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Maximising Environmental Benefits through Ecological Focus Areas

Allen, B., Buckwell, A., Baldock, D., Menadue H.



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Institute for
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**MAXIMISING ENVIRONMENTAL BENEFITS THROUGH ECOLOGICAL FOCUS
AREAS**

Prepared by
Ben Allen
Allan Buckwell
David Baldock
Henrietta Menadue

Institute for European Environmental Policy (IEEP)
15 Queen Anne's Gate
London
SW1H 9BU
United Kingdom

30 May 2012

Report commissioned by the Land Use Policy Group

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Corresponding author: Ben Allen (ballen@ieep.eu)

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Institute for European Environmental Policy

London Office

15 Queen Anne's Gate

London, SW1H 9BU

Tel: +44 (0) 20 7799 2244

Fax: +44 (0) 20 7799 2600

Brussels Office

Quai au Foin, 55

Hooikaai 55

B- 1000 Brussels

Tel: +32 (0) 2738 7482

Fax: +32 (0) 2732 4004

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GLOSSARY OF TERMS

AES	Agri-Environment Scheme
ANC	Areas of Natural Constraints
CAP	Common Agricultural Policy
CMO	Common Market Organisation
DP	Direct Payments
EAFRD	European Agricultural Fund for Rural Development
EFA	Ecological Focus Area (see below)
EIA	Environmental Impact Assessment
ELS	Entry Level Stewardship. The entry-level tier of the English agri-environment scheme, Environmental Stewardship
EU	European Union
EFBI	European Farmland Bird Index
FAS	Farm Advisory Service
GAEC	Good Agricultural and Environmental Condition
GHG	Green House Gas
HLS	Higher Level Stewardship, the higher tier of the English agri-environment scheme, Environmental Stewardship.
IACS	Integrated Administration and Control System
LPIS	Land Parcel Information System
OELS	Organic Entry Level Stewardship (Part of the England agri-environment scheme, Environmental Stewardship)
RDP	Rural Development Programme
SPS	Single Payment Scheme

The three measures proposed in COM(2011)625 for the greening of direct payments

Permanent Grassland	Requires farmers to maintain the area of permanent grassland present on their holdings from the reference year 2014.
Crop Diversification	Requires farmers with more than three hectares of arable crops to have at least three different crops, the minimum covering at least five per cent and the most extensive one no more than a maximum 70 per cent of the arable area.
Ecological Focus Areas	Requires farmers to ensure that at least seven per cent of their eligible hectares, excluding areas under permanent grassland, is ecological focus area.

SUMMARY

On 12 October 2011 the European Commission published draft legislative proposals for the future of the CAP post 2013. They included three measures aimed at the 'greening' of direct payments in Pillar 1 in order to contribute towards environmental objectives for climate and the environment in Europe. One of these measures, the creation of Ecological Focus Areas (EFA), extending to seven per cent of the eligible area of arable and permanent crops, has been recognised as having the greatest potential to address a range of environmental concerns in the farmed countryside.

How much of this potential is realised in practice depends to a large degree on precisely how the proposals evolve, the final form they take, the scope for tailoring the approach to local circumstances and the way in which Member States use this discretion, as well as the response by farmers. One key aspect of policy design is the link between EFAs, agri-environment measures in Pillar 2 and cross compliance.

The Commission proposals for EFAs were very broad in outline and did not give much indication of how the measure would be elaborated. This report has been prepared to identify some key issues while this detail is awaited. Based on the literature, past experience and a seminar in Brussels, it aims to identify the key parameters that need to be addressed in a new policy, particularly for the environment but also with respect to the concerns of farmers. Prepared at the request of the Land Use Policy Group (LUPG), the examples often are drawn from the UK but have general European relevance.

The evidence reviewed in this report suggest the following key factors need consideration:

Location of the EFA on the farm and within the farmed landscape

- The location of EFA land within a holding and across the farmed landscape has a direct relationship to the type, range and level of environmental benefits they have the potential to create. Furthermore a combination of different locations within the holding may be required in order to deliver the greatest level or range of benefits.

Permanency of the EFA over successive years

- The evidence suggests that a greater range of environmental benefits usually is found in relation to land that is maintained out of production or managed for continuous periods of time over successive years, as opposed to that which is rotated on an annual basis. It is therefore worth exploring further the potential for the promotion of this type of approach within the EFA measure. Older environmental features, if properly managed, generally tend to be of higher value, particularly for biodiversity and landscape but also for climate objectives such as carbon sequestration.

Proportion of the holding managed as EFA

- In general terms the greater the proportion of uncultivated land present on a farm holding, particularly that which is managed for environmental purposes, the greater the positive impact on the environment. However targeted interventions have been shown to deliver greater environmental benefits within a smaller area providing they are in the right location, are retained for a significant period of time and managed in an appropriate way.

Management practices pursued or allowed on EFAs

- In comparison to continued agricultural production the level of environmental benefit generally is likely to be greater on those areas that remain uncultivated and greater still

on those areas that are subject to tailored environmental management. The type of management required will depend on the objectives sought as well as the type and design of the EFA. Consideration should also be given to the advice and support made available to farmers, which will be crucial if the full potential is to be captured and needed for the effective implementation of the EFAs in practice.

- The type of features that could form part of an EFA will also be critical to the environmental outcome as well as the coherence of farm management. The illustrative list in Article 32(1) will need to be expanded and sufficient flexibility permitted to meet local conditions.

From the perspective of farmers, the major concerns can be expected to be the eligibility of existing features, the scope for meshing new obligations into agronomic priorities as well as impacts on profitability and practicality. Farm level impacts will vary greatly between holdings and some variations between farm type can be expected. EFAs like other greening measures will need to be coherent with the overall design of the CAP, including cross compliance and voluntary agri-environment payments. Supplementary payments under agri-environment schemes need to be available to complement EFAs. The baseline for agri-environmental measures will have to be adjusted to account for a new reference level created by the greening measures and to avoid double payment. A sequence of adjustments is unavoidable and sufficient preparation time will be necessary.

