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DEVELOPMENT OF THE UTILIZATION OF PASTORAL LAND IN THE EU 25 AFTER 2003

*Norbert Röder, Thia Hennessy and Didier Stilmant**

Abstract

Farming systems based on products of roughage feeders are a vital part of the EU agricultural production. Up to the CAP reform in 2003 the EU promoted these systems via a wide variety of measures. This paper highlights the different impacts EU, national and regional support measures have on the utilization of pastoral resources across the EU-25. Based on an expert survey and a literature review the paper summarizes the expected developments of pastoral farming systems across the EU.

Keywords

pastoral systems, EU, Fischler Reform, EU enlargement

1 Introduction

Farming systems based on products of roughage feeders are a vital part of EU agricultural and account for roughly a quarter of the total production value (SZABÓ und MILELLA, 2006). Up to the Fischler Reform of the Common Agricultural Policy (CAP) in 2003 the EU promoted farming with roughage feeders via a wide variety of measures (e.g. special male premium, suckler cow premium, ewe premium). All of these support mechanisms were similar in that payments were proportional to the number of animals stocked. The Fischler Reform implemented a complete change in the support system, since in most countries the premiums were decoupled from the number of animals stocked and instead coupled to the farmed land area eligible to activate single farm payment entitlements (SFP). One significant difference to previous policies is that permanent pastures became eligible for direct payments.

We structure the paper as follows: first some definitions of key terms and background information are presented. In the second section we analyse the impact of the CAP up to 2003 on the use of pastoral land. Afterwards we depict the main mechanisms of the Fischler Reform relevant for the use of pastoral land and how the members implemented the reform. This is followed by a description of the impacts of the Fischler Reform on agricultural commodity markets. The paper finishes with the presentation of some national case studies and draws conclusions.

2 Definition and background information

Under the term roughage feeder all domesticated cattle, buffalo, goats, sheep, domestic deer and equids are grouped. Despite the fact that for instance EUROSTAT publications use the term "pastoral animal" instead of "roughage feeder", it is not valid to assume that all these animals are actually on pasture or even that these animals depend on grassland be that cut or grazed. Furthermore, silage maize accounts for roughly one fifth of the main forage area of Germany, France, Denmark and the BeNeLux (EUROSTAT, 2005b). Even if animals graze on land which is not included in any form of crop rotation, one cannot conclude that these

