

**ALLIANCE ENVIRONNEMENT g.e.i.e**



**EVALUATION OF THE ENVIRONMENTAL IMPACTS OF CAP  
(COMMON AGRICULTURAL POLICY) MEASURES RELATED  
TO THE BEEF AND VEAL SECTOR AND THE MILK SECTOR**

**EXECUTIVE SUMMARY**

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ALLIANCE ENVIRONNEMENT COMPRISES THE FOLLOWING PARTNERS:



**Institute for European Environmental Policy (IEEP)**

David Baldock, Executive Director  
28 Queen Anne's Gate, London,  
SW1H 9AB, UK  
Tel: + 44 20 7799 2244  
Fax: + 44 20 7799 2600  
[kparrott@ieep.eu](mailto:kparrott@ieep.eu)

**Oréade-Brèche Sarl**

Thierry Clément, Gérant  
64 Chemin del Prat,  
31320 Auzeville, FRANCE  
Tel.: + 33 5 61 73 62 62  
Fax: + 33 5 61 73 62 90  
[oreade-breche@oreade-breche.fr](mailto:oreade-breche@oreade-breche.fr)

## EXECUTIVE SUMMARY

### *Introduction*

There is an obligation under *Article 6 of the EC Treaty*<sup>1</sup> to integrate environmental protection requirements in the CAP. This evaluation seeks to determine the extent to which price support and direct payments applied in the beef and veal and dairy sectors since 1988, through progressive CAP reforms, are in coherence with the obligations of Article 6 of the Treaty. Six sets of CAP policy measures are addressed:

- Price support in the beef and veal sector;
- Price support in the milk sector in combination with the milk quota system;
- Direct payments applied before the 2003 CAP reform;
- Extensification payments;
- Coupled payments applied since the 2003 CAP reform; and
- The Single Payment Scheme and Single Area Payment Scheme.

The study has sought to assess the environmental effects of the CAP measures following a two-step approach. First there is an analysis of the causal chain, leading from the CMO measures to likely impacts at farm level, including impacts on farm structures and management practices. Second is consideration of the effects these are likely to have had on the environment. The environmental effects are various and can be either positive or negative. They can be divided into three principle groups:

- Those relating to greenhouse gases;
- Other more location specific forms of air and water pollution and effects on soils; and
- The maintenance or alteration of landscapes and biodiversity.

The linkages between specific policy measures and the environment are not always straightforward. The following points should be highlighted:

- The beef and dairy measures within the CAP are only one element in a group of drivers influencing farm structures and management decisions;
- They vary in their objectives and mechanisms but few are intended to have a direct influence on specific farm management practices. Certain other policies affecting the beef and dairy sectors, such as agri-environment, are often more prescriptive in this regard;
- There is limited empirical evidence available on actual environmental outcomes from CAP policy induced farm management decisions. It is often necessary to rely on reasoned analysis based on more general evidence; and

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<sup>1</sup> The Treaty on European Union and the Treaty establishing the European Community; Official Journal C 321E of 29 December 2006. Article 6 “*Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities (...), in particular with a view to promoting sustainable development.*”

- A ‘counterfactual’ has to be established to gauge the impact of a measure. This involves a series of assumptions that are unavoidably conjectural.

The study has drawn on a limited range of pan-European sources of quantified data about farm level structures, management and income. These include the Farm Accountancy Data Network (FADN), the Farm Structure Survey (FSS), other Eurostat and DG-Agri databases as well as national statistical databases. These allow observation of trends over time, although in most cases not beyond 2004 or 2005 limiting the evidence available on the most recent period of policy implementation.

Seven national case studies were conducted in France, Germany, Ireland, Italy, the Netherlands, Spain and United Kingdom to cover different production systems and climatic zones (Atlantic, Continental and Mediterranean). A regional dimension was also included in France, Germany, Spain, Italy and the UK, all of which are major beef and dairy producers.

## **The Beef and Veal CMO**

### *Impacts of Price support*

Assessing the extent to which price support in the beef and veal sector is in coherence with the environmental protection integration requirement requires a counterfactual assumption (the situation without CAP price support). An EU domestic price needs to be established for the period and also a counterfactual reference price. The approach taken has been to adopt OECD work on aggregate EU beef prices relative to world market prices and their estimate of the effects of price support. However it is considered that world prices are not a realistic counterfactual since without support under the CAP and in a number of other countries the world price would have been significantly higher, possibly by a factor of about 20 per cent.