1 INTRODUCTION

Under the European Commission's proposed regulations for direct payments (COM(2011)627/3) a package of three measures have been put forwards to help the CAP increase its support to climate action and environmental public goods. The three measures proposed are crop diversification, the maintenance of permanent grassland and Ecological Focus Areas (EFA). These measures are to be delivered through the form of simple, generalised, non-contractual and annual practices under Pillar 1. They are intended to go beyond the requirements of cross-compliance and in doing so facilitate the 'greening' of direct payments.

All three 'greening' measures have a role to play in meeting climate and environmental objectives yet the EFA measure, if designed and implemented correctly, has perhaps the greatest potential. Not only could it cover a much wider range of objectives than is currently foreseen by the proposals but it may also play a significant role in supporting the wider suite of policy measures under the CAP.

The Commission will have powers to define further the scope and type of ecological focus areas through the development and adoption of delegated acts. The purpose of this paper is to develop a better understanding, based on the available evidence, of how EFAs could be designed to maximise their potential to deliver environmental benefits as annualised, general payments that sit within Pillar 1 and to consider their interaction and fit with the agri-environment measure and cross-compliance across the EU.

This section starts by setting the wider context for the proposed EFA measure by giving a brief background to the current CAP reform proposals before moving to a discussion on the three proposed measures for the greening of direct payments. In Section 2 we offer an interpretation of what could be considered within the scope of EFAs before in Section 3 reviewing the evidence of the type of measures that offer greatest potential for delivery of environmental benefits and considering how this experience could be harnessed in defining the nature and operation of EFAs. Section 4 offers some considerations of how EFAs could be implemented and how they fit with existing CAP measures and agronomic considerations and finally Section 5 draws together the previous four sections and offers some concluding remarks.

1.1 Background to the CAP reform proposals

On 12 October 2011 the European Commission published the draft legislative proposals for the future of the Common Agricultural Policy post 2013. They comprise a series of proposed new regulations covering all aspects of the CAP including: the Pillar 1 direct payments; Common Market Organisations (CMOs); the Pillar 2 European Agricultural Fund for Rural Development (EAFRD); as well as regulations on cross compliance, financing and monitoring and on transitional arrangements for 2013.

Arguably the biggest changes proposed in these reforms affect the direct payments system. These changes fall into three themes: redistribution of payments, targeting and greening. This report focuses on the greening of direct payments (hereinafter referred to as greening).

With respect to greening, the proposal is to allocate 30 per cent of Pillar 1 national ceilings outside those for small farmers as a 'greening payment'. Under this proposal all eligible farmers claiming direct payments will be required to follow three 'agricultural practices beneficial to climate and environment' in order to receive their full direct payment, including this greening element. The measures under which these practices are defined are crop diversification for arable land, the maintenance of permanent grassland and EFAs on both arable and permanent crop land. Subsequent to the final proposals the Commission has circulated a number of fiches elaborating their thinking on different aspects of the CAP reform. Although these fiches have not been formally published they have nonetheless influenced the on-going debate around the greening of direct payments.

Despite these discussions, in the current stage of the reform process there remain great uncertainties as to the detail of these measures. This means there is scope for different interpretations of how the greening might be done, the practices it may entail and, as a consequence, the effects.

1.2 The wider greening proposals and their purpose

The purpose of the wider greening is to raise the standard of farm land management with respect to the environment across the EU. As cited in the explanatory memorandum of the proposed regulation COM(2011)625/3 (European Commission 2010a)¹ the objectives of greening are to help agriculture and rural areas to step up their efforts to contribute to the execution of the biodiversity strategy and meeting the ambitious climate and energy targets that are part of the Europe 2020 agenda.

Agricultural land management is critical to the achievement of the EU's environmental objectives, including significant reductions in greenhouse gas emissions and a halt to the continuing loss of biodiversity. Greening aims to ensure that all farms in receipt of support deliver these objectives *'through the retention of soil carbon and grassland habitats associated with permanent pasture, the delivery of water and habitat protection by the establishment of ecological focus areas and improvement of the resilience of soil and ecosystems through crop diversification.'* The proposals recognise that farmers and foresters, as the main land managers within the EU, will need support in *'adopting and maintaining farming systems and practices that are particularly favourable to environment and climate objectives because market prices do not reflect the provision of such public goods.'* The CAP provides both the framework and budget from which to incentivise the adoption of more environmentally sustainable agricultural practices. This is not a new argument, but the development of the concept of ecosystem services and empirical research showing their importance and value has advanced. Simultaneously the discussion of agricultural policy has recognised the pervasive market failures surrounding land management and increasingly used the language of paying farmers for delivery of environmental public goods (Cooper *et al*, 2009; Hart, Baldock, Weingarten, *et al*, 2011).

¹ See Annex 1 for selected quotes from the proposals

It is important to note that the Commission sees the greening of direct payments as one of a package of measures to help improve the environmental sustainability of EU agriculture. The first of these consists of changes in the cross compliance regulations to embrace climate and water quality protection targets. This, together with greening, effectively would raise the base or reference level of environmental management expected on all EU farms. The second is that all agri-environment schemes (AES) will then have to be adapted to complement the measures required under Pillar 1 greening and recognise the raised reference level from which they operate. Third, the Commission attaches great importance to the provision of information and advice to farmers through the Farm Advisory Service (FAS) to enable them to run viable businesses with a higher level of environmental management.

It is significant that, for this reform, the Commission has not proposed significant new environmental investment through Pillar 2. Instead the Commission proposes to raise environmental standards by engaging a significant proportion of farmers in a set of *simple, generalised, annual, non-contractual* measures as conditions for receipt of continued Pillar 1 direct payments. The core concept of greening is that this will lead to higher standards of biodiversity, soil, water and climate protection over most of Europe's crop producing areas, including intensively managed land, which often is not enrolled in voluntary contractual agreements. Greening Pillar 1 is also proposed for public expenditure reasons. Pillar 2 is co-financed by Member States, so increasing environmental delivery through agri-environment measures requires additional Member State expenditure which is difficult in an era of fiscal austerity. In political terms the justification for Pillar 1 payments is becoming more difficult in the absence of clearer public benefits. The greening proposal could, in principle, help to realise an objective put forward by the Commission that 20 per cent of the whole EU budget should be allocated to measures supporting climate change objectives (Medarova-Bergstrom *et al*, 2011).

