce stocking density, convert into organic farming, ensure the upkeep of abandoned farmland and set aside farmland for at least 20 years). The ma-

jority of the programmes rather address farming practices and promote farmers to join schemes by taking specific measures.

- Target on delivery of services and public goods (e.g. biodiversity and landscape values). Such output-targeted measures were tried in England during the late 1970s. By that time, farmers were paid in the Peak District National Park according to the quality and length of stonewalls, with payments also based on flowering of grassland areas, reflecting the diversity of flora. A main problem with such programmes remains the considerable field inspection involved and the high monitoring costs. The average of 5% field visits might be insufficient in meeting the requirements of such programmes.

4.2 Incentives from good farming practice

Good Agricultural Practices is generally recognised as the requirement under the RDR, defined at Member State or regional level, which forms the baseline above which agri-environment payments are made.

Article 28 under Section 9 of Regulation 1750/1999 - that implements Regulation 1257/1999 and sets the rules for measures including agri-environment and Less Favoured Areas - states that 'Usual good farming practice is the standard of farming which a reasonable farmer would follow in the region concerned'. Also, where a farmer enters into an agri-environment programme in relation to part of the farm, at least the standard of good farming practice shall be adhered to the whole of the farm. Good Farming Practice is used as a baseline for which no payments are provided. Agri-environment measures include compensatory payments or the provision of incentives for farmers taking measures, which go beyond Good Farming Practice.

Standards of Good Farming Practice are mainly adopted in the United Kingdom through measures to comply with Codes of Good Agricultural Practice on Water, Soil and Air. Verifiable standards include measures on storage of slurry and silage, disposing of sheep dip. In addition, the Rural Development Programme of England also has a Code of Good Agricultural Practice with verifiable standards regarding field boundaries and hedgerows. The removal or destruction of any hedges or stonewalls on the farm is not permitted except by special derogation and consent under the Hedgerow Regulations 1997. Also, trimming of hedgerows on the farm must not be carried out between March 1 and July 31. In England, the Good Farming Practice also has requirements to avoid vegetation damage by overgrazing and supplementary feeding of livestock. Enforcement will be through checks that are carried out during that period. The Code also has verifiable standards on designated Sites of Special Scientific Interest (SSSI). Farmers need to notify English Nature of any intended operations that are likely to damage statustorily designated SSSIs.

In contrast, nature conservation is not linked to Good Farming Practice in Denmark. The provision of payments under agri-environmental programmes is subject to good farming practice, and administrative checks are undertaken before applications on subsidies are approved. Also, the number of on the spot controls is increased for farmers. The high costs involved with monitoring and enforcement are important factors not to include nature conservation measures into Good Farming Practices. Good Farming Practice includes

verficable standards that are based on legislation regarding the use of fertilisers and manure, reporting on spraying of pesticides and on animal welfare. Such rules are verified through on the spot checks or administrative control. In addition, rules on the protection of watercourses are administered by the local communes.

The conceptualisation of GAP and to operationalise biodiversity objectives into GAP remains difficult since causal links need to be established between farming systems and farm management practices and species of flora and fauna, also considering site-specific natural conditions that do largely impact such interaction. Knickel et al. (2001) offer a conceptual overview of approaches to integrate nature protection in the context of GAP, emphasising the protection of ecosystems as being part of the definition of GAP, and the consideration of biotopes in managing the land for agricultural production. In Germany, Codes of Good Agricultural Practice are only formulated in the context of fertiliser legislation, soil conservation and legislation on the use of pesticides. So far, GAP is mainly formulated in agricultural terms and biodiversity and nature protection objectives are addressed to a limited extent only. Knickel et al. (2001) also recommend a better integration of biodiversity and agricultural objectives through agri-environmental measures and cross compliance. In doing so, proper links are required between policy objectives and legal requirements at national level with actual measures at local and regional level. Audits are proposed as a tool to achieve that. In addition, result-oriented approaches are considered to be advantageous vis-à-vis other approaches to change farming practices.