### *Structural effects*

Based on this assumption, CAP price support would appear to have increased the price received by beef and veal producers over the counterfactual and provided incentives for increasing production and the use of inputs, including land. In particular:

- **price support has sustained a higher number of beef cattle** (initially rising but against a declining trend since 1997) **and a higher level of beef and veal production than would otherwise have occurred.** Price support and other measures helped to buffer the sector against the impacts of BSE and FMD. Since the implementation of the beef and veal price cut in the 1992 CAP reform, the level of production over market requirements created by price support has decreased. However, the overall production effects of CAP policies were relatively unchanged by the 1992 reforms as hectare and livestock headage premiums were introduced largely compensating for the cuts in price support.
- **At least initially, price support also improved the level of income derived from beef and veal production,** although these benefits are likely to have been capitalised, to some degree, in production factors attached to beef farming, leading to higher fixed costs of production.

- **In principle price support will also have contributed to a higher number of beef farms** than would otherwise have been the case. Overall the number of beef farms is decreasing, but those that remain are increasing in size with the result that the declining cattle population is being concentrated within larger herds on larger farms. Such structural changes, however, also occur in sectors with little support, such as pig farming.
- **Price support would also appear to have helped to maintain extensive production systems within marginal areas to some degree**, with the overall level of production at stocking densities of less than one LU per hectare being maintained. An increasing proportion of this production has taken place within the LFA despite relatively low returns in these areas, for example the number of 'extensive specialist beef rearing farms' in the LFA increased by 40% between 1995 and 2001 in the EU-15 (based on FADN). The FADN data shows that the number of farms with the highest livestock density has declined whereas the number of beef farms with the lowest livestock density has been significantly increasing. This does not correspond very well with the income analysis from which we would have expected to see the opposite trend, since incomes have been higher on more intensively stocked holdings. Factors such as stocking density limits for those in receipt of extensification payments may have been more significant than price support in reaching this outcome. Over the evaluation period, despite the changes outlined above, stocking densities as a whole have remained fairly stable.
- There has been a significant change in the distribution of beef cattle in Europe with marked increases in stock numbers in Ireland and Spain for example. In principle price support is neutral in this respect as it is built on the principle of one market with one price. However, in combination with market driven forces and national policies it explains some of the changes in national beef cattle numbers.

#### *Environmental Effects*

In general, the more cattle numbers are elevated above the counterfactual, the greater the pressures on the environment, particularly as a result of increased levels of manure, air pollution and feed requirements. Particular pressures are likely to be experienced in relation to:

- **Water quality** due to point source and diffuse water pollution from increased levels of livestock wastes, nutrient use on crop land and soil run off;
- **Increased pressure on soils** where inappropriate levels of grazing have occurred leading to a greater risk of soil erosion and localised poaching;
- **Biodiversity** where overgrazing has taken place on semi-natural habitats;
- **Increased emissions of greenhouse gas emissions**, in particular methane (CH<sub>4</sub>) resulting from enteric fermentation; and
- Elevated levels of **ammonia emissions**, impacting on air quality, and acidification particularly in areas where concentration of production has taken place.

At the same time:

- the maintenance of cattle numbers associated with extensive grazing systems particularly in more marginal areas generally will have been environmentally beneficial where stocking densities have been kept within the carrying capacity of the land.

In summary the range of negative impacts arising from greater beef production should be viewed alongside the positive effects on landscape and biodiversity arising from the increased level of grazing by suckler cows

At farm level however, specific management practices can often be the most significant factor determining environmental impacts. Because price support is just one of a number of policy and market factors in the trends noted above, it is not possible to quantify the impacts precisely. Price support has declined over time whilst support to the beef sector in the form of direct headage payments and more recently decoupled payments has increased. It therefore is reasonable to assume that **the impacts of price support in the beef and veal sector at the farm level, and consequently on the environment, have become less pronounced relative to other factors over time.**

#### ***Impacts of Direct Payments and Extensification payments, 1988-2003***

There has been significant expenditure on beef and veal direct payments (including the 'extensification' payment) over the evaluation period rising from €339 million in 1989 (12 Member States) to €7,245 million in 2005 (17 Member States – EU-15 plus Malta and Slovenia). The largest proportion of expenditure across all Member States over the evaluation period has been on the Suckler Cow Premium (37.3% of direct and extensification payments), followed by the Beef Special Premium (32.8% of payments). However direct and extensification payments have worked alongside other CMO measures (beef, dairy and cereals), other policies and legislation, market influences and broader socio-economic trends, which makes the specific, separate impacts of direct payments very difficult to determine.

