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In collaboration with:
The European Nature Conservation Agencies Network (ENCA-net)

Learning the lessons of the Greening of the CAP

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Institute for European Environmental Policy

April 2016

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Learning the lessons of the Greening of the CAP

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Executive Summary

The 2013 reform of the Common Agricultural Policy (CAP) brought about a fundamental change to the architecture of the CAP, with the introduction of payments for implementing compulsory 'green' measures under Pillar 1, previously the domain solely of 'compensatory' income support payments. The rationale behind the introduction of these green measures was to provide a substantial funding resource (30 per cent of the direct payments budget, approximately €12 billion per annum) to support improved environmental management on all agricultural land in the EU-28.

The purpose of this report is to consider some of the lessons that can be learned from the introduction of green payments into Pillar 1 of the CAP in the 2013 reform. It reviews the original rationale for greening Pillar 1 and the many alterations made to the proposals during the negotiation process. It then provides an overview of the potential environmental impacts of these measures and highlights some of the challenges of determining their environmental additionality. Finally, it offers some preliminary thoughts on some possible future options for greening, with a focus on alternative means of delivering improved environmental management across the farmed countryside in the EU-28, considering the environmental, administrative and political pros and cons of each option.

The greening measures which emerged from the negotiation process

The Commission's original greening proposals involved the introduction into the direct payments regulation of the requirement for 'simple, generalised, annual and non-contractual payments' for three actions designed to be beneficial for environment and climate. The logic was that by requiring a baseline of important, but not too demanding, environmental management across the farmed countryside under Pillar 1 this would both have benefits in its own right and could free up resources within Pillar 2 which could be spent to increase the ambition of agri-environment schemes. The requirements under cross compliance were to be altered somewhat, with some of the previously optional standards of Good Agricultural and Environmental Condition (GAEC) forming the basis of the new green direct payments.

The green measures in the legislative proposals were:

- **maintenance of permanent grassland at the farm level** – applicable on permanent grassland;
- **crop diversification** – applicable on arable land and open air horticulture,
- **ecological focus areas (EFA) at seven per cent of the arable area** – applicable on arable land and open air horticulture as well as on permanent crops;

Agreeing the design and the details of the greening measures took up a significant portion of the three-year negotiation process between the Member States (Agriculture Council) and the European Parliament. The result is generally described as a weakening of the environmental content of the greening measures compared to the proposals, although some of the exemptions agreed sought to avoid perverse effects. Overall the final outcome has meant a reduction in the agricultural area affected as well as the number of farms that were required to make any changes to their farming practices.

The potential environmental outcome from the greening measures

The new greening measures were implemented for the first time in 2015 with significant variations in the implementation decisions made across the Member States. The early evidence from these decisions is that opportunities for delivering significant additional environmental value through the greening measures have not been taken in most cases. The actual environmental impact of the greening measures on the ground will be influenced by farmer choices on uptake and implementation, with accurate information only just emerging on what these are.

The extent to which the introduction of the greening measures changes the attitudes of farmers is also important to consider. There is little doubt that during the greening negotiation and implementation processes, farming organisations were heavily focused on minimising the disturbance to what they saw as normal farming processes. Now that those affected have had to put the requirements in place in their farming system for the first time there is a chance that over time the hostility to what was seen as the added bureaucracy of greening might conceivably fade. If some of the simplification proposals currently on the table are adopted, could it even turn to a positive attitude? Ultimately the attitude and decisions of farmers are critical in bringing about improved environmental performance on agricultural land. In 2015, the attention of national administrations and farmers' organisations has been focused on the practicalities of implementation and discussions have centred on 'simplification' rather than how to get most environmental value from the measures. How attitudes adjust once the measures move into their second year of application remains to be seen.

Challenges in demonstrating the additionality of greening

Assessing the environmental 'additionality' of the greening measures in practice, as with any environmental interventions in the agricultural sphere, has to overcome the following challenges:

- Assembling clear and readily accessible evidence of the environmental impacts of specific farm practices;
- Establishing clear intervention logics and measurable objectives for the measures with respect to each aspect of the environment: water, soils, air, climate, biodiversity and cultural landscape;
- The limited availability of robust baseline data;
- The need to improve the availability of data without excessive cost; and
- The relatively protracted timescales for monitoring change whilst also disentangling the effects of greening from those of other drivers and policy instruments.

These are non-trivial concerns. Resolving them will require resources and time and also a sense of realism. Given that greening is fundamentally an attempt to encourage higher standards of environmental management on the majority of agricultural land, it raises issues about gathering adequate baseline data and finding ways to monitor and inspect the agriculturally managed territory of each Member State on a periodic basis in a cost effective way. This will require considerable effort and innovation to exploit to the full the possibilities of remote sensing by satellite, drones and other techniques, and finding ways to pool or integrate this information with other data sets (on soil mapping, weather and

climate) and possibly also farmer-owned data collected by precision farming techniques and equipment. Ensuring best practice in the course of such data gathering, pooling and analysis will be an important priority in the coming years. Collection of farm-level survey data to corroborate such information using representative samples will also be important.

The new monitoring requirements for the 2014-2020 CAP are a step in the right direction but more is required along the lines outlined above in order to increase environmental focus and value added. New tools also could be helpful; for example a more complete inventory of the relationship between different farming practices and agronomic considerations on one side and environmental outcomes under different conditions on the other.

Future options for greening

Four alternative future approaches for greening are set out. These are based on the premise that the strategic direction of the 2013 reform to introduce a major new element to improve the environmental sustainability of EU agriculture is correct, but the current approach is still not optimal. These are as follows:

- ***Option A: Abolish green direct payments*** and revert to using cross compliance (particularly in Pillar 1) as the mechanism for delivering basic environmental management across the farmed countryside;
- ***Option B: Retain the greening measures in Pillar 1***, but amend the rules to strengthen the environmental value added;
- ***Option C: Shift the greening measures from Pillar 1 to Pillar 2***
- ***Option D: An integrated option***, **whereby the CAP is redesigned as a single integrated set of measures structured in a tiered hierarchy** without the blurred distinctions of purpose, periodicity, funding and structures which characterise the current two-pillar structure.

These options are assessed against three criteria: a) Delivery of additional environmental benefit; b) administrative burden; and c) political feasibility. Addressing criteria a) and b) together allowed for some very broad assessment of potential cost effectiveness to be made for each option.

The alternative approaches outlined above are described and assessed in outline only. The focus is on identifying an approach to delivering improved environmental management across the farmed countryside in the EU-28. The descriptions of the various options do not attempt to answer all the detailed questions relating to design and delivery. Rather they are intended to stimulate debate about possible ways of improving the level of environmental additionality now being generated from the current Pillar 1 greening measures. This is relevant in view of the recent public consultation by the Commission as well as forthcoming discussions on the Multi-Annual Financial Framework and the future of the CAP post 2020.

The results of this preliminary and broad-brush evaluation are summarised in the table below. An important distinction between the four options is that options A and B rely on the principles of Pillar 1, namely the measures concerned are annual, non-programmed, non-contractual, obligatory and 100 per cent EU-financed. In contrast, option C would operate under programmed, multi-annual, regionally defined, menu-driven, voluntary and co-

financed Rural Development Programmes. Option D takes a different approach by departing from the currently strong distinction made between the two Pillars in this domain (the distinctions between them being now blurred in any case) but could embody an approach based more on the principles underpinning Pillar 2.

Table 1: Overview of environmental, administrative and political strengths and weaknesses of different options

Options	Variants	Strengths and weaknesses: Environmental	Strengths and weaknesses: Administrative	Strengths and weaknesses: Political feasibility
A. Abolish separate green direct payments – add greening to cross compliance (XC)		• Unlikely to raise environmental standards • Strengthens XC • Environmental delivery is then more vulnerable to cuts in direct payments • Less rigorous monitoring under XC compared to greening?	• This is structural simplification consolidating greening and XC • Should reduce admin costs • Much depends on how the greening is translated into XC	• Simplicity could be popular • Depends on fate of the green payments: farmer reaction negative if this means 30% payment cut • No new distributional issues
B. Retain the greening direct payments in Pillar 1, but amend the rules to strengthen the focus on environmental value added	B1: Retain green direct payments as currently formulated but change the administration, verification & control regime	• Attempts to raise level of environmental ambition • Better environmental delivery if more trust in administrative 'climate' • Modest and uncertain environmental gain	• Purpose is to streamline transactions costs without diminishing environmental delivery • Hard to see how this could be cheaper than Option A	• Will appeal to farmers and administrations • Environmental authorities and opinion not likely to be impressed by options A or B1 • No new distributional issues
	B2: Retain the concept of green direct payments, but raise the level of environmental ambition	• Intention is to improve carbon, nutrient and biodiversity management • More targeted & precise measures • Should deliver more than A or B1	• Hard to avoid higher admin costs • But cost effectiveness may be higher • Demands administrative innovation (as does B1)	• Higher environmental demands with same payments a hard sell? • More evidence of the environmental necessity of the measures would help
C. Shift the funding currently allocated to green direct payments from Pillar 1 to Pillar 2	C1: Transfer the current suite of green measures to Pillar 2 with some amendments	• Better delivery with multi-annual voluntary measures (also applies to C2) • Area coverage of measures could be reduced if not compulsory?	• High initial set-up cost • Depends on degree of compulsion • Could represent simplification if it is fully integrated into agri-env.	• Ultimately depends on perceived necessity and acceptability of raising environmental standards • Level of compulsion interacts with co-financing: if compulsory then 100% EU financing will be sought. • Depending on payment rules, these options could redistribute support between MS and between farmers
	C2: Design a revised set of basic environmental measures available to all eligible farmers, covering all farming systems	• Even better delivery with better targeting • But likely concentration of measures spatially?	• More demanding and thus likely higher set-up costs than C1 • Same points as C1	
D. An integrated option, redesigning the CAP as a single set of measures structured in a tiered hierarchy	Suggested structure is: Tier 4 - Higher level payments Tier 3 - Intermediate payments Tier 2 - Payments in ANC areas Tier 1 - Basic payment All in multi-annual contracts.	Environmental aims are more coherent: T4 Specific outcomes, enhance & restore T3 Basic environmental management, including HNV & organic T2 Payments for Areas facing Natural Constraints T1 Compensation for EU high standards	• This structural change in CAP needs considerable development • Big potential simplification by move to multi-year contracts	• Depends on whether current simplification exercise within context of 2013 Regs produces results • If not, this points to radical change • Stronger evidence base required for stronger action

1 Introduction and purpose

The 2013 reform of the Common Agricultural Policy (CAP) brought about a fundamental change to the architecture of the CAP, with the introduction of payments for implementing compulsory 'green' measures under Pillar 1, previously the domain solely of 'compensatory' income support payments. The rationale behind the introduction of these green measures was to provide a substantial funding resource (30 per cent of the direct payments budget, approximately €12 billion/year) to support basic environmental management on all agricultural land in the EU-28.

In the event, the final content of the green measures agreed via co-decision between the Council and the European Parliament, was rather different from what had been proposed in 2011 by the European Commission. Not only had the content of some of the measures been expanded, most notably the Ecological Focus Area (EFA) measure, but numerous exemptions had been agreed. While some of these exemptions aimed to avoid perverse effects, overall it has meant that a far lower proportion of agricultural land was required to comply with the measures than had originally been intended, despite still receiving the payment, and land with permanent crops was completely exempt.

The new green measures were implemented in Member States for the first time in 2015. Given the wide range of choices available to Member States for implementing these measures, it is no surprise that there are significant variations in the final implementation decisions made. From an initial review of these choices, it looks as if the opportunities for delivering significant environmental value through the greening measures have not been taken in most cases. However, the question that remains is what the environmental implications of these choices are likely to be on the ground and whether or not the way in which the greening measures have been implemented has enabled Member States to use their agri-environment-climate budgets to complement these measures, freeing up funding for the design of more tailored and targeted agri-environment-climate schemes under their rural development programmes (RDPs). Subsequent farm management decisions will then be particularly important in determining effects on the ground. Evidence is just starting to emerge on how farmers have implemented the green measures, in particular which EFA options they have chosen. Furthermore, the new suite of agri-environment-climate schemes only came into operation on 1 January 2016. Over the succeeding months, therefore, more evidence will emerge on the changes in land management that have been achieved through greening.

Although only one year of implementation has taken place, commitments were written into the legislation to review greening after the first year. The purpose is both to assess its impact on agricultural production, and also to analyse the question of whether or not the percentage of land dedicated to EFA should be increased (with a proposal on this latter issue to be put forward by the end of March 2017). At the same time, responding to concerns from Member States, Commissioner Hogan has committed to looking at ways of simplifying the administrative aspects of greening. Given this context and the forthcoming discussions on the Multi-Annual Financial Framework (MFF), it seems an appropriate time to review the

current state of play with greening of Pillar 1, in view of the original intentions for these measures and to consider whether these objectives might be achieved better in other ways.

The purpose of this report is to consider some of the lessons that can be learned from the introduction of green payments into Pillar 1 of the CAP in the 2013 reform. It reviews the original rationale for greening Pillar 1 and the fate of the proposals in the course of the negotiation process. Based on Member States' implementation choices for greening, the report provides an overview of the potential environmental impacts of these measures and highlights some of the challenges of determining their environmental additionality. Finally, it offers some preliminary thoughts on alternative options for greening, considering how the content of the measures might be revised as well as how and where they are incorporated within the CAP, considering the environmental, administrative and political pros and cons of each option.

The options outlined in the final chapter are proposed as some initial ideas, with a focus on alternative means of delivering basic environmental management across the farmed countryside in the EU-28. They do not attempt to answer all the detailed questions relating to design and delivery, rather they are intended to stimulate debate about possible ways of cost-effectively improving the environmental additionality from the current Pillar 1 greening measures, in view of forthcoming discussions on the Multi-Annual Financial Framework and the future of the CAP post 2020.

2 Evolution of the CAP greening measures

To provide the contextual background for this report, this chapter summarises the evolution of the Pillar 1 greening measures from their conception and publication by the European Commission in 2010 to their final structure and content in the 2013 direct payments regulation (Regulation 1307/2013) and related delegated and implementing regulations. It offers reflections on some of the reasons for the watering down of the environmental ambition of the greening measures during the negotiation process.

2.1 Origins of the greening proposals

The greening measures that form part of Pillar 1 direct payments under the 2014-2020 CAP were first mooted in the 2010 Communication from the European Commission, entitled *'The CAP towards 2020: meeting the food, natural resources and territorial challenges of the future'*, setting out the future priorities for the CAP. With this Communication the Commission made it clear that providing funding for the provision of public goods by land managers should be core to a reformed CAP, stating that, "The active management of natural resources by farming is …an essential basis for dynamic territories and long term economic viability[1]."

Reform was highlighted as necessary, *inter alia*, "to enhance the sustainable management of natural resources such as water, air, biodiversity and soil [and] to deal with … the need for farmers to reduce their contribution to GHG emissions, play an active role in mitigation …".

The main proposed change to the CAP to achieve this was the introduction of 'simple, generalised, annual and non-contractual payments in the form of 'Greening' rather than any substantive changes to rural development policy. However, by requiring a baseline of important but not too demanding environmental management across the farmed countryside under Pillar 1 it was hoped that this would free up resources within Pillar 2 which could be spent to increase the ambition of agri-environment schemes. The requirements under cross compliance were to be altered somewhat, with some of the previously optional standards of Good Agricultural and Environmental Condition forming the basis of the new green direct payments.

The inclusion of environmental payments within Pillar 1 was a significant strategic change in the philosophy and architecture of the CAP. There were a variety of reasons for this change in direction. These included:

- Interest from some quarters in making the provision of public goods a general rationale for intervention, not least because of questions over the public legitimacy of continuing to provide direct payments to farmers without a clear rationale and that this could be a way of defending the CAP budget;

[1] Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions, The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future, COM(2010) 672 final, Brussels, 18.11.2010

- The generally accepted view that it was politically very unlikely that the discussions on the Multi-Annual Financial Framework (MFF) for 2014-2020 would lead to any increases in the Pillar 2 budget, thereby limiting the potential to increase funding for more targeted activity to green agriculture in this element of the CAP (particularly in light of demands from new Member States that they be permitted to transfer funds from Pillar 2 to Pillar 1);
- Continuing decline in environmental performance of agriculture and increasing environmental pressures on agricultural land in the EU (biodiversity, water, soils, GHG emissions, ammonia etc), with evidence showing that cross compliance was not providing the robust baseline intended and that agri-environment schemes had insufficient funding and were not sufficiently tailored and targeted to the environmental issues facing local areas to deliver the results required.
- A desire for a more even, consistent approach to some basic forms of environmental management across the whole agricultural area in Member States and a preference to achieve this via positive payments to farmers with environmental objectives, rather than via environmental conditions attached to a basic income support payment.

The justification for the inclusion of greening measures within Pillar 1, as stated in the 2011 Impact Assessment (European Commission, 2011) was as follows: "The greening component of direct payments makes the greening of the CAP more visible and has the merits of broad territorial coverage and uniform application; however, it does not allow for targeting the measures to specific situations (and would thus need to be complemented by better targeted rural development measures)". The measures were also intended to target the more intensively managed farmland, particularly arable areas.

The original green measures proposed in the Communication (and subsequently considered in the Impact Assessment) were:

- **maintenance of permanent grassland at the farm level** – applicable on permanent grassland;
- **crop rotation/diversification -** applicable on arable land and open air horticulture,
- **ecological set aside/ecological focus areas** (defined as land left fallow for environmental purposes) **-** potentially applicable on arable land and open air horticulture as well as on permanent crops;
- **green cover** (defined as temporary plant cover of land that would otherwise remain bare at certain times in the year) **-** potentially applicable on arable land and open air horticulture as well as on permanent crops; and
- support to all designated agricultural **Natura 2000** areas[2].

In addition, although **organic farming** was not considered suitable to be a green measure under Pillar 1 (because commitments are multi-annual, relatively complex, undertaken on a voluntary basis and subject to detailed controls), it was proposed that organically certified farms should automatically receive the greening payment, given that the environmental

[2] Annex 2 – Impact Assessment

benefits of organic systems were considered at least as great as those proposed in the green measures.