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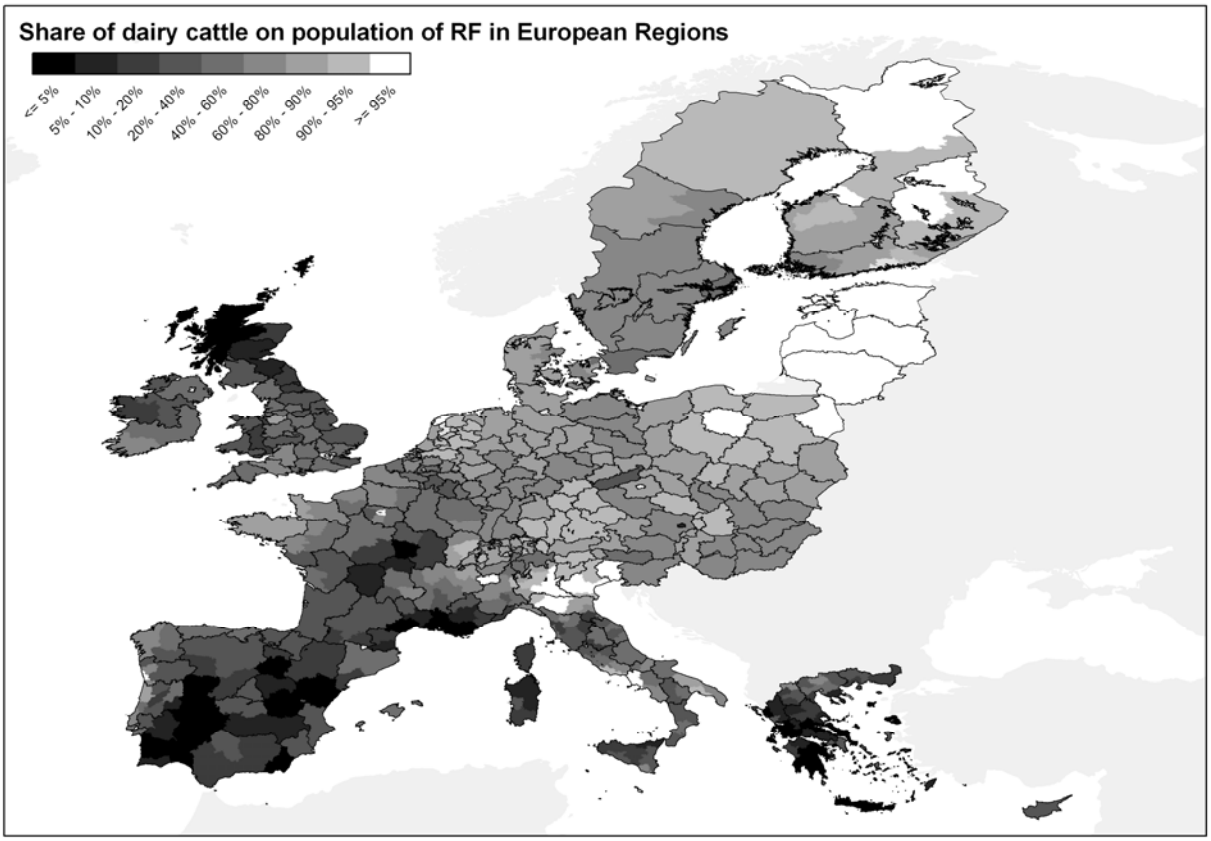
animals necessarily use "permanent pastures". According to Commission Regulation (EC) No 796/2004 permanent pasture is "land used to grow *grasses* or other *herbaceous* forage naturally (self-seeded) or through cultivation (sown)." This would exclude for instance the moorlands of Western Europe, which are dominated by heather (*Calluna vulgaris*). Furthermore, even grazed areas where vegetation is dominated by grasses can be excluded from the statistics, if they are primarily used for other non-agricultural purposes. All this makes the official statistical records on the extent of the development of grassland and pastorally used land problematic. For the purpose of this paper we will define pastoral land as being land devoted to the nutrition of roughage feeders and not included in a crop rotation. Arable land is only included if it is grazed, which is common on the Iberian Peninsula.

In 2003, the stock of roughage feeder in the EU-25 accounted for slightly more than 70 million livestock units (LU) (EUROSTAT, 2005a). By far the most important single group are dairy cattle which account for 24 of the 62 million LU in cattle. Dairy farming is concentrated on the coast of continental Europe from the Normandy region to Denmark (Fig. 1). The areas in and around the Alps constitute a second hotspot. While dairy cattle are the dominant type of roughage feeders in Poland, the Baltics and Northern Scandinavia; their importance in terms of the utilised area is relatively small (EUROSTAT, 2005c). Meat production via beef cattle and sheep is dominant in the North and West of the British Isles, Central and Southern France and the Mediterranean.

Figure 1. Relative share of dairy cattle and their replacement on the population of roughage feeders (RF) throughout Europe in 2003



Sources: Cyprus and Poland (EUROSTAT, 2005a); rest of the EU (EUROSTAT, 2005c); Switzerland (BFS, 2006)

While arable land (mostly silage maize) plays an important part in the nutrition of dairy cattle and fattening bulls in Northern and Central Europe, it is integrated completely differently into the livestock sector in the Mediterranean (Table 1). Here predominantly sheep graze nearly

exclusively on cereal stubbles for a couple of months of the year. Only in Central and North-Eastern Europe permanent grassland is used nearly exclusively by dairy cattle whereas in the other regions suckler cows and sheep have some importance (e. g. British Isles and France) or are predominant (Spain). Non-agricultural land is mostly utilized in extensive meat producing systems (suckler cows and sheep) with the only exception being the alpine system, where most of the land is grazed by heifers needed for the replacement of dairy cattle. Non-agricultural land includes e.g. rough grazing alpine pastures and grazed shrubland.

