



A Research Paper of the Cross Compliance Network

The Responsiveness of Cross Compliance Standards to Environmental Pressures

Deliverable 12

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About the Cross Compliance Network

The Cross Compliance Network aims to develop our understanding of environmental cross compliance. A consortium of nine universities and research institutions from a range of EU Member States is consolidating research to date, undertaking new original research, identifying future research needs and fostering a network of cross compliance stakeholders.

The Cross Compliance Network is co-ordinated by the Institute for European Environmental Policy (IEEP) and consists of the following partner institutions:

Agricultural University of Athens (AUA), Greece
Applications des Sciences de l'Actions (AScA), France
CLM Research and Advice plc. (CLM), Netherlands
Federal Agricultural Research Centre (FAL), Germany
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Table of contents

1	INTRODUCTION	4
2	METHODOLOGY	4
3	RELEVANCE OF CROSS COMPLIANCE STANDARDS TO ENVIRONMENTAL PRESSURES EXERTED BY AGRICULTURE	6
3.1	Natura 2000 network	6
3.2	Nitrate vulnerable zones (NVZs)	8
3.3	Good Agricultural and Environmental Condition	10
4	THE TRANSLATION OF CROSS COMPLIANCE STANDARDS INTO CLEARLY SPECIFIED REQUIREMENTS FOR FARMERS.....	15
5	CONCLUDING REMARKS	16
6	REFERENCES	19
7	APPENDIX.....	22

1 INTRODUCTION

Farming has contributed over the years to creating and maintaining a large number of valuable semi-natural habitats. Today these habitats characterise an important part of the EU's landscapes and are home to many wildlife species. Farming also supports a diverse rural community that is not only a fundamental asset of European culture, but also plays an important role in preserving the environment and safeguarding the countryside. At the same time, farming has a direct impact on a wide range of environmental concerns (species in danger of extinction, natural resource pollution etc). Profound transformations, partly induced by the Common Agricultural Policy (CAP), have taken place in agricultural practices in Europe over the last fifty years. Mechanisation and intensification, increased use of fertilisers and pesticides, irrational use of natural resources, urbanization and abandonment of agricultural land have had a negative impact on the state of the environment. The growing awareness of the effects of agriculture on nature has brought about a new aspect to the CAP.

In 2003, after a mid-term review of the 1999 'Agenda 2000' reforms, the EU adopted a fundamental reform of the CAP, which sought to integrate to a greater extent the environmental concerns, with new or amended measures to promote the protection of the farmed environment. Responding to societal demands, the new CAP aims at maintaining a right balance between competitive agricultural production and the respect of nature and the environment. First Pillar subsidies to farmers i.e. subventions under Common Market Organisations, were to become "decoupled" from the volume of production and/or the area cultivated or animals raised and at the same time linked to the respect of environmental, food safety and animal welfare standards. The latter is known as "*cross compliance*", and constitutes a key instrument for integrating major environmental concerns into the CAP.

In order to achieve cross-compliance and to avoid any reduction in the total level of direct aid received, the farmer must abide by 19 Statutory Management Requirements (SMRs) and a number of standards aiming to ensure the "good agricultural and environmental condition" (GAEC) of agricultural land. The SMRs are based on pre-existing EU Directives and Regulations, whereas GAEC is a new requirement and consists of a total of 11 standards relating to the protection of soils and the maintenance of habitats (see Table A of the Appendix).

Our aim in this paper is to examine the degree to which national or regional cross compliance obligations, as set by the competent administrations of certain Member States, could be thought of as responses to existing environmental concerns that exist at the interface between agriculture and environment. Furthermore we attempt to see whether these measures are meaningful to, and hence applied by farmers.

2 METHODOLOGY

The extended list of Statutory Management Requirements deriving from the Directives and Regulations specified in Annex III of Reg. 1782/03 includes environmental, public animal and plant health as well as animal welfare. Our focus will be on the standards derived from the environmental directives as well as the GAEC issues. More specifically, three¹ of the environmental Directives are

scrutinised in terms of the pressures exerted to the environment and the measures taken within the cross-compliance scheme: (a) Dir. 91/676/EEC on the protection of waters against pollution caused by nitrates from agricultural sources, (b) Dir. 79/409/EEC on the conservation of wild birds and (c) Dir. 92/43/EEC on the conservation of natural habitats and of wild flora and fauna. The selection of these Directives is – apart from their obvious importance to the environment – due to the fact that they have been implemented for a reasonably long time and also due to the widespread character of their implementation (or non – implementation, which led the European Commission to take legal action against many member states).¹ These Directives have a common denominator. All of them provide for the delineation of areas: those, under Dir. 91/676/EEC, facing nitrate pollution problems caused by agriculture, called NVZs (Nitrate Vulnerable Zones), and special protection areas and sites of community importance under Dir. 79/409 /EEC and 92/43/EEC. The last two Directives jointly constitute the legal basis for the formation of a network of sites called Natura 2000. Member States, apart from designating areas, were supposed to draft special plans for each area: (a) Local Action Plans in the case of NVZs, and (b) Environmental Management Plans in the case of Natura 2000 sites. As far as the GAECs are concerned, the specific issues and standards selected by Member States reflect, or should reflect, the priorities set by social partners and the competent administrative authorities.

