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**Consequences of the CAP reform on the environment and nature conservation Results of
an empirical study in Germany**

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Abstract: The Common European Agricultural Policy (CAP) reform not only has an impact on agriculture but also has significant effects on nature and the environment. This is specifically caused by decoupling direct payments from agricultural production, which will increase the market orientation of agriculture and by implementing cross compliance. A number of key aspects promoting a future environment-friendly development of the CAP are suggested, based on an empirical analysis of the impact of this reform in eight German regions. In particular, we recommend the coupling of direct payments with the provision of environmental and social welfare services as well as the installation of a long-term monitoring system to enhance the understanding of the links between policy, behaviour of farmers and environmental systems.

Keywords: reform of the Common European Agricultural Policy, decoupling of direct payments, cross compliance, regional embeddedness of farmers, intrinsic motivation

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Consequences of the CAP reform on the environment and nature conservation

Results of an empirical study in Germany

Jochen Kantelhardt, Christian Ganzert and Christine Krämer

1. Introduction

In 2003, the European Union reached an agreement on the so-called ‘Mid-Term Review’ of the Common Agricultural Policy (CAP). In contrast to its title, this agreement constitutes a fundamental reform of the CAP. The main elements of the reform are the decoupling of first-pillar direct payments, the implementation of cross compliance and the transfer of first-pillar funds to the second pillar through the modulation mechanism (European Community, 2004). The application of these instruments is expected to influence the arrangement of land use and will be of considerable importance for nature and environment (cf. Ganzert et al., 2004; Heißenhuber et al., 2004; Kantelhardt, 2006).

The objective of the research project, funded by the *German Federal Agency for Nature Conservation (Bundesamt für Naturschutz)*, is to ascertain which land-use developments are induced by the CAP reform, how these developments are to be evaluated from the point of view of environment and nature conservation and which counteractive measures appear to be useful (Ganzert et al., in press; cf. also Ganzert et al., 2004; Kantelhardt et al., 2005).

2. Agricultural policy in Germany

In recent years, discussion on agricultural policy in Germany has mainly been shaped by the implementation of the CAP reform. The various reform steps, their manner of implementation in Germany and the main consequences expected for nature conservation are presented briefly below:

- *Decoupling* means that in future farmers will receive payments which will not represent an obligation towards a certain type of production or land use. Consequently, farmers will find it easier to adapt land use to market demands. It is expected that the decoupling will have a significant impact on land use. Particularly in marginal regions, land use might be reduced to a minimum level of intensity which needs to be maintained in order to receive direct

payments (cf. cross compliance). Furthermore, it is to be expected that decoupling will, at least in some regions, contribute to increasing structural change and a decrease in agricultural employment.

- The CAP reform allows a *regionalisation of first-pillar payments*, resulting in uniform payment entitlements. One important effect of such regionalisation is the redistribution of payments between regions and farms. In particular, areas or farmers currently receiving small payments will benefit from the regionalisation of direct payments. In Germany, where this solution is realised at the level of the *Bundesländer* (counties), low-intensity grassland sites may benefit in particular, since grassland farmers have not received any direct payments so far. It needs to be pointed out, however, that this will not necessarily result in the preservation of low-intensity grassland, due to the fact that payments are decoupled from production, as explained previously.
- *Modulation* describes the redistribution of funds from the first to the second pillar. Since the second pillar combines various instruments which strengthen environmental and integrative goals of agriculture, the improved funding of the second pillar is to be welcomed from the point of view of rural areas (Moreddu et al., 2004, p 42). However, as a result of a recent agreement on the funding of the European Union, second-pillar funds have been reduced significantly in most of Germany's *Bundesländer* (counties, cf. GRETHE et al., 2007, cf. also Plattform, 2006).
- Cross compliance defines a set of minimum standards for agricultural production. For this purpose, a list of 18 European standards with respect to environment, food safety, animal health and quality standards has been drawn up (EC-Regulation 1782/2003). In order to avoid land abandonment and subsequent environmental problems, beneficiaries of direct payments will also be obliged to ensure that farmland is kept in 'good agricultural and environmental condition'. Where farmers fail to adhere to cross-compliance requirements, reductions in payments will be applied as sanctions.