The extent of greening, in terms of the suggested allocation of funds, is relatively large. The proposal is that 30 per cent of Member States annual national ceilings² for direct payments under Pillar 1 will be allocated to greening payments. To put this in context, for the 2010 financial year the European Agricultural Fund for Rural Development (EAFRD) support to the agri-environment measures in Pillar 2 equated to approximately €3 billion³, whereas in the same year greening payments would equate to approximately €13 billion⁴, over four times the amount. The extent to which the environmental potential of an initiative on this scale can be realised depends on the final design of the measures, the scope for interpretation by member States and the way in which they are implemented.

² As set out in Article 33

³ COM(2011) 672 final Report from the Commission to the European Parliament and the Council - 4th financial report from the Commission to the European Parliament and the Council on the European Agricultural Fund for Rural Development (EAFRD) 2010 financial year.

⁴ Own calculation based on COM(2011) 673 final Report from the Commission to the European Parliament and the Council - 4th financial report from the Commission to the European Parliament and the Council on the European Agricultural Guarantee Fund 2010 financial year.

1.3 EFAs in the context of wider greening

Chapter 2 of the proposed Regulation entitled 'Payment for agricultural practices beneficial for the climate and the environment' sets out the greening payments component in more detail. Article 29(1) identifies the three greening 'practises' (sic) as crop diversification, maintenance of permanent grassland and ecological focus areas. These practices are further defined in Articles 30 to 32 respectively (see Annex 1). As this report is concerned specifically with the EFA measure, as defined under Article 32, it is worth highlighting the full extent of the information set out in the proposals. This is as follows:

- **Article 32(1)** *Farmers shall ensure that at least 7% of their eligible hectares as defined in Article 25(2), excluding areas under permanent grassland, is ecological focus area such as land left fallow, terraces, landscape features, buffer strips and afforested areas as referred to in article 25(2)(b)(ii).*
- **Article 32(2)** *The Commission shall be empowered to adopt delegated acts in accordance with Article 55 to further define the types of ecological focus areas referred to in paragraph 1 of this Article and to add and define other types of ecological focus areas that can be taken into account for the respect of the percentage referred to in that paragraph.*

This, and the information contained in Annex 1 of this report, is the full extent of the information officially available to the public on the purpose, nature and approach to implementing the EFA measure, as confirmed in the Commission's impact assessment (European Commission 2010c). The proposals therefore leave a great deal to be interpreted and further defined, which may not occur until the publication of the proposed delegated acts or revised regulation.

However, we can be reasonably certain that:

- The greening of direct payments is intended as a step further in environmental performance beyond cross compliance;
- Part of the purpose is, at the very least, to reinforce cross compliance, to *maintain* the current area of green infrastructure present in EU agricultural systems and as a consequence prevent further deterioration of environmental capital;
- It is intended to apply to virtually *all* farmers receiving direct payments. However, for practical administrative cost-saving reasons, small farmers are exempt; and
- EFAs are absolutely not to be confused with set-aside, as they have clearly stated environmental rather than agricultural supply management purposes.

In the context of rather skeletal proposals there is a great deal of discussion and debate taking place across the EU on precisely how the greening proposals should be interpreted and possibly be re-focussed (see for example Matthews 2012). Leaving aside those who are hostile to greening or who focus on limiting its scope, at least four distinctive approaches can be identified in this debate.

A. Accept the proposals as they are. The task then is to interpret the meaning of the proposed greening of direct payment requirements, specifically the EFA measure, and the actions farmers will have to take to satisfy them and correct the proposals into more concrete measures. This also requires consideration of the knock-on effects for both the

cross compliance rules and the agri-environment measure and, of course, to assess the impacts on agriculture and on the environment.

- B. **Extend the proposal by developing a longer list of greening practices.** This could mean a longer list of required practices⁵ or a list of options defined either for the Member States to choose from, or for farmers to choose from. Such ideas are often advocated under the general heading of allowing more ‘flexibility’. If a menu of options is to be offered it will be necessary to develop ways of expressing the equivalence of options between Member States and/or farms in terms of their environmental delivery whilst ensuring a reasonably level playing field. This could be a matter of assessment and judgement by the Commission at a generic level, as exemplified in their proposal that organic farming shall be exempt from greening requirements, or it could be based more systematically on a points system similar to that which is employed in many AES. This would imply a set of rules and oversight by the Commission of a more forensic kind.
- C. **Develop a ‘conditional greening’ approach** (akin to the original February 2011 Dess proposal (European Parliament 2011)) whereby farmers can satisfy their greening obligations within Pillar 1 by enrolling in equivalent AES in Pillar 2. This would involve expanding the scale of Pillar 2 agri-environment measures, which would remain multi-annual and tailored to regional consideration. The intended advantages of this approach are: to minimise disruption to farmers who are already delivering environmental services above the reference level; to reduce the need for additional Pillar 1 controls applying to greening actions; and to build on the successes of delivering environmental benefits through Pillar 2. Multi-year agreements generally would give more stability and better environmental outcomes. This approach would require substantially more resources to shift to Pillar 2 and raises questions about co-financing.
- D. **Developing agri-environment measures through Rural Development Programmes.** A number of interests and experts continue to argue that the right way to pay farmers for delivering environmental public goods is through multi-annual, regionally defined, menu-driven, co-financed, monitored and evaluated agri-environment measures funded under the EAFRD. This is despite the fact that the Commission judges this option to be infeasible, and perhaps undesirable. Supporters of this view are not ready to relinquish the principles on which most present AES have been built and are reluctant to accept that the greening of direct payments is the most efficient way of delivering the next increment in environmental services from EU farmers.