Members of the cross compliance network were asked to provide their expert opinion on the two key issues, by responding to a questionnaire. Respondents were primarily asked to identify, based on existing literature and expert contacts, the main environmental problems caused by agricultural activities focusing on the two specific types of areas related to the two EU Directives i.e. Natura 2000 sites and NVZs. As a second step, members of the cross compliance network were asked to identify the specific cross compliance measures addressing each of the agri-environmental issues raised within the types of area in question (Natura 2000, NVZs). In the case of the GAEC standards, the connection between the cross compliance measures and concrete environmental issues was explored.

Questions about the clarity of cross compliance rules to farmers were also directed to network partners, who commented based on their expertise and experience gained during the implementation in their respective countries.

In order to classify the agri-environmental pressures reported we used a more analytical version of the classification scheme proposed by Frank Fay in his report to the Commission². Hence, as shown in Table 1 below, the agricultural pressures identified by Member States were categorised into three major categories i.e. natural resources, biodiversity and landscape and their respective subcategories.

² http://ec.europa.eu/agriculture/envir/report/en/2078_en/report.htm, last accessed 21/6/2006

Table 1. Scheme used for classification purposes of agricultural pressures identified

Natural resources	Biodiversity	Landscape
Water <ul style="list-style-type: none"> ▪ Water quality (pollution, contamination etc.) ▪ Water management (exhaustion, salinisation etc.) 	Genetic	Linear features
Air	Species	Non linear landscape elements
Soil <ul style="list-style-type: none"> ▪ Soil structure ▪ Soil erosion ▪ Soil fertility 	Habitats	Historical landscape elements

After Frank Fay, 1999

Classifying pressures according to the above mentioned scheme of environmental issues, the arrangement presented in Table B of the Appendix could be suggested.

3 RELEVANCE OF CROSS COMPLIANCE STANDARDS TO ENVIRONMENTAL PRESSURES EXERTED BY AGRICULTURE

3.1 Natura 2000 network

Natura 2000 is a network of areas selected and protected for their high nature conservation value. Any human activity there should be carried out in a sustainable manner. The network represents the cornerstone of European Union's policy for the conservation of biodiversity, and the protection of the environment in general. All EU Member States have taken concrete action towards the management of the Natura 2000 network sites. Different approaches have been adopted by the Member States depending on the size of the country, national legislation, administrative organisation and natural environment.

Land use changes seem to be an important threat in Germany and Czech Republic where reclamation and tillage of watercourse plateaus, cultivation of wetlands and conversion of grassland into arable land seem to be significant pressures to habitats. In Greece the increase of cultivated land, especially in delta areas, results in loss of habitat area.

When examining land management practices, intensity of farming systems could be considered a useful concept. Represented as a continuum starting from highly intensive systems (like large scale hors sols livestock production and vegetable greenhouses) to simple extensive systems (like free range cattle and non-irrigated olive groves), this concept can serve as a basis for analytical purposes. Thus one can see that the specialisation of crop production, as a 'par excellence' intensive farming practice, is seriously undermining species diversification and causes habitat loss, while at the same time the shift from spring to autumn grown cereals in England presents a threat to certain bird species (loss of habitat area). Higher amounts of

inputs (over fertilisation, excessive use of pesticides) present a predicament for England, Greece, France, in certain German regions and the Czech Republic. In the case of Greece, over extraction of water is observed in areas close to coasts, causing salinisation. Furthermore, irrational use of water resources for intensive crop production leads to over extraction and thus degradation of wetlands in Greece as well as in England. At the same time, in the case of Denmark and England, over extraction leads to the alteration of water levels.

Intensive agricultural production systems further contribute to the degradation of water quality in Natura 2000 sites, through eluviations/leaching of excessive nitrogen and phosphorus spreading through surface water runoff. This results in the eutrophication of surface waters and has an impact on the aquatic environment, as in the case of Denmark.

At the same time, in intensive systems in Denmark, volatile compounds like ammonium created either by evaporation from animal husbandry, by manure and/or fertiliser dispersion are spread through the air and disposed of in the soil thus causing a change in vegetation composition from low N nutrient depended species to high N nutrient dependent species.

Landscape alteration is also a key pressure in habitats due mainly to intensification of agricultural activities. England, Czech Republic and Lithuania reported degradation or loss of characteristic landscape features such as hedges or field margin vegetation, which result in destruction of the diverse landscape structure.

Shifting the attention towards the other end of the intensification – extensification continuum, one can observe that intensification of farming is not the only factor causing problems to the environment. Land abandonment and/or the ceasing of agricultural activities constitute a threat to many Natura 2000 sites. A decline in the number of bird species can be observed in Natura 2000 areas as a result of the abandonment of certain marginal sites through the cessation of traditional practices, such as cultivation of traditional crops (Germany). The same effect (loss of species) can be observed when Natura 2000 areas face abandonment with subsequent encroachment of unwanted species – both weeds and conifers (France, England). In France especially these pressures can be associated with previously extensive livestock systems, where Natura 2000 areas were used for animal grazing. In the case of England, the decline in farmland species has been much steeper than for species found in other habitats.