Table 1. Regional typology of the farming with roughage feeders in the EU members based on the dominant forage source and its dominant utilization

		Major utilization			
		Dairy cattle	Dairy cattle & suckler cows[1)]	Fattening Bulls	Suckler cows only
Main forage source on reginal level	Arable land & non agricultural land				ES, GR
	Arable land	SE, FI, DK, HU Northern IT		locally in DE, IT, NL	
	Arable land & permanent pasture	DE, SE, FI, DK, NL, F, BE, NMS10			PT, ES
	Permanent pasture[2)]	AT, DE, PL, Baltics	FR, IE, UK, locally in DE NMS 10 without Baltics, PL and HU	FR	ES, HU, Southern IT, BE (Wa7llonie), Eastern DE
	Permanent pasture & non agricultural land		AT		IE, UK

1) suckler cows includes all livestock kept at low intensity for meat production like sheep, goats, oxen

2) According to Commission Regulation (EC) No 796/2004

Source: Poland (EUROSTAT, 2005a); rest of the EU (EUROSTAT, 2005c)

3 Mechanisms of the Fischler Reform

Before looking at the Fischler Reform in detail, it should be noted, that while the reform changed the conditions for livestock farming in Europe other political decisions also had an impact. First of all, in 2004 ten new member states (NMS) joined the EU and in most cases the farmers in these states are getting substantial financial support for the first time. Furthermore, prices for most agricultural products in EU-15 are higher than in the 10 NMS, so domestic prices there increased substantially (e. g. ZMP, 2006). Secondly, some regulations of the Agenda 2000 Reform were not set in force before 2005, mainly in the dairy sector where the intervention price was decreased for milk while the amount of milk quota was expanded.

The Fischler Reform is partly a continuation of the previous ones with some new principles (Council Regulation (EC) No 1782/2003, Commission Regulation (EC) No 796/2004 and (EC) No 795/2004). The Fischler Reform is based on four major principles: decoupling, cross-compliance (CC), modulation, and “re-nationalisation”.

Decoupling of the payments means that the premiums are not linked anymore to any specified forms of production (e. g. special male or suckler cow premium) but instead to the eligible

area for SFP. Consequently, the use of permanent pasture is not anymore indirectly supported via animal payments but directly via the area payments.

The second principle "cross-compliance" means that the farmers must comply with a set of EU-regulations on environmental protection, animal welfare and disease control in order to receive the payments. With respect to pastoral systems the most decisive ones are the Habitats, the Wild birds and the Nitrate directives. Aside from these directives, farmers must comply with a set of 'good agricultural and environmental practices'. Among them is the obligation to maintain the proportion of permanent grassland that was farmed during the reference period.

With the Modulation at least 5 % of the national payments for the first pillar must be redirected to the second pillar. However, the intention to strengthen the second pillar was partly sacrificed by the European Council in December 2005 when the rural development funds were cut back in order to achieve budget consolidation (CEU, 2005).

In contrast to the first three principles which are explicitly mentioned in the regulations, the "re-nationalisation" is the consequence of the implementation process. With the Fischler Reform national and regional governments gained some autonomy as the Reform contained many loosely defined terms which they could specify for themselves and the policy explicitly offers an array of options on how to implement the directives. First of all, the governments could decide within certain limits which premiums they want to decouple and what proportion of the payments should remain coupled. Furthermore, they could choose among different options on how to (re-)distribute the decoupled payments among the farmers. Among the terms whose implemented definition varies significantly across the member are "good agricultural and ecological condition" (GAEC) and "eligible area". These definitions have a significant impact on the standards the farmers have to meet in order to receive the payments. While the first relates mainly to the obligations farmers have to fulfil, the second determines the size of the area for which funds can be claimed. Further, the Fischler Reform offers the members the option to shift, additionally to the compulsory modulation, up to 10% of the money spent in the first pillar to the second. Finally, the intended promotion of second pillar strengthened the role of regional and national authorities since they design the respective schemes.