Although this range of options is still part of the European debate about CAP reform, in this paper we focus our attention on Option A and in particular on the considerations that need to be confronted in seeking to maximise the environmental benefits through the proposed ecological focus area measure.

1.4 Conceptual relationship between EFAs, cross compliance and agri-environment

One of the biggest questions surrounding the EFA approach, and other greening measures, is how they would fit with the existing environmental measures under the CAP, both in their

⁵ In the Commission’s 2010 communication it was suggested there might be five practices including references to green cover crops for bare soils and the management of Natura 2000 areas on agricultural land.

current format and how they are seen under the new proposals. Clear distinctions are needed between the actions in cross compliance, the greening of direct payments and agri-environment measures. Table 1 summarises the principal characteristics of these three approaches, whether they are compulsory for farmers, their position relative to the reference level, if they are annual or multi-annual, if Member States have flexibility in their implementation, whether it is possible to use a menu based approaches (flexibility for farmer implementation), and if they are targeted, monitored and evaluated.

Table 1: Distinction between cross compliance, greening direct payments and AES

Characteristic	Cross Compliance	Greening of Direct Payments	Agri-Environment Scheme
	Pillar 1		Pillar 2
Compulsory for farmers	✓	✓	X
Above current reference level	X	✓	✓
Annual	✓	✓	X
Member State flexibility	✓/X	X	✓
Farmer menus possible	X	X	✓
Potentially highly targeted	X	X	✓
Monitored and evaluated	✓	✓	✓

Source: Own evaluation

It can be seen that the greening of direct payments shares three of the seven characteristics listed for cross compliance; it is different in that it specifically sets out to raise the reference level of environmental management so is therefore ‘above’ cross compliance, and that there is proposed to be no Member State flexibility – at least at present. It is important to note that there is scope for Member States to apply cross compliance in different ways within the bounds of the Regulation, and so it provides some flexibility to Member States to implement the measure to meet local and regional requirements (Alliance Environnement 2007). There is a further significant difference between cross compliance and greening, namely that the control of cross compliance is *ex post*, whereas for greening it will be *ex ante*, in that farmers will only receive their full direct payment if it is clear from their application forms that they are adhering to the greening requirements. It is partly for this reason that the Commission is keen to emphasise the distinction between cross compliance and greening.

In terms of AES there is little overlap, with only two of the seven characteristics shared. Both are above the reference level and both are subject to monitoring and evaluation. In practice there may be a greater similarity in relation to both the management practices and the environmental features which are covered by each approach. Such issues are discussed in Section 4.6.

Figure 1 shows conceptually how the EFA measure (and greening as a whole) could fit in relation to cross compliance and the agri-environment measure and where there is potential for the delivery of additional environmental benefits. For each pyramid the horizontal axis depicts the proportion of the eligible agricultural area covered by each measure, with the vertical axes showing both the level of environmental delivery expected from the measures (with delivery increasing towards the apex) and the administrative simplicity of the measures (which increases away from the apex).

Figure 1a shows a simplified view of the current relationship. Cross compliance applies in principle to the whole agricultural area where claims are made⁶, basic or entry-level type AES only apply to a smaller proportion of the area, and the more demanding higher-level schemes apply to a significantly smaller proportion⁷. Cross compliance has a relatively modest level of environmental delivery with an associated level of administrative simplicity, whereas higher-level AES have a greater level of environmental delivery and are more administratively complex.

Figure 1: Conceptual relationship between greening and current CAP measures

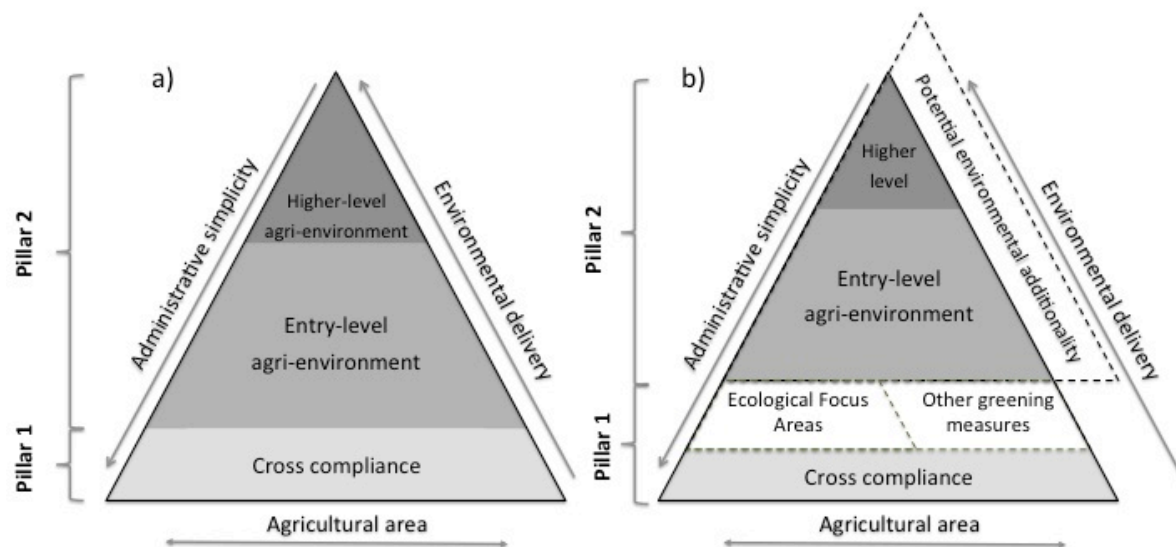


Figure 1b attempts to show how the proposed greening measures fit within the current system and the potential environmental additionality that could be gained through their implementation. Cross compliance still covers all of the agricultural area with claims. However, given that there is expected to be some overlap between this and greening its overall scope to produce benefit has been reduced. Under the proposed system greening measures now appear directly above cross compliance, with the EFA component only applying to that part of the agricultural area outside permanent grassland, as illustrated. There is a rise in the environmental reference level and the environmental scope of Pillar 1, because of the additional obligations represented by the Greening measures. As a consequence the basis from which agri-environment incentives in Pillar 2 are calculated is raised and in principle has the potential to free up agri-environment resources to provide further environmental benefits. This 'environmental additionality' is illustrated on the top right hand side of the pyramid. Of course this potential could only be realised if there is willingness within Member States to increase the scope of Pillar 2 measures in response to greening.