The subject of grazing and its management poses an important pressure in Natura 2000 sites in some Member States. This is interesting because the same practice (overgrazing) results in different environmental impacts depending on the setting. In some areas the main impacts of an excessively high animal stocking density could be the loss of biodiversity and/or the pollution of aquifers due to manure leaching. On the other hand, in areas with steep slopes it seems that although biodiversity loss is a matter of importance, soil erosion is the main source of concern. Thus in England, overgrazing is responsible for the unfavourable condition of almost one third of the total number of sites, especially on commons. The latter is also a major problem in Greece, where over 70% of the country's grazing areas are communal and 35% of the land is under threat of erosion.

A similar differentiation can be made for areas that fall into neglect i.e. the environmental pressure of undergrazing. In some areas of the Czech Republic it

results in loss of species richness, while in some areas of Greece it can result in excessive biomass creation and increased risk of fire and the resulting consequences such as erosion, habitat loss and loss of species richness.

Invasive plants can also be considered as a potential threat to the biodiversity of Natura 2000 areas. The cultivation of untested energy plants and genetically modified organisms (GMOs) in the vicinity of delicately balanced ecosystems could exert such a threat.

3.2 Nitrate vulnerable zones (NVZs)

The case of nitrate vulnerable zones is, in a way, more clear in terms of pressures, since the underlying Directive was focused on one type of water pollution. Most of the production systems involved tend to be intensive. The analysis of the questionnaires illustrates clearly that agricultural activities exert intense pressure on natural resources. More specifically, increased pressures are exerted on soil and water via manure and slurry application and excessive use of nitrate fertilisers. For example, 70% of all nitrogen loads in water in the UK originates from agriculture. The same situation appears in Germany where, according to the National Report, 75% of the N-pollution is caused by agricultural activities and 65% of it ends up into the groundwater.

The sources of the N-surpluses are mainly intensive livestock and crop systems. In some countries (Germany, Czech Republic and Denmark) livestock activity, especially in areas with high density, plays the most significant role. On the contrary in Greece the effluents from livestock facilities constitute a limited and point source pollution. The key contributor is the overuse of artificial fertilisers in arable crops (e.g. durum wheat and cotton) and citrus plantations. In other Member States (France, England) the source of N-pollution varies between different areas and depends on the structure of the primary sector. For example, in livestock dominated regions of England (southwest and uplands areas) there is an intense pressure from manure and slurry. On the other hand, in arable dominated regions (mainly Eastern England) the problem lies with the over-fertilisation of inorganic fertilisers.

The leaching of nitrate into the ground and surface flow of phosphorous result in low N-efficiency in the soil and pollution of both groundwater and watercourses. This has a range of impacts in the quality of the water since it alters the nutrient balance of inland waters rendering them unsuitable for human consumption. For example in the Greek NVZs of Argolida and Thessaly there are areas which suffer, specifically during the summer period, from intense lack of drinking water due to its high load of Nitrates. Drinking water quality problems are also reported in England. Furthermore it increases the level of algae and limits the amount of dissolved oxygen, leading, through the phenomenon of eutrophication, to a decrease in the number of aquatic plant and animal species. Eutrophication as a particularly important ecological disturbance is mentioned in Denmark and England.

The above pressures become more severe because of the irrigation methods used and the policy for the management of aquatic resources. Even if irrigation does not constitute the main source of nitrate pollution, excessive use of water, the application of inappropriate irrigation techniques and the irrational use of water reserves intensify the problem. This speeds up the process of N leaching, lowers the amount of underground water resources permitting the entrance of salty waters – the case of

many Greek regions – and at the same time causes soil erosion problems, which in turn affect water courses through N and P pollution. France only, among all the Member States covered by this study, has established GAEC addressing directly the issue of excessive and irrational use of water resources. On the other hand, in Greece, cross compliance legislation treats this specific pressure only as a secondary issue. The fertilisation protocols defined by local action plans suggest the use of the most appropriate irrigation technique depending on soil type and crop.

Table 2. Direct and indirect agricultural pressures in Nitrate Vulnerable Zones classified by production system (livestock, crop).

	Livestock	Crop
Direct	<ul style="list-style-type: none"> ▪ Manure slurry application on soil ▪ Manure slurry application near aquifers ▪ Manure – slurry application on flooded or frozen soil 	<ul style="list-style-type: none"> ▪ Use of inorganic fertilizers ▪ Fertilizer application near aquifers ▪ Fertilizer application on flooded or frozen soil
Indirect	<ul style="list-style-type: none"> ▪ Overgrazing 	<ul style="list-style-type: none"> ▪ Excessive irrigation ▪ Inappropriate irrigation techniques ▪ Inappropriate soil management techniques

Although the measures within the cross compliance legislation that are employed to deal with the aforementioned pressure vary between countries and regions, their common base is the existence of nutrient management protocols determining maximum limits in the application of manure and inorganic fertilisers. These limits are obtained from the pertinent action plans that are the main tools to mitigate nitrate pollution. Action plans are autonomous programs in most Member States, put in place long before the establishment of cross compliance. Nevertheless, the association between cross compliance and direct payments strengthens farmers’ “*motivation*” to comply with measures defined in action plans. Otherwise, this will lead to financial sanctions, through the reduction of the Single Payment.

As far as nitrate leaching is concerned, the general rule in Greece, Germany, England, Denmark and France dictates the application of livestock manure that contains up to 170 Kg or N per ha. Of course there are divergences from the above general rule. These derogations are related to the particularities of the action plans and to the general nitrate policy of each Member State. More specifically in Germany there is an exemption from the nitrates Directive that permitted the application of farmyard manure on grasslands containing up to 210 Kg N per ha. From 2006 there is a new fertiliser ordinance that partially results in new cross compliance standards. The maximum limit of N per ha contained in farmyard manure is now set at 170 kg N per ha. However, Germany is seeking a derogation from the Commission to permit application of up to 230 kg N per ha on grassland under certain conditions.