The following measures were considered but ultimately not proposed:

- **support to High Nature Value (HNV) farming systems**: it was considered that the available data was insufficient to allow for the identification of which farms or parcels were HNV, that extensively managed permanent grassland should be protected to some extent through the measure to maintain permanent grassland; and that support to HNV farming systems could be provided in a more targeted way via measures in Pillar 2;
- **Improved nutrient balance**: dropped due to the fact that the costs and detailed controls that would be required were considered disproportionate and that the measure would have to be tailored to local situations and therefore that Pillar 2 measures were more suited to address the objectives.

However, by the time the legislative proposals for the CAP came out in October 2011, these options had been altered to include just three options: crop diversification, maintenance of permanent pastures and ecological focus areas. The main changes were:

- The green cover option disappeared as a separate measure, being incorporated into the EFA measure;
- the crop rotation proposal had been superseded by crop diversification, the reason given being that measuring the number of crops in the ground at a specific point in time was more compatible with the annual payment and control regime under Pillar 1; and
- The payment to all farmed Natura 2000 areas was removed because not all Natura 2000 sites had suitable management plans in place to ensure suitable environmental management was taking place. Instead it was proposed that farmers in Natura 2000 areas would have to comply with the relevant greening requirements to the extent that they are consistent with the Natura 2000 legislation.

2.2 The negotiation process

The twists and turns of the three years of negotiations between Member States (via the Agriculture Council) and the European Parliament and the reactions from the European Commission have been recounted in many places already (see for example: Matthews 2013; Knops and Swinnen, 2014;, Baldock, 2015; Erjavec et al, 2015; Hart 2015a). The key points which led to what is widely considered to have been a weakening of greening and to the content of the green direct payments that are being implemented today are set out below. These points focus on the period after the publication of the formal legislative proposals in October 2011.

The 18 months following the publication of the CAP legislative proposals in late 2011 by the Commission involved the development of separate negotiating mandates in the European Parliament and the Council. Only once these had been agreed in March 2013, did the negotiations between the two institutions (alongside the Commission) take place via the trilogues, with political agreement finally reached in September 2013 and formal legal agreement in December 2013.

2.2.1 Developing the negotiating mandates

Although the proposed increased focus on environmental public goods in Pillar 1 was not strongly questioned, reactions to the specific greening proposals were almost universally negative (Hart, 2015a). At the time, few stakeholders felt that they were likely to constitute a cost-effective way of bringing about a substantial improvement in the environmental management of the EU's agricultural land. Farming organisations criticised the obligation to 'set aside' seven per cent of arable land for ecological purposes, arguing that it would require farmers to find ways of increasing production on the remaining land and damage the ability of farmers to respond to market signals (Copa-Cogeca, 2011). On the other hand, many environmental organisations expressed disappointment with the proposals, questioning whether the 'green' element of the direct payment would provide anything more than was already being delivered through cross compliance. Some economists also criticised the proposals as being an inefficient means of securing the provision of environmental public goods (see for example Koester, 2011).

The main criticisms from both the Agriculture Council and the European Parliament were:

- that the proposal to manage seven per cent of cropped land as an 'ecological focus area' would have negative effects on levels of agricultural production, and was considered to be unacceptable and incompatible with "food security" objectives (themselves not well articulated);
- the risk that the proposals would involve a considerable increase in administrative complexity, rather than simplification;
- that the 'one size fits all' measures to operate across the EU were too rigid, requiring greater flexibility to allow them to be tailored to local conditions;
- the proportion of the Pillar 1 envelope to be allocated to these green payments was too high.

As the negotiations proceeded, it was the calls for increased flexibility that became the main focus of the discussions together with a reduction in the area to be covered by EFAs. 'Increased flexibility' became the calling card both for those who wanted to strengthen the environmental benefits achieved through greening, who were concerned also with targeting, as well as by those who saw it as a way of shrinking their impact, by minimising their effect on food production and by reducing both the area of land and number of farmers who would need to comply with the measures.

Two key ideas gained traction, both within the European Parliament and Member States. First, was the idea of a implementing a menu approach for the greening measures, extending the list of greening options, allowing Member States the flexibility to decide which of these to offer to farmers in their country, and giving farmers the flexibility to decide which of those on the Member State list to implement. Second, there were calls for a much wider group of farmers to be considered 'green by definition', in other words automatically eligible to receive the green payment without carrying out the specific requirements.

Two counter arguments were offered by the Commission. First, simple measures that applied to all farmers and promoted sustainable management practices everywhere were less complex to administer than a menu approach. Second, that it was important to ensure a

basic level of environmental management consistently across most farmland in the EU in contrast to the highly variable position at present. Neither was effective, particularly in the Council. Indeed, the Impact Assessment summary relating to greening had stated that:

> *"For the greening to be effective, it is key not to go for a 'menu' approach with a list of measures, offering choice to Member States and/or farmers. Such an approach would very much water down the greening effect, especially if the payment does not match the efforts required by farmers, leading them to choose the measures with which they comply already or the measures with the least cost, thus bringing less environmental benefits. In addition, the more choice offered in Pillar I greening, the more complicated it becomes to ensure coherence with the cross compliance especially GAEC (risk for having too various baselines between Member States) and subsequently with Pillar II: risk for having double payments. Therefore, an approach to greening with only a few measures which yield significant environmental benefits is to be favoured."*

In the end, despite much support for a menu approach within the European People's Party (EPP) and the Alliance of Liberals and Democrats for Europe (ALDE) in the European Parliament, this was not supported by elements of the Progressive Alliance of Socialists and Democrats (S&D) party, who feared that this would reduce the environmental aspirations of greening to an unacceptable degree. In addition, supporting a menu approach would have placed the EP in direct opposition to the Commission in its first CAP reform under co-decision and so the rapporteur Capoulas Santos (S&D) was minded to stick with the broad structure of the green measures originally proposed by the Commission. However, this was not the case in the Council, which advocated strongly the move towards a menu approach. In April 2012, a discussion document (the Luxembourg paper) from the Council proposed a series of alternative proposals for greening the CAP (Council of the European Union, 2012). This paper was initiated originally by the "Stockholm group[3]" of Member States and intended as a set of proposals to increase the environmental additionality of the proposals. However, the final document approved by the Council proposed a degree of flexibility (and complexity) such that Member States would be able to implement greening in a way that maintained the status quo. In doing so, it undermined the intended environmental ambitions of the proposals to a significant degree.

The Commission's response to these calls for greater flexibility in hindsight could be seen as something of a turning point in the discussions. It produced a concept paper[4] that proposed increases in the thresholds and exemptions for the greening measures as well as introducing the concept of 'equivalence' whereby certain beneficiaries of agri-environment-climate measures and participants in environmental certification schemes would be considered as fulfilling one (or several) of the greening measures. Without a detailed explanation of how these new possibilities might work in practice, the EP and Council were quick to use this to

[3] A group of pro-reform like-minded Member States comprising Denmark, Sweden, Netherlands, Czech Republic, Estonia, Latvia, UK and Germany (observer)

[4] European Commission, *Greening – Concept paper*, May 2012, http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/concept-paper-on-greening_en.pdf

their own advantage, seeing the paper as demonstrating areas where there would be room for manoeuvre in subsequent negotiations.

After a process of floating various proposals and many disagreements over fiercely debated amendments, some of which were particularly controversial[5], the EP's final negotiating position for the CAP (agreed in March 2013) included:

- a broadening of the categories of farmers exempt from the EFA and crop diversification measures to all farms comprising at least 75 per cent permanent grassland (as long as the arable area does not exceed 30ha);
- the exclusion of permanent crops from EFA requirements, meaning that permanent crops would not be subject to any greening requirements;
- increases in the threshold to apply to the EFA and crop diversification measures;
- a reduction in the percentage of land that was required as EFA to five per cent – to be phased in over time (from three per cent in the first year);
- removing the requirement for permanent grassland to be maintained at the farm level - giving Member States the flexibility to apply it at the national, regional or sub regional level; and
- on an environmentally positive note, there should be a ban on the ploughing of carbon rich soils, wetlands and semi natural grassland and pastures.

When Agriculture ministers agreed their negotiating mandate later that same month, known as the 'General Approach', their amendments also diluted the Commission's proposals. They too proposed many exemptions to the greening measures, as well as putting forward a much longer list of elements that would be permitted to count towards the EFA obligation. For the EFA measure, the Council introduced an important further amendment which allowed Member States to apply weighting factors to different elements of the EFA to reflect their environmental benefit. In addition they proposed the introduction of 'equivalent measures'[6], measures that Member States could introduce, as an alternative to, or in conjunction with the greening measures to be carried out under agri-environment agreements or in compliance with national or regional environmental certification schemes. The possibility of developing a standalone certification scheme at the national or regional level that would operate instead of the greening measures was also put forward. The Council also proposed that the greening measures should not form the baseline for payments for Pillar 2, thereby leaving the door open for double funding.

Another important element in the discussion in both Council and the EP was the ongoing budget negotiations on the Multiannual Financial Framework, where the CAP was coming under considerable pressure for a significant cut. Willingness to accept the introduction of greening measures was seen as acceptable as a way of avoiding reductions in the level of the overall CAP budget. However, once the CAP budget was secured, the Council and

[5] For example, the Agriculture Committee vote that double funding should be permitted – i.e. that farmers should be able to receive payments for the same activities under greening in Pillar 1 as well as under measures in Pillar 2

[6] It should be noted, that the notion of 'equivalence' was advocated by some as a means of enabling greening measures to be better tailored to local needs, although in practice it was supported by others who saw it as a way of minimising the implementation of greening.

agricultural interests in the EP appeared to be unconcerned about maintaining the environmental ambition of the green measures. There was no mechanism by which the proportion of funding allocated to the greening measures could be reduced in line with environmental ambition (Matthews, 2013). The funds were effectively in place and there remained scope to water down the environmental requirements which, for the Commission at least, had been a key element in their rationale.

In addition Heads of State, initiated by Germany, introduced text into the Council Conclusions on the MFF to the effect that EFAs should not require land to be taken out of food production. This attitude indicates at best a low priority given to the validity or importance of 'producing' public environmental goods. This text was subsequently used to justify a further weakening of the content of EFAs as well as the rules associated with them (e.g. permitting the use of fertilisers and pesticides on EFAs).

2.2.2 Inter-institutional negotiations

The trilogue negotiations leading to the final political agreement on greening set the seal on a much-weakened suite of greening measures. This was not surprising given the political conditions but in addition it has been suggested that "the lack of a clear description from the Commission early in the process of the environmental benefits to be delivered by greening, made it difficult for the Commission and others to clarify the extent to which successive weakening of the text mattered for the delivery of outcomes" (Hart, 2015a).

Table 5 (in the Annex) shows how the final legislative texts, formally adopted in December 2013, compare with the Commission's original proposals. In summary the main differences are as follows:

- Multiple exemptions were introduced which reduce the number of farms and area of land that must adhere to the greening measures (while still receiving the funding). These included size thresholds which excluded large numbers of farms as well as exempting farms with certain types of land. In certain cases the revised size thresholds were introduced to avoid deleterious effects on the environment, for example by discouraging mixed farms to maintain small areas of arable crops, but the overall scale of exclusions reduced the reach of several measures;
- The content of the measures was changed significantly, particularly extending the list of practices that could contribute to an EFA, to ensure that production was permitted on these areas. Significant weighting and conversion factors were introduced (with the decision on the actual coefficients delegated to the European Commission). In relation to the maintenance of permanent grassland, a new measure was introduced to require the designation of environmentally sensitive permanent grassland within Natura 2000 areas and the voluntary designation of such grassland (including those on carbon rich soils) outside protected areas;
- Agreement that a smaller proportion of the eligible area was to be subject to an EFA (five per cent compared to the Commission's proposal of seven per cent) albeit with the addition of a clause that an increase to seven per cent would be considered (via a legislative act) should this be supported by an evaluation of the EFAs' implementation to be presented by the Commission by 31 March 2017;

- The introduction of the possibility for Member States to introduce 'equivalent practices' to greening as an alternative means of implementing greening, allowing greening to be tailored to local circumstances;
- Clarity that double funding of actions under Pillar 1 and Pillar 2 was not permitted and that Pillar 2 agricultural area payments must go beyond the green payments in Pillar 1.
- That penalties for non-compliance with the greening measures would include a reduction of the basic payment – although the final agreement was that this would be phased in over time, with no incursion into a farmer's basic payment receipts for the first two years.

The weakening of the greening measures did not stop with the agreement on the text of the basic acts. One of the areas where the Commission had delegated powers was on setting out the weighting coefficients[7] for each of the EFA elements. Weighting coefficients are used to adjust the area of the EFA element and are broadly intended to reflect the relative environmental value of different EFA elements. A weighting factor of 0.3 for both N-fixing crops and catch crops/cover crops was proposed by the Commission in the original delegated act. However, the low coefficient for N-fixing crops in particular was contested strongly by the European Parliament, who threatened to reject the delegated act if this coefficient was not increased. In the end, the Commission changed the coefficient to 0.7 and issued an amendment to the delegated act to this effect[8], a decision that was hailed as a victory by the European Parliament and decried by environmental NGOs.

2.3 Reasons for the fate of the proposals to green Pillar 1

There are many reasons why the negotiations on the greening proposals concluded as they did. One of the fundamental issues faced was that the measures proposed had to be consistent with a Pillar 1 logic of annual payments and the concomitant application of controls. This was considered to constrain the ability to put in place measures that required checking on a multi-annual basis to ensure compliance, such as crop rotations, hence the introduction of the crop diversification measure instead.

A further issue involved the paucity of readily accessible evidence on the likely environmental effects of the different greening options on the table. This in turn made it difficult to assess the environmental pros and cons of new proposals, such as the introduction of new EFA elements (e.g. nitrogen fixing crops), the change in content of others (e.g. whether or not fertilisers should be permitted or not) and the exemptions of different farm types and farm sizes. Had this kind of evidence been more readily available

[7] These factors are set out in Annex II of Commission Delegated Regulation (EU) No. 639/2014 supplementing Regulation (EU) No. 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and amending Annex X to that Regulation. Member States must apply those that are less than zero and have the option to apply those that are above zero.

[8] Commission Delegated Regulation (EU) No 1001/2014 of 18 July 2014 amending Annex X to Regulation (EU) No 1307/2013 of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy.

and used to support the proposals coming forward during the negotiations, it is difficult to know how this might have changed the final content of the greening measures, however it is possible that some of the proposals to weaken the rules may have been more robustly countered.

At a more strategic level, it has been argued that the politics surrounding greening and the MFF played a significant role in setting the scene for the introduction of a weak set of greening measures in Pillar 1. The proposal to include green measures within Pillar 1 was supported initially as a way of legitimising CAP direct payments and thereby used as a bargaining chip to prevent significant cuts to the CAP budget. However, once the budget was secured, interest then turned to ensuring the requirements of these measures were as undemanding as possible with the emphasis on minimising impacts on food production rather than delivering environmental added value. Indeed, Heads of State or Government even intervened to include a statement within the MFF that the implementation of the green measures should not impact upon agricultural production.

From a procedural perspective, the fact that this was the first CAP reform under co-decision should not be underestimated. This meant that all parties concerned were finding their way and it was far more difficult to read the likely way that the politics would play out with any certainty. For example, in retrospect it may have been premature for the Commission to have given concessions early in the negotiation process regarding the potential for flexibility in terms of measure content and which farmers/farmland was exempt from some of the detailed requirements of the measures. This opened the door for proposals for further flexibility to be introduced, much of which (although not all) was weaker environmentally. In terms of internal processes and dynamics, within the European Parliament, the composition of COMAGRI, in which farming interests predominated, meant that there were few strong supporters of greening direct payments within the Committee. This led to environmental arguments often being drowned out by those whose primary concern was to protect support to farmers, although those supporting environmental integration into Pillar 1 did manage to push back on some details. In addition the limited role of the opinion giving Committees, such as COMENVI, meant that the environmental arguments were further side-lined. Indeed the relationship between COMAGRI and COMENVI was tense throughout the negotiations and although COMENVI was the most active opinion-giving committee, proposing the highest level of amendments, the proportion of these that were finally adopted was fairly low (Knops and Swinnen, 2014).

It has also been argued that there was a structural bias in the trilogue process towards further weakening of the greening proposals. Trilogue processes can be fairly straightforward, either where there is relatively similar political direction, and not much distinction between texts under discussion or where there is a clear distinction between political direction, leading to a strong political debate and some level of predictability on what the likely compromise situation might be. However, in the case of greening there was considerable heterogeneity in the level of political ambition in both the Council and Parliament, which nonetheless led to a significant divergence in the texts under negotiation. This means that there was a high risk that “discussions are confused, with a lack of clarity on tactics on both sides, which allows opportunistic participants to agree to text in the opposing institution’s position which helps their objectives, without saddling them with any

political downsides" (Hart, 2015). The lack of conviction amongst Member States or MEPs (or wider stakeholder interests), that the greening proposals would deliver genuine and significant environmental benefits meant that there was little incentive to defend the proposals, particularly given that it was difficult to point to the negative effects that particular changes to the text might have in relation to the scale of environmental ambition. Conversely, there were many who were concerned about the cost implications for farms or for administrations, with a number of participants in the trilogue process having "either strong political pressures (farming stakeholder concerns) or funding pressures (an interest in reducing complexity, or reducing the number of farms covered by greening in order to reduce administrative costs) which meant they were biased towards accepting amendments in the other institution's position which helped them in this regard" without necessarily leaving them with the political blame (Hart, 2015a).

3 Potential environment impacts of greening in the EU-28

This chapter provides an overview of the potential environmental impacts of the three greening measures across the EU. This assessment summarises existing information and analysis available on Member State implementation choices (e.g. European Commission, 2015; Hart, 2015b; CRA-INEA *et al*, 2015; Hart and Radley, 2016) and draws on preliminary information on initial implementation by farmers (Bascou, 2016). However, given that only partial information is available on implementation on the ground, the assessment can only hypothesise about what these implementation choices might mean for the environment, providing a high-level set of conclusions about the types of environmental impacts one might anticipate if certain actions are taken on the ground. Actual impacts will only be possible to assess over time.

The introduction of the new green direct payments also brought about changes to cross compliance and in principle was expected to lead to changes in the design and targeting of the agri-environment-climate (AEC) measure under rural development policy. In considering the potential impacts of the introduction of the new greening measures, therefore, it is necessary also to consider the environmental implications resulting from these changes, where these are discernible at this stage. This inevitably also raises questions about the cost-effectiveness and value for money of the budgets allocated to environmental management under Pillar 1 and Pillar 2, given the measures in place and implementation choices made. However, this is not the focus of this chapter. Given the early stage of implementation of rural development programmes, the information provided on the potential environmental implications of greening is necessarily broad brush in nature.