Such diagrammatic representations only offer a simplified view of what could happen through the implementation of greening measures. In reality the relationship between the

⁶ those areas pursuant to articles two through six of Council Regulation (EC) No 73/2009

⁷ Agri-environment schemes currently cover approximately 20 per cent of the EU agricultural area.

different CAP measures will be complex. The practical relationship between EFAs, cross compliance and the agri-environment measure is explored in more detail in Section 4.6.

2 OBJECTIVES AND POTENTIAL SCOPE OF EFA

Within this section we first set out the rationale and objectives of EFAs before identifying the types of agricultural land that could be subject to the measure. We then proceed to identify the different environmental features that could be included within EFAs, without being strictly limited by the Commission's initial definition. We explore both those types of land and environmental features that are explicitly covered in the proposals as well as those that remain open to interpretation.

2.1 Objectives of the EFA measure

Despite some environmental improvements in the farmed landscape, for example for soil and water quality, there remain significant challenges facing Europe's countryside (European Environment Agency 2010d). For example, according to the EU biodiversity baseline (European Environment Agency 2010a) the policy response has not yet been sufficient to halt the general decline affecting many habitats and species (European Environment Agency 2009; Buckwell 2009). Most of the pressures on biodiversity stem from human-induced disturbance to ecosystems often arising from market failures. Agricultural practices are no exception and have been shown to have an impact on soil, air, water, biodiversity and landscapes as well as climate change and waste production (Eurostat 2010). These challenges are well documented and underline the considerable efforts that are needed to address these issues through the CAP so as to meet EU targets (Hart and Baldock 2011). The EU biodiversity strategy reinforces this message by highlighting the essential role that agriculture has to play in reversing biodiversity decline by 2020 (European Commission 2011)⁸.

For arable land in particular the last fifty years have seen a simplification in agricultural landscapes with a loss of fallow from normal crop rotations and the removal of many landscape or farmland features such as hedgerows and riparian areas. These changes have resulted in significant pressures on the natural environment with the magnitude of these pressure related not just to the intensity of agricultural management but also specific crop patterns and types⁹ (ADAS 2007) and the homogeneity of agricultural landscapes¹⁰ (J D Wilson *et al*, 1997; Robinson *et al*, 2001; Rundlöf and H. G. Smith 2006). Interventions such as agri-environment schemes (AES) and organic farming measures have been demonstrated to have substantial benefits when applied in arable areas (Haenke *et al*, 2009; Holzschuh *et*

⁸ For agriculture the biodiversity strategy includes a specific target: '*Maximising areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU 2010 Baseline, thus contributing to enhance sustainable management*' (European Commission 2010b).

⁹ Winter cereals, potatoes, peas, spring wheat and field vegetables have been identified as those crops which have the most detrimental impact on biodiversity

¹⁰ Positive associations have been demonstrated between more heterogeneous landscapes (mixed farming) and biodiversity

al, 2007; Schmidt *et al*, 2005; Rundlöf and H. G. Smith 2006). However such interventions have not occurred on a sufficient scale or level of intensity to address the environmental pressure in arable areas, particularly on more intensively managed farms.

The Commission's greening proposals have very broad environment and climate objectives with, according to the preamble, EFAs aimed at delivering for 'water and habitat protection'¹¹. Beyond this description the objectives of the greening measures have not yet been explicitly defined in the proposals, thereby making it difficult to assess the potential of specific measures to deliver results (European Court of Auditors 2012).

Part of the rationale for the greening being applied under Pillar 1 is the simplicity and enforceability of simple, universal annual measures and the potential for a broad scale coverage beyond that currently possible through voluntary and selective agri-environment schemes. The concept builds on interventions such as the implementation of buffer strips under the Nitrates Directive.

Since the Commission's proposals were released the EFA measure in particular has been singled out for its importance in helping the CAP contribute towards meeting the EU biodiversity headline target for 2020. However, as noted in Annex 2, the Commission's impact assessment suggests that the benefits of the EFA measure could apply to a much wider range of objectives, including soil and water quality; climate change mitigation and adaptation; pest control; landscape protection; and pollination (European Commission 2010b). The extent to which the simple, annual, generalised EFA measure can meet these objectives will depend on a number of factors such as their location, the types of land and features that can be considered as EFA, the balance between land left fallow and other types of EFA land; the distribution in space of EFA, for example at the parcel level or farm level; the management requirements, including the controllability and costs for farmers; and the link with Pillar 2 measures (PBL 2012; Matthews 2012).

With the lack of defined objectives and limited detail on how the measure may be specified and implemented, there is a risk that the EFAs will not be sufficiently well designed to achieve the desired environmental outcomes. The remainder of this and the following section discuss some of the key considerations that will need to be addressed in order to maximise the environmental benefits delivered through EFAs.

2.2 Scope of the EFA measure

Article 32(1) of the proposed regulation defines the land that should be subject to the EFA measure. The article refers specifically to the exclusion of permanent grassland and the requirement for land to be eligible under Article 25(2) but otherwise makes no direct mention of particular types of eligible land on which an EFA would be required. It is therefore reasonable to assume that EFAs are intended to cover arable land, including temporary grassland and grass leys in rotation, as well as permanent crops, such as orchards and vineyards.

¹¹ COM(2011)625/3, explanatory memorandum, paragraph eight line seven

The exclusion of permanent grassland is significant and deserves special mention. In order to broaden the definition and allow more flexibility to Member States, under Article 4(1)h of the Commission's proposals the definition of permanent grassland has been modified from that previously set out in Commission Regulation 1120/2009¹² to include '*other species suitable for grazing provided that the grasses and other herbaceous forage remain predominant*'. In many Member States, including the UK, this definition would still exclude a significant area of rough grazing land which, under Article 25 of the proposed regulations, could be considered technically within the scope of the EFA measure. The potential impacts of this are discussed in more detail in Section 4. However, our interpretation here assumes that these 'rough grazing areas' will be excluded from the EFA requirements as further defined by the Commission or through the delegated acts. This appears within the spirit and broad thrust of the proposals.