In Denmark there is also a livestock oriented approach. Given the fact that the most severe pressure is exerted by livestock farming, the majority of cross compliance measures are focused on manure (solid and liquid) storage techniques, organisation of housing and manure spreading methods. The overall objective is to achieve at farm

level a balance between nitrogen supply and demand. Therefore, the use of nitrogen from manure must not exceed the farm nitrogen quota.

In contrast to livestock production, nitrogen fertilisation for crop production is regulated by more elaborate schemes. For example, local action plans in Greece provide a detailed management plan based on crop and soil classification as well as the irrigation method employed, maximum limits of N units per category are introduced. In case where local action plans are not yet ratified, maximum limits for N application are set for each specific crop in each NVZ.

Another set of measures has been established in a horizontal form, applying to all areas and aiming to prevent the direct entry of nitrates into water. In Greece, Denmark and Germany farmers are obliged to avoid the application of manure and/or artificial fertilisers in specific areas during certain periods. For example near watercourses and lakes a safety distance should be kept especially in areas with high slopes. The application of manure and artificial fertilisers is also prohibited on flooded or frozen ground.

Inappropriate soil management causes also soil erosion and further aggravates water pollution problems. In order to mitigate these problems, Member States have established the following measures:

- Minimum land cover - especially during the winter and rainfall periods - and application of crop rotation schemes.
- Contour tillage in areas with a slope over a certain threshold.
- Ban on the destruction of terraces as well as stonewalls and other landscape features.
- Protection of permanent pastures. Maintenance of permanent pastures at present level, prohibition of ploughing of grasslands and measures against overgrazing.

Apart from combating soil erosion and consequently avoiding water pollution, these measures (crop rotation, minimum land cover, grazing management) also have a positive impact on biodiversity (especially agricultural) as well as on the landscape (protection of terraces, stonewalls etc), although this may not have been part of the initial scope.

3.3 Good Agricultural and Environmental Condition

Good Agricultural and Environmental Condition (GAEC) sets a framework of standards in addition to Statutory Management Requirements. These standards are designed to provide Member States with a general framework of environmentally sustainable agricultural practices and focus on soil and the minimum maintenance of agro-ecosystems.

According to Reg. 1782/2003 farmers who receive direct payments are obliged to maintain their land in good agricultural and environmental condition. However, it is the responsibility of the Member State to define and inform farmers what exactly is meant by the term “good agricultural and environmental condition”. It is our understanding that each Member State has the flexibility to choose among the issues and standards of Annex IV of Reg. 1782/2003 that best respond to its own

environmental pressures and translate them to specific cross compliance legislative measures³. In other words Annex IV serves as a “*compass*” that Member States need to use during the development of regional or national sets of GAEC standards.

The issues listed in Annex IV define a broad domain within which certain standards are proposed, leaving Member States with some flexibility to select and implement the most appropriate standards in order to address their environmental priorities. In terms of the specific environmental issues covered, the prevailing orientation towards soil management is obvious since three out of four issues, soil erosion, soil organic matter and soil structure, refer to soil protection. Finally, considering the spatial targeting of Annex IV, it seems that there may be a geographic focus on marginal or prospective marginal areas. These areas are, or may become marginal, because under the new decoupled payments the agricultural utilisation of land may not be a competitive option considering the input and labour costs. This possibility of land marginalisation should be avoided, according to policy makers, and hence almost half of the Annex IV GAEC standards aim – apart from protecting the environment – to discourage farmers from receiving decoupled payments without practicing a minimum level of agricultural activity.

The Czech Republic and Lithuania, along with the eight other new Member States that joined the EU in 2004, do not have an obligation to apply the cross compliance legislation before 2009. On the other hand the transposition of the nitrates Directive into national law has led to the establishment of action plans as the main tool for tackling nitrate pollution. Thus, even if the main pressures exerted by agricultural activities are similar to those of the other countries (high N inputs, soil erosion), cross compliance has yet to be fully implemented. Currently both countries have established some GAEC standards, but no SMR measures. These standards address issues like manure spreading methods, soil erosion, permanent pasture protection and landscape protection.

The majority of the EU-15 Member States covered by this study have established cross compliance standards that cover all the issues of Annex IV. The exceptions are Denmark that has no standard for the soil organic matter and soil structure, with the latter also true for France. This makes sense, since, as it was mentioned before, the Annex IV GAEC issues can be handled with a more flexible approach than specific standards, which are more specialised and decisions about their implementation depend on local conditions. Therefore Member States prefer to use the concept of an Annex IV ‘issue’ as the base for establishing GAEC measures. As shown in Table 3, the Member States that cover most of the Annex IV standards are Greece and Germany. In Greece, this occurred due to the complicated structure of the primary sector and the introduction of decoupling at 100%. Decoupling played a key role in this decision, as it generated fears of the massive abandonment of agricultural land and the decrease of agricultural production. The main idea seemed to be to try and achieve a minimum level of plant cover on these areas and at the same time prevent the encroachment of scrubs, weeds and other unwanted vegetation. In Denmark for

³ For more detailed information about the design of cross compliance refer to the background paper (Deliverable 15) for the Cross Compliance Seminar, Paris, July 3rd 2006

example, set aside land should be kept in good agricultural condition and ready for use again if so is needed.