3.1 Member State greening implementation choices

In 2015, all 28 Member States put in place the standard three greening practices and five also introduced greening equivalence schemes, either through the introduction of specific certification schemes (France for crop diversification, the Netherlands for EFA) or via their AEC schemes (Austria for both crop diversification and EFAs and Poland and Ireland just for the crop diversification measure). The pattern of implementation of each measure is summarised below.

3.1.1 Ecological Focus Areas

The stated objective for the EFA measure in the recitals of the direct payments Regulation is 'to safeguard and improve biodiversity on farms'.

Member States have a choice of 10 standard elements that they can make available to farmers to fulfil their EFA obligations on arable land. If they opt for the landscape features element, they can also choose which of a series of nine specified landscape features are eligible to count towards the EFA obligation. For each of these elements there are additional choices to be made regarding their implementation. For example, in the case of nitrogen fixing crops, catch crops/green cover and short rotation coppice Member States must choose the types of crops permitted, as well as where, when and how they can be grown.

This includes whether fertilisers and pesticides are permitted and when the crops must be in the ground.

For the EU-28, the most popular EFA elements, chosen by more than two-thirds of Member States are areas with nitrogen fixing crops (27 MSs), followed by land lying fallow (26); landscape features (24); areas with short rotation coppice (20); and areas with catch crops or green cover (19). Some Member States have chosen to offer almost all EFA elements permissible in the Regulation (e.g. those choosing 15 or more elements are: France, Germany, Hungary, Italy, Luxemburg and Poland) to farmers to meet their five per cent obligation. Others have chosen a more restricted list, with Lithuania choosing only two elements (those countries including five or fewer elements are: Cyprus, Finland, Lithuania, the Netherlands, Portugal, Slovenia, Spain, and Scotland in the UK).

The rationale for these choices varies. For those countries offering farmers a long list of options to choose from to meet their EFA obligation, the reasons given include: ensuring maximum flexibility for farmers, and minimising the chance of farmers having to change their management practices. Where a more limited list is chosen, reasons tend to include:

- the element does not exist in the country concerned (e.g. terraces);
- implementation may pose difficulties in relation to the control and verification of actions – for example where certain features are not easily mapped and therefore their identification is problematic and could increase the risk of disallowance;
- the element is already covered by cross compliance and no further action is deemed necessary via greening; and/or
- more rarely, an option is not considered sufficiently beneficial environmentally (whether generally or in a national context) to meet EFA objectives;

Looking at the most common types of EFA elements on the lists offered to farmers, Member States generally have included:

- those where production is permitted (e.g. N-fixing crops, short rotation coppice, catch crops and green cover);
- those that commonly exist already on farms (e.g. landscape features, buffer strips and, in some countries, fallow).

A review of EFA implementation in nine Member States[9], showed that the majority of countries permitted fertilisers and pesticides to be used wherever this is permissible, for example on N-fixing crops, catch and cover crops (Hart, 2015b). The Netherlands was the only country reviewed to have banned the application of fertilisers on N-fixing crops, Germany has banned fertilisers and pesticides on catch crops and green cover and the Netherlands has banned pesticide use on catch crops. In addition, this review highlighted that the crops on the list of permitted N-fixing crops were likely to have mixed benefits for biodiversity, despite the fact that the crops permitted by Member States should contribute to the objective of conserving biodiversity. For example row crops feature amongst the

[9] The nine Member States reviewed were: France, Germany, Hungary, Italy, the Netherlands, Poland, Romania, Spain and the UK.

most popular N-fixing crops permitted (e.g. beans, chickpea, lentils, soya) and these tend to be less beneficial for biodiversity as they are less beneficial to pollinators given their flowering habits, require ploughing and the use of herbicides to keep weeds at bay and where fertilisers are used, the vigorous growth that this promotes provides less beneficial habitat for biodiversity. On the other hand, pasture legumes (e.g. Lucerne/alfalfa, clover, vetch, birdsfoot trefoil) also feature on the lists as permitted N-fixing crops and these tend to be more beneficial for biodiversity as they require less cultivation and less inputs and are more beneficial for pollinators given that they provide an important source of nectar as a result of their more even flowering period. The introduction of N fixing crops should also avoid increased nitrogen leaching, deterioration in water quality and should not compromise biodiversity objectives. Pasture legumes are often used in combination with other crop species (such as grass to improve soil structure and potentially also cereals). It is not clear in the implementing regulations whether other species can be combined with N-fixing crops, which limits the incentive to use pasture legumes or explore alternatives, which could have both agronomic and biodiversity benefits.

However, of the nine countries examined only two were found that had put measures in place to avoid nitrogen leaching when the crops were harvested (Germany and Spain); Scotland (UK) requires an EFA field margin to be adjacent to the crop and requires at least two crop species to be grown, along with a harvesting date of no earlier than 1 August. One of the issues raised with the implementation of the catch crops/green cover option is the limited length of time that the crops are required to be in the ground. The review found that this varied considerably between countries, with the time for catch crops to be in the ground often limited to around 10-12 weeks and green cover sometimes required over winter until mid-February, whereas in other countries it is only required until the end of December or early January.

Other environmentally positive examples of the rules applied to measures included:

- wild flower mixes, wild bird seed mixes and nectar sources are permitted on buffer strips in England and Scotland (UK), which can have both environmental and agronomic benefits;
- restricting the use of strips along forest edges to those without production (e.g. Germany); and
- in some countries, the rules associated with the landscape features are more demanding than those included under cross compliance (e.g. France, Scotland and Wales).

3.1.2 Maintenance of Permanent Grassland

There are two elements to the greening measure for the maintenance of permanent pasture, within the agricultural sector:

- Maintain the ratio of land under permanent grassland compared with total utilised agricultural area at 95 per cent of a reference level;
- Designation of Environmentally Sensitive Permanent Grassland: this is required in areas covered by the birds and habitats Directives (including in peat and wetlands situated in these areas), where strict protection is required to meet the objectives of those Directives, and is voluntary in areas not covered by the Habitats Directive.

Maintaining the ratio of land under permanent grassland at 95 per cent of the reference level: The objective of the measure is 'to ensure environmental benefits, in particular carbon sequestration'.

Member States must ensure that the ratio of permanent grassland to total agricultural area does not decrease by more than 5 per cent compared to the situation in 2015. The percentage change may be calculated at national, regional or appropriate sub-regional level. Almost all Member States (23) have chosen the most flexible route for maintaining the ratio of permanent grassland by applying it at the national level. Belgium, France, Germany and the UK[10] are the only countries to implement this rule at the regional level. For Belgium, Germany and UK this is the same policy as previously. For France this is a weakening of the rules as this obligation previously operated at farm level, although in practice it could possibly lead to an improvement in the protection of permanent grassland if its move from cross compliance to a payment also brings about a strengthening of the control system.

In terms of the carbon sequestration and other envisaged environmental benefits that are the objective of this measure, if the land is maintained as permanent grassland and not ploughed or reseeded then there will be climate mitigation benefits through the maintenance of carbon stores in the soil. Biodiversity benefits should also occur where the measure helps constrain the conversion of semi-natural grassland habitats to temporary grassland or arable. However, one of the main limiting factors is the fact that the definition of permanent grassland in the regulations allows for it to be ploughed and reseeded as long as the land remains under grass. When regular ploughing and reseeding occurs, it will negate any carbon sequestration benefits of the land being under permanent grass and will damage the biodiversity value of permanent grassland.

Another limiting factor in securing benefits is the scale at which the measure operates. The implementation of the rules at a national level in 24 Member States as well as at the country level in the UK means that significant permanent grassland removal/loss could still occur in some regions, with these losses being compensated for by increases in permanent grassland (or lower levels of its removal) in other regions. In addition, the measure will allow continued declines in permanent grassland in countries[11] where, prior to 2013, overall losses of permanent grassland had already come close to the upper limit of ten per cent permitted under previous CAP rules as the new measure permits a further five per cent decline to be realised from 2014. However, in addition, the nature of the authorisation systems that Member States put in place for the conversion of permanent grassland influence the type and location of permanent grasslands that can be removed and hence the environmental impact of these grassland losses. For example, in many countries no action is taken until removals are near the five per cent threshold. In contrast, in Germany a permitting system is in place for all farmers wishing to convert any permanent grassland (except where carried out under an agri-environment agreement), with a requirement that any declines must be compensated by increases in permanent grassland elsewhere. This latter approach is more likely to ensure that the measure delivers environmental benefits,

[10] This greening measure is not applied in Malta as it does not have any permanent grassland.
[11] For example in England (UK) (Pinches and Chaplin, 2014) and some German Länder.

as it can prevent farmers from removing semi-natural habitats or grassland protecting significant carbon stores, for example.

Environmentally Sensitive Permanent Grassland (ESPG): The objective for designating ESPG is to protect species of wildlife, land of high nature value, reduce soil erosion and protect water quality. However, carbon sequestration will be another beneficial environmentally important outcome of a ban on ploughing, arising from this measure particularly on those on soils with high organic matter content, such as peatlands and wetlands.

Under this measure, Member States are required to designate environmentally sensitive permanent grassland (ESPG) in areas subject to the provisions of the birds and habitats Directives (including in peat and wetlands situated in these areas), where strict protection is required to meet the objectives of those Directives. Member States also have the option to designate further areas of ESPG not covered by the Habitats Directive. Where land is designated, there is a ban on ploughing and conversion of permanent grassland within these areas.

ESPG within Natura 2000 areas: European Commission figures show that the proportion of permanent grassland designated as environmentally sensitive within Natura 2000 areas varies significantly between Member States - from as little as one per cent in Estonia and Portugal to 100 per cent in ten Member States as well as three of the UK regions (England, Northern Ireland and Wales) (European Commission, 2015). The total area of land designated as ESPG is 7.49 million hectares, accounting for 74 per cent of permanent grassland in Natura 2000 areas.

There are a number of reasons why Member States have designated less than 100 per cent of their Natura 2000 permanent grasslands as ESPG. For example in some countries, some protected species or semi-natural habitats depend on periodic cultivation and for this reason a ban on ploughing would not be appropriate and be in contradiction with the environmental objectives/requirements for these sites (e.g. UK – Scotland). In other countries criteria have been defined and applied to limit ESPG to a selected set of habitats within Natura 2000 areas (e.g. France and Luxembourg). In France, for example, two criteria were used to identify ESPG, one relating to certain semi-natural areas with very low levels of agricultural management (heathland, moorland etc) and the second to identify species-rich 'natural pastures'. This has meant that some pastures that contain protected species, but not a diversity of species, are not covered by the ESPG restrictions (Hart and Radley, 2016). In Estonia, the ESPG is restricted to those areas of permanent grasslands on peat soils within Natura 2000 areas. There are two main reasons for this. Firstly, other semi-natural habitats on permanent grassland were not sufficiently accurately mapped to be included and the additional investment required for this was not considered worthwhile, given that they should already be protected under national nature protection laws. At the time it was also unclear what the implications would be of preventing ploughing on these habitats on the ability to pay for their protection via the Rural Development Programme, for example using the compensation payments under the Natura 2000 measure or under the agri-environment-climate measure (Hart and Radley, 2016).

ESPG designated outside Natura 2000 areas: Only four Member States chose to designate ESPG outside Natura 2000 areas – the Czech Republic, Latvia, Luxembourg and Wales in the UK. In Luxembourg, this area includes protected habitats and floodplains outside the Natura 2000 network. In Wales the area comprises land outside Natura 2000 areas that is protected under national nature conservation legislation, known as Sites of Special Scientific interest (SSSI), except where there is written consent that ploughing is permitted for protection of the habitat. In the Czech Republic a series of additional types of permanent grassland are designated as ESPG, including nationally protected areas outside the Natura 2000 network as well as permanent grassland within 12 metres of water bodies, at risk of soil erosion, on peat soils (wet meadows and peat meadows) and those in very vulnerable areas within nitrate vulnerable zones (Hart and Radley, 2016).

Overall, the designation of ESPG, both within and outside Natura 2000 areas is likely to have environmental benefits for biodiversity, carbon, soil and water given the ban on ploughing of these areas, although for the most part the measure reinforces the application of the Birds and Habitats Directives, through which ploughing should already have been prevented in these areas. Greater environmental additionality is to be expected where ESPG has been designated outside the Natura 2000 network, particularly where this protects permanent grasslands that are not already protected through national legislation.

3.1.3 Crop Diversification

The objective of the crop diversification measure is stated as being to achieve 'enhanced environmental benefit…in particular the improvement of soil quality'

There are few flexibilities open to Member States for operating the crop diversification measure so the requirements are applied by Member States in a relatively consistent way. However, it is unclear the extent to which this measure will require many changes in cropping practices in reality. These changes are more likely to be seen in some countries than others. Equally it is difficult to forecast the environmental effects, including those on soils. This is because most of the evidence available on the soil impacts of introducing multiple crops into the farming system relate to their introduction in rotations, rather than having multiple crops in situ on an annual basis. Crop rotations have been shown to increase soil organic matter, particularly when legume crops are included in the rotation. If the measure introduces some increase in the diversity of cropping patterns it could lead to some benefits for biodiversity, mainly if it causes an increase in crop rotation, particularly where fallow or legume crops are introduced into the rotation.

3.2 Coverage of greening measures

All farms receiving direct payments are entitled to receive the green direct payment. However, only a proportion of these are required to adhere to the specific greening measures. A series of exemptions are in place which specify which types of farm are exempt from which requirements, for example organic farms and, for EFAs and crop diversification, those under certain size thresholds or where the farmed area comprises a certain proportion of grassland, where crops are underwater and so on. Given this list of exemptions and, for EFAs, the wide variety of different options available to farmers for meeting their five per cent obligation, it is important to understand what implementation

has meant in terms of the areas of farmland covered by each of the three greening measures.

Member States were required to report on this to the European Commission in mid-December 2015. Very preliminary information from 19 Member States (accounting for about 60 per cent of UAA in the EU-28) was presented to a seminar in early February 2016 (Bascou, 2016). This showed that:

- 80 per cent of UAA is subject to at least one greening measure with large variations.
- Approximately 80 per cent of arable land on average is subject to the crop diversification measure, with about 65 per cent of arable land subject to the three crop rule. This figure masks significant differences between Member States, with some countries having around 50 per cent or more of their farmland completely exempt from the measure (particularly those with a higher proportion of small farms or high levels of permanent grassland on mixed farms).
- Approximately 70 per cent of arable land on average is subject to the EFA measure, with just over 10 per cent of arable land under EFA obligations before weighting factors are taken into account. Even once weighting factors are taken into consideration, the data suggest that over five per cent of the arable area (~six per cent) is subject to EFA obligations (higher than the percentage required in the regulations). Again this masks considerable differences between Member States, with six of the 19 Member States concerned having more than 50 per cent of their arable land exempted from EFA requirements.
- The most popular EFA elements are land lying fallow, catch or cover crops and nitrogen fixing crops, which make up the majority of the EFA area in most of the 19 Member States for which data are available. Where landscape features are used to contribute to the EFA obligation, the most popular are hedges, ditches and field margins.

Figures for Germany, which were the only detailed ones available at the time of writing, reflect this overall picture, with catch and cover crops comprising the largest proportion of the EFA area, followed by fallow land and nitrogen fixing crops. Taking the unweighted areas, this shows that 80 per cent of the EFA area is covered by crop options, with only 20 per cent attributed to land not in production. The land under EFA obligations as a proportion of arable area (2010 figures) is 11.5 per cent (without weightings) and 5.8 per cent when weightings are taken into account, underlining not only how important they are, but also highlighting the dominance of options with weighting factors lower than one.

Table 2: Area of land under EFA in Germany in 2015

Types of EFA	Areas without weighting	Weighting factor	Weighted areas	% unweighted area	% weighted area
Fallow land	221,800	1	221,800	16 %	32 %
Buffer strips	16,500	1.5	24,700	1 %	4 %
Landscape elements	33,000	1.0 - 2.0	49,600	2 %	7 %
Catch crops and cover crops	930,200	0.3	279,000	68 %	40 %
Nitrogen fixing crops	161,800	0.7	113,300	12 %	16 %
Short Rotation Coppice	2,200	0.3	700	0 %	0 %
Afforestation	1,900	1	1,900	0 %	0 %
Total EFA area for Germany for 2015	**1,367,400**	**0.3 - 2.0**	**690,900**	**100 %**	**100 %**

Source: German Ministry of Agriculture and Environment - Pressemitteilung Nr. 191 vom 08.10.15

3.3 Changes in cross compliance and Rural Development Programmes (RDPs)

As highlighted above, the potential environmental additionality of the greening measures has to be considered in overall terms in relation to the changes that have been made at the time of their introduction to the other key CAP policy instruments in place for delivering environmental management on agricultural land. These are cross compliance and rural development policy, in particular the agri-environment-climate measure.

3.3.1 Cross compliance

The policy framework for standards of Good Agriculture and Environmental Condition (GAEC) was restructured for 2014-2020 to take into account the introduction of the greening measures. The main changes compared with the previous period are that all standards are now compulsory and the standards have been consolidated into a shorter list. For example, the maintenance of permanent grassland is now a greening measure and optional standards for crop rotations have been superseded by the compulsory crop diversification greening measure. Also one GAEC standard has been slightly enhanced – GAEC7 for the protection of landscape features includes an additional requirement to ban the cutting of hedges and trees during the bird breeding and rearing season and an optional element to place restrictions on invasive species.

A comparison of GAEC standards in place in Germany, Hungary, Spain and the UK in 2015 relative to the previous period (Hart, 2015b) showed that overall there had been very little change in the content of the GAEC standards in these countries. The main changes were a re-organisation of the standards to fit with the new framework, and in most countries, there were some small changes made to soil standards, for example the removal of previous requirements for catch crops and green cover and their inclusion within EFAs instead. Many of the previous standards preventing machinery use on waterlogged soils seem to have disappeared also. Where a ban on hedge cutting during the bird breeding season was not

already in place, this has been brought in and where previous rules existed, the dates have been extended to cover the bird rearing season.