The measures outlined above are expected to be of major importance for the development of future land use, since first-pillar payments currently take up almost 90% of European Union funds for agriculture (cf. European Commission, 2005a). However, there are currently further agri-political developments taking place with a high relevance for nature and environment:

- The *reorganisation of the second pillar* by the EAFRD regulation (European Commission, 2005b): This reform is expected to contribute to increased competitiveness in the agricultural and forestry sectors, to encourage an improvement in environmental and countryside management and to promote diversification of economic activities in rural areas (European Commission, 2005 and European Community, 2006). However, this reform has been accompanied by a significant reduction in funding (cf. GRETHE et al. 2007).
- An *increasing worldwide demand for agricultural products* since 2006: This development is in particular a result of the increasing importance of agricultural production for energy supply and at present mainly affects arable farming. In the past few years, this development has led to a significant price increase for agricultural products. In Germany, this development has been further supported by the implementation of the Renewable Energy Act (*Erneuerbare Energien Gesetz*, EEG).

3. Methodical approach

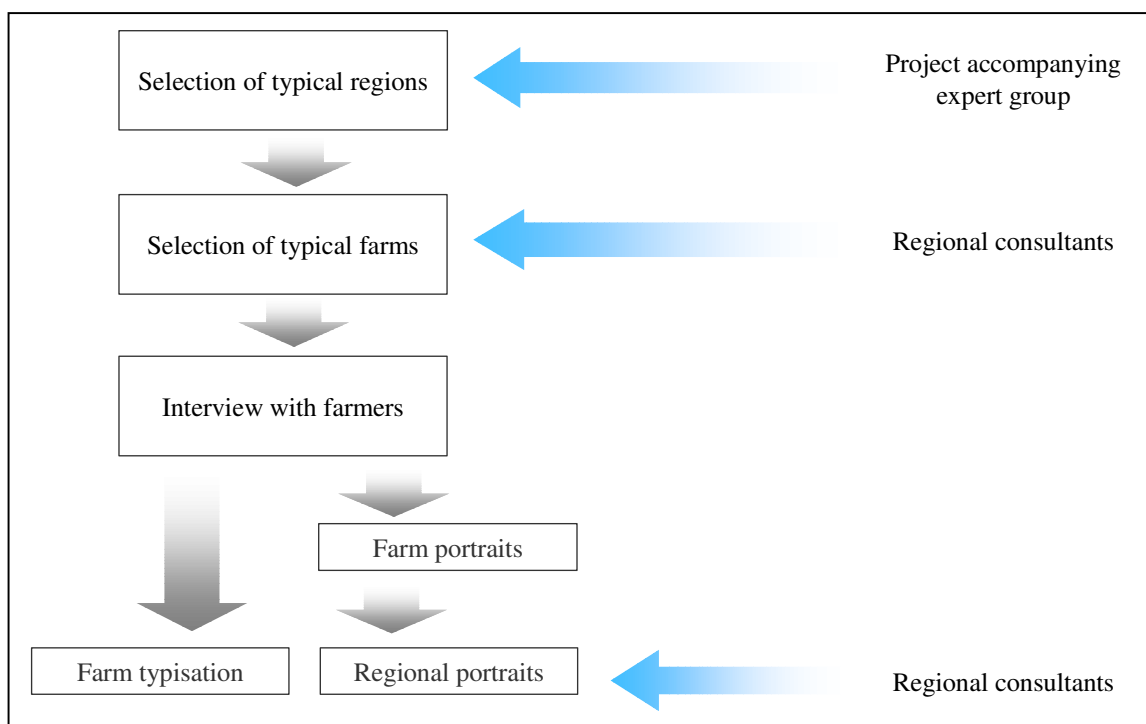
The aim of the study is to analyse the effects of the implementation of the CAP-reform in Germany on nature and the environment. The analysis is mainly based on qualitative interviews with local farmers and experts (in particular agricultural consultants) in eight German regions. In order to gain reliable results, the following procedure was applied:

- Initially, regions with a high relevance for nature conservation were selected. This step took place in agreement with a project-accompanying working group (PAG).³
- As a second step, typical farms representing the respective regions were chosen. Regional agricultural consultants were involved in this research step. They assisted the research team by suggesting typical farms representing the study regions.
- Thirdly, the farmers were interviewed with regard to their perception of the CAP reform, as well as its actual and potential impact on the organisation of the farms.