4 Implementation of the Fischler Reform

Since the members states widely used the flexibility offered by the Fischler Reform one cannot assess its consequences without considering its implementation. With respect to the extent of decoupling one can differentiate three groups. The first and the largest opted for a full decoupling of all payments related to livestock husbandry (Table 2). The second group let premiums coupled which promote more intensive forms of farming. In the third group of countries premia linked to more extensive forms of farming remained coupled. These countries primarily intend to stabilize livestock husbandry in more or less adverse conditions.

With respect to the distribution of funds, two pure forms and a hybrid version of payments were implemented. While most members opted for the historical model, meaning each farmer receives the same amount of premiums claimed in a reference period as long as the extent of eligible area does not change. England, Germany and Finland implemented a regional model, resulting after a transition period in a flat rate payment per ha of eligible land.

Table 2. Implementation of the decoupling in the grassland related sectors throughout Europe

Decoupling	Coupled premia	Implemented model		
		Historic	Hybrid	Regional
Fully		UK (Wal, Sco), GR, IE, IT	LU	NMS10, UK (Eng), DE
Partly	Slaughter and special male premia	NL	SE	
	Special male and ewe premia		DK	FI
	Suckler cow premium	BE (Wallonie)		
	Suckler cow and slaughter premia	AT, BE (Flandre)		
	Suckler cow, ewe and slaughter premia	FR, PT, ES		

Source: COM (2006)

5 Expected and Observed reactions on agricultural markets

Many ex-ante analyses have been conducted. Since metastudy of GOHIN (2006) does not show major differences between them we will present the development of the stocks based on the FAPRI EU GOLD model (BINFIELD et al., 2006). FAPRI projects that dairy cow numbers will decline by slightly more than 10 % between 2004 and 2015 in the EU25. In relation to the beef sector the decline in the suckler cow herd varies from member state depending on the decoupling scheme. The model projects that the EU suckler cow herd will decline quite quickly from 2006 to 2008 but recover after that and by 2015 it is projected to be approximately 6 % lower than the 2004 level. In regard to the sheep sector, the decoupling of ewe premia across the EU leads to declining ewe numbers that are projected to be 7 % lower in 2015 than in 2004.

Like any other economic analysis the estimates of FAPRI are of course sensitive to the assumptions invoked in the model and the methodology employed. Nevertheless, whatever model is used (CAPRI, FAPRI, ESIM, AGLINK, GTAP and Agmemod), similar tendencies are observed with some variations in the predicted magnitude (GOHIN, 2006). A review of economic models shows that the estimated decline in the EU suckler cow herd varies from 9.5 to 3.2 %. There is no great variation in the estimates of milk production due to the existence of the milk quota. With respect to the milk price there is some variation in the model estimates from a reduction of 1.8 % to a reduction of 8.8 %.

6 Other factors influencing the use of grassland in the EU

Before presenting the expected consequences of the Fischler Reform for the utilization of grassland in the different member states, the impact of other policies on the farmer's decision will be highlighted. Indeed, the type and intensity of livestock farming and the chosen implementation of the Fischler Reform are two variables, but not the only ones. In the context of the Fischler Reform, the first question a farmer faces is, for which area can he claim payments and must he therefore respect the CC-regulations. Some of the grazed semi-natural plant communities do not fit into the EU definition of grassland and, therefore, do not account, in a strict sense, for the eligible area. In the case of full decoupling, one should consequently expect a strong decline of the grazing use. These habitats account for more then 10% of the total agricultural land in many parts of Western Europe, the Mediterranean, the Alps, and Fennoscandia. However, some countries, as Spain, decouple animal premiums only

partially while others, as the U.K., are quite flexible with respect to the definition of grassland.

However, revenues in pastoral systems are not necessarily all about market revenues and payments of the first pillar of the CAP. The latter payments sum up to roughly 300 € per ha, on average across the EU-15. Since large parts of pastoral livestock farming is concentrated in marginal areas (PFLIMLIN et al., 2005), the Less Favoured Area (LFA) payments contribute significantly to the farm income. However, the less favoured area payments often require compliance with specified stocking densities.