This very restricted analysis suggests that the new cross-compliance framework is unlikely to lead to significant changes overall in the environmental issues being addressed. However, the moving of some of the previous GAEC standard to green measures will have consequences for the number of farms and area of land on which the practices are required. There may be positive and negatives to this movement of actions between cross compliance and the greening measures. Although GAEC standards apply across the whole farmed landscape, the extent to which they are adhered to in practice can be variable. The shift of some of these standards to greening means that they will apply on a smaller proportion of land (with considerable variations between Member States). However, the fact that the requirements are more explicitly related to a payment, with the more stringent controls that are associated with these, might lead to higher levels of compliance on that smaller area of land and hence greater environmental effect in practice.

3.3.2 Rural Development Programmes

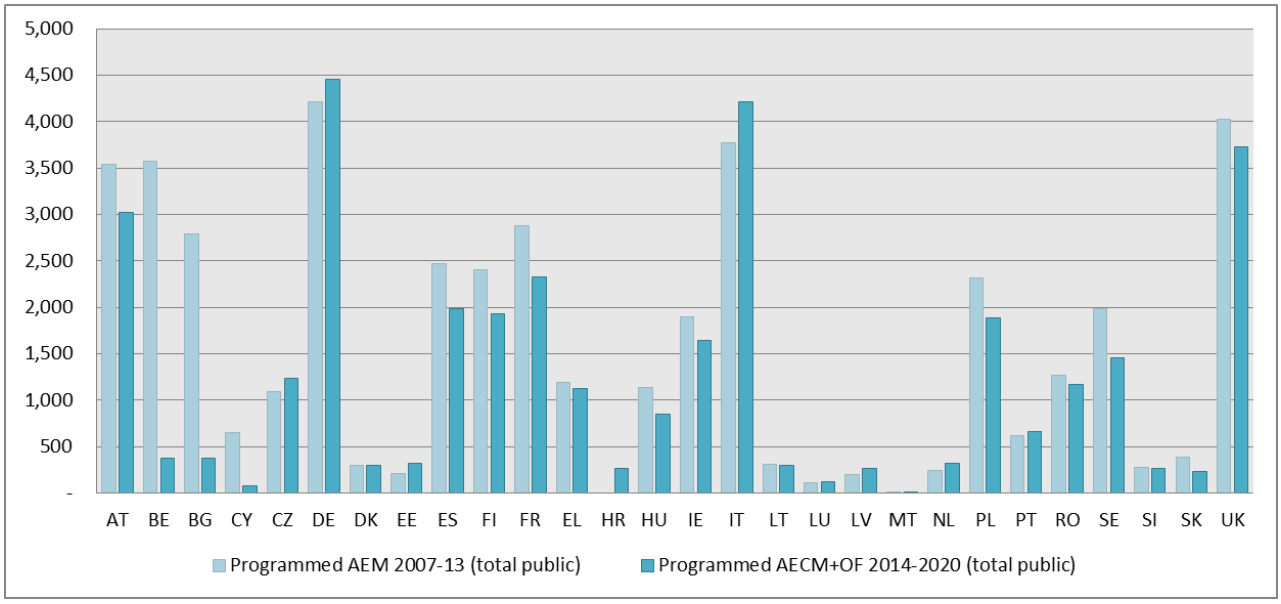
In exploring the potential environmental additionality of the greening measures, it is important to understand whether or not the inclusion of basic environmental management requirements within Pillar 1 has impacted on the design and content of the agri-environment-climate measure in particular. It was hoped that the Pillar 1 greening measures would free up the agri-environment-climate budget in Pillar 2 to some degree so that Member States could design schemes that were more tailored and targeted at particular environmental priorities. This would have increased the overall environmental benefit.

However, in practice most Member States have experienced a reduction in their Pillar 2 budgets for the 2014-2020 period either because of their allocation under the MFF or their own choice to move funds to Pillar 1. This has had consequences. Despite the statement in the recitals of the European Agricultural Fund for Rural Development (EAFRD) that Member States should maintain the level of efforts on the agri-environment-climate measures made during the 2007-2013 programming period, a comparison of programmed expenditure (total public) for the AECM for the current programming period with that for the agri-environment and the organic farming measure in 2007-13 shows declines in 14 Member States (see Figures 1 and 2). The average decline over the EU is 7.8 per cent (before taking account of inflation). Countries demonstrating declines in their agri-environment budget of more than 15 per cent include: Austria (-15 per cent), Spain (-19 per cent), Finland (-20 per cent), France (-19 per cent), Hungary (-26 per cent), Malta (-24 per cent), Poland (-19 per cent), Sweden (-27 per cent) and Slovakia (-40 per cent). In some countries, such as Hungary and Poland, this decrease is roughly proportionate with the amount of the rural development budget that has been shifted to Pillar 1 through the transfer process permitted under the direct payments regulation. In only a few Member States, including Germany and Italy, has programmed expenditure increased.

These significant declines in overall funding are concerning but the question remains as to whether or not the reduced levels of funding are better tailored and targeted to address the key environmental priorities in the country or region concerned, releasing funds previously

spent on more broad brush, untargeted schemes. A detailed assessment is needed to compare the objectives and precise content of the AECM schemes being implemented from 2016 onwards with those that were in operation in 2007-13, to assess the implications of the new schemes and associated budgets. However, a recent review of the implementation of RDPs in 19 Member States/regions by EEB and BirdLife suggests that 'light green' measures continue to predominate, for example measures to promote integrated pest management, or the generic 'sustainable management' of particular cropping or livestock systems, without clear environmental objectives. The study focussed on biodiversity specifically and found that only a small proportion of AECM funding was targeted at specific species/group of species, habitats or a specific biodiversity problem (EEB and BirdLife International, 2016).

Figure 1: Change in financial allocation to AECM + Organic farming measure for 2015–2020 compared with the AE measures for 2007–2013/14 (million euros)



Source: Data from the Open Data Portal for the European Structural and Investment Funds https://cohesiondata.ec.europa.eu/themes/5

Figure 2: Proportional change in programmed expenditure for agri-environment – 2014–2020 compared with 2007–13 (per cent)

Source: Data from the Open Data Portal for the European Structural and Investment Funds https://cohesiondata.ec.europa.eu/themes/5

3.4 Conclusions and Implications

The outcome on the ground of the introduction of greening measures into Pillar 1 as part of the 2013 reform remains to be seen. This analysis has looked in some detail at the greening regulations themselves and how they are being implemented through Member State implementation choices. This suggests that most countries appear not to have used the flexibility permitted in the regulations to increase overall environmental ambition. Rather, they have often maximised opportunities for farmers to meet their obligations without having to make significant changes – for example by permitting crop production in most EFAs, using crops that are not necessarily beneficial to biodiversity, permitting the use of fertilisers and pesticides, and selecting landscape features that are already protected under cross compliance.

However, this has not been the case in all Member States and there is also evidence of some positive implementation choices, where fertilisers are not permitted or the rules are used to fit with local environmental conditions, for example, where requirements are put in place to limit nitrogen leaching from N-fixing crops, or where options exist to put wildflower/pollen and nectar/ wild bird seed mixes on buffer strips. In particular, the designation of environmentally sensitive permanent grassland is likely to bring some benefits for biodiversity, carbon, soil and water due to the ban on ploughing, although the real added value will be where land has been designated that is not already protected under the birds and habitats Directives or national legislation; this is limited in scale currently. Disappointingly, the introduction of the greening measures does not appear to have led to

an increase in environmental ambition within RDPs and the significant declines in programmed expenditure for the agri-environment-climate measure in many Member States is a particular concern.

The environmental impact of the green measures will be influenced by farmer choices on uptake and implementation and information is only just emerging on what these are. The extent to which the introduction of the green measures changes the attitudes of farmers is also important to recognise. There is little doubt that during the greening negotiation and implementation processes, farmers' organisations were heavily focussed on minimising the disturbance of greening to what they see as normal farming processes. Now that those affected have had to put the requirements in place in their farming system for the first time the hostility to what was seen as the added bureaucracy of greening might conceivably fade. Could it even turn to a positive attitude? Part of the purpose of greening was to signal to the public, including farmers, that a significant justification of making direct payments is to achieve more sustainable farming systems. There are some signs that, at very least, pockets of opinion in farming circles have acknowledged some harmful and undesirable impacts of current farming practices, soil degradation is one in particular[12]. There is greater interest in soil cover, soil organic matter amelioration by lower tillage practices, and moves towards mixed farming and principles of agro-ecology are all being discussed more in farming circles. The demonstration effect of greening, as its requirements become more routine, conceivably could engage a more positive attitude of farmers to make the best of these requirements. Ultimately it will be the attitude and decisions of farmers which bring about improved environmental performance on agricultural land.

[12] Two pieces of anecdotal evidence: the number of applicants for UK Nuffield Farming Scholarships who mention reversing soil degradation as their proposed topic, and the formal decision in France to move towards principles of agro-ecology – which has spurred considerable awareness raising of what this is and why it can improve the sustainability of farming practices.

4 Challenges in demonstrating the additionality of greening

The previous section summarised the way the Member States implemented the greening measures and some of the environmental implications of these choices. It also highlighted the fact that to determine the real environmental impact of the greening measures, one also has to consider the changes to other environmental elements of the CAP, most notably cross-compliance standards of Good Agricultural and Environmental Condition (GAEC) and the agri-environment-climate measure under Pillar 2.

However there are a number of challenges in assessing the environmental 'additionality' of the greening measures in practice. These include:

- Attaining greater clarity on the environmental impacts of specific farm practices;
- The limited extent to which the measures have a clear intervention logic and clear, measurable objectives;
- The limited availability of robust baseline data;
- Improving the availability of data; and
- Timescales for monitoring change and disentangling the effects of greening from those of other policy instruments.

These issues are not just relevant to the greening measures but also for assessing the impacts of environmental interventions in agriculture more generally, where it is important to recognise that some level of trade-off between the ideal level of precision and what is practicable and affordable is inevitable. This section explores these challenges in relation to greening, and some of the implications for making a strong case for greater integration of environmental concerns into the CAP in future; it also proposes some solutions.

4.1 Determining the link between farming practices and environmental outcomes

The absence of readily available analysis to establish the concrete environmental benefits of different land management practices and activities proposed within the greening measures in different farming systems and different parts of the EU has been highlighted as a key factor contributing to the weakening of their content during the negotiation process.

The Impact Assessment that was carried out prior to the legislative proposals being launched was weak on the potential environmental impacts of the proposed measures. In addition, there was little time available during the negotiations to examine properly the potential environmental impacts of the variety of new options proposed by the Council and the European Parliament, particularly the biodiversity[13] impacts of the enlarged list of options to be considered eligible to count towards an EFA.

Without clarity on the intended measurable environmental benefits to be delivered by greening, it was difficult in practice for the Commission and others to clarify the extent to which successive proposals for the inclusion of additional management options and the

[13] Given that safeguarding and improving biodiversity on farms was the main objective of the EFA measure.

introduction of significant exclusion criteria, mattered for the delivery of environmental outcomes.

To prepare for any revisions to the greening measures, it will be valuable to draw together the evidence on the impacts of the different farming practices that are currently promoted through greening (and could be promoted through revised greening practices) on biodiversity, soil, water and climate in different farming systems and in different biogeographic and climatic situations (in so far as there are relevant). It is also essential to understand where such actions are likely to bring about most benefit in order to make judgements about whether or not uptake of different farming practices needs to be comprehensive within different farming systems, or whether targeting the measures to particular areas with certain characteristics is a more efficient and effective means of delivering the intended objectives. This sort of information should feed into any future impact assessments on changes to the greening measures.

This sort of information, adequately reviewed and synthesised, should be available in an accessible and searchable format[14] as an important resource for policy makers to use to make suitably informed decisions about how to achieve an increase in environmental and climate benefits across the farmed countryside. It will also be critical so that the evidence with which to counter any future attempts to water down the environmental content of these measures is available in a form that can be assessed and digested rapidly.

4.2 Clarity of intervention logic and setting precise objectives

One of the most commonly cited issues that hinders the assessment of a measure's impact is the clarity with which its objectives are articulated. To be meaningful, the EU objectives have to be operationalised at the national level, with a baseline identified and targets set (see below). Setting clear and quantified objectives has been a longstanding issue highlighted by the European Court of Auditors in relation to agri-environment schemes, for example (European Court of Auditors, 2011).

The greening measures are no exception in this regard. The EU objectives for the three greening measures are set out in Regulation (EC) 1307/2013. This states that the mandatory greening component of direct payments should 'address both climatic and environmental policy goals', 'enhancing environmental performance'. The recitals provide more detailed objectives for each of the greening measures. These are as follows:

- ***Crop diversification***: to achieve 'enhanced environmental benefit…in particular the improvement of soil quality' (Recital 41 of Regulation (EC) 1307/2013)

[14] The University of Cambridge Conservation Evidence site provides an example of the sort of literature that has already been collated in a searchable format and could be used to develop such a resource – see: http://conservationevidence.com/; the University of Hertfordshire also provides a tool to support farmers in their decisions on what features to include under their EFA, which assesses the potential effects of the features chosen on ecosystem services, biodiversity and farm management – see: https://ec.europa.eu/jrc/en/news/efa-calculator and the accompanying literature review - https://ec.europa.eu/jrc/sites/default/files/ReqNo_JRC99673_final_report.pdf .

- ***Maintenance of Permanent Grassland***: to ensure environmental benefits, in particular carbon sequestration (Recital 42). The objective for designating Environmentally Sensitive Permanent Grassland (ESPG) is to contribute to the protection of the environment and in particular carbon sequestration, biodiversity and soil protection (Recital 43 of delegated regulation (EU) No 639/2014).
- **EFAs**: to safeguard and improve biodiversity on farms (Recital 44)

Any additionality of the greening measures therefore needs to be assessed against these broad objectives. To do this effectively requires robust baseline data against which to assess progress.

4.3 Availability of robust baseline data and setting targets

The collection of robust data across the EU-28 on a regular basis on the state and condition of the environment in relation to biodiversity, water, soils and climate, the nature and intensity of cropping patterns and grassland management, the range and location of landscape elements and the use of agro-chemical inputs is a significant and resource-intensive challenge. This challenge is even more significant when such data are required at a detailed scale (e.g. the field, farm, group of farms, river catchment level) in order to determine what changes have taken place over time.

For some environmental schemes, such as the agri-environment-climate scheme, it is theoretically possible to determine the baseline situation by carrying out a survey of the environmental, climatic and agronomic situation on the farm before entering into an agreement with the farmer. In practice, however, this is resource intensive and not often a prerequisite for receipt of funding. For the greening measures, there is no such possibility given that the payments are made automatically on an annual basis, rather than via a contract.

One of the positive developments of the 2013 CAP reform was that certain Pillar 1 elements have been included within the Monitoring and Evaluation Framework (CMEF) for the CAP for the 2014-2020 period, including the greening measures. A number of indicators have been identified against which progress in achieving the objectives of the greening measures will be assessed (see Box 1). The majority of the output and result indicators relate to uptake of the measures in terms of number of farms or area of land subject to or exempt from the measures, rather than measuring environmental changes (with the exception of result indicator 15 measuring net GHG emissions from agricultural soils). No targets are set for any of these indicators for the green measures. It is the impact indicators which have been put in place to determine the impact of the CAP on particular environmental variables, although these are assessed at the CAP general objective level rather than the measure level.

Nonetheless, a series of context indicators are available which could be used as baseline information against which to measure progress. However, for many of the indicators identified to measure the outputs and results of the greening measures, there are no relevant context indicators to provide suitable information. For example, there is no indicator relating to the crop diversity on farms in 2014 or indicators that can identify the

area of land under different EFA elements in 2014 (i.e. what proportion of land was under N-fixing crops or under catch crops or green cover). There is also no data on whether or not permanent grassland is regularly ploughed and reseeded or not. Without these data it will be very difficult to assess what changes have been brought about via the implementation of the green measures.

Box 1: CAP Monitoring and evaluation indicators relevant to the Pillar 1 greening measures

Result indicators

11. Crop diversity — on farm (number of farms by number of crops and size) — in a region
12. Share of grassland in total UAA
13. Share of ecological focus area (EFA) in agricultural land
14. Share of area under greening practices
15. Net greenhouse gas emissions from agricultural soils

Output indicators

Greening

- Total number of farmers who have to apply at least one greening obligation
- Total number of hectares declared by those farmers

Greening exemptions

- Number of farmers exempted by: organic farmers/exempted from crop diversification/exempted from EFA obligation
- Number of hectares declared by these farmers (organic farmers/exempted from crop diversification/exempted from EFA obligation)

Crop diversification

- Number of farmers subject to crop diversification (with 2 crops; with 3 crops)
- Number of hectares of arable land declared by farmers subject to crop diversification (with 2 crops; with 3 crops)

Permanent grassland

- Number of farmers with permanent grassland counting for the ratio
- Number of hectares covered by permanent grassland declared by the farmers counting for the ratio
- Number of farmers with permanent grassland in designated environmentally sensitive areas
- Number of hectares covered by environmentally sensitive permanent grassland declared by these farmers
- Number of hectares of designated environmentally sensitive permanent grassland (total)

EFA

- Number of farmers subject to EFA requirements
- Number of hectares of arable land declared by farmers subject to EFA
- Number of hectares declared by farmers as EFA, broken down by EFA type

Equivalence

- Number of farmers applying equivalent measures (certification schemes or agri-environment-climate measures)
- Number of hectares declared by farmers implementing equivalent measures (certification schemes or agri- environment-climate measures)

Potentially relevant Impact Indicators:
7. Emissions from agriculture
8. Farmland bird index
9. High nature value (HNV) farming
10. Water abstraction in agriculture
11. Water quality
12. Soil organic matter in arable land
13. Soil erosion by water

Some means is required, therefore, to collect data on what is happening on the ground and how this changes over time across the EU. Prior to the introduction of the greening measures in 2015, no systematic baseline assessment was carried out, against which progress can be measured, making it problematic to assess the impact of the measures. For example, the information provided by Member States on implementation of the greening measures in 2015, reported in section 3.2 showed that 80 per cent of UAA is subject to at least one greening measure and that approximately 70 per cent of arable land on average is subject to the EFA measure. However, without any baseline information, it is hard to ascertain how much of this land has been subject to a change in management practices and how much was already managed in this way in 2014.

There is a range of ways in which such data could be provided, extending from the use of remote sensing, using both satellite and aerial imagery, to using information collected via the Integrated Administrative Control System (IACS) and Land Parcel Identification System (LPIS), to periodic field scale surveys.