Beyond the technicalities of the definition there remains a debate as to whether or not there would be benefits of having EFAs on permanent grassland and how such measures could be designed, implemented and monitored. In terms of existing requirements, it is notable that grassland areas are subject to a greater proportion of the current Good Agricultural and Environmental Condition (GAEC) standards, as set out under cross compliance, than arable areas, partly due to animal welfare rules. In addition arable land, on average receives a higher level of direct payments than permanent grassland areas. The implementation of the EFA measure specifically to arable and permanent crops will go some way to readdressing this balance as well as having the potential to deliver substantial environmental benefits. Given that the current EFA proposals do not cover permanent grassland the benefits and operational factors involved in designing EFAs for such areas are not considered further in this report.

The exclusion of permanent grassland clearly does not translate into a simple distinction in terms of farm types. Across the EU-27 farm types vary significantly from specialised horticultural farms with no grassland component through to smaller mixed farms with a combination of arable, permanent crops and permanent grassland. It is therefore also reasonable to assume that with the exception of small farmers¹³ and certified organic farms which are excluded, the EFA measure will be applicable to a wide range of mixed as well as specialised farms claiming direct payments.

The one type of farming system that receives special treatment with respect to the EFA measure is organic farming (Article 29(4)). Organic farms on the whole tend to have smaller field sizes, a greater density of field boundaries and unfarmed features, a more complex crop structure including crop rotations, and are subject to major restrictions on the plant protection products and types of fertiliser which can be used (Poláková *et al*, 2011). The combination of these factors underlies the Commission's judgement that the environmental benefits from organic farming are potentially¹⁴ as high as from the three proposed greening measures combined (European Commission 2010b). In addition, and unlike other farming

¹² Commission Regulation (EC) No 1120/2009 of 29 October 2009

¹³ Article 10(1) of COM(2011)625 laying down rules for minimum requirements for receipt of direct payments, and Article 47(3) of COM(2011)625 exempting small farmers from greening requirements.

¹⁴ If implemented correctly

approaches such as conservation agriculture, the registration procedure for organic producers under Regulation (EC) No 834/2007 of 28 June 2007¹⁵ means that such farms are relatively easy to identify without further administrative effort. Furthermore they are subject to certification and on-going monitoring. Given their exclusion from the EFA requirements, organic farming systems will not be considered further in this report.

The exclusion of organic farming introduces (implicitly) the concept of equivalence and raises the question as to what other types of farming or approaches might warrant exclusion from greening in light of equivalent benefits if this arises as an option¹⁶. A great many questions remain as to how equivalent benefits could be defined between and within other approaches, the impact on the reference level and the implications for other CAP measures.

2.3 Environmental features that have the potential to be considered as EFAs

The draft regulations currently only include an illustrative list of the types of environmental feature that could form part of an EFA (Article 32(1)). One of the first steps that will need to be taken in developing the EFA approach is to further define the different types of environmental features that can be included under the measure. At present it is unclear if this competence will fall to the Commission or to Member States. In any case the resultant list will need to either be suitably inclusive or contain sufficient flexibility to define features relevant to the diverse range of farming conditions in the EU.

The types of environmental features included within EFAs will in part be dictated by eligibility¹⁷ rules as set out at the EU level. Eligible areas for the Single Payment Scheme (SPS) are currently described in Regulation (EC) 73/2009 (Article 34). This allows Member States considerable discretion with regard to the inclusion or otherwise of certain features found within the farm. In a number of cases, such as the UK, the definition currently excludes a range of environmental features, such as hedgerows, that fit within the scope of the EFA measure, since they are not 'in production' and have been shown to deliver environmental benefits. However, these natural features are counted as part of the eligible area in the rules for AES within Pillar 2. The Commission is aware that it would make sense to harmonise the definitions of eligible hectares used in the two Pillars of the CAP. Reliable data is required to ensure robust outcomes under either Pillar. One major implication of including such environmental features within the eligible area for direct payments is the requirement for them to be mapped and recorded for control purposes. See Section 4.5.

The range and types of features that are identified as being eligible under the EFA is critical with respect to the potential environmental gains and the impacts on farmers, who generally can be expected to prefer a longer list giving them more flexibility. The selection criteria used to define these features should be well defined and applied at the appropriate level. Table 2 identifies a group of features that have been shown to deliver environmental

¹⁵ Repealing Regulation (EEC) No 2092/9121

¹⁶ It is however worth noting that under the proposed EAFRD regulation organic farming will no longer be covered under the agri-environment measure (Article 39 of Council Regulation 1698/2005), instead it will be the subject of a specific measure (Article 30 of COM(2011) 627/3). This separation will allow a clearer distinction between organic and agri-environment measures which may have significance in relation to EFAs.

¹⁷ As referred to in Article 32(1) and defined in Article 25(2)

benefits, in a previous study, are fairly widespread in Europe and are relatively simple to maintain on an annual basis. This shows the type of features that would be appropriate in a final list, although it is not comprehensive and specific regional conditions can have a significant impact. Not all the features are explicitly listed in the Commission’s proposals¹⁸.