Like the LFA payments the payments in agri-environmental schemes (AES), including organic farming support, are in the majority of the cases linked to the compliance with specified stocking density or promote specified forms of land use. In countries like Germany, Ireland, Belgium and Austria a very significant part of these payments are dedicated to grassland based farming systems (HARTMANN et al., 2006; LEBENSMINISTERIUM, 2003: 83; DIRECTION GÉNÉRALE DE L'AGRICULTURE, 2005). In most countries less area is enrolled in AES than in LFA schemes but more money per ha is spent in LFA schemes.

In addition to these differences in the agricultural support policies and in the natural conditions which make some forms of land use more sensible than others, and some technically feasible options of keeping the landscape open might be legally prohibited. The legally feasible set of alternatives largely depends on the national or in some states regional definition of GAEC. While most countries only implemented the minimum standards demanded by the EU-Commission a few member states go beyond this minimum level and implemented with the GAEC standards a "light" version of an agri-environmental scheme e.g. UK and Italy (FARMER und SWALES, 2004).

Another aspect which must not be forgotten in this context is that management restriction imposed by the NATURA 2000 management plans become compulsory for farmers. Since NATURA 2000 sites often aim at preserving semi-natural vegetation communities, they include, when agricultural land are concerned, a majority of natural or semi natural grasslands.

Furthermore, some countries like Ireland and France use their national milk quota distribution scheme to stabilize and promote dairy farming in marginal areas. Last but not least, it should be mentioned that raising costs for fossil fuels and the generous support in some member states initiated a bonanza of the cultivation of bioenergy crops. In Germany the cultivation of silage maize for methane production intensely competes with its cultivation to feed livestock. This new activity promotes the concentration of cattle farming in grassland areas.

7 Expected consequences for the land use on the national and regional level

The previous chapters show that a plethora of effects and measures are influencing the utilization of grassland at the regional scale. As the relevance of these factors varies from one region to the other, an expert survey was conducted in autumn 2006, in order to get an overview of the recent and expected changes based on local knowledge. The information gained from the questionnaires was complemented by a literature review. Of the EU 25 countries no answers were received for Italy, the Baltic States, Slovakia, Luxembourg, Malta and Cyprus. For Poland and Spain the information given by the experts refers only to certain regions (Carpathians, and Extremadura and Castilla-La Mancha).

The closed-form questionnaire was addressed to agricultural economists located in the different countries, which have professional experience with the assessment of policy implications on the pastoral systems in their home countries. In addition to a general description of the main pastoral systems in their home countries, including data on yields, diets and farm size, the experts qualitatively described the impact of designated political, technological and economical developments on the future use of pastoral resources to assess the relevance of them.

Despite the regional variations a somewhat homogenous pattern emerges. In regions where low productive arable farming systems are predominant, average annual yields below three tonnes of dry matter per ha, some conversion of arable land to permanent grasslands (sown or self seeded) and the extension of ley-farming are expected. This expectation refers mainly to unirrigated sections of the Iberian Peninsula, Greece and southern France (e. g. INSTITUT DE L'ÉLEVAGE, 2006). Before the Fischler Reform arable farming in these areas often yielded negative gross margins, if premia are not accounted for, and extensive meat oriented animal husbandry system can often fulfil the GAEC standards at lower costs. While the extent of grasslands is going to increase the management intensity is quite likely to decrease (e. g. DA SILVA CARVALHO und DE LURDES FERRO GODINHO, 2006). For meat oriented systems an increase in the relevance of pastoral resources in the diet is likely. In France and the Iberian Peninsula especially the non-decoupled suckler cow and the partly decoupled sheep premia will stabilize animal numbers, while in Greece the raising market revenues stabilize the population of small ruminants. Furthermore, the good market conditions for high value products such as the Iberian pig promote an extensive grazing system in the Montado and Dehesa. Looking at dairy farms the picture is different. In the case of dairy farming, cattle as well as sheep, the increasing size of the holdings in addition to structural constraints related to the access of pastoral resources, will promote a shift towards indoor feeding systems. This will lead to a lower valorisation of the pastoral resources. The respective areas however have to be kept in GAEC in order to claim the first pillar payments. Under more favourable conditions like in the Northern parts of the Iberian Peninsula or in irrigated river valleys an intensification of forage production is likely. This is typical for most Mediterranean countries, where a reallocation of dairy farming from grassland areas to irrigated arable areas is generally expected.