Satellite and aerial imagery: All Member States are required to have in place a GIS based identification system for agricultural parcels[15] and from 2018 at the latest this must also contain a 'reference layer' with information on all the elements included within EFAs or equivalent practices/certification schemes. This must be able to distinguish arable, permanent grassland and permanent crops, since this determines whether there is an EFA requirement and whether any potential EFA features can be included in the area of any particular EFA. Individual crops also need to be spatially explicitly identifiable to enable the crop diversification requirements under the green direct payments to be verified.

The mapping exercise is clearly helpful in environmental terms. However, many countries are reporting the mapping requirements for EFAs to be challenging. The main reason for this is the accuracy required for the data to be used for control purposes, including the very low tolerance levels permitted and the frequency with which the information needs to be updated. Some countries have already integrated landscape features within their LPIS (e.g. Germany and Sweden) and are using remote sensing imagery for a large proportion of compliance checks for direct payments (e.g. Germany) but many are not yet in this position.

The resolution of satellite imagery available has improved significantly in recent years. Using remote sensing it is possible to identify landscape features (including type, length and width), different land uses, as well as the different types of crops in the fields (although not crop mixtures), and field checks are needed to clarify types and species of crops. Satellite

[15] Regulation (EU) No 1306/2013 of the European Parliament and of the Council

and aerial imagery can be updated on a regular basis too and in many countries this is being done on an annual basis – either a complete update or a proportional update. However, in the Netherlands, using satellite data from the EU's Joint Research Centre at both High Resolution (HR) and Very High Resolution (VHR), Landsat8 data from March 2013 and a range of satellite imagery available through the Dutch National Satellite Portal, imagery is now available with a two metre spatial resolution and a nine day temporal resolution. The addition of data from two further satellites under the Copernicus programme[16], available from 2014/15 (Sentinel 1 and Sentinel 2)[17] means that the classification of crops at a parcel level, green cover, catch crops should be feasible. Using satellite imagery for this purpose does involve considerable investment; which is not always popular politically, particularly in administrations with limited resources and in those which would prefer to use satellite imaging for the monitoring and evaluation of policy measures than for routine reporting and detailed control purposes. However the imagery can also be interpreted by automated data processing and technical progress is rapid in this area (van der Sande, 2014).

Field Surveys: In order to provide an indication of the baseline situation prior to the introduction of greening, the European Environmental Bureau (EEB) commissioned a survey of arable and grassland plots in 10 Member States[18] (IFAB, 2015). In doing this, a method was developed and tested to measure the extent, quality and state of landscape infrastructure, land use and the ecological value of farmed landscapes in different agricultural landscapes in Europe. Standardised field-level surveys were carried out using a sample plot approach with a regular grid laid across more or less homogeneous regions. There were three elements to the approach: a detailed mapping of the sample plots, detailed vegetation transects and photographic documentation. The conclusions of the pilot phase demonstrated that this approach has the potential to be replicated, should funding be made available to enable this to happen. The approach investigated the following parameters:

- species richness in transect walks on arable land, permanent crops and grassland
- the pollination potential of arable landscapes (measured using a number of parameters – number of flowering plant species, flower density and the coverage of wild plants)
- number, extent and nature value of landscape elements
- extent, widths and nature value of buffer strips
- the presence of any ecologically sensitive areas.

The findings of the report showed that:

- In over 95 per cent of all investigated arable plots very low levels of biodiversity were found: only 0.9 key species were found in arable plots (n=1528) – a sufficient level would be at least 3–4 key species on average.
- There was an extremely low pollination potential of arable fields: only 1.1 flower density on a scale of 1 to 5 of all arable transects (n=1528).

[16] http://www.copernicus.eu/

[17] Sentinel-1 carries radar instruments. Sentinel-2 is a polar-orbiting, multispectral high-resolution imaging mission for land monitoring to provide, for example, imagery of vegetation, soil and water cover, inland waterways and coastal areas.

[18] Landscape Infrastructure and Sustainable Agriculture (LISA) (IFAB, 2015)

- Buffer strips comprised on average in all regions 0.3 per cent of the arable land (values of 0 per cent – 1.4 per cent).
- Landscape elements comprised from 2–7 per cent of the areas surveyed.
- In grassland regions the number of key species was higher: 2.2–17.7 species on average; however, in intensive grassland regions the figure was nearly as low as in arable land.

This implies that the technology exists for satellite data to be used, in combination with information from field surveys on the ground, to identify changes in cropping patterns and land use / land cover and assess them over time. The challenge is that in many countries the baseline situation in 2014 was not identified, making it difficult to assess the changes brought about through the implementation of the greening measures. The only multi-country baseline assessment identified was the field survey carried out by IFAB (2015). It would be helpful to identify which countries do have baseline information for 2014 and which not. For those where limited information is available, the information collected on implementation of the greening measures in 2015 should be collected and presented in a way that allows future changes in 2016 onwards to be identified robustly.

4.4 Timescales for monitoring change and distinguishing the impact of greening measures from other drivers

In addition to identifying measurable objectives, having robust baseline information and suitable indicators and the means of monitoring change in place, consideration also has to be given to the timescales over which environmental impacts can be discerned and the extent to which these can be attributed to the Pillar 1 greening measures.

Pillar 1 payments are made on an annual basis and payment is conditional on the requirements of the measures having been carried out over the required area of land, rather than on environmental results having been achieved. Nonetheless, to be able to ascertain whether or not the Pillar 1 greening measures have had any environmental added value, it is important to assess over time the environmental changes that have taken place. This could include improvements in soil carbon sequestration or the benefits of various EFA elements for particular aspects of biodiversity.

This will require multi-annual monitoring to understand exactly what has happened on the ground, as the basis for gauging impacts. The extent to which the different options put in place are permanent in one location or moved around the farm (in the case of EFAs) and any changes in the location of permanent grassland, (even when this in within the five per cent that is permissible) are both important. For example, the extent to which buffer strips, strips along woodland edges or fallow are retained in the same place every year or moved around the farm will alter the environmental benefits that will accrue. Similarly, to ascertain both biodiversity and carbon sequestration benefits, it is important to understand the proportion of permanent grassland that has been a) ploughed and reseeded to grass; b) ploughed and managed as arable; as well as c) the nature of the grassland that has been ploughed (e.g. whether or not it is species-rich or agriculturally improved grassland.

With the current reporting arrangements it is difficult to see how one would be able to trace this sort of information about a parcel over multiple years.

Another factor that is important for clarifying the environmental effects of the Pillar 1 greening measure is the extent to which the management in place and effects that are discerned are attributable to the greening measures themselves. However this is not easy, either in this case or in relation to other policy interventions in land management. Establishing the counterfactual is rarely straightforward, but this is particularly the case where there are multiple drivers affecting land management decisions. In the case of the greening measures, it is important to consider also the effects of a range of other, potentially overlapping or complementary, CAP policy measures. These include: cross compliance, Pillar 2 area based measures for agricultural land (such as payments in Areas facing Natural or other specific Constraints (ANC)), as well as other Pillar 1 measures, such as Voluntary Coupled Support (VCS) payments, particularly for protein crops. For example, in the latter case, the planting of protein crops could be supported via the EFA measure or the crop diversification measure as well as by the VCS payments for protein crops. In relation to cross compliance, it will be important to understand whether or not there are differences between what is required under cross compliance and under the greening measures, particularly EFAs, as in many cases Member States can choose that certain elements (landscape features and buffer strips for example) have the same requirements under the EFA measure as they do under cross compliance. With respect to Pillar 2, understanding how agri-environment-climate schemes have changed between the 2007–13 period and 2014–2020 and the extent to which such changes relate to the choices made by national authorities regarding the Pillar 1 greening measures will be essential in helping to be more precise about the impact of the greening measures.

4.5 Implications for the development of future options for greening

The issues highlighted above have implications for discussions on the extent to which the Pillar greening measures are delivering meaningful environmental benefits. This in turn has implications for assessing the relative effectiveness (and cost-effectiveness) of this approach for delivering environmental benefits via simple, annual, non-contractual payments under Pillar 1 in comparison to other policy mechanisms, for example using cross compliance or multi-annual incentive schemes such as those available under Pillar 2.

The new monitoring requirements under the 2013 CAP are a step in the right direction but more is required along the lines outlined above in order to increase environmental focus and value added. It raises issues about what level of precision is required to generate adequate baseline data against which to measure environmental effects as well as for monitoring when the majority of the agriculturally managed area in all Member States requires assessment on a periodic basis in a cost effective way. More detailed data are certainly required on the environmental condition of the farmed environment, but what sort of data are required needs close consideration to ensure that its interpretation will be meaningful and deliver added value. This will require resources and time to make the most of the opportunities offered by remote sensing and other data sources, including detailed farm level surveys to corroborate such data using representative samples across the EU-28.

To inform assessment of the impact of the greening measures as well as decisions about the changes required to the greening measures to achieve an increase in environmental and climate benefits across the farmed countryside, more accessible and comprehensive data are required on the relationship between land management actions, agronomic decisions and environmental outcomes. Much of this information is available in the scientific literature, however what is needed is that it is pulled together in a systematic and accessible way for policy makers.

5 Future options for greening

Given the possibility that the final design of the greening measures and the implementation choices made by Member States do not bring about significant additional environmental benefits, this raises questions about how to increase the environmental added value from greening. Can more be delivered with a revised set of greening measures under Pillar 1? Could more be achieved for the environment if greening measures were implemented under Pillar 2, under a multi-annual, programmed system? Or is it time for a change in the overall architecture of the CAP and what does this mean for future CAP reform? A number of these choices are already being discussed in various fora as possible alternative options for greening. One example is the European Parliament's Roundtable discussions on the future of the CAP, convened by COMAGRI MEPs Peter Jahr (EPP) and Jan Huitema (ALDE).

In this chapter, a series of possible future options have been developed, examining different ways in which basic environmental management of farmland could be incorporated within the CAP as an alternative to the current green direct payments. Each is then assessed against three criteria: additional environmental benefit; administrative burden (on Member State administrations and on farmers); and political feasibility. The analysis is not intended as a detailed impact assessment. Rather it illustrates the potential pros and cons of each approach.

The three criteria are defined as follows:

1. ***Delivery of additional environmental benefit***:
    a. Would the approach facilitate the attainment of key environmental goals, whilst maintaining food production?
    b. Would the approach provide Member States with the potential to adopt a more tailored approach to the implementation of the greening measures?
    c. Would it avoid or at least reduce the possibility of farmers adopting management practices that deliver little environmental additionality?
    d. What sort of targeting could be implemented?

2. ***Administrative burden***: what would the implications of the new approach be for:
    a. Control and verification requirements?
    b. The administration of annual or multi-annual payments to farmers?
    c. Monitoring and reporting?
    d. Potential changes in relation to any contractual agreements?

Taking criteria 1 and 2 together some broad assessment of the potential cost effectiveness of each option can be commented upon.

3. ***Political feasibility***:
    a. What would the implications of any changes be on the requirements placed on farmers?
    b. Would it lead to any redistribution of payments between farms?
    c. Are there significant implications for Member State budgets and co-financing obligations?

d. Would there be likely to be significant implications for delivery costs to Member States?

Before identifying and analysing the options there is a generic point which applies to them all. Greening is fundamentally an attempt to encourage higher standards of environmental management over a substantial proportion of Europe's agricultural land; it is therefore focussed on agricultural and particularly arable land management and relies on relatively generic measures.

This in turn creates a significant challenge that if public funds are being used for this, in principle it could involve monitoring and inspecting the whole agriculturally managed territory of each Member State on a periodic basis. It therefore demands considerable effort and innovation to exploit to the full the possibilities of remote sensing by satellite, drones and other techniques, and finding ways to pool or integrate this information with other data sets (on soil mapping, weather and climate) and possibly also farmer-owned data collected by precision farming techniques and equipment. Whichever route is followed for future greening of the CAP there is the same potential administrative advantage both for public administrations and for farmers of ensuring best practice in such data gathering, pooling and analysis. Without such innovation, and control cost reduction, administrative feasibility could turn out to be a significant inhibiting factor for both the adoption and the success of any option to better 'green' the CAP.

Four approaches for developing greening are considered as follows:

- ***Option A: Abolish green direct payments*** and revert to using cross compliance (particularly in Pillar 1) as the mechanism for delivering basic environmental management across the farmed countryside;
- ***Option B: Retain the greening measures in Pillar 1***, but amend the rules to strengthen the environmental value added;
- ***Option C: Shift the greening measures from Pillar 1 to Pillar 2***;
- ***Option D: An integrated option***, **whereby the CAP is redesigned as a single integrated set of measures structured in a tiered hierarchy** without the blurred distinctions of purpose, periodicity, funding and structures which characterise the current two-pillar structure.

A broad description of each option is set out below, followed by an assessment of their potential environmental and administrative strengths and weaknesses and a discussion on their potential political feasibility.

However, before detailing each of the potential options, it is worth setting out the different characteristics of the two Pillars of the CAP, given the bearing that this has on the pros and cons of situating green payments under either or both Pillars.

5.1 Characteristics of the CAP pillars

Since 2000 the CAP has been formed of two distinct Pillars. The policy instruments and measures in the two pillars have different rules governing the way that the funding and payments are made, controlled and verified. These are set out in the table below.

Table 3: Characteristics of Pillar 1 and Pillar 2 of the CAP

Pillar 1	Pillar 2
• No programming, broad objectives.	• Programmed and justified against EU strategic objectives
• Annual	• Multi-annual
• By right if eligibility criteria are met	• Discretionary
• 100 per cent EU funded from EAGF	• Co-funded by the EU from EAFRD and Member States – co-financing rates vary by measure and region/MS.
• Payments per hectare – calculation varies but no formula is imposed as for Pillar 2	• Area payment rates (e.g. for AECMs) are based on calculations for each measure of income foregone plus additional costs and can include an element of transaction costs
• Differential payment rate regions for some components of payments	• Regionally defined in most cases
• Most measures are obligatory to implement (exceptions are: coupled support, ANC, small farmers scheme)	• Most measures are optional for Member States to implement (exceptions: agri-environment-climate measure and LEADER)
• Some implementation choices for MS/Regions	• Menu driven, choices made by MS/Regions
• Focussed mostly on farmers and agricultural production	• Wider rural application, embraces forestry and socio-economic priorities
• Remaining market support measures e.g. intervention buying in fruit and veg sector	• Some market support under insurance schemes but only where MS/regions choose to put this in their RDPs

The original rationale for the policy of 100 per cent EU financing of Pillar 1 measures (which is exceptional in the EU) was that the predecessor market support measures logically had to be 100 per cent centrally funded. This was the 'financial solidarity' principle of the original commodity support CAP in which expenditures arose in regions of market surplus, yet the benefits of price support were enjoyed by farmers everywhere. There is no comparable justification now for 100 per cent Pillar 1 funding, but Member States have hitherto been resistant to raising this sensitive issue. The two-pillar CAP was constructed under Agenda 2000 and reinforced in the 2003 Mid-Term Review. As it subsequently evolved in the 2007 and especially the 2013 reform, there has been a progressive blurring of the distinction in objectives of the two pillars as social and environmental concerns have been added to Pillar 1 payments through provisions for greening, small and young farmers, areas of natural constraints, and the wider use of coupled payments and the potential to fund insurance schemes have been included within Pillar 2. Areas of discretion for Member States within Pillar 1 have also increased considerably.

5.2 Options for the future of green direct payments

5.2.1 Option A: Abolish the green direct payments and revert to using cross compliance as a means to deliver basic environmental management across the farmed countryside.

Under this option, the greening measures under Pillar 1 would disappear. Instead, cross compliance would be the key policy mechanism used to deliver a basic level of environmental management across the farmland subject to the CAP. The provisions of cross compliance, mainly the standards of Good Agricultural and Environmental Condition (GAEC), would be changed to incorporate forms of management that are currently required under greening. For example:

- the crop diversification greening measure could be introduced as a 'crop rotation' standard (as was available in the 2007–13 period – albeit as an optional standard);
- the maintenance of permanent grassland measure could revert to cross compliance, as was previously also the case – preferably this would operate at a regional/more local or farm level;.
- To protect environmentally sensitive permanent grassland, a new standard could be introduced to require Member States to identify environmentally valuable habitats/vegetation and soils on which no ploughing is permitted – both within and outside protected areas. Where possible, a particular focus of this standard would be to identify areas of semi-natural pasture and carbon rich permanent grassland.
- Some of the more environmentally beneficial EFA elements could also be included as GAEC standards and would therefore apply to all relevant land (some already are – e.g. buffer strips and many of the landscape features). For example fallow land, strips along woodland edges, green cover/catch crops. The requirements of the standards (e.g. minimum widths of buffers, landscape features etc) could be revised to be akin to those stipulated for the current green direct payments. Some elements would not be suitable to address via cross compliance such as: agro-forestry, afforestation, N-fixing crops, short rotation coppice (SRC) and these would not be taken up in cross compliance or in Pillar 1 more broadly.

Under this option all GAEC standards would be compulsory for Member States to introduce and they would apply to all relevant agricultural land. It might be simpler to have only one farm size threshold to apply to all these cross-compliance standards, rather than variations in eligibility rules, as now apply to different elements of greening.

The Water Framework Directive (WFD) and Sustainable Use of Pesticides Directive (SUPD) would be incorporated into cross compliance as Statutory Management Requirements by a given date, as envisaged already.

The current control system for cross compliance would continue to operate and monitoring and evaluation would be required, as stipulated under the current Horizontal Regulation (Regulation (EC) 1306/2013).

Delivery of environmental benefits of Option A*:* From an environmental perspective, this option is seen as a strengthening of the environmental dimension of cross compliance for climate, water and biodiversity protection reasons. It is a clearer statement of the reference level of receipt of any CAP payments. However, the reliance on cross compliance brings the corollary that as direct payments are reduced, or even eventually eliminated, then the leverage to achieve better compliance with environmental standards would decline or could even be lost.

In terms of pursuing clear environmental goals this measure is similar to the status quo, but without the payments. A larger area of UAA could be captured if some of the exemptions for farms currently in place under greening were removed which would be logical under this approach. On the other hand, some greening measures not incorporated in cross compliance would fall altogether whilst some might be incorporated into measures implemented via rural development programmes, especially if they are popular with farmers or influential environmental interests and assuming funding is available.