Table 2: Potential types of Ecological Focus Areas

Location	Traditional farmland features ¹⁹	Other features
Field edge	<ul style="list-style-type: none"> Hedgerows Stone walls (including terrace walls) Ditches Banks Field corners 	<ul style="list-style-type: none"> Grass buffer strips Wildlife strips, seed mixes and conservation headlands
In field	<ul style="list-style-type: none"> Terraces Archaeological features Ponds Trees: single, lines, groups** Fallow (part and whole field) 	<ul style="list-style-type: none"> Skylark plots Beetle banks Game bird areas Wet areas
Outside cultivated areas	<ul style="list-style-type: none"> Certain afforested land* Small areas of woodland Restored and recreated habitats 	

* the current proposal indicates EAFRD-assisted new afforestation on previously agricultural land would be eligible, presumably because of policy continuity / coherence concerns
** may also be found at the field edge

Source: Own interpretation - A description of each feature can be found in Annex 2

The types of features identified in Table 2 have been grouped into either field edge, in field or outside of cultivated areas in order to provide greater read across between existing measures, such as AES or cross compliance and the associated evidence for environmental delivery. In addition, the features have been split between those that are part of more ‘traditional’ landscapes in different parts of the EU and those that previously have been, or would need to be, created in response to different policy and regulatory drivers. It is also worth noting that, with the exception of terraces those ‘traditional farmland features’ identified in Table 2 are not subject to cultivation or production whereas many ‘other features’ are.

2.4 Environmental objectives to which EFAs potentially could contribute

The type of land and the features that can be considered as an EFA and the way in which they are managed will have implications for the range of environmental objectives that are delivered. For example, simply maintaining an un-cropped area on the farm holding and managing unfarmed features can deliver a spectrum of environmental benefits. From previous research it emerges that the fallow land that was created as a result of the set-aside policy of a few years ago was associated with a diverse range of benefits including:

¹⁸ The Commission proposals suggest that Ecological Focus Areas could include ‘land left fallow, terraces, landscape features, buffer strips and (certain) afforested areas Article 25(2)(b)(ii)’.

¹⁹ The term ‘farmland features’ is used to describe those landscape features that are, or were, part of traditional farming systems across the EU. The two terms are used interchangeably throughout the report.

- Introducing higher quality **wildlife habitat** in the farmed landscape, increasing heterogeneity and improving species' **adaptation to climate change**;
- Reducing **diffuse pollution** as a result of reduced inputs such as pesticides and fertilisers and actively buffering watercourses from nutrient leaching;
- Reducing **soil erosion** and improving soil **structure** and **fertility**;
- Contributing to **climate change mitigation** through stabilised soils and an increase in surface biomass; and
- Improvements in **landscape character** and diversity.

Source: (IEEP 2008; Hodge *et al*, 2006)

The EFA measure is proposed to include a range of additional environmental features that were not included within the earlier CAP set-aside requirement and, depending on how the measure is designed and implemented in different Member States, there is the potential for the delivery of an even greater range and number of environmental benefits than from fallow land alone. In addition to environmental benefits there is the added potential for EFAs to deliver a number of ecosystem services such as biological pest control and pollination (PBL 2012) which are beneficial to agricultural production.

Biodiversity and climate change adaptation

The scale, structure and nature of agriculture and, in particular, intensive agriculture are one of the major causes of habitat fragmentation in the EU and as a consequence one of the most important pressures on biodiversity. Habitat fragmentation is particularly damaging for biodiversity primarily because it results in habitat patches becoming too small to sustain ecological processes and viable populations of species (Fahrig 2003; Crooks and Sanjayan 2006; Kettunen *et al*, 2007). It also makes it difficult for many species to move between habitat patches for feeding, breeding and migration purposes, particularly where large distances and highly hostile habitats separate patches. Furthermore, it may constrain some species' ability to adapt to climate change if they need to colonise new areas in response to changing climatic conditions (Huntley 2007; Opdam and Wascher 2004).

The inclusion of greater areas of uncultivated and semi-natural habitats, such as in EFAs, therefore provides the potential to increase the permeability of these intensive landscapes (Donald and Evans 2006; Poláková *et al*, 2011; Gilbert-Norton *et al*, 2010). But most importantly, if EFAs are located throughout Europe's principal areas of arable land and permanent crops it will provide a substantially enhanced balance of unfarmed habitats even in the most intensively farmed landscapes, which was one of the most important benefits of set-aside (Hodge *et al*, 2006). This benefit could be considerable as there is good evidence that current measures to maintain and increase farmland biodiversity in intensively farmed landscapes are often constrained by their isolation (Weibull *et al*, 2000; Bergman *et al*, 2004; Bengtsson *et al*, 2005; Concepción *et al*, 2008; Batáry *et al*, 2010). However, the benefits of connectivity are likely to be very context-specific and depend greatly on the ecological quality of the habitat components. For example, evidence suggests that the connectivity provided by lower quality hedgerows is relatively limited and that only generalist species are likely to benefit (Davies and Pullin 2007).

Water quality and soil functionality

Certain agricultural production practices, such as ploughing and the overuse of fertilisers and pesticides, can have detrimental impacts on both water quality and soil functionality.

The European Environment Agency suggests that as a result of diffuse or point source pollution from nitrogen, phosphorous and pesticides 'a significant number of water bodies face a high risk of not achieving good ecological status by 2015' (European Environment Agency 2010e; European Environment Agency 2010b). Atmospheric nitrogen deposition continues to be a significant problem, with over 40 per cent of terrestrial and freshwater ecosystems currently subject to atmospheric nitrogen deposition beyond their critical loads (European Environment Agency 2010e). Buffer strips as part of the current GAEC requirements under cross compliance go some way to addressing these impacts on agricultural land. However with increased widths and more appropriate surface vegetation there is the opportunity for enhanced environmental delivery.

Soil functionality also remains under pressure from agricultural activities. Hart et al (2011) suggest that, without changes to management, the maintenance of adequate levels of soil organic matter is at risk on the majority of arable soils across the EU. Erosion from both wind and water continues to be a problem; 105 million ha of Europe's total land area (excluding Russia), were estimated to be affected by water erosion in the 1990s and 42 million ha are affected by wind erosion (European Environment Agency 2010c). EFAs could be particularly beneficial for soils by reducing cultivation activities, particularly in areas of intensive arable production. The extent of such benefits will depend however on the location of the EFA in relation to vulnerable soils, and the requirements of the EFA itself, such as the inclusion or not of soil cover measures. For example the fallowing of arable fields has been shown to reduce soil erosion and increase soil fertility and structure, particularly where some form of soil cover is included, which is later incorporated into the soil.