Regarding the conversion similar trends are forecasted for the marginal arable regions of the UK and Ireland, where farms have an above average reliance on direct payments. A number of cereal producers who no longer find production profitable, are expected to shift their arable land to pasture and maintain a low stocking density sufficient to comply with the GAEC requirement.

Looking at low yielding grassland regions the picture is slightly different. These areas cover large sections of the northern and western British Isles, the Central and Eastern European mountain regions and the northern parts of Finland and Sweden. Generally, the decoupling leads to declining stocking density in these areas. However, the newly established link of the payments to the area limits the likelihood of abandonment. On the British Isles, Wallonie, France and to a smaller degree in Austria these marginal grasslands are mainly utilized by sheep and suckler cows. All the respective countries and regions but England opted for a historic decoupling approach. In the Wallonie, Austria and France most ruminant related premia remain coupled so the effect of decoupling will be rather small. Furthermore, in Austria grassland farming in marginal areas is well supported by agri-environmental payments. For those marginal areas where grassland was mainly utilized by dairy cattle, the picture looks slightly different. In Finland and Germany, where the utilization of grassland is frequently linked to dairy farming, both opted for a regional premium. This implies a redistribution of public funds to marginal areas that in turn will stabilize livestock husbandry on grassland.

In countries or areas with a high potential yield such as the Netherlands, Denmark, Belgium the Nitrates directive promotes the conversion of arable land to grassland since the directive permits higher stocking densities on grassland than on arable land. Also in the more intensively used parts of Germany and France the CC conditions require an extensification of the land use especially for intensive dairy farms. For these farms the compliance with stocking restrictions becomes for the first time financially relevant. As a consequence the relevance of grass in the diet of the ruminants will remain constant or increase even in high

yielding flocks. In Germany dairy farming currently moves from arable regions to areas with a high percentage of permanent grassland.

The enlargement of 2003 will in most of the New Member States stabilize livestock husbandry especially in marginal areas for a couple of reasons. Firstly, the farmers got access to direct payments which increases the value added of farming. Secondly, the agricultural commodity prices in the old member states are higher than the ones in the new and it can be expected that the differences will decline over time. For the Czech Republic, Hungary and the Carpathian part of Poland it is expected that the utilization intensity of grassland will be unaffected but the extent of grassland in agricultural use will raise especially in the more marginal areas. For Slovenia the experts regard an intensification of the grassland use as the most likely option, while the extent of grassland is going to decline. Apart from Poland milk production is expected to retreat from grassland areas.

The Netherlands, Sweden, Denmark and Finland promote the national beef sector and slaughterhouse activities by keeping some of the beef related premia coupled. In these countries the beef production is nearly exclusively linked to the offspring of the dairy herd. Therefore the slaughter and the special male premium are the measures of choice. In contrast, beef production in Ireland, where all premiums are completely decoupled from production, is expected to decline. A large number of livestock farmers in Ireland and the U.K. were operating at a market loss prior to decoupling. When these payments are no longer linked to production it is expected that a large number of farmers will reduce the number of animals they have on their farms and the national suckler cow herd will decline by roughly 15 % till 2015.

POVELLATO und VELAZQUEZ (2005) assess the impact of the Fischler Reform as being very limited in Italy. They expect that the southern parts will be stronger affected than the northern ones. All in all they expect that the size and the composition of the ruminant herd will remain constant with the exception of a small decline in the number of goats and suckler cows. In many areas grassland use will be extensified to a level which ensures they fulfil of the GAEC standard. In certain regions, like in Southern Tyrol the regional GAEC standards demand a minimum stocking densities for grassland of 0.4 LU / ha (ABL, 2006). Italy limited the impact of the Fischler Reform by setting very restrictive regulations for the trading of payment entitlements (D'ANDREA, 2006: 321).