The consequent adjustments could result in some greening measures of value disappearing. Within cross compliance, capacity to target measures would be similar to at present. Actual management choices at farm level might change depending on farmer perceptions of the control regime and the scale of penalties. The opportunity to change certain rules e.g. in relation to permanent grassland could arise from the re-design entailed in this option.

It is not easy to forecast the net environmental result expected to arise from the set of adjustments that would occur. However, one important point is that historically the reporting and monitoring requirements have been less for cross compliance than for direct payments. Unless this was addressed it could weaken the effectiveness of this approach.

Farmers would almost certainly react negatively to the withdrawal of the greening payments unless the funding currently allocated to greening remained in Pillar 1 and was redistributed as part of the basic payment scheme. Their level of willingness to pursue environmental objectives might be reduced if a payment regime is replaced by a purely compliance regime. Indeed cross compliance seems less likely to engender the growth of positive environmental attitudes over time. At a broader political level, the withdrawal of the greening payments would draw attention to the rationale for continued direct payments and the value added.

Administrative burden of Option A: The logic of this option is to simplify. It is a switch from the concept of paying certain categories of farmers (e.g. those with an arable area of greater than 30 hectares) to take certain actions which it is judged will provide environmental benefits. This is a different concept to conditionality which is the heart of cross compliance and requires those receiving payments for some other purpose (e.g. income support) to respect certain conditions. There is a supposition that those entering into a payment contract will do so with an expectation that they understand they have to deliver the service contracted. Whether this supposition is true has not been subject to close scrutiny.

Option A should provide some reduction in administrative burden, because it simplifies the direct payment regulation by removing the separate articles referring to greening which, in

turn, require their own independent implementation and control actions by administrators and farmers – form-filling, verification, checking and, when necessary, applying penalties for non-compliance.

The fact that it results in a single set of cross-compliance controls with a single set of rules about payment reduction for non-compliance, and a single set of controls and inspections should be a simplification. It is difficult to assess how large this effect could be as there is no experience yet to judge the functioning of separated greening requirements with their own penalties of 30 per cent (or more) of payments for non-compliance. However, the details of which aspects and how the greening practices are added to the current machinery of cross compliance will make a difference. The specifics of which farms have to take which cross-compliance actions, and then which combination of actions are in practice chosen by individual farmers, of course, have to be explained in scheme literature, provided for in payment application forms, and checked in the cross-compliance controls.

There is a structural simplification offered by this option, but in practice this may not reduce the actual administrative burden for authorities or farmers very greatly unless the specification of the greening practices themselves were changed. However, once farmers have become used to specifying and farming with greening actions, the initial costs of planning, executing and recording, (in some cases mapping, for example EFA features) will have been shouldered, adjustments made and farmers may have adapted their expectations and settled down. If these actions are then switched into the cross-compliance framework, this might well seem a simplification.

Given that the environmental delivery from this option is not expected to be very different from the status quo, that there are no specific payments involved and that control and verification procedures are already in place for cross compliance which are more flexible for Member States than those associated with the greening payments, this might be seen as a cost effective option.

Political feasibility of Option A: If the switch of greening actions to cross compliance does not add to, but possibly reduces transaction costs for administrators and farmers, then this could be a popular option with these stakeholders if not with the environmental community.

However, a key issue then is the fate of the 30 per cent greening payment if separately specified greening actions are abolished. If the political/economic logic behind consolidating greening into cross compliance is that the current approach to greening adds to complexity while achieving little or no environmental additionality, then the argument that would be likely to ensue is that the 30 per cent greening payment is no longer justified. This is likely to be resisted by the recipients – even if they accept that it simplifies the policy. However, this option might well be the most rational approach if there really is little or no environmental additionality and broader political and resourcing considerations dictate that the CAP has to accept a smaller budget.

There are no new distributional considerations added by this option compared to the status quo, assuming that the consolidated greening actions are not significantly changed.

5.2.2 Option B: Retain the greening measures in Pillar 1, but amend the rules to strengthen the environmental value added

There are two broad variants considered under this option. As they both remain under Pillar 1, they are compulsory for farmers to whom they apply; comprise annual payments and are 100 per cent EU funded (see Table 3 above). The variants considered here are:

- B1: Retain green direct payments as currently formulated but change the administration, verification and control regime
- B2: Retain the idea of green direct payments, but raise their environmental ambition

B1: Retain greening measures as currently formulated but change the administration, verification and control regime

Under this variant, the rules would be simplified and made more flexible, particularly those relating to controls and verification, in line with the philosophy of the current simplification agenda being promoted by Commissioner Hogan. The main aim of the changes would be to remove the fear of disallowance in Member States and encourage a more ambitious implementation of the greening measures. Care would need to be taken, however, not to diminish the environmental reach of greening through simplifying the rules.

The sorts of changes that might be pursued here could include:

- a higher error tolerance for controls;
- a review of the mapping and verification requirements with a view to more focus on results and more flexibility in rigid rules; and
- the introduction of penalties that were proportionate to the offence, perhaps with reduced penalties if errors were rectified quickly.

Delivery of environmental benefits of Option B1*:* In this scenario, expected environmental impacts depend very much on the details of the changes, the perceptions of Member States and their subsequent responses. Whilst many potential responses could be envisaged, (including in the worst case a reduced emphasis on environmental outcomes), potentially the largest gains would arise from Member States being motivated to increase the environmental ambition of their measure through the way they choose to implement the greening measures without a simultaneous decline in environmental or budgetary efficiency. This could arise from a more flexible control and verification system which is better attuned to environmental and agronomic realities. In principle, a combination of several different elements would need to be put in place to achieve this.

- The introduction of environmentally more demanding measures, particularly for EFAs;
- More active engagement by Member States to promote more environmentally ambitious measures;
- Preferably, the withdrawal of measures that add little environmental value, although there is no obvious reason why Member States should take such action under this option;
- Creation of an administrative and operational "climate" under which greater attention is paid to environmental outcomes, in some cases requiring judgement and

good knowledge of conditions on the ground, potentially taking account of adverse weather conditions and other variable factors. There would need to be an accompanying increase in trust on all sides (between Member States and farmers as well as between Member States and EC Auditors) if there were to be more reliance on judgement and less on the measurement of precise areas of land cover.

Overall, there could be expected to be some environmental gains from the adjustments that would flow but these might take some time to emerge and might be highly variable. In the worst case scenario, increased flexibility could allow for increased incidences of poor practice (albeit within an overall improvement in environmental performance), especially where local administrations were not sufficiently skilled or motivated.

Administrative burden of Option B1: The purpose of this option is to streamline the transaction costs of greening without diminishing their purpose. In turn the rationale underpinning the greening actions is to achieve a higher standard of environmental performance across certain aspects of EU farming than that which applied under the previous approach to cross compliance. The costs of administering this aspect of the CAP ought to be lower than the status quo. The acid test, which will require a more detailed and empirical analysis than can be attempted here, would be the comparative cost of this option and Option A (delivery solely via cross compliance). Achieving an acceptable base level of environmental performance from most farms appears less costly through establishing a single set of cross-compliance conditions rather than cross compliance plus a trio of separately administered and policed measures – especially when these have detailed eligibility rules which confine the actions to a relatively small set of farmers. Option A might therefore be expected to come out as more cost effective than could be achieved under option B1.

Political feasibility of Option B1: This variant potentially has appeal to both farmers and administrations as it reduces unpopular process requirements and provides farmers with more flexibility within certain parameters. Retaining the payments within the CAP increases the political appeal to agricultural ministries and interests, but could aggravate criticism of low value added which might work in favour of other options. Thus farmer opinion could be expected to support either this or Option A, depending on what happened to the existing 30 per cent of Pillar 1 funds dedicated to the greening measures. Environmental opinion is unlikely to be satisfied that the priority task in greening the CAP would be to reduce the administrative burden in return for such uncertain environmental gains while continuing to deploy very considerable public expenditure. Rather, there would be calls for an increase in the level of environmental ambition so that the outcomes more than match the scarce financial resources devoted to greening. This latter view is also likely to be shared by those less concerned with environmental standards *per se* but eager that EU funds should be allocated to those measures which show clear value for public money.

B2: Retain the concept of the greening measures, but raise the level of environmental ambition:

Under this option the principle of green direct payments is retained, but they are redesigned and the rules associated with them are changed. These payments would remain annual payments, 100 per cent funded from EAGF. There are many possibilities here.

Amongst the general rules that could be changed are:

- The eligibility and exclusion criteria could be tightened up so that a greater proportion of farmland was subject to the greening measures;
- Options for permanent crops could be developed so that these systems are covered by greening requirements; and
- More rigorous limitations on pesticides or fertilisers could be placed on land subject to green direct payments.

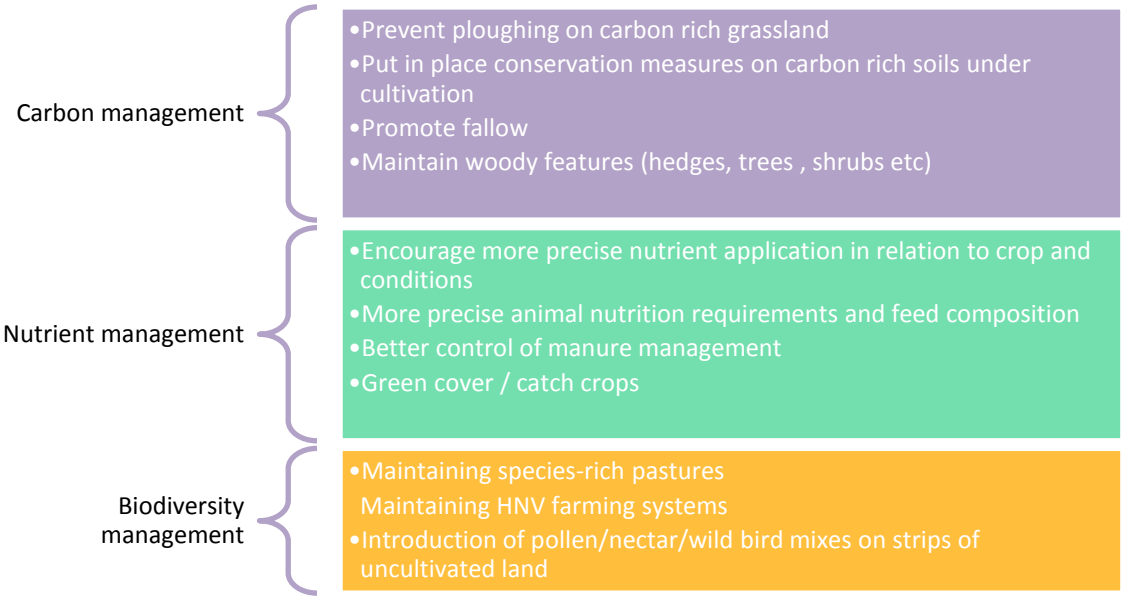
More specifically, a range of different options could be envisaged as follows.

a) Provision of a clearer focus on particular objectives. For example, require Member States to design packages of measures with a focus on:
    i. **Carbon management**: Reducing GHG emissions and enhancing carbon management and sequestration;
    ii. **Nutrient management**: Achieving higher water and air quality standards through better plant and animal nutrient management / encouraging the more efficient use of N and P to reduce accumulation on farms;
    iii. **Biodiversity management**: Introduction of more positive measures to enhance biodiversity.

    These packages of measures could be included as a menu of options at EU level or Member States could be given the flexibility to design the packages themselves (akin to equivalence schemes). If Member States were to design packages of measures themselves, consideration would need to be given as to whether or not these would require approval by the European Commission, or whether a notification process would suffice, whereby the Commission would raise any issues arising with Member States and seek any improvements via informal bilateral discussions.

    Certain EFA options would be removed if they were not linked sufficiently clearly and strongly to desired environmental outcomes. More radically, it would be possible to include new EFA options with a greater level of environmental ambition as well as pruning some of the measures with low added value. The requirement to maintain a certain proportion of permanent grassland in Member States would probably revert to cross compliance under this scenario as it does not fit well with this revised design of the green measures, although rules to prevent ploughing on certain types of grassland would remain.

Figure 3: Possible options for Member State environmentally focussed packages of green measures for specific environmental objectives



Coverage and eligibility: The suggested approach would replace all three existing green measures whilst applying, in principle, to an agreed percentage of land (say around 10 per cent to be effective) on all farming systems. It would take the form of a minimum of a whole farm requirement, involving basic management options that would be implemented across the whole of the holding. Exemptions could and almost certainly would be made for very small farms.

b) Amend the existing measures by:
   i. Restricting the options available under EFA, focussing on options which make a real environmental contribution and which are different or more ambitious than what is required under cross-compliance GAEC standards;
   ii. Encouraging or requiring positive management on EFA options, for example the use of seed mixes on buffer strips or fallow land to enhance biodiversity (e.g. to benefit birds and/or pollinators);
   iii. Placing conditions on certain EFA elements to enhance their environmental benefits;
   iv. Limit the use of fertilisers and crop protection chemicals on EFA;
   v. Remove the crop diversification requirement and replace it with a compulsory crop rotation GAEC standard;
   vi. Redesign the maintenance of permanent grassland measure to focus on the protection of important grasslands from ploughing, including: semi-natural grassland / HNV farmland / carbon rich grassland;
   vii. Introduce measures that can apply to permanent crop systems.

Coverage and eligibility: Eligibility criteria would be revisited to remove the significant exclusions that currently apply. The only criterion that could remain is a size threshold (e.g. areas <5 ha might be exempted for administrative burden reasons).

The issue of the appropriate payment rate to be attributed to more environmentally demanding actions under Pillar 1 greening needs more analysis and discussion. As the intention would be that these actions are correctly being described as provision of public environmental goods and services then principles of direct costs and income forgone might be expected to feature. This could then provide an objective basis to inform the proportion of Pillar 1 budget which might be allocated for greening instead of the rather arbitrary 30 per cent currently in use.

Delivery of environmental benefits under Option B2*:* This option and its variants would be expected to deliver more environmental benefit than options A and B1, with respect to carbon, nutrient and biodiversity management, provided uptake was reasonably substantial. The measures are more precise and targeted, with a stronger thematic focus under approach a) and more demanding rules under approach b). Coverage of the measures would depend on the specific rules in place; and the question of payment levels and the requisite share of the Pillar 1 budget allocated to greening could influence farmer response as noted above. Some measures could require careful tailoring to specific conditions (crop rotation; permanent crop measures) and might be controversial with farmers (crop rotation). A significant investment in support, advice and enforcement would be required to achieve the goals effectively at farm level. There would be knock-on impacts on the implementation of the rural development measures, particularly the agri-environment-climate measure which would start from a higher environmental baseline and might also require an increase in payment levels if they were to secure significant benefits from above this. There would be a more diversity of environmental requirements within different parts of Europe, particularly under the first of these two approaches which introduces thematically targeted requirements. On the other hand, it could be easier to specify concrete environmental outcomes and to monitor against them.

Administrative burden of Option B2: Administrative cost is a potential obstacle to more ambitious greening. Defining the parameters of the measures, agreeing thresholds for their application, any exemptions, and building in potentially measurable outcomes, all of which can in principle be adapted for a wide variety of farming systems and local conditions across the EU, is a challenging task. In particular adapting the multi-annual concept of arable crop rotation to an annual payment is not simple to control as it requires data to be held and processed, 'remembering' what each land parcel produced in previous years. It was these kinds of difficulties which drove the Commission to propose crop diversification in the 2013 reform. Considerable preparation (in particular the pilot testing of proposed measures and development of an evidence base capable of demonstrating the delivery of environmental benefit) would be needed to avoid this kind of approach suffering the same fate as the original set of greening measures in the 2013 reform.

It will be a challenge to avoid this option becoming overly complex, whether for scheme administration, for farmers to put in place on the ground or for monitoring and control. It seems unlikely that it will be possible to get more environmental outputs in most domains

without a greater input of time and effort, at least in the early stages of setting up such schemes.

Certain administrative burdens might be expected to be higher the more compulsion is involved in delivering this option (although it would be useful to assemble evidence to test this) but voluntary schemes involve enrolment and other costs of their own. If this is the case it would suggest careful consideration of the balance between better compliance and control costs for potentially more focussed voluntary approaches versus attempting to get wider and more comprehensive coverage though a compulsory approach.

Starting from the debate on greening implementation, and the strong focus on 'simplification', suggests that priority should be given to finding innovative ways of managing greening actions. This could be through collective delivery by farmer producer groups or cooperatives, for example, so that part of the control is devolved to these private organisations. It might involve an improved use of the latest satellite technologies for control purposes. Or it might involve ways of incentivising the Member States or regions which perform scheme management well with less emphasis on imposing disallowances on those who do less well.

Political feasibility of Option B2: As things stand, this option is likely to confront differences in the priorities of farming and environmental interests. The former will argue on economic grounds that they are being asked to incur more costs to provide more environmental services with quite possibly the same or lower payments, at the same time as many businesses are scarcely viable given current costs and prices. They may also deploy the argument used in the 2013 reform to suggest that more stringent greening would imperil food production and thus food security, demonstrating a fundamental disagreement with the argument that the threat to food security is unsustainable farming not insufficiency of current EU food output. Environmental interests will point to the non-achievement of existing environmental standards for water, nitrates, species and habitats and air pollution. They will also suggest that aspects of current practices are unsustainable and this is the real threat to food security, not current production.

The feasibility of overcoming farmer resistance therefore could be improved if evidence can be produced showing (a) the concrete threats to the sustainability of agricultural practices in Europe (b) the contribution of the proposed measures to the improvement of environmental performance against legislative standards and improving sustainability.

Building the suite of measures under this option is likely to involve considerable differentiation of measures within the broad headings for different geo-climatic regions and farming systems. Consequently, the nature of the measures, the costs they impose on farmers and the payments which would be required may vary across Member States or regions. This in turn could imply some redistribution of the budget available. This adds to the challenge of political feasibility. It also implies that it will be essential to assemble the evidence base to justify costs and budget allocations.

The status quo involves payments of 30 per cent of direct payment budgets to a high proportion of farmers who are asked to do nothing new for their greening payments

(because they are exempt for one of many possible reasons) and for action from the remainder who in some cases do have to change some aspect of their current farming practices. Yet these actions are not expected to offer substantial environmental additionality. Therefore, this option would require more farmers to deliver more environmental services with little likelihood of more funding (indeed there is a possibility of less funding). To make this a politically feasible option perhaps requires a credible threat that failure to introduce such an option could result in an even worse outcome for farm support levels, for example withdrawal of the entire 30 per cent greening payment worth about €12 billion per annum, or the greater risk that the overall Pillar 1 budget is cut yet further as it comes under further intense scrutiny with regards its value for money as part of the forthcoming EU budget negotiations.