#### *Structural Effects*

Direct payments have helped support farm incomes during a time of reducing price support and have increased in importance, as a proportion of farm income, over the evaluation period. In general terms:

- **Direct payments have helped to sustain beef farms and, by virtue of the system of headage payments, contributed to an increase in the number of beef cattle in the EU**, until around 2000, when there was a decline as a result of BSE, FMD and other factors. Over the period, beef cattle numbers have been higher than they would otherwise have been, although it is difficult to quantify this.
- Extensification payments contributed around 12-14 per cent, on average, of the farm net value added of more extensive specialist beef rearing farms in the EU-15, according to FADN data in 2000-2004. For the more extensive beef fattening farms the range was 12 to 18 per cent compared with 6 per cent for more intensive farms. This income effect will have contributed to the viability of a wide range of beef producers and the areas remaining under their management. The stocking

density threshold was set relatively high with a threshold of 1.8 LU/hectare rather than being targeted on the most extensive producers.

- **The suckler cow premium and the extensification premium appear to have had the most notable impact in terms of production levels, systems and farm structure.** There has been a significant increase in the number of suckler cows in the EU-15 over the period and an increase in the number and area of farms with suckler cows. **It is likely that the suckler cow premium, as well as the extensification premium, has helped to sustain beef production, increasing the number of farms running suckler cows, thereby slowing the general decline in the number of farms.** In turn, suckler cow farms have helped to retain extensive grazing regimes and grass-based forage systems. Other Pillar Two schemes such as LFA compensatory payments and agri-environment scheme payments have also contributed to these trends. **The suckler cow premium conditions relating to stocking density, individual producer quotas and regional ceilings, however, appear to have had a limited influence on production patterns at an aggregate level.**
- **Extensification payments have, however, had limited impact in terms of reducing cattle numbers and stocking densities.** ‘Extensification’ has occurred on a very limited scale mainly when stocking densities are only marginally above the stocking density threshold. In some regions they did limit the growth in beef cattle numbers and stocking density, as farmers sought to maintain access to the additional payment. However, in other areas, where stocking densities were previously low, they acted perversely as an incentive to increase beef cattle numbers and stocking densities up to the stocking density threshold. The targeting of extensification payments improved after the rule changes in 2000 although the effects of this are not clear.
- **Other direct payments, including the beef special premium and slaughter premium, have contributed to production above the counterfactual but had a less apparent influence on production levels and systems.** Expenditure on the beef special premium, rose significantly in four Member States (France, UK, Germany and Ireland) after 1994. Some farmers adapted their systems to increase eligibility for the beef special premium, for example in some Member States (UK, Ireland) it encouraged farmers to keep and finish more cattle than previously. In other cases, the beef special premium rules limited further intensification and in certain of the most productive regions, for example the Netherlands, some intensive beef producers who were unable to adhere to the stocking density limits, continued production without the direct payments. The slaughter premium has contributed to farm incomes which have helped sustain existing systems of beef and veal production. The deseasonalisation premium worked to extend the beef finishing period in certain Member States but with limited long term impact. **Consequently, these direct payments have generally helped sustain existing intensive systems of grassland management and fodder production.**

#### *Environmental Effects*

While the environmental impacts of these farm level effects vary between Member States, the general analysis is that the suckler cow premium and the extensification premium are the two payments that can be most clearly linked to environmental

impacts and that these have been mixed - some beneficial and some negative - depending on the location.

For example:

- **biodiversity and landscape** have benefited, at least in certain areas, from the retention of extensive cattle grazing, both within and outside LFAs and the continuation of traditional farming practices which sustain features such as small fields, boundary walls and hedges. However, environmental pressures have arisen in certain areas (e.g. parts of Spain and the UK), where cattle numbers have increased beyond the environmental carrying capacity of the land being grazed, with direct payments maintaining stocking levels beyond the sustainable level.
- The extensification premium has meant that fewer farms have intensified than might otherwise have done so, thereby preventing the associated adverse impacts on **water quality and soils**. Where payments have increased the area of land under extensive management, this has resulted in less eutrophication, siltation and soil erosion. In other areas, however, direct payments have either contributed to an increase in, or retention of cattle numbers which will have either increased or retained pressure on water quality and soils.