8 Summary and conclusions

Summarising the results above one can argue that decoupling leads to reduced number of animals since the production may be abandoned or reduced in areas where only the premia turn the production profitable. However, the "accompanying" measures like Cross-compliance, the GAEC requirement or the NATURA 2000 scheme stabilize the area utilized by roughage feeders. Cross compliance will have its strongest effects in the most intensively used regions. Here it sets tight limits on the conversion of grassland to arable land and further limits the intensity of utilization. With the milk premium the high intensity dairy farms derive for the first time a non-negligible part of their income from direct payments. This makes in most countries the compliance with the respective CC restriction for the first time an economic relevant issue for high intensity dairy farms. The requirement to keep the land in GAEC will ascertain a certain minimum stocking in most marginal areas while it makes the conversion of the least productive arable land of the EU into permanent grassland more likely, but only if the regional plot structure and the climate permit the cost efficient operation of pastoral activities. The impact of the NATURA 2000 scheme is limited in most countries. However, the management requirements set boundaries on the possible levels of ex- and / or intensification especially in more marginal areas.

In order to stabilize the utilization of grassland use in marginal areas of the EU 15, most of the members implemented one of the following four different strategies, or a combination of them. The first was to set very tight GAEC standards which actually require some form of livestock husbandry on grassland in order to receive the direct payments (e.g. IT, UK). The second option was to keep coupled the premia which are related to extensive form of animal husbandry. The option for a regional implementation of the decoupling was the third strategy, from which especially extensively managed grassland regions benefit, where this grassland is used by dairy cattle (e.g. DE, FI). The last option is to promote extensive livestock husbandry systems via payments of the second pillar. Of the old member state only Greece can not be attributed to one of these groups. The adhesion will generally stabilize grassland based systems in the new member states. The farmers profit from the direct payments and the raising commodity prices.

One can not argue that agricultural policy does not influence agricultural production. However, production decisions are not affected by policy only. This becomes especially apparent in the dairy sector. While in Eastern and Southern Europe the production is still moving from grassland to irrigated arable land, an opposite trend can be observed in Central and Western Europe. Here dairy farming retreats to productive grassland areas, since on arable land the farmer have many alternatives which yield higher hourly profits.

While decoupling leads to a lower incentive for production the increasing agricultural commodity prices all over Europe after the decoupling give an incentive to stay in production. In 2005 the bull beef prices in 20 out of 23 EU countries exceeded by more than 5 % the average of the five previous years (ZMP, 2006; EUROSTAT, 2006). In 16 countries the prices increased by more than 10 %. Furthermore, in 2006 the beef prices in the EU even exceeded the level of 2005 (USDA, 2006).

Apart from the developments on the classical agricultural markets some new developments are influencing the agricultural production across Europe. In Portugal, the conversion of arable land to grassland is financially supported by electricity companies as a mean of carbon sequestration. Furthermore, the rising costs of fossil fuels do not leave the agricultural sector unaffected. The production of bioenergy, especially of biogas, strongly competes with animal husbandry for silage maize in Germany or grass in Finland.

Given the relatively short length of time since decoupling has actually been implemented (January 2005) it is still very early to state with any confidence the effects of the Fischler Reform on production and animal numbers or to comment on the accuracy of predictions made before the implementation of the policy. Notwithstanding this, indications to date seem to suggest that that the relatively high prices that have prevailed for most commodities since the implementation of the 2003 CAP reform may mean that the depopulation of animals may not be as widespread as was originally forecasted.

References

ABL (AMTSBLATT DER AUTONOMEN REGION TRENTINO SÜDTIROL): Beschluss der Landesregierung vom 27. Februar 2006, Nr. 676 zur Festlegung der auf territorialer Ebene anzuwendenden Verpflichtungen laut Dekret Nr. 4432 vom 15.12.2005: «Disciplina del regime di condizionalità», Beiblatt Nr. 1 zum Amtsblatt vom 11.4.2006 - Nr. 15/I-II; Trento: 58-84.