Germany in favour of a basic area premium

Germany is in favour of a basic area premium, or a holding premium, for all agricultural uses of the land, including pasture. A refocus on current area and animal premiums (direct payments) is considered to be an important step towards benefiting environmentally sound farming practices. The process of reforming the CAP should respond to external factors (e.g. negotiations on a new WTO Agreement on Agriculture), enlargement of the EU, and the implementation of the Convention on Biological Diversity), and internal reasons (e.g. problems on safety and confidence in the safety and quality of food and the societal demands to link environmental, landscape and other social services rendered by agriculture). In doing so, Germany is in favour to progressively reduce direct payments in the market area (first pillar of the CAP) (degression) and part of the released funds to be shifted to the second pillar) (Council of the European Union, 2002).

National flexibility

Following the reforms from June 2003, Member States shall define, either at national or regional level, minimum requirements for good agricultural and environmental practices. A framework for good agricultural and environmental conditions needs to be implemented, considering standards on soil erosion, soil organic matter, soil structure and minimum level of maintenance to ensure a minimum level of maintenance and avoid the deterioration of habitats (e.g. protection of permanent pasture, retention of landscape features and avoiding the encroachment of unwanted vegetation on agricultural land) (IEEP, 2003). Member States have a considerable degree of flexibility to develop farming standards that reflect the circumstances in that country. The inclusion of nature management and landscape requirements under the GAP has implications for the development of agri-environmental

programmes. In case a country would demand farmers to maintain landscape values as part of the Good Farming Practice, compensation for specific management of landscape features would become increasingly difficult.

4.3 Incentives from agri-environment programmes

Landscape and nature conservation measures in agri-environmental programmes
A number of Member States have put considerable emphasis on the adoption of agri-environmental programmes that include measures to the management of the countryside and the protection of landscapes and nature. The role of instruments to integrate environmental concerns into the CAP is well established in the UK, and there is wide recognition on jointness of production with the provision of public goods like landscape values and biodiversity features. Buller (2000) argues the UK is a policy leader in this field, with targeted programmes (e.g. Environmentally Sensitive Areas Scheme (ESA) that are built on areas of high nature values and the Countryside Stewardship Scheme as a horizontal measure, but still focusing on specific landscape elements. Also, he argues that Germany has similar preoccupations, but concerns in that country are more closely linked to the original objectives of the CAP, including maintaining farm incomes. In contrast, agri-environment measures are not seen as an instrument to support nature conservation interests in Denmark. In contrast, emphasis is given in that country to measures on the physical environment (nutrients and pesticides).

An important consideration will be to what extent agri-environmental policies in the context of the CAP support sustaining 'every day landscapes' or may also sustain special landscapes or management objectives. Special landscape values require separate policies for nature conservation and national parks. Agri-environmental policies are most suitable when farm management practices are linked to nature conservation interests or biodiversity. Therefore, policies for promoting the supply of public goods should preferably be linked to the public goods in question (Romstad, 2003). In the UK, for example, measures on rarity and an approach on the designation of SSSIs were adopted during a couple of years, and gradually moved into the establishment of management agreements. The importance of this trend is also reflected since 'agricultural birds' is a key indicator by DEFRA in their attempt to operationalise sustainability. It was chosen because it perceived as a good measure of sustainability in agriculture. Populations of farmland birds have nearly halved since the late 1970s, and modern farm management practices have contributed to the decline. The index of farmland birds stabilised since the mid 1990s (Countryside Agency, 2002).

There is some regional variation in the agri-environment programmes adopted in England. On the one hand, ESAs that focus on specific areas to tailor problems, and biodiversity, landscape features and cultural heritage are the key areas covering the ESAs in England. Programmes that address biodiversity issues have gained importance since the early 1990s. Although the programmes did not change largely in recent years, the schemes have become more sophisticated. The early ESAs, for example, were not clearly targeted. On the other hand the Countryside Stewardship Scheme was better targeted with a national set of measures.

The limited financial resources available for agri-environmental programmes could be a factor hampering their wide adoption. However, DEFRA considers participation rates to be in line with what was budgeted for during the past couple of years. However, it remains an issue of concern in the UK, where a shift of financial resources from the First Pillar into the Second Pillar of the CAP is preferred to speed up agricultural change and promote viability of the rural countryside. Farming of agricultural land is considered important of maintenance of landscapes.

Link precision of measures to compliance costs

Transaction costs of running agri-environmental programmes tend to be in the order of magnitude of 20-25% of total costs. Such costs also include farm visits by government officials, where farms are audited periodically. Farm audits are rather resource demanding and farmers undertaking their own audits might be an option in the years to come. Also, inspection of cross-compliance measures might be considerable. Farmers who undertake their own audit might be an option in the future. However, some of the problems of farmers doing their own audits relate to risk of errors, lack of consistency, failure to correctly identify habitats and features, etc.