³ The general aim of the PAG is to link up the research steps to the ongoing political reform process and to ensure direct applicability of the results in policy work (cf. Ganzert et al. 2004). The PAG involves representatives of the Federal Agency for Nature Conservation, the German Ministries of Agriculture and of Environment as well as representatives of various nature conservation and environmental protection organisations. Furthermore several agricultural consultants participated.

- As a final step, the results were summarised in individual ‘farm portraits’ and in overall ‘regional portraits’. The regional portraits were then discussed with three local experts per region within the scope of semi-structured interviews. In this way, it was possible to verify that the statements of the farmers are representative. In addition, the reasoning and evaluations by the local experts on region-specific consequences of the CAP reform have been integrated into the regional portraits.

Figure 1: Methodical procedure



Source: own illustration based on Ganzert et al. (in press)

Parallel to the development of farm and regional portraits the farm interviews are analysed with regard to management capabilities and the social welfare activities of farmers. The result of this qualitative evaluation is a classification of farmers into motivation types. The analysis helps to understand the influence of the CAP reform on farmers’ motivation. Furthermore, it reveals which types of farmer are particularly affected by the implementation of the CAP.

The linkage of the various methods (interviews with farmers, interviews with agricultural consultants, PAG) and the inclusion of expert knowledge on regional and national level complement each other in such a way that a differentiated picture of the effects of the agricultural

reform can be produced. The interviews with the farm managers provide an insight into farm-specific systems and clarify how the agricultural policy is perceived by the farmers. The interviews with the consultants, on the other hand, allow for a transfer of the farm-specific results to regional level and also give an enhanced understanding of the particular interconnections in the regions discussed. Finally, the involvement of the PAG means that the results obtained can be directly integrated into the political process on national and European level.