Table 3. GAEC measures per issue and standard in Member States

Issue	Standard	Germany	England (UK)	Greece	Denmark	France	Czech Republic	Lithuania
Soil erosion	Minimum soil cover	✓	✓	✓	✓			✓
	Minimum land management	✓	✓	✓	✓	✓	✓	✓
	Retain terraces	✓		✓			✓	
Soil organic matter	Crop rotation	✓	✓	✓		✓		
	Arable stubble management	✓	✓	✓		✓		
Soil structure	Machinery use	✓	✓	✓				
Minimum level of maintenance	Appropriate grazing regimes/Stocking rates		✓	✓				
	Permanent Pastures	✓	✓	✓	✓		✓	✓
	Landscape features	✓	✓	✓			✓	
	Unwanted vegetation	✓	✓	✓	✓	✓		✓
	Olive groves					✓		

Some other soil protection GAEC standards used by the majority of the Member States examined are the following:

- Burning of stubbles and other crop residuals is prohibited. Instead, they should be incorporated into the ground or grazed by livestock.
- Crop rotation pattern achieved by yearly cultivation of at least three crops on arable land (Germany, England) or suitable break crops (England, Greece).
- Areas with high slope should have plant cover during the winter period, or should be ploughed following the contours (Greece), or should not be sown with wide-row crops (Czech Republic).

Although soil oriented, it is obvious that GAEC standards can provide multiple benefits to the environment, as can be seen in Table 4.

Table 4. Multiple environmental benefits attributed to GAEC measures

Specific practice promoted through GAEC	Main objective targeted	Other benefits achieved
Burning of stubbles and other crop residuals is prohibited. Instead, they should be incorporated into the ground or grazed by livestock	Organic matter protection	Soil fertility
Crop rotation pattern achieved by yearly cultivation of at least three crops on arable land or suitable break crops	Organic matter protection	Soil fertility, Biodiversity, Landscape enhancement
Areas with steep slope should have plant cover during the winter period, or should be ploughed following the contours (Greece), or should not be sown with wide-row crops (Czech Republic).	Avoid soil erosion	Soil fertility, Biodiversity, Landscape enhancement
Protection of permanent pastures	Protection of permanent pastures	Maintenance of extensive systems HNV systems protection, Biodiversity, Landscape enhancement

A common cross compliance obligation for all Member States is the protection of permanent pasture. This obligation is translated into the GAEC measure of maintaining permanent pasture at the present level and to not allow their reduction in favour of arable land. It should be kept in mind that maintaining grazing lands at a certain level is essential because it serves a dual purpose: (a) it contributes positively to the maintenance of extensive pasture ecosystems, and (b) extensive permanent pastures constitute an essential agricultural landscape feature in central and northern Europe. However this is not the case in Greece. Because of the legal status (70% of pasture land is communal), and because a large percentage of permanent pastures are located in mountainous areas unsuitable for growing crops, this does not pose a significant threat. On the other hand there is a threat of degradation of pastureland through overgrazing and soil erosion. Thus, the competent authorities have set up minimum and maximum stocking grazing densities. The purpose of the grazing density measure is also twofold: (a) to prevent marginal livestock farmers in mountainous and less favoured areas from abandoning their production (through the specification of a minimum stocking density), and (b) to protect permanent pastures in mountainous areas and islands from overgrazing and degradation (through the specification of a maximum stocking density). Other Member States with an intense and highly developed livestock sector (e.g. Germany, Denmark, France and Czech Republic) do not have a specific GAEC measure regarding livestock grazing densities. This suggests that there is no significant threat that decoupling could lead to a reduction in livestock production, or if such a threat does exist, it does not worry national policy makers. It could also suggest that although overgrazing exists as an agricultural pressure, it does not represent a major environmental threat. Another

factor to consider is the political angle of having a standard for minimum stocking. With decoupling, any GAEC standard that requires a farmer to graze effectively 'recouples' the payment. Many Member States have therefore not implemented a specific minimum stocking density, preferring instead to leave it to the farmer to decide whether to graze or to cut the unwanted growth.

In these countries the most severe environmental problems that are generated by the intense livestock sector are more related to nitrate pollution than with soil erosion and therefore are dealt better through the SMRs mentioned in the previous chapter (e.g. manure management techniques and maximum limits of organic N fertilizers).

Special attention is given to measures relating to the protection of landscape features. With the exception of Denmark and France, all Member States in this study utilise GAEC measures aimed at the protection of traditional key features of the agricultural landscape. These features are: terraces, trees or rows of trees, stonewalls, hedges or stone hedges, watercourses and various other physical or artificial boundary features.

Another interesting observation about GAEC standards is their horizontal structure. In general, they constitute a legal framework of obligatory measures applicable to all farmers receiving direct payments regardless of the type or the intensity of production. Nevertheless, in some Member States the horizontal character of GAEC is more rigid than in others. A characteristic example is the measure of grazing density limits in Greece. This measure sets the same limits (maximum and minimum) for all livestock farmers regardless of the production orientation. The administration has no interest in the type of animals grazing the land (cattle, sheep, goats, pigs), but only in maintaining a maximum and minimum number of livestock units per hectare. Another example of an unsuccessful application of a horizontal GAEC measure is the one of crop rotation in Greece⁴. This scheme was revoked because it treated all arable farmers in the same manner. Farmers boasting high yields and receiving large amounts of subsidies would have to abide by the same rule as farmers in less fertile areas receiving small amounts of subsidies. Subsequently, the income loss in these two cases was disproportionate to one another.