Continued pressure on the environment from overgrazing has not been significantly prevented by the standard conditions on direct payments and extensification premium, since these were not matched to the varied environmental conditions in different parts of Europe. For example, stocking thresholds were set at the same level for the whole EU territory which did not take into account the specific environmental and farming situation in different regions. In addition, livestock without premium rights were not covered by the stocking limits when extensification payments were introduced. As a result, at least in Spain, stocking densities were set too high to be environmentally beneficial, which encouraged overstocking and pushed livestock numbers to levels beyond the ecological carrying capacity of the land, leading to soil erosion and water pollution. In drier areas, increased stock numbers have also put additional pressure on limited water resources.

As with price support, direct payments have contributed to an increase in the number of beef cattle numbers in the EU and this has had negative impacts in terms of **greenhouse gas emissions and air quality**. However, the fact that much of this increase can be attributed to extensively managed cattle means that the impact will have been less concentrated, in respect of air quality. The effect of the extensification payments, on the other hand, has been to maintain beef cattle numbers, and this will have sustained greenhouse gas emissions and, to a lesser extent, ammonia emissions. However, a more general intensification, which may have taken place in the absence of extensification payments, is likely to have had more adverse impacts on climate change and air quality.

The environmental impacts of the beef special premium and other direct payments are less apparent and relate mainly to the contribution of the payments to the maintenance of existing systems of beef production above the counterfactual. Much of the production is relatively intensive, as in the Netherlands. These intensive systems are associated with negative environmental effects, such as water pollution, soil erosion



and pressures on biodiversity, and these have, therefore been supported by beef special premium payments *inter alia*.

The relationship between direct payments and environmental measures such as agri-environment schemes depends on the circumstances. In some cases, there has been conflict between agri-environment scheme requirements for more extensive stocking and the general incentive for higher stocking arriving from direct, headage-based payments. Where the priority is to maintain grazing, the direct payments (suckler beef) may provide the incentive to sustain production whilst agri-environment measures compensate for specific management prescriptions.

## **The Dairy Sector**

### ***Price support and milk quotas***

As with the beef and veal sector, establishing the counterfactual scenario, the situation without CAP price support, is not straightforward. A counterfactual reference price in the absence of the policy is needed for the analysis. Given the difficulties in calculating this, a method based on the OECD estimates of EU and world price levels and the value of EU price support has been adopted. The world market price reported by the OECD is, however, considered to be below that credible in a counterfactual by a factor of up to about 20 per cent but varying over time because of the impact of subsidies in the EU and some other exporting countries.

### ***Structural Effects***

In terms of production systems, dairy farming is more homogeneous than the beef and veal sector. There is reliance on a limited number of breeds, capable of high yields and widely used technologies. Most production occurs on specialised farms. The majority of farms are managed on a relatively intensive basis and stocking densities are higher than on beef farms.

The uncertainties regarding the precise production and structural effects of the dairy CMO price support mechanisms are considerable. The counterfactual is particularly hard to specify with any certainty and the price support effects are combined with the operation of the milk quota. The quota has limited production in the EU and has been binding on production in many Member States for most of the period. It has also prevented production from moving between Member States. In summary:

- The initial introduction of the quota system arrested a sharp upward trend in EU production.
- Whilst it is likely that price support on its own has increased the level of milk production above the counterfactual, production in the more competitive Member States has been constrained by the operation of the quota system, with production levels remaining fairly stable over the evaluation period. In this sense the quota system has inhibited some of the increase in milk production that might have occurred in response to price support alone. The separate impact of the two policies is therefore difficult to distinguish. At least initially, price support is likely to have improved the level of income derived from milk production, although these benefits are likely to have been capitalised to some degree in production factors attached to dairy farming, leading to higher fixed costs of

production. **Without the CMO, however, price levels probably would have been lower and less capitalised into land and quota.**