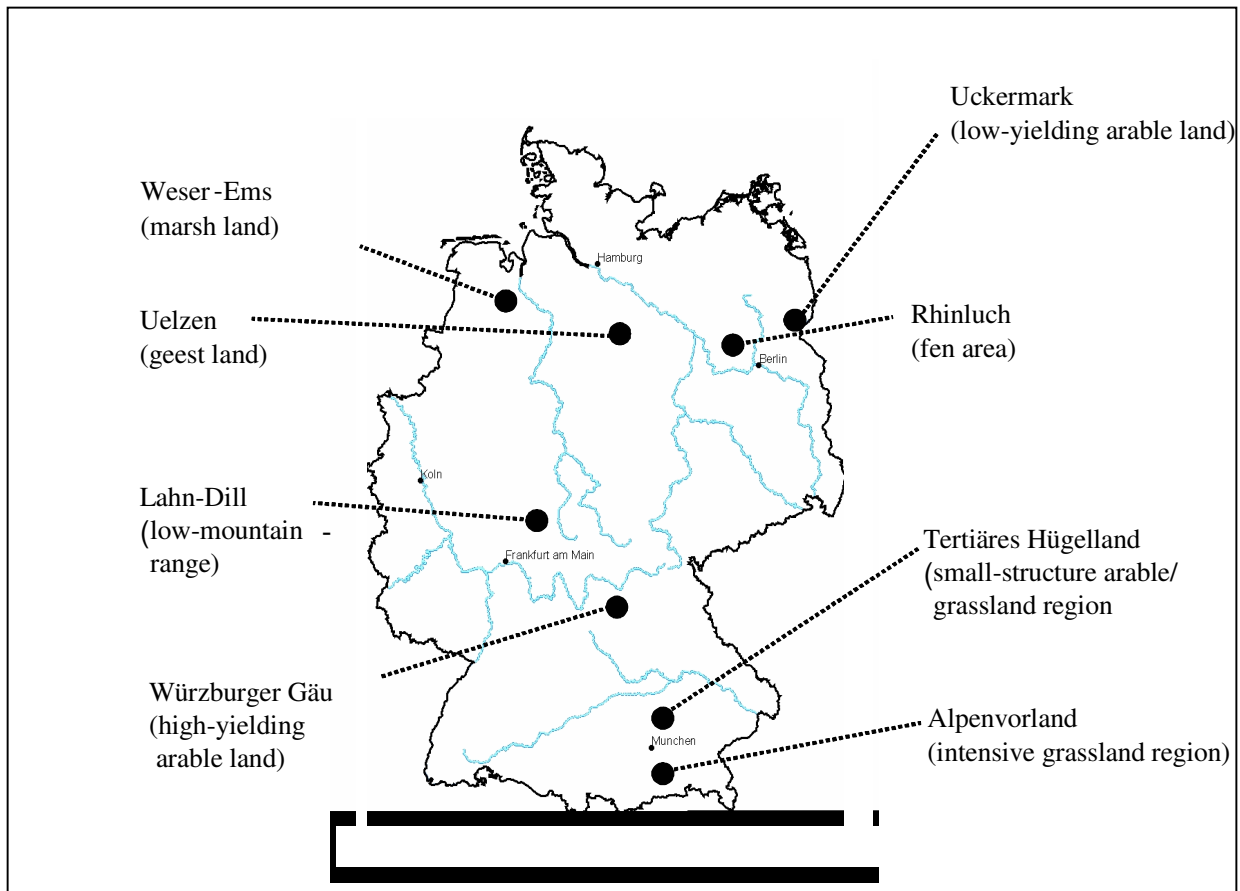
It needs to be noted that the survey took place in two steps: a first survey was carried out in 2005 parallel to the initial implementation steps of the CAP reform in Germany (cf. Ganzert et al., in press). A second was carried out in 2007 after the implementation of the reform; hence it gives details of the initial results of the implementation of the CAP reform. The analysis of the second survey is not yet complete, however.

4. Study regions and farms

Since farms are strongly embedded in their regions, their production and land use decisions are highly dependent on regional conditions. This is not just the case because of the importance of their natural environment, but private social contacts of the farmers and professional contacts are also significant. In order to consider the regional embeddedness of farmers, the study is carried out at a regional level. The main criteria for selection of regions were as follows: (1) regions needed to be representative of the most important production forms and farm types in Germany, (2) locations needed to include South, East, Central and North Germany, (3) regions needed to reflect the most important natural conditions and agri-environmental situations and (4) the researchers were in possession of certain prior knowledge and had professional experience within these regions.

As a result of the selection process, eight regions representing a typical spectrum of German agricultural landscapes were chosen (fig. 2). They include grassland regions (the *Alpenvorland* (Alpine foothills) and *Weser-Ems*), arable-land regions (*Uckermark*, *Uelzen* and *Gäu*) as well as mixed grassland and arable-land regions (*Rhinluch*, *Lahn-Dill* and the *Tertiäres Hügelland*). Furthermore, the regions represent the three following farming situations: low-yield (*Uelzen*, *Rhinluch*, *Lahn-Dill* and *Uckermark*), medium-yield (*Weser-Ems*, the *Alpenvorland* and the *Tertiäres Hügelland*) and high-yield (*Gäu*).