On the other hand, there are cases where local authorities are entitled to alter the standard or provide – depending on the circumstances – an exemption from the nationwide rule. In Germany for instance, Laender maintain the right to approve the removal of the terraces or the destruction of certain landscape features (e.g. trees or hedges). Also in England, the competent authorities can approve the use of certain pesticides and herbicides depending on the case at hand.

England, France and Germany have established measures in their cross compliance that go beyond the compulsory requirements in Annex IV of Reg. 1782/03. More specifically, the farmers' union in England believe that the standards for rights of way/public access and buffer margins adjacent to watercourses and hedgerows are seen by some to go beyond what was set out in Annex IV. Additionally, farmers in France are obliged to request authorisation prior to withdrawing water for irrigation purposes, and in Germany farmers are obliged to

⁴ Crop rotation standard in Greece requires from the farmers to cultivate at least 20 % of the holding area with leguminous crops in addition to the main crop and incorporate them into the soil.

calculate humus balance or analyse soil organic matter in case they don't meet the crop rotation requirement.

Among the countries examined, Italy, France and Greece have an interest in enforcing a GAEC standard that prohibits the removal of olive trees. However, Greece because of problems that are related to the legislative process, has not yet incorporated the new obligations for 2006 in the cross compliance scheme. Therefore, this measure exists for the time being only in Italy and France.

4 THE TRANSLATION OF CROSS COMPLIANCE STANDARDS INTO CLEARLY SPECIFIED REQUIREMENTS FOR FARMERS

Numerous measures related to cross compliance have been part of each country's national legislation for many years (for example, the habitats and nitrates Directives, and Good Farming Practice). Nevertheless, their linkage with direct payments is something totally new for both farmers and the administrative authorities of the Member States. Although it is too early to predict to what extent cross compliance will manage to achieve its environmental objectives, it is more than clear that the success of the new regime depends, amongst other things, on farmers' cooperation and their exact understanding of their obligations, as well as the existence of a control mechanism that can check, with a relative low administrative and financial cost, whether or not farmers comply with their obligations.

This is why Member States, from the beginning, need to make a considerable effort to establish standards that are as clear and comprehensible as possible and also applicable at farm level. From the analysis of the questionnaires it is understood that almost all Member States have managed to achieve these objectives. Brochures with analytical guidelines and checklists as well as informative seminars were distributed to farmers. Regarding the GAEC standards, Member States have utilised the experience they have gained from the implementation of voluntary agri-environmental schemes and the code of Good Farming Practice. Hence, rarely can one find GAEC measures which are not clearly defined or not understood by farmers. The only case mentioned can be found in France, where there discussions continue concerning the existence of grassed buffer stripes along watercourses. These discussions pertain to the definition of watercourses.

Nevertheless, the situation is quite different with the nitrates and Natura 2000 Directives. In both Directives it is much more difficult than for the GAEC standards to establish verifiable standards at the farm level, especially for Natura 2000 sites. There are cases where cross compliance standards are either not clearly defined or farmers are not fully informed about their obligations. For example, in Greece, where, although Natura 2000 sites boundaries have been precisely defined, this information has not yet been communicated to farmers. Subsequently, they have to find out for themselves if any part of their holding is located within a Natura 2000 site, find out whether there is a special management plan for this specific site⁵ and consequently need to find out what exactly they have to do in order to comply with the relevant SMRs.

⁵ Up to date there are only 15 Natura 2000 sites with approved special management plans out of a total of 359 sites in Greece (all types inclusive).

In the case of the nitrates Directive, the local action plans prepared for Greek NVZs are quite specific and well structured providing clear instructions on what requirements should be met according to soil class, slope and crop. However, it appears that farmers often do not know the specific class in which their land belongs, and they also ignore whether each specific parcel lies within the NVZ or not. The latter is due to the fact that the delineation of the NVZs was not made on maps of the appropriate scale. This problem was “*solved*” through the implementation of agri-environmental schemes through an administrative bypass. Even if only part of a community was actually within the NVZ, then all the land of this community was considered as belonging to the vulnerable zone.

A similar example exists in France, where some of the standards on biodiversity are not entirely comprehensible to the farmers. This is because of a lack of quantitative criteria for defining biodiversity zones within a certain site. Since zoning was not completely mapped during the first year of implementation of cross compliance (2005), farmers were unclear as to what obligations they should abide by. In addition, there are cases where farmers do not always know if their holding is located within a NVZ or not.

Finally, in Germany, there seems to be confusion among farmers regarding which standards are sanctioned by cross compliance and may lead to a reduction of the direct payment, and those standards - required only by national legislation - which do not lead to any direct payment reduction (e.g. N balance limits set by national nitrate ordinance).