Two-level scheme is proposed in England

England plans to introduce a two-level scheme of agri-environmental programmes, with a basic level that applies throughout the country (DEFRA, 2002a). A new entry-level scheme is foreseen to be available to all farmers and other land managers across England in 2005, and offering a flat rate payment per hectare. The definition of Good Agricultural and Environmental condition for the decoupled payments will provide the baseline, above which the entry-level payments will be made. The pilot scheme is being evaluated in 2003, and the detailed scheme will not be known until 2004. Such a scheme aims at meeting requirements regarding maintenance of hedgerows and small woodlands as well as biodiversity that require large areas of interconnected zones. The basic programme is not aimed at the preservation of landscapes in nature areas, but rather at 'biodiversity features' that are rather widespread throughout the country. The new entry level aims to attract the majority of the farms (e.g. 60% of the farms to be reached in a couple of years time), which is ambitious given current adoption at around 10%. However limited changes in farming practices might be required in meeting the criteria for eligibility of funding.

The two-level scheme includes a new 'broad and shallow' entry-level scheme and a revised 'narrow and deep' higher tier scheme that builds on the Environmentally Sensitive Areas scheme (ESAs) and the Countryside Stewardship Schemes. The current ESAs and CS schemes are to be combined and simplified, becoming the upper-tier of the two-tier scheme.

The scheme has options and management requirements for eligibility. DEFRA (2003) offers a summary of options for field boundaries, trees and woodland (for landscape and historic features, for wildlife habitat and stock management), options for historic and landscape features (to maintain historical features and designed landscapes), options for buffer strips (control of pollution and protect habitats), options for arable land and forage crop management, options to encourage diversity of crop type, for lowland grassland outside the LFA, for LFA land and management plan options.

To qualify for a flat-rate payment of about GBP 30 per ha, all entrants have to map the main environmental features of their farm and agree not to damage, deface or destroy them during the course of the agreement. It will run for five years, and is legally binding during that period. In addition, new entrants will have to select from a broad menu a package of simple management measures to apply across their holding.

Arguments given in favour of a two-tier approach:

- A widespread adoption of relatively simple measures could be beneficial for farmland birds, conservation of soils and protection of widespread biotopes.
- Measures that are tailored to local conditions are needed to maintain complex semi-natural habitats and unique landscapes.

The entry-level scheme links to the first pillar approach with decoupled payments that are meeting WTO requirements. Agreements are for a five-year period with payments that should remain fixed for the agreement period. In addition, it might guide the adoption of whole farm approaches to all the requirements and conditions that public policy put on place to the agricultural sector (DEFRA, 2002b).

Link measures with the income foregone

The introduction of agri-environment payments during the 1990s introduced measures in the CAP to compensate farmers for measures they take to protect the environment and management of the countryside and to provide direct payments. The compensation payments provided are based on the income foregone and the costs of compliance, also including a 20% add-on payment to promote participation. In practice, this is a considerable problem in a couple of countries (including Denmark and the Netherlands) since nature protection requires payments for the provision of public goods.

The Natural 2000 Network as a European ecological network to protect wild species and habitats of European significance is established by the 1992 Habitats Directive. Although the designation of zones is not completed yet, the existing and proposed sites represent some 18% of the territory of the EU (Markland et al., 2002). Very limited resources are available for the management of the Natura 2000 sites, and average figures on the annual costs of managing up to 2013 range between Euro 3.4 and 5.7 billion (Markland et al., 2002). Proposals are made by this working group to use part of the resources from CAP and Structural Funds to support Natura 2000. The Wilhjelm Committee also recommended to target agri-environment programmes for extensive farming of semi-natural areas, with particular focus to be given on Natura 2000 sites (Wilhjelm Committee, 2001).

Nature conservation plans as a tool to secure a degree of conservation

Nature conservation plans might be a tool to secure a minimum degree of compliance to nature conservation interests in agriculture and create a basic understanding by farmers on the public goods they sustain. The concept has been developed and implemented in a pilot project in Denmark, offering advice to farmers to develop such a plan (Tybirk et al., 2003). The establishment of such plans has also been recommended by a committee that has advised government in Denmark to recommend future biodiversity policies (Wilhjelm Committee, 2001). Also, in the Netherlands, a landscape ecology-based planning method has been developed, including a balance between on-farm and landscape levels of biodi-

versity conservation. Tybirk et al. (2003) judge the Danish system to be more pragmatic relative to the detailed system in the Netherlands. Also, it might be better adapted to a range of farming conditions.