Figure 2: Location of the study regions in Germany



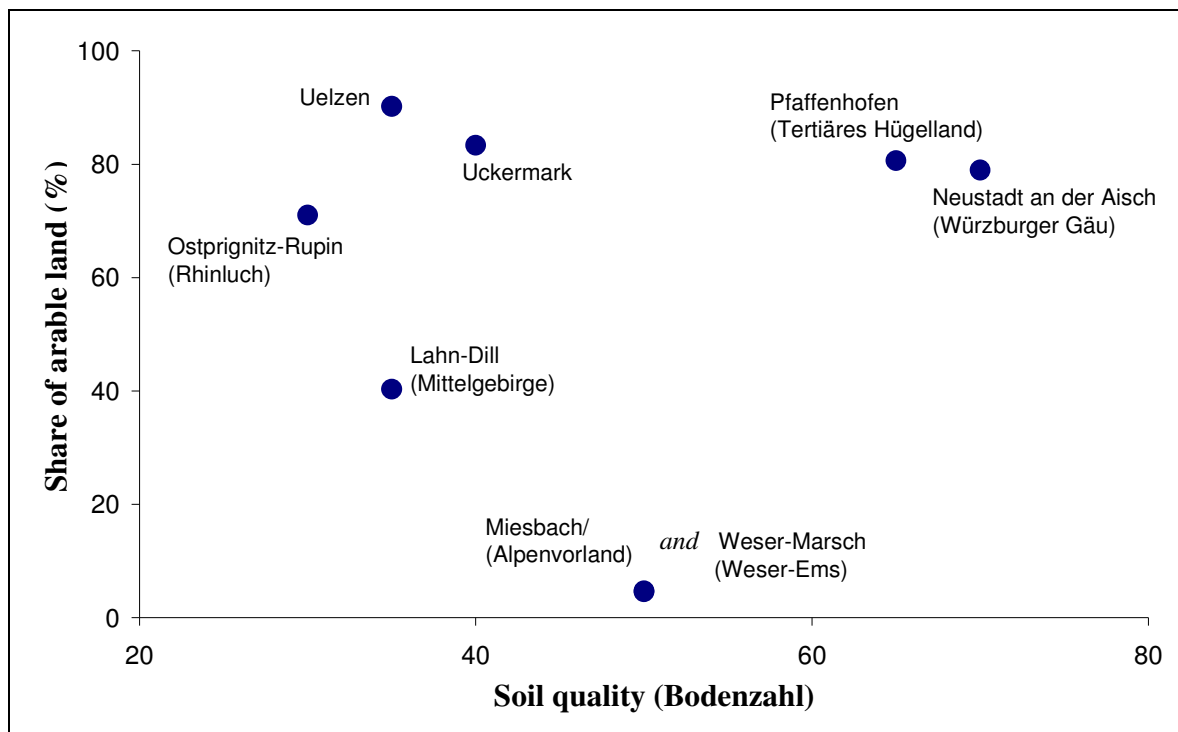
Source: Ganzert et al. (in press)

Figure 3 classifies the study regions with regard to their suitability for agricultural purposes. The *Bodenzahl* (an indicator specifying soil quality) and the share of arable land (from the total agricultural acreage) both serve as indicators. The classification in Figure 3 demonstrates that the selected regions cover a broad range of land-use intensities. Favoured as well as less favoured situations from an agricultural point of view were considered.

In each study region three representative farms have been selected for the survey. These farms cover the relevant spectrum of agriculture in Germany and are typical for the regional way of practising agriculture. Thus, farms operating on a full-time as well as on a part-time basis are considered. Furthermore, farms with activities providing additional income, off-farm activities, direct marketing and agro-tourism are included in the survey. The farms operate in the fields of milk production, crop cultivation, pig fattening, suckler-cow farming, bull fattening, egg

production, sheep farming, heifer fattening and piglet production. Pure grassland farms as well as pure cropping farms are included. The farms vary in size from less than 50ha to as much as 1000ha. From the point of view of nature conservation, too, the farms cover a broad spectrum. Some of them, for instance, have hardly any hedgerows, while others dispose of hedgerows of several kilometres in length. Furthermore, there are several farms with marsh areas, open orchard grassland or wetlands.

Figure 3: Suitability of the study regions for agricultural purposes



Source: Ganzert et al. (in press)

5. Results

The results of the study provide hints towards particular risks of the CAP reform for nature and the environment. In section 5.1 the analysis concentrates on those results of the reform which have a bearing on agricultural production decisions and land use. The focus is on land-use developments with a strong relevance for nature and the environment. In section 5.2 those results of the CAP reform which have an impact on farmers' motivation are demonstrated. The section

mainly deals with the results of a classification of farmers with regard to intrinsic motivation for environmental and social welfare goals.