- In addition, it seems probable that price support has prevented as rapid a decline in the number of dairy farms as would otherwise have been the case. Furthermore, if quota had been permitted to move between Member States, the decline in the number of farms is likely to have been greater. More regional concentration within the EU would have occurred as indicated by the range of quota values. The situation in relation to the number of dairy cows is less clear. Whilst the milk quota has resulted in stabilising milk production, there has been increased productivity in terms of milk yield per cow and per hectare which in turn has led to a decline in the number of dairy cows over the years. **Cow numbers are likely to have been lower in the absence of the CMO, especially since quota has inhibited structural change.**
- Whereas there has been over supply relative to quota in some Member States, most notably Italy, this would have been less likely to have been the case at a lower or non-existent level of price support. In countries where milk quota is tradable between regions we have seen some regional concentration and specialisation of milk production. It appears reasonable to assume, therefore, that for the EU as a whole, production has been at a higher level than it would have been without the CMO in place and **that distribution of milk production between Member States, and therefore between regions in the EU, has been affected by the quota system. If quota had been tradable between Member States a greater level of geographic concentration of production would have been likely** (the transfer of quota within Member States is not considered at this stage, as this is the subject of an ongoing separate study). Relative price stability has contributed to confidence in the sector and hence both to investment and to the maintenance of production.

#### *Environmental Effects*

The environmental impacts of price support in combination with the milk quota regime are related to the higher numbers of dairy cows relative to the counterfactual. However, the potential environmental pressures resulting from this will depend to a significant degree on farm management decisions and investment in the dairy enterprise. Drivers of such decisions will include a range of factors including legislation such as the Nitrates Directive.

A greater number of dairy cows will result in:

- **Elevated emissions of methane**, one of the principal greenhouse gases, since these are directly related to cow numbers as well as higher levels of nitrous oxide production from manure, albeit on a smaller scale.
- Increased production of slurry and nutrients will add to the **pressures on the aquatic environment and increase ammonia emissions**, whilst increased feed requirements will result in a larger demand for fodder crops, meaning that a larger area of grass and other forage crops, particularly silage maize, will be devoted to dairy production. Since these forage areas are intensively managed on the majority of dairy farms the additional area represents an increased environmental pressure on most specialised dairy farms.

- A greater area of land devoted to fodder production, most of it likely to be under intensive management. This potentially increases the use of inorganic fertilisers and biocides, depending on the alternative land use, which leads to negative environmental effects, particularly on **water quality and biodiversity**.
- In so far as the CMO has increased the number of dairy cows and holdings above the counterfactual, less land has been available for other production systems. Beef cattle production, which in some circumstances would be an alternative to dairying, is generally a less intensive form of production. However, the scale of these effects cannot be estimated with any accuracy because of the uncertainties over the production impact of the CMO.

Concentration of production within larger farms occurred during the period, although the role of the CMO in driving this at an EU level is unclear. It has potential benefits as well as drawbacks in pollution terms. For example:

- It can result in more **pollution risks from livestock wastes** in particular where they are concentrated within a smaller area.
- However, there is some evidence to show that larger scale operations can be more efficient in managing manure, wastes and other pollution hazards. They may also be more profitable and ready to invest in measures to reduce negative environmental effects, for example improved manure and slurry handling facilities.
- The progressive implementation of the Nitrates Directive and other water pollution measures has brought with it more stringent water pollution standards at the same time as farms have got larger and it is not clear which of the two drivers (legislative pressure or investment associated with structural change) is more significant.

There is a general tendency towards intensification in the dairy sector, with higher annual milk production per cow, although this does not seem to be associated with increased stocking densities. This is partly because of a tendency for farms to maintain their forage area as milk cow numbers fall. At the same time, however, they may intensify production on the forage area, including by switching from grass to forage maize. If it is unprofitable or impossible for a farmer to increase production levels, they may concentrate either on increasing yields per cow on a fixed area or on containing costs or both. Higher yielding cows do generate more wastes, increasing environmental pressures. However, fewer cows are needed for a fixed quantity of milk as their yield rises. Consequently, there is a trade off between the two effects and **the total environmental burden from growing milk yields may be broadly unchanged in pollution terms**.

### *Coupled payments after 2003 reform*

Since the 2003 reform came into effect the application of coupled payments in the beef and veal sectors in particular has been significantly reduced. Only nine Member States of the EU-15 have adopted some form of coupled payments in the beef sector. The relatively short period of implementation - the coupled dairy premium from 2004 and beef coupled payments since 2005 - means that there is little reliable data available to enable a robust analysis of their impacts. Data to assist with the assessment of impacts of CNDPs in new Member States is even scarcer.