BFS (BUNDESAMT FÜR STATISTIK) (2006): Tierbestand 2003. In: http://www.agr.bfs.admin.ch.

BINFIELD, J., T. DONNELLAN, K. HANRAHAN und P. WESTHOFF (2006): World agricultural trade reform and the WTO Doha Development Rounds: Analysis of the impact on EU and Irish Agriculture. Teagasc, Rural Economy Research Centre Athenry: 1-96.

CEU (COUNCIL OF THE EUROPEAN UNION) (2005): Financial Perspective 2007-2013. In: http://ue.eu.int

COM (EUROPEAN COMMISSION) (2006): Overview of the implementation CAP reform (first and second wave of the reform). In: http://ec.europa.eu.

D'ANDREA, M. R. P. (2006): Le politiche agricole dell' unione europea, Rapporto 2004-05.. Istituto Nazionale di Economia Agraria. Rome: 423.

DA SILVA CARVALHO, M. L. und M. DE LURDES FERRO GODINHO (2005): Consequences of the 2003 CAP reform on a Mediterranean agricultural system of Portugal. Poster presented at 11th Congress of the European Association of Agricultural Economists, Copenhagen, Denmark. In: http://agecon.lib.umn.edu.

DIRECTION GENERALE DE L'AGRICULTURE (2005): Evolution de l'économie agricole et horticole de la Région Wallonne en 2003. Namur, Belgique.

EUROSTAT (Statistisches Amt der Europäischen Gemeinschaften) (2005a): Animal populations (December). In: http://epp.eurostat.cec.eu.int.

EUROSTAT (Statistisches Amt der Europäischen Gemeinschaften) (2005b): Areas harvested, yields, production. In: http://epp.eurostat.cec.eu.int.

EUROSTAT (Statistisches Amt der Europäischen Gemeinschaften) (2005c): Structure of agricultural holdings by region, main indicators. In: http://epp.eurostat.cec.eu.int.

EUROSTAT (Statistisches Amt der Europäischen Gemeinschaften) (2006): Selling prices of animal products (absolute prices). In: http://epp.eurostat.cec.eu.int.

FARMER, M. und V. SWALES (2004): The development and implementation of cross compliance in the EU 15- an analysis. London: 84. In: http://www.birdlife.org.

GOHIN, A. (2006): Assessing CAP reform: Sensitivity of modelling decoupled policies. In: Journal of Agricultural Economics 57 (3): 415-440.

HARTMANN, E., T., FRIEDER und R. LUICK (2006): Agrarumweltprogramme in Deutschland – Anreiz für umweltfreundliches Wirtschaften in der Landwirtschaft und Kooperation mit dem Naturschutz. In: Naturschutz und Landschaftsplanung 38 (7): 205-213.

INSTITUT DE L'ÉLEVAGE (2006): L'élevage français à l'horizon - Quelles évolutions possibles après la réforme de la PAC? Paris, p : 101

LEBENSMINISTERIUM (2003): Evaluierungsbericht 2003 – Halbzeitbewertung des Österreichischen Programms für die Entwicklung des ländlichen Raums. Wien: 309.

PFLIMLIN A., B. BUCZINSKI und C. PERROT (2005): Proposition de zonage pour préserver la diversité des systèmes d'élevage et des territoires européens. Fourrages (182): 311-330.

POVELLATO, A. und B. E. VELAZQUEZ (eds.) (2005): La riforma Fischler e l'agricoltura italiana. In: http://www.inea.it. Istituto Nazionale di Economia Agraria. Rome, p. 185.

SZABÓ, P. und A. MILELLA (2006): EU Agricultural Income -5.6% (real terms) in 2005. Statistics in focus - agriculture and fisheries (5/2006).

USDA (UNITED STATES DEPARTEMENT OF AGRICULTURE) (2006): EU-25 Livestock and Products Annual 2006. GAIN Report E36107. In: http://www.fas.usda.gov.

ZMP (ZENTRALE MARKT- UND PREISBERICHTSSTELLE) (2006): ZMP – Marktbilanz Vieh und Fleisch 2006. Bonn: 196.