In general it must be pointed out that the analysis of the second survey is still not complete (cf. chapter 3). Nevertheless, some major results are included in the following analysis despite their preliminary character, since the results of this survey are of particular importance for the assessment of the CAP reform.

5.1 Impact of the CAP reform on land use

Less-favoured areas are often characterised by grassland use and low-intensity animal husbandry, such as suckling cow or sheep farming. Since these types of land use are of high value for nature conservation and provide various environmental services, the aim of nature conservation is to maintain their existence. However, the results of the study show that the CAP reform challenges this goal. One reason seems to be decoupling; it allows farmers to convert to other production forms, to abandon animal husbandry or to give up agriculture altogether without losing direct payments granted by the European Union⁴. In the long term the abandoning of low-intensity animal husbandry is to be expected, in particular, as shown by the results within the *Lahn-Dill* low-mountain region.

In the eyes of farmers and agricultural consultants this development will be further intensified by the fact that cross compliance increases the administrative work of farmers. Furthermore, farms have to invest in stables and farm equipment in order to conform to the regulations. These aspects concern, in particular, small farms and seem to support these farmers' tendency to abandon agriculture. However, the results of the second survey indicate that even in marginal regions land use will not be given up immediately. One reason for this is that such land-use decisions generally take time. Another reason, perhaps even more important, is the change in agricultural prices within the last few years. Due to increasing prices the likelihood of farmers abandoning agricultural land use has decreased significantly. A last reason is of psychological nature; particularly in very extensively used areas farmers realised with the implementation of the CAP

⁴ Note that in the case of abandoning agricultural production, minimum requirements have to be fulfilled in order to continue receiving direct payments from the European Union. Farmland has to be kept in a 'good agricultural and environmental condition' (cf. chapter 2).

reform, that certain parts of their area already converted to fallow land; this ‘discovery’ motivated them to take more care over their farmland.

In intensively used areas the main goal for nature conservation and environmental protection is to assure that the intensity of land-use does not exceed certain limits. However, our results indicate that cross compliance does not fundamentally change land-use practices. No significant land-use changes have occurred, apart from farmers adopting certain techniques such as nitrate control. Another aim in intensively used areas is to increase the share of environment-friendly land-use forms. This concerns, in particular, an increase in grassland use. But it seems that expectations regarding increased competitiveness of grassland and other environment-friendly production forms have not been fulfilled. Particularly due to the increasing demand for energy products, crops such as maize and rape remain or become increasingly important.

Apart from this site-specific outcome, there are further results which are relevant for nature conservation. This concerns in particular the implementation of cross compliance. A first issue is that some of the rules of cross compliance negatively affect environment-friendly production. An example is the duty to apply ear tags and replace them in case of loss; this directive hinders, in particular, low-intensity grazing systems, since capturing pasture livestock is relatively costly. A second issue is that decoupling in combination with cross compliance can bring about problems for nature conservation. As mentioned previously, decoupling improves the possibility to change land use; this also includes the conversion from grassland to arable-land use. The implementation of cross compliance in Germany allows farmers such a conversion without an administrative permission as long as the grassland area on regional level does not decrease by more than 5%. With the demand for agricultural products being on the increase, grassland conversion has been reported.

5.2 Impact of the CAP reform on farmers’ motivation

There is no doubt that the implementation of cross compliance makes farmers abide more by government and EU directives. In addition, cross compliance improves knowledge of these directives. However, the implementation of cross compliance also has negative impacts on the motivation of farmers to provide environmentally services. One issue demotivating farmer is that they are annoyed by the fact that the government has begun to control voluntarily provided

environment-friendly services. The surveys furthermore show that control practices make farmers often 'feel insecure and mistrusted without reason'. One example for this demotivating effect of cross compliance is the administration of landscape elements; farmers are forced to map their landscape elements in order to enable the government to monitor their conservation. This measure is in many cases perceived as penalising farmers who have so far maintained landscape elements and thereby provided environment-friendly services on a voluntary basis.