Such nature conservation plan could be similar to the nutrient balance card that records the nutrient flows in agriculture and developed during the early 1990s as a tool to increase awareness in agriculture on the harmful impacts of excess nutrient flows. Due to the sense of urgency in the Netherlands, this tool was adopted widely in a rather short period of time, which was also accompanied by a range of additional instruments (e.g. advisory services) and policy measures (e.g. legal requirements).

4.4 Incentives from cross compliance measures

Cross compliance is an instrument for the enforcement of environmental legislation, and so is a policy instrument to seek coherence and complementarity between agricultural and environmental policy (the so-called 'integration' process). However, it is quite doubtful that could be considered as a mean to promote the provision of public goods. Cross compliance may include limited measures that farmers need to meet at their own costs. Cross compliance essentially tries to maintain status quo with limited measures that farmers consider being able meeting at their own costs. They are not meant to give positive signals to farmers, and rather aim to reverse farming practices that are harmful for the environment and nature. Detached requirements would be needed and 'compliance contracts' could then be more appropriate terminology for such direct payments (Romstad, 2003). The UK is one of the few Member States to attach environmental conditions (on overgrazing and supplementary feeding) to sheep and beef premia payments under Regulation 1259/1999. In the UK, however, there is scepticism on the use of cross-compliance. However, the treasury tends to favour the achievement of environmental and nature conservation goals through cross compliance measures. However, farmers nowadays are under serious economic pressures, and the fragile economic conditions are considered in formulating agricultural policies in maintaining viability of agriculture over time.

Denmark has introduced a system of cross compliance for direct payments of field crops and animals. Conditions for field crops included the provision of a plan for the cultivation and use of manure and fertiliser on the farm, as well as a buffer strip along rivers and lakes with a non-cultivated zone of 2 metres. Conditions for animal premiums are the account on the use of fertiliser and manure on the farm, nor using more fertilisers and manure than the specific quota for the farm. With the exception of the rules on buffer zones, the rules for cross compliance were already operational in environmental legislation for almost a decade.

Cross compliance measures were abolished in Denmark in 2002 due to political pressures, when a limited number of farmers faced a risk of losing considerable amounts of money, since the nutrient accounts were not submitted by them in time. Monitoring of cross compliance measures was undertaken by the communes, and they did the control in a different manner.

The experience gained from national initiatives might later on also be incorporated in measures under the CAP. In doing so, it might be part of farmers being eligible for direct

payments and part of the cross compliance system. However, the Birds and Habitats Directives will be implemented in cross-compliance from 2005 onwards.

4.5 Effects of integration of the environment into the CAP

The success of efforts to integrate environmental and nature conservation interests not only depends on the instruments chosen in the context of the CAP. Such instruments could complement regulatory approaches and benefits that are supplied or produced beyond what is legally required.

Environmental effects of Agenda 2000
Dwyer et al. (2002) offer an assessment of the environmental effects of Rural Development Programmes across a range of countries. In Germany, grassland management that is adapted to local conditions could stimulate the creation or maintenance of landscapes and grazed habitats. However, a decline of biodiversity might result from short crop rotations and the focus given to a limited number of cultivars, and the adaptation of landscapes that meets the requirements of machinery might induce a loss of habitats and landscape structures. In the UK, the area of more sustainable land management practices is foreseen to be increased through agri-environment and organic schemes. However, the limited funds available might have a risk of using rather simple measures rather than more integrated approaches with larger environmental benefits.

4.6 Modulation

Member States are offered the option to use part of direct payments to be moved into the second pillar (rural development programmes). Modulation in the UK: 3.5% in 2003 and 2004, which is to be increased to 4.5% in 2005/2006. Germany has abandoned modulation and so has France. The UK is the only Member State currently implementing modulation. Modulation will be compulsory from 2005 onwards. Direct payments for bigger farms (above 5,000 euro in a year) will be reduced by 3% (2005), 4% (2006) and 5% (from 2007 onwards to 2013), and the resources are used to finance additional rural development measures. One percentage point will remain in the Member States where the money is raised, and the remaining percentage points will be allocated according to agricultural area, employment and GDP per capita in purchasing power. Every Member State will receive at least 80% of its modulation funds in return.