5.2.3 Option C: Shift the greening measures from Pillar 1 to Pillar 2

Under this option, either the existing suite of green direct payments or a revised suite of green measures would be transferred to Pillar 2, sitting as a new tier of payments within the EAFRD. The area based agricultural payments under EAFRD (such as agri-environment-climate schemes) would then only fund additional activities /operations to those funded under these new basic environmental measures.

In moving these measures to Pillar 2, they would become multi-annual payments on a five to seven year cycle, they would be programmed, regionally defined and menu-driven. Like the agri-environment-climate measure, it would be compulsory for Member States to introduce this layer. Their design and implementation could be integrated with the design of agri-environment-climate schemes.

In this option the budgetary envelope currently dedicated to greening measures under Pillar 1 would be shifted to Pillar 2. However, payment rates for the measures will have to be calibrated in conformity with WTO rules (e.g. income foregone plus additional costs).

The question arises as to whether or not such measures would be compulsory for individual farmers to carry out. There are two main options here:

i) The measures are voluntary for farmers to implement, which is the current norm with Pillar 2 measures;

ii) The measures are in practice almost compulsory for farmers to implement although not formally obligatory. This could be achieved through making eligibility for the residual Pillar One basic payments conditional on entry into a suitable Pillar 2 agri-environment scheme. This would make uptake of these measures compulsory for those wanting to continue to receive Pillar 1 support. The agri-environment menu might be expanded to accommodate aspects of the current greening measures where appropriate. At the same time, the funds now allocated to Greening in Pillar 1 probably would be transferred to Pillar 2 to accommodate the additional demand. This is a form of “orange ticket” cross compliance.

The choice made between these models would probably dictate the funding of these new greening measures. If they are voluntary then they could be co-financed by the Member

State, as is the norm for Rural Development measures. However, if it was agreed that they should be quasi compulsory then it is likely that they would have to be 100 per cent EU funded, as at present. The "orange ticket" approach almost certainly requires a significant transfer of resources between pillars.

Coverage and eligibility: Whilst variants are possible, the idea developed here is that these options would apply in all farming systems and would constitute whole farm requirements (i.e. basic management options that would be implemented across the entirety of relevant farming system).

The two variants suggested here are as follows:

C1: Transfer the current suite of green measures to Pillar 2, slightly amended
Under this option, the green direct payments would look similar to those currently available, but instead they would be funded via Pillar 2. In this way, certain changes could be introduced, such as the replacement of the crop diversification measure with a crop rotation measure (easier to achieve under this option since a multi-annual approach would be acceptable) whilst the EFA and maintenance of permanent grassland measures could be amended as proposed under Option B2b above.

C2: Design a revised set of basic environmental measures available to all eligible farmers, covering all farming systems
Under this option, the greening measures could be redesigned and re-brigaded under different thematic headings, such as those proposed under option B2a above (e.g. packages of measures for climate mitigation / biodiversity / nutrient management).

With the measures sitting under Pillar 2, Member States would have the freedom to design them in ways that allowed them to be tailored to local situations and priorities for different environmental objectives. They would also have to be coherent with the agri-environment-climate measure and other area based environmental schemes operating at the national, regional or local level. An important consideration, not considered further here, is establishing the correct place and nature of the payments to farmers in Areas facing Natural Constraints, and also those voluntary coupled payments where the recoupling is undertaken for environmental reasons.

Delivery of environmental benefits of Option C*:* Under option C1, there would be some environmental gains relative to the current position as the adjustments made to certain measures would be made for this purpose (assuming that the measures remain compulsory). The gains would apply to several measures and could also arise from more systematic deployment of these measures alongside other elements of rural development programmes, including the greater disciplines and structures within a multi-annual framework, improved synchronisation with AECMs, and more appropriate monitoring and auditing regimes.

Option C2 would introduce further environmental gains, assuming it results in better targeting and regional tailoring of measures resting on a logic which is less constrained than that applying to the current greening measures, within Pillar 1. However, it would involve a

major reorganisation and there would be less consistency on a European level which might have environmental and competitiveness consequences. In some Member States there may be the temptation to concentrate measures in the less intensively managed areas, reducing impacts on the more intensively used arable land. The case for making the measures "compulsory" (as in the current approach to greening) would be weaker under this scenario.

Under the "orange ticket" scenario, there would be a strong incentive to increase enrolment in agri-environment-climate schemes, some of which might be adapted by national authorities to make them more relevant or attractive to arable farmers who are major recipients or direct payments. There would be an opportunity to introduce measures that are more targeted and more demanding than the greening measures, with a widespread if not universal level of uptake.

Administrative burden of Option C: In principle, apart from the significant initial set-up costs for administrations and farmers, both variants of this option could be seen as a major simplification in two ways. First, the application process for the greening actions would be undertaken once every, say, five years (as with existing agri-environment-climate schemes) and not annually. Second it would streamline the annual basic payment application process by removing one of the features which is currently causing considerable effort.

However, there would be set-up costs under this option, involving defining and implementing the greening measures themselves, and adjusting agri-environment-climate schemes to ensure no double funding. This effort will be larger under option C2 than C1.

Beyond these points, the matters discussed under options B1 and B2 would apply, *mutatis mutandis* to options C1 and C2.

Because the status quo is that Pillar 1 greening is compulsory for all those farmers affected by rules for the measures, and because the purpose of shifting to Pillar 2 is to raise the coverage or environmental ambition of greening, or both, then there seems a strong argument that this approach should be quasi compulsory. This also implies that there could be a larger administrative task of dealing with more farms, and/or more environmental actions.

This latter consideration involves the idea that the aim should be ultimately to fully integrate the greening actions into existing agri-environmental measures so that, either in one step or two, they become much less of a separate element of environmental management under the CAP. The very politics of the origins of Pillar 1 'greening' plus the fact that Member States have different approaches to the design and implementation of agri-environment-climate schemes require that, at least for a period, Pillar 2 greening probably has to be identifiably distinct. Whilst there is no reason to continue to make this distinction over time, the part of Pillar 1 greening that is transferred into Pillar 2 should be seen as an intermediate level of environmental management, above cross compliance, but not as targeted as most agri-environment-climate measures - which themselves will have to be adapted to accommodate greening.

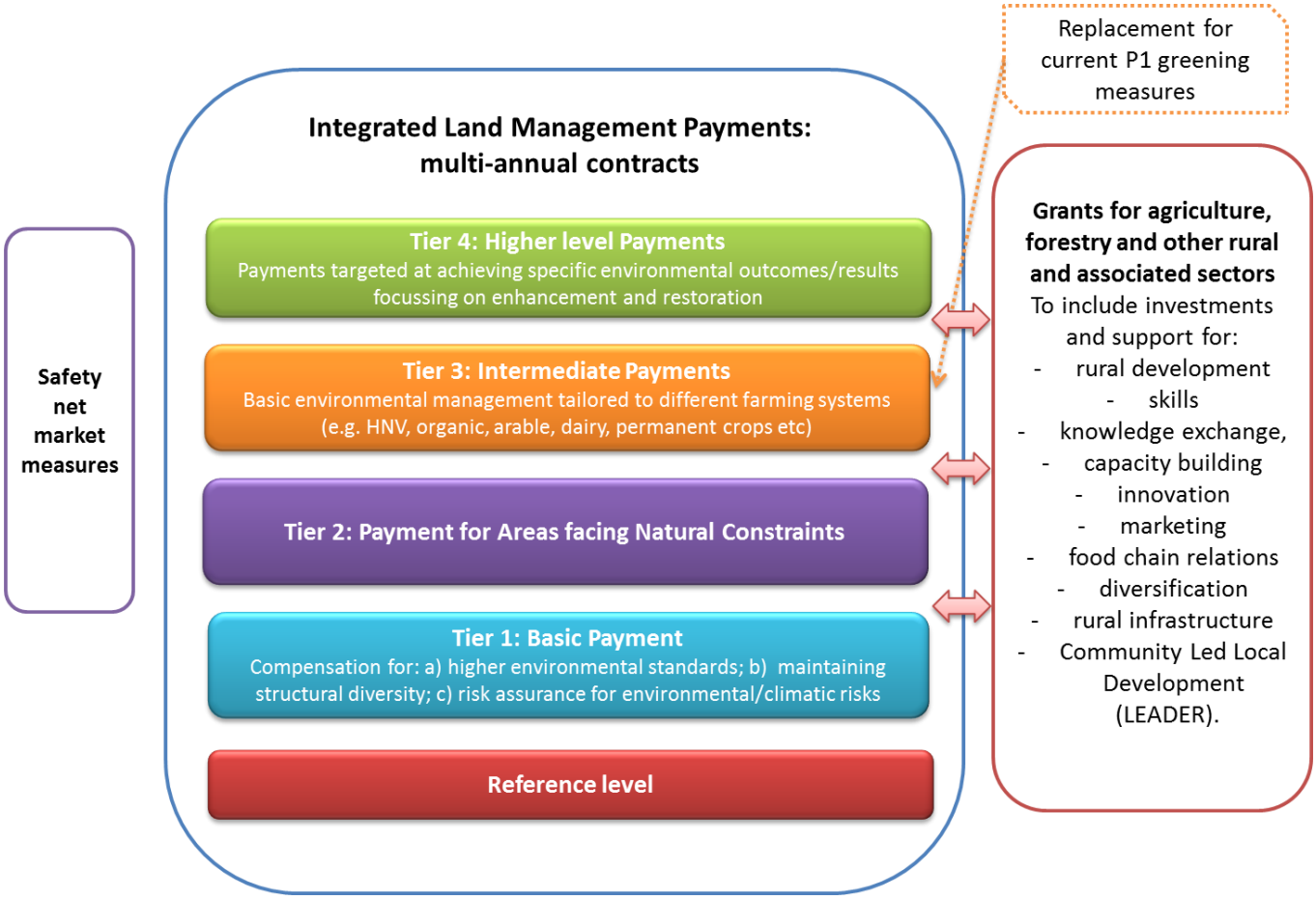
Political feasibility of Option C: Broadly, the political debate about Option C will include most of the same arguments as under Option B. That is between the necessity and reasons for raising environmental standards to improve the sustainability of EU production versus reducing what some farmers see as an unwarranted regulatory burden which renders them less competitive in international markets. To this debate, Option C adds the question of the funding as well as the implications of a programmed rather than annual approach. Within Pillar 2, should greening remain 100 per cent EU financed or switch to co-financing? The way this is often expressed is whether it is reasonable and possible to require Member States to impose further conditions on farmers (for which they are paid) and to share the costs of so doing? Many Member States are reluctant to maintain, still less increase, the level of funding they provide Pillar 2 measures and seem unlikely to support this option unless it is 100 per cent EU funded or their contribution is rather small. Farmers are likely to have reservations about the more compulsory model whereby participation is the only gateway to retaining diminished direct payments but may prefer an integrated environmental package in Pillar 2 which reduces annual form filling. In addition there would be new questions about how far the rationale for the remaining level of support under Pillar One would be seen as justified or effective as a support measure?

5.2.4 Option D: An integrated option, whereby the CAP is redesigned as a single integrated set of measures structured in a tiered hierarchy.

In this option the separate 'Pillars' are no longer defined and payments are redesigned and structured in a tiered hierarchy based on the principles and structures best suited to each kind of measure. This can be seen as a fresh-start option. The two pillar CAP can be viewed as a practical transition vehicle which has enabled the transformation of the CAP from a commodity support policy to a policy for integrated land management via the fairly undifferentiated compensatory direct payments approach. This has been done whilst accommodating a dramatic expansion of the EU membership. Option D is conceptualised as moving towards a more mature next phase of CAP evolution for the EU28. It clearly goes considerably beyond offering a short-term fix for the issues inherent in the current greening measures. It represents an attempt to draw together the elements and structures of a more focussed, coherent and mature land management policy which properly recognises the pervasive market failures surrounding rural land management and the structural assistance necessary for sustainable and viable primary food production with a better relationship between the tiers of support.

A series of tiers are proposed, as set out in Figure 4. Given the theme of this report, most attention is given to alternative options for the green direct payments and so focus is narrowed to the environmental management of agricultural land. However, because this option effectively restructures the whole CAP it will be necessary (although it cannot be done in this report) to consider the fate of all the elements of the current direct payments system and also the non-land and non-environmentally oriented measures currently located within rural development. The intention is certainly that all such justifiable measures would be integrated into the new approach. It would certainly be possible to incorporate investment grants as well as Community and Locally Led Development (CLLD) via the Leader approach within this proposed new structure.

Figure 4: Proposed structure of the integrated option



The explanation of the tiers is as follows:

Reference level: this layer is a pre-condition for payments rather than a layer in the hierarchy of support. Conditionality with environmental (and other) standards would be required as a basis for receipt of *any* payments, similar to the existing system of cross compliance. The requirements would be revised to ensure *inter alia*, the protection of soil carbon, particularly avoiding damage to carbon rich soils.

D1: Basic payment: An annual payment paid in a multi-annual contract for which all farmers are eligible (no 'white space' in principle on the map of farmland). It would be compulsory for Member States to introduce these payments. It would be appropriate for the rationale for this payment to be revisited, to be clarified from amongst a number of possible justifications, such as:

- Recompense for the higher environmental and animal welfare (and possibly other) standards required of farmers in the EU compared to most other parts of the world – e.g. compliance with the Nitrates Directive, Sustainable Use of Pesticides Directive, Water Framework Directive, Birds and Habitats Directives, animal welfare requirements. Under this approach it would be necessary to identify the evidence to suggest that the EU does have higher standards in certain areas relative to major trading partners, which is not axiomatic.

- To maintain the structural diversity and range of skills represented within EU farming systems.
- To provide some minimal risk assurance for farmers with respect to climatic and environmental risks (but not explicitly to compensate for all aspects of market volatility).
- Retention of existing extensively-farmed systems based on the wide range of environmental and cultural landscape services they generally provide**.**

D2: Payment for Areas facing Natural Constraints: An annual payment provided under a multi-annual contract to support the continuation of farming, avoiding the abandonment of holdings and land and hence contributing to both rural vitality and the maintenance of cultural landscapes in such areas. The scaling of such payments should reflect the true opportunity cost of farmers remaining in such areas (i.e. compared to living standards they could achieve outside such marginal farming areas). This is because income forgone from refraining from the intensification of farming in such regions is plainly insufficient and sends the wrong signals in terms of what the payment is intended to achieve. If properly labelled and defined with appropriate environmental conditions it will then be clear that such payments can only be made when appropriate environment management of these regions is in place. It would not necessarily be compulsory for Member States to introduce this tier, especially if it could be demonstrated that other means of achieving the desired outcomes had been put in place via the other tiers of support.

D3: Intermediate payments: a low level environmental land management scheme, appropriately tailored to different systems in a broad sense. Payments would be annual for the period of a multi-annual contract and it would be compulsory for Member States to introduce this tier with elements corresponding to their requirements alongside EU objectives. Eligibility requirements, conditionality and packages of basic management options or desired outcomes would be identified for each farming system, tailored to the environmental priorities facing these farming systems in different regions. This could cover mainly maintenance activities but with some limited enhancement as well and could be linked to supplementary enhancement measures in Tier 4. Advice would be available and wholly necessary to accompany the implementation of these schemes. It is envisaged that schemes would be designed for a full range of farming systems, such as:

a) Organic systems
b) HNV grassland systems
c) Agro-forestry systems
d) Integrated farming systems
e) Non-HNV grassland systems
f) Arable systems – HNV and other
g) Permanent crop systems – HNV and other
h) Area based regimes where a common set of environmental conditions apply, e.g. within certain water catchments where some simple rules beyond the regulatory baseline add real value at a landscape scale, perhaps within a formal management plan.
i) Something to cover those more extensively managed outdoor livestock systems that fall into none of the above categories but where farmers are still prepared

to enter into a suitably tailored low-level environmental land management scheme

D4: Higher level payments targeted at achieving specific environmental outcomes/results beyond what is achieved at the intermediate level – the focus would be on enhancement and restoration, not maintenance, which is the role of Tiers 1 and 2. The requirements would go beyond the activities identified under Tiers 1 to 3. They may involve annual payments in a multi-annual contract, but they may also require one-off investments as well. It would be compulsory for Member States to offer this tier, although enrolment by farmers in them would be voluntary and subject to discretionary rules originated by Member State authorities. These payments would be co-financed by Member States.

The types of measure envisaged here include:

- area based payments;
- complementary support for non-productive investments;
- funding to support the development of management plans; and
- advice, training and capacity building.

These would be akin to current agri-environment-climate measures and would also include forest measures that are environmentally focussed.

A separate set of options would be available for **investment grants for agriculture, forestry and other rural and associated sectors:** this set of payments would be akin to the measures available currently within the EAFRD to fund investments in the sustainable development of the agriculture and forest sectors as well as investments in rural areas more generally. Payments would also be available for **Community and Locally Led Development,** providing funding for Leader initiatives, as currently available via the EAFRD.

This option constitutes a significant departure from the current structure of the CAP. Under this integrated approach the intention would be, as far as is practicable and sensible, that measures would be constructed within a multi-annual, regionally-defined, programmed approach to address regional/local priorities and needs. Farmers would enter contracts, which as far as possible would be multi-annual and enable them to receive funding under one or more of the tiers. Many elements of the policy would involve one-off contracts or investments, although some measures could require annual payments over the contract period.

There a number of issues that would have to be resolved before such an approach could work in practice. This paper does not seek to answer these, rather it raises a series of questions to stimulate further discussion. For example:

- Which elements of an integrated approach would be 100 per cent EU funded and which elements would be co-financed by Member States?
- Would certain tiers be obligatory and others voluntary?
- Could access to certain tiers be conditional on receipt of funding under others?
- What would be the eligibility criteria for entry into the different tiers? Would these vary?

- How would the funding be allocated between the tiers within a Member State?
- At what geographical scale would priorities be set?
- At what geographical scale would payments be set?
- On what basis would any annual payment rates be calculated?
- How could budgetary envelopes for this model be distributed between Member States?