5 CONCLUDING REMARKS

The introduction of measures seeking environmental protection and stewardship into the CAP is part of a broader process of the integration of environmental issues into different Community policy areas. An important pressure that used to be common was a trend, partly induced by the CAP, towards the intensification of production systems. In the case of northern Member States this took the form of the ploughing-up of extensive grasslands or the intensification of livestock production, while for southern Member States a common intensification pressure might have been the expansion of irrigation, which apart from resource exhaustion results in a significant increase of nutrient and pesticide inputs. In general terms, these land use and management changes resulted in the loss of habitats and the simultaneous increase of nutrient leaching in the North of the EU and biodiversity loss, exhaustion of water resources, salinisation, as well as an important increase of nitrate concentration in the aquifers in the South of the EU. The recently reformed CAP, with its decoupled payments, seems to be aimed at restraining the intensification trend. The incentive to intensify production does not seem to exist any more, although it could be argued that the more profitable activities and market oriented farmers in certain sectors might intensify production as a response to decoupling.

On the other hand, another pressure was the abandonment of marginal land. The term marginal can be attributed to a land either because of its low productivity due to harsh soil, relief and/or climatic conditions or due to its mountainous or insular character and its lack of accessibility. Abandonment can result in serious environmental degradation (apart from the obvious socio-economic and in some cases even political impacts) and does not seem to be dealt with by the post 2003 CAP,

since the encouragement of abandonment appears to be one of the main “*flaws*” attributed to the reform. In order to deal with this predicament, CAP policy makers invested a lot in the standards of Annex IV of Reg. 1782/2003. The establishment of fully operational measures and standards in each EU country, through the cross compliance scheme, will hopefully produce tangible benefits for both the environment and farmers.

Regarding the present state of play of cross compliance based on the analysis presented, it appears that European Union’s strategic decision to allow Member States and their respective administrative structures the freedom to adjust cross compliance standards to local, regional or national conditions was, in essence, correct. It appears that there are diverse pressures in different countries tackled with similar measures and at the same time, similar pressures tackled by different types of measures. This clearly portrays the complexity of the underlying relationships between environment and agriculture and the delicate role that policy making has to play in order to maintain the equilibrium between the agricultural environment and the social aspects of the primary sector. In support of this argument are the soil erosion measures introduced by France and Greece. The pressure of soil erosion is handled by buffer-strips along watercourses and through set-aside land management in France, and on by contour tillage and the maintenance of terraces in Greece.

The different ways that the SMRs have been implemented in cross compliance legislation clearly reflects differences in environmental pressures in different Member States. They are also related to the differing dominant production systems (e.g. livestock husbandry or plant production), which dictate the application of different measures.

The characteristics of Annex IV, in conjunction with the particularities of each country or region regarding the environmental pressures and the structure of the prevailing production system can explain, to some degree, the selection of GAEC measures made by Member States. Another factor that heavily influenced the design of the GAEC measures is the absence of any prior environmental assessment. As mentioned by many Member States, the administrations’ major concerns were to: a) comply with the new Community legislation, b) not “*endanger*” existing agri-environmental measures and c) keep the main “*players*” happy. The combination of these three factors led to the establishment of GAEC standards based more on political negotiations and less on scientific evidence. However, a case where a reasonably rigorous assessment preceded the establishment of GAEC standards was England.

Furthermore, some Member States have used cross compliance in order to compensate for the “*gaps*” in their existing national environmental legislation, whereas other Member States that already had an adequate legislative ‘corpus’ in place merely adopted the cross compliance scheme into that framework. This resulted in some Member States incorporating measures within their GAEC framework that went beyond the scope of Annex IV of Reg. 1782/03. In other cases, some Member States experienced difficulties with establishing comprehensive measures, especially in respect to the SMR relating to Natura 2000.

Regarding the comprehensibility of measures to farmers, it appears that the majority of GAEC measures are clear and comprehensible. This was mainly due to previous experience gained with the application of voluntary agri-environmental schemes and the implementation of codes of Good Farming Practice.

The analysis also revealed an issue of competitiveness in the sense of production cost among farmers. More specifically, it seems that the horizontal structure of certain cross compliance rules, and especially certain strict GAEC rules, invoke a higher operational cost for some holdings, which in turn results in a disproportionate income loss. This issue requires further investigation. On the other hand, local authorities in some Member States (such as Germany and Greece) have the power to ‘adjust’ the national cross compliance rules in certain cases in order to account for local environmental or political particularities.

The Council Regulation on rural development (Regulation 1698/2005) for the next financial period (2007 - 2013) will place even greater emphasis to the environment. The new act, which establishes the European Agricultural Fund for Rural Development (EAFRD), lays down four basic aims or “axes” of strategic priority. The resources made available for Axis 2 “providing support for the environment and the countryside” permit some optimism as far as the integration of environmental issues is concerned. These measures, alongside the cross compliance standards, may also help to improve the environmental performance of European agriculture.

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7 APPENDIX

Table A. Good agricultural and environmental condition – Annex IV Reg. 1782/2003

Issue	Standard
<p>Soil erosion: Protect soil through appropriate measures</p>	<ul style="list-style-type: none"> — Minimum soil cover — Minimum land management reflecting site-specific conditions — Retain terraces
<p>Soil organic matter: Maintain soil organic matter levels through appropriate practices</p>	<ul style="list-style-type: none"> — Standards for crop rotations where applicable — Arable stubble management
<p>Soil structure: Maintain soil structure through appropriate measures</p>	<ul style="list-style-type: none"> — Appropriate machinery use
<p>Minimum level of maintenance: Ensure a minimum level of maintenance and avoid the deterioration of habitats</p>	<ul style="list-style-type: none"> — Minimum livestock stocking rates or/and appropriate regimes — Protection of permanent pasture — Retention of landscape features, including, where appropriate, the prohibition of the grubbing up of olive trees — Avoiding the encroachment of unwanted vegetation on agricultural land — Maintenance of olive groves in good vegetative condition.