4.7 Co-operative approaches to improve nature conservation and landscape values

The promotion of green services creates a market for this type of services, and actors might be involved that were not considered before (e.g. tourist organisations and water supply companies). Germany has a large number of co-operative approaches, with water suppliers working together with farmers to control agriculture-related water pollution problems, es-

pecially in water protection zones. Such programmes are established on a voluntary basis between farmers and water suppliers, with the water supplier playing an important role either in the negotiation process and/or in the provision of financial resources. The programmes are targeted to specific areas (e.g. water catchment area or groundwater protection zones) (Heinz et al., 2002). The provision of funding of such agreements can be supplied directly by the water supplier, or through government authorities that is either responsible for water abstraction charges agri-environment payments. Osterburg and Stratmann (2002) argue that compensatory payments in such water protection zones might be lower than the case of voluntary measures (e.g. agri-environmental programmes). A main argument being the linkages established with regulatory requirements and the need to meet legal requirements from the area.

In Denmark, the suppliers of drinking water have collected considerable financial resources to promote measures that are designed for the protection of groundwater resources and are similar to agri-environmental programmes under the CAP. The European Commission needs to be notified of such support as it is interpreted as state support. It eventually may result into programmes that compete with the land available, with different payments. Water supplier may develop agri-environment type of programmes to protect groundwater resources in designated zones and compensatory payments may exceed the amount offered from CAP measures.

Private sector initiatives have also been established through the agrifood chain, and a premium on milk is offered in parts of the UK to farmers implementing a conservation plan (initiative 'white and wild'). Supermarkets have taken more responsibility to promote changes in farming practices.

4.8 Summary and concluding remarks

There are no EU wide evaluation studies on the environmental value for money from the different programmes under the CAP (e.g. agri-environment programmes). At Member State level, few studies are available until the mid term evaluation of the Rural Development Programmes is available, and even then they might have limited information on impact on the environment. This is an increasingly important area for research, both in terms of Pillar 1 and Pillar 2. Also, we do not know what the structural effects of decoupled pillar 1 payments will be, nor in what economic climate agri-environment schemes will operate in the future - nor how attractive they will be when farmers have much more ability to react to market signals and a single farm payments is introduced.

A summary is provided on the experience gained from Denmark, Germany and the UK (mainly England) to consider nature and biodiversity concerns in reforming the CAP. Table 4.1 summarises the key approaches adopted in these countries to integrate nature and landscape into the CAP. Member States have a considerable flexibility in the kind of programmes they establish, either through agri-environment programmes ('narrow and deep' versus 'broad and shallow'), the adoption of cross compliance (which only become compulsory as of 2005) and modulation. In addition, different perspectives are observed regarding the link between Pillar 1 and Pillar 2.

Transaction costs for implementation, monitoring and enforcement of targeted measures (e.g. in cross compliance and agri-environment programmes) tend to be high. Periodic farm audits are needed to control. Electronic on the spot tools might help in the future, combined with training of farmers and the provision of demonstration projects. This might increase the ability of farmers to manage the implementation of measures themselves. Transaction costs tend to decrease over time because of the learning effects from farmers who join. In addition, transaction costs might decrease in relative terms with the increasing participation rates.