### *Structural Effects*

Despite the paucity of data, the following farm level effects have been observed in relation to the **beef and veal sector**:

- Coupled payments in the beef and veal sector have contributed to the maintenance of incomes on specialist beef farms in Member States where they have been retained. Specialist beef rearing farms are likely to have benefited in particular, from the coupled suckler cow premium and to a lesser degree from the coupled beef special premium and slaughter premium. In new Member States, CNDPs which are common in the beef sector have, alongside SAPS payments, contributed to an increase in farm incomes.
- Coupled payments appear to have contributed to maintaining beef cattle numbers above the counterfactual. In Member States which have retained the suckler cow premium, the number of suckler cows has not decreased to the same extent as those which have not. This effect probably applies in the LFA although there is insufficient data to prove this. This will have assisted the maintenance of extensive grazing regimes and grass-based forage systems. Pillar 2 schemes such as LFA compensatory payments and agri-environment scheme payments will have contributed to this result in varying degrees in different regions.
- The partially coupled beef special premium has contributed to some extent to the maintenance of beef cattle numbers in the countries where it has been implemented and this is likely to have supported farms with more intensive grassland management systems and fodder production.
- The influence of the coupled slaughter premium on production, systems and management is less clear as the impact on the incomes of existing systems of beef and veal production appears limited.
- CNDPs have been paid on a significant scale in some new Member States, and will have had similar effects to other partially coupled payments although there is little evidence to establish impacts. Suckler cow payments have been applied in five of the new Member States. However, they are only likely to have had a marginal impact on restructuring trends, resulting in fewer farms and farmers and more production concentrated in medium and larger farms.

In relation to the **dairy sector**, the coupled dairy premium has had limited impact on dairy farm incomes and minimal impact on production levels and management practices. This partly arises from the short time for which it has operated and the fact that most dairy farmers are not in a position to adapt their systems in such a short timeframe.

### *Environmental Effects*

The environmental impacts of coupled payments are similar to those of the direct payments noted above. They include firstly those arising from management choices directly attributable to the payments and secondly those resulting from adherence to cross compliance conditions. However, it is important not to overstate their influence given the wide range of other drivers including market trends and Pillar Two schemes.

The main direct impacts are linked to the incentive to maintain more cattle than otherwise and the subsequent continuation of both intensive and extensive management systems. The coupled dairy premium appears to have negligible direct impact on farm production, management or environment. In summary:

- There will be **increased pressure on water quality and soils** resulting from the use of coupled payments because of elevated cattle numbers, leading to higher levels of organic waste being produced. The pressure, however, will vary considerably between regions depending on the stocking density. **These pressures will be increased, broadly in proportion to the number of additional stock.**
- **Biodiversity and landscape** are likely to have benefited from the coupled suckler cow premium, at least in certain areas, from the retention of extensive cattle grazing, both within and outside LFAs and the continuation of traditional farming practices which sustain features such as small fields, boundary walls and hedges. However, environmental pressures continue in certain areas (e.g. parts of Spain), where cattle numbers are being maintained beyond the environmental carrying capacity of the land being grazed.
- The maintenance of cattle numbers arising from beef coupled payments will have sustained **greenhouse gas emissions** and, to a lesser extent, **ammonia emissions** above the level that they would have been otherwise.
- The payments will affect the **balance between cattle and other grazing animals** where there is a choice. For example, in Spain, where beef cattle payments continue to be 100 per cent coupled but the sheep and goat premium has been 50 per cent decoupled, there will be an incentive to retain cattle although this is not the environmentally preferred option.
- All beef and dairy farmers receiving coupled payments are obliged to adhere to **cross compliance conditions**. Some, for example specialist dairy farms, have been brought into the cross compliance system for the first time. While the environmental standards embodied in the SMRs apply to cattle farming irrespective of cross compliance there is evidence from the case studies that it has had an impact on awareness of and response to these standards, in some countries at least. GAEC standards relating to grazing, scrub control and soil management are clearly relevant to cattle, especially beef farmers in most Member States. Insofar as they are enforced they can be expected to assist in the reduction of environmental pressures.