However, not all farmers perceive the CAP reform and the implementation of cross compliance in the same way. In order to gain a better insight into the influence of the CAP reform on farmers' motivation, farmers have been clustered with regard to their motivation types⁵. Both management orientation and farmers' intrinsic motivation to contribute to public welfare serve as indicators for analysing farmers' behaviour.

Three types of farmer have been identified: the "Agriculturists", the "Agro-Managers" and the "Traditionalists". These types are described briefly below (cf. Ganzert et al. in press):

- Agriculturalists are characterised by good management capabilities and a high degree of intrinsic motivation to contribute to public welfare. In particular, they show a keen personal interest in farming, nature and their social surroundings. Furthermore they possess a strong ability to cooperate.
- Agro-Managers mainly aim for economic optimisation of their farms. Hence they display a pronounced management orientation and relatively little intrinsic motivation to contribute to public welfare. Typically, they only adhere to nature and environmental protection measures if imposed by the government or if these are economically advantageous to their business. The relationship of Agro-Managers to their non-agricultural surroundings is rather passive. Frequently encountered agricultural co-operation is predominantly formed to optimise costs.
- The Traditionalists are characterised by their passivity regarding issues of agriculture, cooperation, nature and environmental protection and their social surroundings. They see themselves as the victims of the economic conditions (agricultural policy, consumer behaviour, etc.), generally conform to their surroundings and show little initiative of their own. Traditionalists are motivated by tradition or a lack of income alternatives and have little trust

⁵ With regard to typisation of farmers cf. also van den Ploeg (2003)

in future developments. However, Traditionalists provide a number of environmental protection services.

The results of a farm-type specific analysis of the impacts of the CAP-reform show that farms are affected to a varying degree by the reform. In particular, farms providing extensive environmental services experience strong economic pressure. This applies especially to the Traditionalists whose existence seems to be threatened. Agriculturalists, who are highly motivated with regard to public welfare, perform better, but feel hindered and demotivated by the agrarian reform. Agro-Managers, who concentrate mainly on management aspects and are not committed to environmental aspects, are not motivated by the CAP reform to improve the integration of nature conservation and environmental protection aspects in their daily farm work.

6. Discussion and conclusions

The results of our study indicate that the CAP reform is not currently increasing the proportion of environment-friendly production systems in a significant way. This applies in particular to grassland cultivation, which is not increasing in importance. Cross compliance is shown to have certain positive effects; it improves the control of environmentally damaging farm activities, in particular in the field of farm manures (nitrate control). However, positive effects are limited and cross compliance is often negatively associated with nature conservation.

Based on our results we can conclude that the CAP requires further reform steps. It seems particularly important to couple first-pillar direct payments to environmental and social welfare services. For instance, payments could be coupled to a low stocking density or an above-average endowment with environmentally valuable areas. Since the cross-compliance regulations partly produce counterproductive effects on nature and the environment, they should be simplified and optimised with regard to their effectiveness in environmental protection. In addition, a redesign of second-pillar agri-environmental programmes is advisable. In particular, regions should become more involved in the design of the agricultural and environmental policy. Such regionalisation can be achieved by the expansion of tools which already exist, such as LEADER and *Regionen aktiv*, and the implementation of new tools such as individual farm programs. These programs should directly contribute to solve local agri-environmental problems. Second-

pillar measures should furthermore not only be regionalised but also be directed more towards the individual motivation types.

One final issue concerns the development and the implementation of a long-term monitoring system. Such a system could contribute to a better understanding of the links between policy, farmers' behaviour and environmental systems. It could function as an early-warning device to indicate necessary policy changes. In view of the high relevance of the motivation types of farmers, it is furthermore recommended to investigate systematically: (1) which environmental services are provided voluntarily by farmers as a consequence of their intrinsic motivation, (2) how motivation types are distributed at regional and farm type levels and (3) what initiatives are necessary to promote a change from individualistic action to public-welfare-orientated action.

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