Table 4.1 Approaches and measures to integrate nature and landscape into the CAP

Feature	Netherlands	Denmark	Germany	England
Incentives from agri-environmental programmes	'Narrow and deep' to conserve valuable vegetation and bird populations	Not, because the agri-environmental programmes aim to reduce leaching of nitrate to ground and surface waters	'Broad and shallow', with 20% of the total budget for measures to protect nature. Programmes give emphasis towards extensification of production, with major differences between regions	Important, with proposed two-tier system with a flat-rate and basic payment and simple eligibility conditions
Perspective on Pillar 1 and Pillar 2	Reform of CAP is important to contribute to improve quality and health standards in agriculture	Resources become scare in Pillar 1 and options are explored to assign measures that are easy to be fulfilled		The budget for Pillar 2 needs to be enlarged
Cross compliance	Yes, but for the control of pesticide use in maize only	Abolished in 2002 for political reasons	Not adopted, emphasis is given to the formulation of Codes of Good Agricultural Practice (nutrients and pesticides)	One of the few countries to attach environmental conditions (on overgrazing and supplementary feeding) to sheep and beef premia payment under Regulation 1259/99
Modulation	No	No	No	3.5%, and to rise to 4.5% in 2006
Change farming practice through co-operation with water suppliers	Yes, in groundwater protection zones, mainly through payment-by-result programmes	Limited, but some water suppliers promote farmers to join agri-environmental programmes under Regulation 1257/1999	Widespread occurrence in specific States. Important factors are the preference of water consumers for high quality drinking water, the availability of funds and the demand to maintain a high quality of water and voluntarily agree to prevent water pollution	Rarely used since water suppliers are heavily regulated and not in the position to pass on the cost of such agreements to the consumers.
General focus on nature and landscape in CAP reform	Agri-environment measures mainly address nature and landscape	Agri-environment is not seen as an instrument for the protection of nature, and RDP programmes put emphasis on the protection of the physical environment	Agri-environment measures mainly to extensify production, control use of chemical inputs and reduce stocking density	Priorities given to integrating the environment into Pillar 1, improving and strengthening Pillar 2

5. Conclusions

The integration of nature management and landscape in agricultural practices are important considerations in reforming the CAP. Three main and general conclusions derive from the analysis:

1. Cross compliance is an instrument to reinforce the enforcement of legislative standards related to environment, nature and landscape. It is a basis to express social responsibility of the agricultural sector that provides food and has a supplementary role to manage the rural countryside. Cross compliance is part of the process to integrate environmental and nature concerns in the CAP, but essentially meant to maintain the status quo and not meant to promote the provision of public goods. Being part of the first pillar of the CAP, it implies direct payments might be withdrawn in part when farmers do not respect the requirements. Of the 18 pieces of legislation, five are environmental and will be applicable from 1 January 2005, including the Birds and Habitats Directives. Rather than giving positive signals to farmers, cross compliance is an instrument suitable to reverse farming practices that are harmful for the environment and nature. In doing so, it could provide a tool for the management of nature and biodiversity values that are commonly available and provided by a wide range of farming practices. The legislative basis for cross-compliance, including standards to respect the Birds and Habitats Directives, remain Member States to develop programmes to compensate farmers for measures beyond legal requirements. Article 16 of the RDR as amended by the September 29, 2003 text specifically allows such compensation. However, in case cross-compliance demand farmers to maintain basic landscape features, there would be limited opportunities to take specific measures on landscape values (e.g. management programmes for pollard willow). Requirements that are part of the First Pillar therefore also influence the programmes under Pillar Two. Putting higher standards in cross compliance will reduce opportunities to develop agri-environmental programmes that compensate farmers for measures they take.
2. Agri-environmental measures that are part of the Rural Development Programmes require measures that are beyond what is legally required, and compensatory payments could be provided for the income foregone of farmers adopting such programmes. Such measures are beyond what is required in the Member States definition of Good Farming Practice, which itself can go beyond the legal minimum as it does in the United Kingdom. In case standards that change over time (with stricter rules that farmers need to meet at own costs), the programmes will have stricter rules as well. Nature management programmes that require farmers to respect the legal requirements from the Birds and Habitats Directives (as part of cross compliance from 2005 onwards) offer a basis for the identification of measures beyond the minimum standards. In contrast, cross compliance measures that require farmers to maintain

landscape features offer limited possibilities to compensate farmers for specific management programmes.

3. Public-private partnerships may strengthen the integration of environmental, nature and landscapes issues in the CAP. A market needs to be developed to link the supplier of beneficiaries (the farmer supplying open landscapes or improve nature values) needs to reach agreement with the parties interested in such features (e.g. tourist organisations, nature conservation organisations or water suppliers). The experience based on the co-operation between water suppliers and farmers to control agriculture-related water pollution problems is important also to consider such co-operation as a model to extend partnerships that promote changes in farming practices. Such an approach could allow for co-funding of CAP measures by the parties involved, mobilisation of skills and sharing the experience from parties outside the agricultural domain and improve the public acceptance of changes in farming practices.

The analysis undertaken in the research offers three recommendations to strengthen the nature management and landscape aspects of agriculture in the context of reforming the CAP.