***Delivery of environmental benefits of Option D**:* This option puts the provision of environmental public goods near the heart of the CAP, along with a concern for some territorial continuity which in itself has environmental and social motivation. If well timed and applied it could deliver substantial environmental benefit. It also reduces the level of support for many of the mainstream production sectors, large and small scale, which could lead to management changes on a number of holdings and structural change in some areas. It would form a logical framework for addressing some key issues such as climate mitigation and adaptation and a more systematic approach to biodiversity management. It could be more strongly tailored and targeted than existing measures but would need appropriate supporting arrangements to make it effective in practice, including enhanced provision of advice and appropriate monitoring. More explicit and in some cases probably higher payments for extensive and HNV areas would improve the economic viability of these holdings and should help to maintain current management and inhibit land abandonment, to complement cross compliance where needed. Appropriate conditionality would be an important element of this model as a whole. If payments were too high, poorly targeted or were not subject to sufficiently robust environmental conditions, they could result in environmentally harmful activities taking place.

More generally the extent of environmental benefits under this option would depend on how the budget was distributed as well as scheme design and farmer participation. If a relatively high proportion of expenditure could be devoted to the upper tiers and tier 4 in particular, a lager environmental benefit could be expected.

Administrative burden of Option D: this option would represent a significant structural change in the CAP but does have a logic and transparency that might appeal to a number of political actors. The Commission could present it as being a sensible restructuring of all the land management elements which are currently scattered across the two CAP pillars, in the interest of legislative coherence and improved control. It more plainly indicates the CAP as a policy for sustainable land management. It would though require significant testing and development of the concept before even the structure of any new regulations could be outlined.

The biggest potential administrative gain is that practically the whole CAP, apart from residual emergency market management as now in place, could be switched to a programmed, multi-annual basis. When the switch from market support to direct compensatory payments was made in the early 1990s it could not have been contemplated that this would result in having detailed annual, individual administrative contact between national authorities and a large proportion of over seven million farmers (those with more than one hectare of land) in the European Union. This may not continue indefinitely. To

switch from an annual approach to a five yearly contract could be a substantial administrative simplification, even if systems are required still to make payments on an annual basis.

At the same time, it is acknowledged that some Rural Development schemes can be more administratively burdensome than the previous direct payments schemes. However such has been the complexity of the recent Pillar 1 reform that this difference may not be as great as it once was.

Apart from reducing the administrative contact with individual farmers by potentially 80 per cent (through switching from annual to five-yearly application for payments) it is hard to know whether the multi-tier system in Option D would be materially simpler than the complex structure of the current Pillars 1 and 2 which seek to pursue partly similar ends in different ways in the two Pillars. There is insufficient detail as yet to make a judgement. A parallel and essential development would be to investigate the contributions which modern techniques of remote data collection, sensing and analysis can make towards ensuring such an approach to land management becomes a practical possibility.

From a wider perspective, this option does potentially offer more EU added value in return for payments, particularly in the realm of environmental public goods. In this sense it could be attractive to certain audiences concerned about the current ratio of administrative effort to beneficial outcomes. Under the proposed new model, the level of administrative effort is linked more explicitly to results.

Political feasibility of Option D:
Several considerations apply in assessing the political feasibility of this approach which is a significant departure from the status quo.

One simply concerns the level of dissatisfaction with the present system and how bleak this is. Is there a significant political appetite for a fresh start? Impetus could be provided by a significant threat to the CAP budget for example.

On a positive reading of potential support it could be argued that:

- this is the logical next step after greening in reinforcing land as the basis upon which the central elements of the CAP are built; and
- it more coherently 'greens' the whole CAP and removes the confusion which now surrounds the distinction between the pillars.

On a more cautious view of potential support it could be argued that the Member States have only recently introduced a new version of the CAP with its associated administrative, IT monitoring and communication regimes and that this needs to be in place for several years to attain some stability.

Second, the challenge of simplification may shape the views of some towards this option. The current approach to simplification engaged in by Commissioner Hogan does not involved major changes in the architecture of the policy. This is for the obvious reason that the current Basic Acts took almost three years to negotiate and have not been given a

chance to operate yet for more than one year. If the conclusion about this process is that, however helpful to administrators and farmers, such a simplification process is not sufficient then something more radical may have to be done. The sufficiency of simplification should not be measured in terms of the costs of administering payments to farmers, but rather in terms of cost-effectively securing the deeper purposes of the CAP e.g. reasonably stable resilient and secure, economically, environmentally and socially sustainable farming systems and rural areas. If in due course there is a general conclusion that the newly simplified CAP still does not provide good value for money, and the desired outcome of more sustainable rural land management is not being achieved, then a radical reshaping of the policy such as Option D is much more likely to be contemplated.

Third, the presentation, details and budgetary profile of Option D will be important. If it were depicted as primarily a repackaging of the status quo, in terms of the existing elements being reorganised under one merged land management pillar, rather than a radical change it could face fewer obstacles within EU institutions. The multiannual content would be the major innovation and this has advantages to the farming community in several respects.

Fourth, because the CAP comprises such a significant share of the EU budget it is an inescapable reality that the distribution of the benefits is a critical factor in determining what is politically feasible. It is still too early in the policy formulation process to assess even qualitatively how a relatively radical approach such as option D might redistribute the benefits of CAP resources between Member States and between regions and farmers within Member States. But this aspect would have to be considered as part of exploring the option further. Ultimately, rational policy making has to respond to policy performance measures juxtaposed against policy objectives. The more radical the change contemplated then the stronger the evidence base needed to make the case that such an option really is the best way to proceed. This points back to the importance of addressing the challenges identified in Chapter 4 regarding the need to establish a solid baseline of environmental performance against which progress can be judged.

Table 4: Overview of strengths and weaknesses of different options: environmental, administrative and political

Options	Variants	Strengths and weaknesses: Environmental	Strengths and weaknesses: Administrative	Strengths and weaknesses: Political feasibility
A. Abolish separate green direct payments – add greening to cross compliance (XC)		• Unlikely to raise environmental standards • Strengthens XC • Environmental delivery is then more vulnerable to cuts in direct payments • Less rigorous monitoring under XC compared to greening?	• This is structural simplification consolidating greening and XC • Should reduce admin costs • Much depends on how the greening is translated into XC	• Simplicity could be popular • Depends on fate of the green payments: farmer reaction negative if this means 30% payment cut • No new distributional issues
B. Retain the greening direct payments in Pillar 1, but amend the rules to strengthen the focus on environmental value added	B1: Retain green direct payments as currently formulated but change the administration, verification & control regime	• Attempts to raise level of environmental ambition • Better environmental delivery if more trust in administrative 'climate' • Modest and uncertain environmental gain	• Purpose is to streamline transactions costs without diminishing environmental delivery • Hard to see how this could be cheaper than Option A	• Will appeal to farmers and administrations • Environmental authorities and opinion not likely to be impressed by options A or B1 • No new distributional issues
	B2: Retain the concept of green direct payments, but raise the level of environmental ambition	• Intention is to improve carbon, nutrient and biodiversity management • More targeted & precise measures • Should deliver more than A or B1	• Hard to avoid higher admin costs • But cost effectiveness may be higher • Demands administrative innovation (as does B1)	• Higher environmental demands with same payments a hard sell? • More evidence of the environmental necessity of the measures would help
C. Shift the funding currently allocated to green direct payments from Pillar 1 to Pillar 2	C1: Transfer the current suite of green measures to Pillar 2 with some amendments	• Better delivery with multi-annual voluntary measures (also applies to C2) • Area coverage of measures could be reduced if not compulsory?	• High initial set-up cost • Depends on degree of compulsion • Could represent simplification if it is fully integrated into agri-env.	• Ultimately depends on perceived necessity and acceptability of raising environmental standards • Level of compulsion interacts with co-financing: if compulsory then 100% EU financing will be sought. • Depending on payment rules, these options could redistribute support between MS and between farmers
	C2: Design a revised set of basic environmental measures available to all eligible farmers, covering all farming systems	• Even better delivery with better targeting • But likely concentration of measures spatially?	• More demanding and thus likely higher set-up costs than C1 • Same points as C1	
D. An integrated option, redesigning the CAP as a single set of measures structured in a tiered hierarchy	Suggested structure is: Tier 4 - Higher level payments Tier 3 - Intermediate payments Tier 2 - Payments in ANC areas Tier 1 - Basic payment All in multi-annual contracts.	Environmental aims are more coherent: T4 Specific outcomes, enhance & restore T3 Basic environmental management, including HNV & organic T2 Payments for Areas facing Natural Constraints T1 Compensation for EU high standards	• This structural change in CAP needs considerable development • Big potential simplification by move to multi-year contracts	• Depends on whether current simplification exercise within context of 2013 Regs produces results • If not, this points to radical change • Stronger evidence base required for stronger action

6 Conclusions

The introduction of the new greening measures within Pillar 1 of the CAP was a significant but controversial aspect of the 2013 reforms. The rationale for their introduction was to provide a substantial funding resource (30 per cent of the direct payments budget or approximately €12 billion/year) to support an improved level of basic environmental management on the majority of agricultural land within the EU-28, especially with respect to soil management, water quality, climate and biodiversity protection. It was also hoped that such an approach would free up some of the more limited resources within Pillar 2 for more ambitious environmental management. For some actors it was also a means of legitimising the CAP's direct payment budget and protecting it from the threat of significant cuts.

The combination of the political and economic environment surrounding the negotiations, coupled with an evidential basis for the proposed measures that left many questions unanswered, resulted in dilution in the content and coverage of greening. Member States availed themselves of the opportunities to reduce the intended departures from current practices for many farmers. Paradoxically, in the course of diluting the environmental reach of the Commission's original proposals, the co-legislators (Council and European Parliament) managed to add to the complexity of the direct payments system. This has been felt both by national administrations and farmers and has led to calls for simplification, currently under discussion between the European Commission and Member States and the subject of a recent public consultation. It remains to be seen how farmers themselves respond to greening as they enter into the second and subsequent years of operation of the new scheme.

Although there is determination to monitor and evaluate the impacts of greening on the environment in a way that is new for Pillar 1, the lack of precision in the specified objectives, together with the lack of an established statistical baseline against which to measure improvement may make it difficult to assess the effectiveness of the three greening measures very precisely.

However, the introduction of the greening measures in Pillar 1 has served to highlight the importance of finding a coherent approach to delivering environmental (and other) objectives on agricultural land – and doing this on a sufficient scale to ensure real value is added but without too much administrative complexity. In their first attempt to introduce incentives for basic environmental management into Pillar 1, Member States have been faced with the challenge of reconciling a fairly inflexible approach to measures (and the way they are designed, verified and controlled under the Pillar 1 rules) with the more flexible approach to incentivising environmental management under Pillar 2, as exemplified via agri-environment-climate schemes.

This has led some to argue that it is necessary to rethink how the management of agricultural land is approached and how environmental objectives are integrated into policy to ensure better coherence and avoid perverse effects. The unhelpful nature of many of the control and verification rules from an environmental perspective and the severity of the

penalties associated with non-compliance also requires attention. In particular, it is important that they do not act as a disincentive to administrations to develop innovative schemes to encourage environmental land management or to farmers to enter such schemes.

The strategic advance represented by allocating 30 per cent of Pillar 1 funding to environmental land management objectives opens up a potentially wide vista of new actions to deliver results. Ultimately, however, whether the next iteration of greening takes the form of improving and/or simplifying its operation in Pillar 1 (options A and B as described in Chapter 5) or via the more radical step of integrating them in Pillar 2 (option C) or removing the distinction between the two Pillars altogether (option D), some fundamental decisions remain. These relate to the role of more general support and targeted incentives for example. Beyond this are questions of how to balance the improved delivery of environmental and climate outcomes from agriculture with continued - let alone expanded - food output in a more sustainable way.

This is intrinsically a challenging thing to do since land management for the environment and climate is both place and time-sensitive as well as multi-dimensional; increasingly pressing climate related objectives add to the urgency as well as the complexities of the task. The need to respond to the diversity of EU agriculture and the variety of environmental objectives points to the need for more flexible and tailored approaches such as those set out in options B2, C2 and D which would permit regional targeting within a common, balanced EU structure. In particular, Option D would provide considerable opportunities to look at agricultural land in a more integrated way than has been the case to date and pursue more sustainable management in a synergistic and streamlined way, whilst giving due weight to targeted approaches.

However, adoption and implementation of most of the options described is unlikely to require fewer resources than current systems, at least in the short term. They will also require better data collection and processing and thus an extended evidence base. Over time, however, administration costs may start to fall, as investments are made into more efficient approaches to monitoring, for example using remote sensing. More systematic, readily accessible information on the relationship between farm management practices and environmental outcomes is required to allow judgements to be made about what the most appropriate measures for delivering environmental benefits are likely to be in different situations. In addition, simplification will only be possible if fundamental questions about the purpose and requirements of control and verification systems are answered in a realistic way and more flexible outcome focussed systems can be put in place. To be successful, these kinds of approaches also need to be developed through an open, collaborative process involving Europe’s farmers and their representatives.

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Annex 1

Table 5: Comparison of the Commission's original 2011 proposals for greening and the final measures as agreed in 2013

Measure	Commission proposal	Regulation 1307/2013 (December 2013)
General Requirements	All farms must comply with greening requirements Green by Definition = Organic Land managers farming land within Natura 2000 areas are only required to comply with the greening measures insofar as these are compatible with the requirements of these areas	Green practices apply to the whole eligible area of the holding. Green by Definition - land being farmed organically and those participating in the small farmers scheme (in countries where this is offered). Land managers farming land within Natura 2000 sites or river basins covered by the water framework Directive (WFD) are only required to comply with the greening measures insofar as these are compatible with the requirements set under the birds, habitats or water framework Directives.
	P2 agri-environment conditions must go beyond EFA baseline	Pillar 2 agricultural land management payments must go beyond the greening requirements to avoid double funding
	-	Penalty for non-compliance = loss of the 30 per cent greening component plus 25 per cent extra penalty but phased in over time.
Crop diversification	3 different crops to be grown on arable land over 3 ha.	Farms with 10 - 30 ha of arable land are required to have a minimum of two crops. Farms with more than 30 ha are required to have a minimum of three crops
	Arable areas < 3 ha = exempt	Only applicable on arable areas of holdings over 10 ha These rules do not apply to holdings: - where > 75 per cent of arable land is used for the production of grasses or other herbaceous forage, land laying fallow, or subject to a combination of these uses, provided the arable area not covered by these uses does not exceed 30 ha. - Where > 75 per cent of the eligible agricultural area is permanent grassland, used for the production of grasses or other herbaceous forage or crops under water or a combination of

		these uses, provided the arable are not covered by these uses does not exceed 30 ha. - where > 50 per cent areas under arable land declared were not declared by the farmer in his aid application of the previous year and , where based on a comparison of the geo-spatial aid applications, all arable land is being cultivated with a different crop compared to that of the previous calendar year - that are situated in areas north of 62nd parallel or certain adjacent areas. In these areas, where the arable land is >10 ha, 2 crops are required to be cultivated. Neither of these can cover more than 75 per cent of the arable areas with the exception of when the main crop is grass or other herbaceous forage or land laying fallow
	None of the three crops shall cover less than 5 per cent of the arable land and the main one shall not exceed 70 per cent of the arable land	Where the arable area is 10-30 ha (and not entirely cultivated with crops under water for a significant part of the year, at least two different crops must be grown and maximum area to be sown to main crop = 75 per cent Where the arable area > 30ha at least three crops must be cultivated and Maximum to be sown to a single crop is 75 per cent and two crops = 95 per cent
Permanent grassland	Maintain 95 per cent of the area of permanent grassland on the holding as declared in 2014	Two types of obligation apply under this measure: • Farmers must not convert or plough permanent grassland in areas designated by Member States as being environmentally sensitive. Member States are required to designate permanent grassland, peatlands and wetlands deemed to be environmentally sensitive within Natura 2000 areas and have the option of designating further areas outside N2K areas, including permanent grassland on carbon rich soils • Member States have to ensure that the ratio of the land under permanent grassland does not decrease by more than 5 per cent at national, regional or sub-regional level (to be decided by member states) compared to the situation in 2015. If it does, Member States must require land to be converted back to permanent pasture through placing obligations on farmers to do so. The exception to this is where the decrease below the threshold results from afforestation, provided such afforestation is compatible with the environment and does not include plantations of short rotation coppice Christmas trees or fast growing trees for energy production.

Ecological Focus Area	7 per cent of the holding (excluding permanent grassland) must be managed as ecological focus areas	'Ecological Focus Areas' (EFAs) to cover 5 per cent of the arable area from 2015, rising to 7 per cent from 2018 if deemed necessary subject to a review in 2017 Up to half of EFA requirement may be met at the regional level by pooling commitments among groups of farmers - Member States would need to designate the areas and the obligations for farmers participating. The aim of the designation and obligations shall be to underpin the implementation of Union policies on the environment, climate and biodiversity. Applies to arable areas > 15 ha The obligations do not apply to the following: - holdings where>75 per cent of the eligible agricultural area is permanent grassland, used for the production of grasses or other herbaceous forage or cultivated with crops either under water for a significant part of the year or for a significant part of the crop cycle or a combination of those uses, provided the arable area not covered by these uses does not exceed 30 ha. - holdings where >75 per cent eligible area is entirely used for production of grass or other herbaceous forage, land laying fallow, cultivated with leguminous crops, or subject to a combination of these uses, provided the arable area not covered by these uses does not exceed 30 ha. In addition, Member States where over 50 per cent of the land area is covered by forests, may choose not to apply the greening measures in Areas of Natural Constraint as defined under the rules set out in rural development policy provided certain conditions are met in relation to the rate of forest land to agricultural land in the ANC unit.
	The EFA can be made up of different elements, including: - Land left fallow - Terraces - Landscape features, eg hedges; ponds; ditches; trees in a line, in a group or isolated; field margins; - Buffer strips – with no production on them; - Areas afforested with funding from	The EFA can comprise - land laying fallow; - terraces; - landscape features, including those adjacent to eligible agricultural areas covered by arable land; - buffer strips including those covered by permanent grassland; - agro-forestry as supported under EAFRD; - strips of land along forest edges without cultivation; - short rotation coppice; - areas afforested under EAFRD;

	EAFRD	- areas with catch crops or green cover established by the planting and germination of seeds; - nitrogen fixing crops. Weighting factors for each element are set out in the delegated act