Direct payments, in short, incentivise the retention of more beef cattle than otherwise, subsequently raising environmental pressures with regard to air and water pollution and soils. At the same time there is a section of the suckler beef herd which is of importance for landscape and biodiversity management, particularly on permanent grassland, much but not all of it in the LFA. In some regions, the suckler cow premium provides a significant contribution to the viability of this environmentally sensitive segment of the beef herd although it is not targeted exclusively on it.

## Single Farm Payment

Assessing the extent to which the shift from coupled payments to the different ways of operating the Single Farm Payment (SFP) is in coherence with the environmental integration obligation **can only be based on limited evidence from a short time period**. It is difficult to judge against the counterfactual of no payment.

### *Structural Effects*

The shift from coupled to decoupled support can be expected to change production patterns over time as the market distortions associated with the former cease to operate. Structural adjustments that may potentially take place include:

- reduced stocking of those animals generating poor market returns; and
- the cessation of beef production on some farms and build up on others, depending on the efficiency of producers and their price expectations.

To date, however, apart from some decline in stock numbers, more significant changes have not yet become apparent, although there is some anecdotal evidence to suggest that some restructuring is occurring. This is probably because of the short time that has elapsed since the introduction of the SFP and the relatively limited changes in the actual payments received by most farmers so far due to the way in which the SFP is being introduced in different Member States. However, **we can anticipate greater changes in production patterns over time, depending partly on market developments, with subsequent environmental impacts**.

Based on the current data available at the EU level, it is difficult to discern any significant difference in farm level impact according to (a) the degree to which coupling has been retained in the beef sector, (b) the year in which the Single Payment Scheme was introduced and (c) the method used to calculate each farmer's Single Payment entitlement. Different trends taking account of these three variables may be more evident in the years to come. Despite this, the following farm level impacts have been observed:

- Although there are material variations, **beef cattle numbers are decreasing at a slightly faster rate in those Member States with fully decoupled payments** than in those that retain partially coupled payments. However, this is a pre-existing trend and it is difficult to ascertain the exact role of the SPS in influencing it.
- Although there are some exceptions, **beef cattle numbers have increased over the first years of accession (2004-2006) in those Member States that use the SAPS**. This follows significant fluctuations in stock numbers and may in part be due to cattle numbers returning to historically higher levels as conditions for investment have improved.
- **Dairy cattle numbers are decreasing across all Member States irrespective of the date of integration of the dairy payment into the Single Payment Scheme,, choice of payment model or the retention of coupled payments in other sectors**. The SPS does not appear to distort an underlying trend towards the

rationalisation of the dairy industry whereby herds are falling but yields are increasing.

- Eight Member States appear to be using Article 69, predominantly in the beef rather than the dairy sector, with either environmental or product marketing objectives. There are considerable variations in the resources committed but little information available on the outcomes so far. **More information is required on the application of Article 69 before conclusions can be drawn on the scale of change** and the impact this may have on the environment.
- There is anecdotal evidence to show that restructuring of the beef and dairy sectors is occurring with some regional intensification, some localised marginalisation and some substitution between beef and sheep farming depending on regional conditions. A large scale conversion from animal rearing to arable farming looks unlikely given the **rules on the conversion of permanent pasture**.

### *Environmental Effects*

The resulting environmental impacts of changing herd sizes range from the positive to the negative and depend very much on the local context. However, it would be wrong to attribute these changes completely to the introduction of the fully decoupled SPS or SAPS. The key impacts include:

- The decline in beef cattle numbers may be positive in terms of reducing **soil erosion and water pollution** and the increased specialisation of the dairy sector may help to limit point source pollution through the efficient management of manure although the level of risk is greater;
- Methane and nitrous oxide emissions will also decline as a result of a fall in cattle numbers, reducing **greenhouse gas emissions** from the beef and dairy sectors. Ammonia emissions from the beef sector would also decrease which will reduce the sector's contribution to acidification. However, if permanent pasture is ploughed up to permit the growth of arable crops, some carbon sequestration capacity is likely to be lost. Localised methane, nitrous oxide and methane emissions could increase where dairy cattle rearing becomes regionally concentrated, although at national level the net contribution of the sector to greenhouse gas emissions and acidification could decline; and
- Potential negative effects in terms of an enhanced risk of undergrazing or abandonment in some places, which may lead to less species rich pastures. At the same time declines in stocking density will be beneficial for **biodiversity** in some regions where these were previously above the ecological carrying capacity of the land. Increased specialisation and concentration of the dairy sector could result in decreased **landscape** diversity and a reduction in mixed farming systems, which tend to be beneficial to biodiversity.