Table B. Pressures reported by Member States categorised per issue and sub issue.

Issue	Sub issue	Pressure	MS identifying pressure	Measures - Response	
Natural resources	Water	Over fertilisation	CS	Barnyard manure in liquid form is to be incorporate into the soil within 24 hour after application, in plots where the average slope exceeds 3 degrees. Deviations apply where special laws exist.	
			EL, EN, DE	Reference to existing legislation and/or administrative texts	
			FR		
		Excessive use of pesticides	EL, EN, DE	Reference to existing legislation and/or administrative texts	
	CS				
	Water quality (pollution, contamination etc.)	Eluviations/leaching of excessive nitrogen and phosphorus surface runoff into waters.			<p>Cultivation, planting, landscape changes, placing of hedges and other construction are not permitted within a 2 metre-wide strip around natural watercourses or lakes, or those highly valued in the regional plan. The requirement does not, however, apply to isolated lakes under 100 m².</p> <p>Protection of 'outer areas' in Tonder marshes ('Toendermarsken) in Natura 2000 areas</p> <ul style="list-style-type: none"> - It is not permitted to: <ul style="list-style-type: none"> a) build further estates in the area or make substantial changes (extensions), b) establish buildings or other constructions, c) establish new roads unless special circumstances apply. - Changes in the landscape are not permitted including utilization of deposits in the ground, digging or filling up. - Trees and bushes must not be planted. - The areas should be maintained as grasslands with grazing animals. - No drainage - Improvement or maintenance of existing drainage channels may not be done from the 15th of March to the 15th of June. - Fencing is not permitted. Existing fences alongside ditches must be removed in connection with renovation work. - No more than 75 kg N per ha (artificial fertilizers) is permitted. Use of fertilizers with phosphorus and potassium is not permitted. <p>No pesticides must be used.</p>
			DK		
			Eutrophication of surface and ground waters		Reference to existing legislation and/or administrative texts
				EN	A 2-metre buffer margin adjacent to watercourses should be applied in order to reduce pollution.
				DE	Reference to existing legislation and/or administrative texts
Water management (exhaustion, salinization etc.)			Over pumping of water in coastal areas	EL	Reference to existing legislation and/or administrative texts
	High demand for irrigation water	EL	Reference to existing legislation and/or administrative texts		
	Alteration of water levels	DK	Changes to the condition of natural lakes (with an area over 100 m ²) or water courses		

			<p>(or parts of water courses) are not permitted. This does not apply to maintenance work in water courses.</p> <p>Changes to the condition of heaths, moors (or the like), beach meadows and marshes, freshwater meadows and semi-natural pastures are not permitted when such nature types individually, together or in connection with lakes (mentioned above) are larger than 2500 m² (adjoining area). Changes to the condition of moors and the like that are less than 2500 m² are not permitted, when they are situated close to a lake or a water course included in the protection requirements.</p> <p>Protection of 'outer areas' in Tonder marshes ('Toendermarsken) in Natura 2000 areas</p> <ul style="list-style-type: none"> - It is not permitted to: <ul style="list-style-type: none"> a) build further estates in the area or make substantial changes (extensions), b) establish buildings or other constructions, c) establish new roads unless special circumstances apply. - Changes in the landscape are not permitted including utilization of deposits in the ground, digging or filling up. - Trees and bushes must not be planted. - The areas should be maintained as grasslands with grazing animals. - No drainage - Improvement or maintenance of existing drainage channels may not be done from the 15th of March to the 15th of June. - Fencing is not permitted. Existing fences alongside ditches must be removed in connection with renovation work. - No more than 75 kg N per ha (artificial fertilizers) is permitted. Use of fertilizers with phosphorus and potassium is not permitted. <p>No pesticides must be used.</p>
		EN	
Air	Manure and fertiliser application resulting in spread and disposal of ammonium.	DK	
Soil	Overgrazing	EL	Comply with max livestock density 3 LU/ha. If stricter limits apply for specific NATURA 2000 sites based on management plans, then these restrictions overpower this measure.
		EN	Reference to existing legislation and/or administrative texts Ban of overgrazing natural and semi-natural vegetation (EN)
Soil erosion	Undergrazing (Fire risk)	EL	Comply with min livestock density 0,2 LU/ha. If stricter limits apply for specific NATURA 2000 sites based on management plans, then these restrictions overpower this measure.
		EN	
Soil fertility	Degradation of soil ecosystem	CS	
	Undergrazing (Fire risk)	EL	Comply with min livestock density 0,2 LU/ha. If stricter limits apply for specific NATURA 2000 sites based on management plans, then these restrictions overpower this

EL

				measure.
			EN	
	<i>Soil salinisation</i>	Over pumping of water in coastal areas	EL	Reference to existing legislation and/or administrative texts

Czech Republic – CS, Denmark – DK, England (UK) – EN, France – FR, Greece – EL, Germany – DE,