1. Introduce a two-tier system in the agri-environment programmes and aim for a larger participation with a broad and shallow entry-level scheme with a flat rate payment per hectare with relatively simple measures that could protect widespread biotopes. Such a programme could build on the experience gained in the UK. The UK has faced pressure to move away from the original approach to focus on biodiversity and increasingly to address landscape ecological features. The entry-level scheme, for example, is aimed to link to the payment scheme under the second pillar that is decoupled from production. Part of the pressure for an entry-level scheme with a high uptake in the UK is partly due to political pressure, not just environmental drivers. Having taken modulation money away from all farmers there is strong political pressure to 'return it' to as many farmers as possible through an entry level scheme. It could be the basis to introduce decoupled payments under the first pillar that also meets WTO requirements, and maintain the Green Box. In parallel it could also guide the implementation of whole farm approaches to the requirements and support that public policies aim for. The financial resources from CAP might be too limited in the years to establish such programmes on a large basis in the Netherlands. The budgets are based on political agreements made for a certain period. The available budgets for agri-environment programmes, for example, might limit the measures offered in such programmes. The financial perspectives are agreed for the period until 2006. For 2006-2013 the overall expenditures on market intervention and direct payments are to be kept below 2006 figure in real terms.
2. Improve communication of nature and landscape measures taken by farmers in the context of the CAP. This will strengthen the societal acceptance of support offered to farmers. The proper provision of public goods (e.g. biodiversity values, landscape features and environmental profiles) requires the involvement of actors outside the public domain. NGOs are involved in the UK in designing agri-environment pro-

grammes, and courses are organised for farmers on adequate measures to protect birds and maintain landscape values. NGOs may contribute to such courses. Nature conservation plans might be a proper tool to strengthen conservation measures and create a basis to communicate the provision of public goods to the broader public.

3. Involve actors outside the agricultural domain in the reform of the CAP. The CAP is promoting agriculture to respond to changes in public demand, and part of agriculture increasingly provides public goods in addition to food and fibre (e.g. quality products and other activities at the farm). The second pillar of the CAP promotes the transformation of agriculture into sustainable farming practices, and similar incentives are given by other actors in society. This might build on the experience gained from a couple of countries (e.g. Germany, the Netherlands, France and Denmark) on co-operation between water suppliers and farmers. Such co-operative approach on a voluntary basis that aims to change farming practices offers a way to strengthen the effectiveness of European water policy. Incentives are given by the water suppliers through the provision of compensatory payments for measures in agriculture that protect water resources. Such incentives are similar to agri-environmental programmes as part of the CAP. Although there is a risk of competition between programmes, it might be a model for reforming the CAP and promoting sustainable farming practices. Similarly, different groups with an interest into nature management and strengthening biodiversity in the rural countryside (e.g. agrotourism) might be prepared to organise the provision of compensatory payments that are similar to agri-environment programmes. The involvement of such groups in reforming the CAP might then strengthen the CAP in the longer run.

Perspectives on the integration of nature and landscape in agriculture

A feature of European agriculture is the search for farm diversification and the adoption of sustainable farming practices that respond to public demands. In doing so, the provision of public goods (environmental quality, nature and landscape values) has gained importance during the past decade. CAP has responded to that through the provision of measures that integrate environmental concerns in agricultural practices. Advisory systems are vital to guide change in the agricultural sector, and many farmers might lack knowledge on the importance of nature protection in farming practice.

The need to better reflect public demand (including nature management and landscape) into agriculture has been a main argument in favour of the Mid-Term Review and the decisions to reform the CAP, adopted by the Council of Ministers of Agriculture in June 2003. Production methods should be promoted that support environmental quality, quality products and societal demands. This trend will likely continue in the years to come. One of the arguments is the need to justify the provision of services that farmers provide to society in the context of the CAP. Intervention prices for a range of products will be reduced (e.g. mainly milk) and a single farm payment is introduced to replace existing premia. This single farm payment will be based on an amount received during the reference period 2000 to 2002. Decoupled payments might be more transparent, but biodiversity is not necessarily promoted. Payments might be given for farmers leaving part of the land abandoned. There will be an incentive to farm only to the minimum required by good agricultural and environmental conditions in some marginal areas, but they will still

have to maintain minimal agricultural activity. It is possible some land will be abandoned - but if the farmers do not meet good agricultural and environmental conditions they will not receive decoupled payments.

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