In summary, it is too early to make a firm judgement about whether the different implementation options of the SPS are in coherence with the environmental integration option, given the limited information available. The evidence suggests that there are likely to be reductions in environmental pressures following an anticipated fall in cattle numbers. At the same time, the risk of undergrazing and biodiversity losses will increase.

The SPS and SAPS in principle avoid the direct production incentives of previous policies and the associated environmental costs. However, given the greater risk of reduced grazing and pasture maintenance in sensitive areas, cross compliance rules, including those on the conversion of permanent pasture, have a clear role in the new policy architecture alongside targeted rural development measures.

The impacts of the more recently introduced Article 69 measures are not yet clear. Having been only recently implemented there is little information forthcoming on their impacts on the beef sector and hence on the environment. More information on implementation and related impacts from the Member States concerned would be helpful.

### ***Conclusions and Recommendations***

A combination of price support and direct payments has led to elevated numbers of cattle above that which would otherwise have been the case in the beef, veal and dairy sectors with some restraints arising from the quota system in the dairy sector. This has increased:

- Levels of greenhouse gas emissions;
- Water pollution;
- Ammonia emissions;
- Pressure on soils;
- Land devoted to fodder production, including both intensively managed grass and maize; and
- Pressure on landscape and biodiversity in certain areas

At the same time it has supported the retention of a proportion of the beef herd which is extensively managed, which has contributed to landscape quality and biodiversity.

Attempts to target support more on the relatively extensive section of the herd through attaching stocking thresholds to direct payments have had limited success due to the use of standard stocking thresholds across the EU. These have not been sensitive to local environmental conditions and were set at too high a level to significantly differentiate in favour of those farms pursuing more extensive grazing systems.

### **Recommendations relating to the beef and veal sector**

The suckler cow premium has been environmentally beneficial in some areas by retaining grazing by suckler cows where this is needed, particularly in areas of High Nature Value. However, as a policy tool it is not able to sufficiently fine tune the location or management of stock, such as matching stocking densities to the environmental needs of a particular area. From an environmental perspective the stocking density (and the right composition and management of stock) are essential to achieve the optimal grazing regime for the habitat required.

At present rural development measures aimed at sustaining beneficial farming practices offer compensation to producers in the LFA and those signing agri-environment agreements. However, compensation alone may not cover the full cost



of providing the desired environmental outcome if the underlying system is insufficiently profitable. For this reason, a capacity to focus support to farming systems of particular environmental value in the areas where they are most beneficial would complement these rural development measures.

Opportunities for more focussed support could be achieved through the use of a less sectorally focused and more environmentally flexible 'Article 69' approach, alongside more targeted Pillar Two measures, with the latter delivered through the agri-environment measure or a revised LFA measure with a greater emphasis on the delivery of environmental outcomes.

Additionally, there is a need to review the application of Article 69 to evaluate the outcomes that it has delivered up to now, particularly from an environmental perspective.

### **Recommendations relating to the dairy sector**

Most dairy enterprises are managed intensively creating considerable environmental pressures, although some of these, such as greenhouse gas emissions, are declining. Only a small percentage is farmed less intensively on environmentally valuable habitats. Several areas of concentrated production are in Nitrate Vulnerable Zones. Confidence in European production has increased under current world prices. The Commission has indicated that milk quotas will cease to apply after 2015, with measures to allow a soft 'phasing out' proposed as part of the CAP Health Check.

This suggests two key policy related needs for the future in relation to the environment. Firstly, sufficient measures need to be in place to manage growing environmental demands – especially in relation to water pollution and climate change. Existing cross compliance measures do not focus on some of the most pressing concerns, such as diffuse pollution and accelerated reductions in greenhouse gas emissions. Additional action therefore appears necessary. Second, there may be circumstances in which the continuation of dairy cattle production is desirable environmentally, for example in Alpine pastures, and where alternatives such as beef rearing would either not be beneficial environmentally or would not be viable. In such cases a dedicated and well targeted measure under Article 69 could play a role to support rural development measures, such as agri-environment, which have been applied on a limited scale in the dairy sector relative to beef production.