Certain potential EFA features could have dual benefits for both soil functionality as well as water quality. For example permanent features such as hedgerows or terraces can help to stabilise soils and, where appropriately located, can play an important role in reducing the impacts of localised pollutant²⁰ run off, helping to protect water quality and the condition of terrestrial landscape features (Collins *et al*, 2009; The Voluntary Initiative 2011; Agriculture Industries Confederation 2011). The same can be true of less permanent features, such as buffer strips, where they are present over successive years. By helping to reduce hydrological connectivity and slowing the passage of water, these features can increase infiltration and reduce the amount of soil lost to surface waters (ADAS 2008). The loss of soils through wind erosion is another important area where certain types of EFA land could provide significant benefits, particularly where linear features such as hedgerows, stone walls or lines of trees are maintained. These features were once common throughout the EU but due to the increased specialisation of production and the expansion of field sizes have been lost from many agricultural landscapes.

²⁰ Both inputs such as fertilisers, plant protection products, as well as sediments and eroded soils

Climate change mitigation

As with soil functionality, EFAs could help to increase the climate change mitigation potential of agriculture through the increased sequestration of carbon in both above and below ground biomass. Positive impacts on carbon sequestration have been demonstrated where there is appropriate land use change, particularly where land is taken out of intensive production, for example to create unfertilised and uncultivated buffer strips in arable and grassland, field corner management, beetle banks or to protect archaeological features (University of Hertfordshire 2007; Natural England 2009). Such conversions have been shown to increase carbon sequestration particularly where these areas are retained for longer periods of time and are accompanied by the growth of above ground biomass, particularly of woody species (Natural England, 2009). Where EFAs restrict the use of fertilisers and pesticides and prevent cultivation or ploughing there would be further benefits from the reduction in nitrous oxides and other Green House Gas (GHG) emissions.

The relative impact of EFAs on climate change mitigation would also depend on the type of soils on which they are placed. Carbon and peat rich soils in particular, where taken out of cultivation, will likely provide greater benefits to climate change mitigation objectives than areas of sandy and carbon poor soils. It may therefore be relevant in some circumstances to target EFAs in relation to such characteristics, depending on the precise objectives sought.

Agricultural landscapes

The value and quality of landscapes, though largely subjective, does reflect the presence and composition of different structural features present in agricultural areas, rather than just the physical and topographical variations of the land itself. As mentioned above, many valued features have been lost from agricultural landscapes over the last few decades creating a more simplified or homogeneous farmed landscape, particularly in intensive areas. The more permanent and in-situ traditional features which could form EFAs, such as hedgerows, stonewalls, terraces and infield trees, therefore have great potential to meet landscape objectives, particularly within intensive arable and permanent crop areas, as they help to provide structure and variation within the landscape.

3 FACTORS INFLUENCING ENVIRONMENTAL DELIVERY

This section provides more detailed discussion of the considerations that would need to be included in order to maximise the delivery of a range of environmental benefits from EFAs.

There is great potential for EFAs to contribute towards a range of different environmental objectives. Whether or not this potential can be realised depends to a considerable degree on a range of predictable factors. These are:

- the **location** of the feature;
- whether or not the land is subject to **permanent or rotational management**;
- the **proportion of the holding** covered; and
- the design of the EFA and the **management** practices which are allowed on it.

The delivery of certain objectives will be influenced more by some factors than others, so trade-offs may need to be addressed depending on the specific environmental objectives sought.

3.1 Location

The location of EFAs and combinations of EFAs within a farm holding will play a critical role in determining the range and type of environmental benefits provided. Table 2 separates out the potential environmental features that could be counted as EFAs into those which are located at the field edge, such as hedgerows, those infield, such as skylark plots, and those which are outside of cultivated areas, such as certain afforested areas.

For biodiversity, to achieve an increased permeability and connectivity within intensive agricultural landscapes accompanied by intrinsically more valuable habitats would require a range of different feature types in all locations. Benefits will primarily depend on which species are the priority. For example hedgerows and un-cropped field margins provide breeding, nesting and feeding sites for a variety of birds, invertebrates and mammals (Hodge *et al*, 2006; IEEP 2008; Winspear *et al*, 2010). Some plant species can benefit from the provision of un-cropped field margins. However, their direct botanical value is usually low if they are created on arable land because the nutrient-rich soils develop species-poor, tall and dense swards. Nevertheless, they can support higher invertebrate populations than found in conventional crops, and can be particularly useful in terms of enhancing pollinator populations if sown with nectar-rich plants (Woodcock *et al*, 2007; Smith *et al*, 2008; Potts *et al*, 2009). Some terrestrial invertebrates benefit from in-field beetle banks that provide refuges and therefore source populations for dispersal within intensively cultivated land (Clarke *et al*, 2007).

It is important to note that many species that are mainly confined to agricultural habitats, such as many farmland birds, depend particularly on in-field habitats. Many such species rely on the cropland itself for food; some also avoid hedgerows and trees as these harbour predators. In-field habitats that were once common across the EU farmed landscape have been especially affected by agricultural specialisation and intensification, which has reduced food resources (such as weed seed rich stubbles and soil invertebrates) and created landscapes that are dominated by fast growing dense crops that are unsuitable for many species to breed in (Aebischer 1991; Donald 1998; Sutcliffe and Kay 2000; Hendrickx *et al*, 2007; Billeter *et al*, 2008; Wilson *et al*, 2009; José-Maria *et al*, 2010). As a result, a very high proportion of those farmland species that use in-field habitats are declining in Europe (Birdlife International 2004; Gregory *et al*, 2004). Therefore, whilst there are some benefits to be gained from providing a variety of types of EFA land, in many areas the highest biodiversity conservation priority will be to increase the area and quality of in-field habitats (Butler *et al*, 2007; Butler *et al*, 2009; Butler *et al*, 2010; Poláková *et al*, 2011).

For water quality, the evidence suggests that EFAs would usually provide greater benefits in preventing nutrient and sediment run-off if located directly adjacent to water features such as ditches, streams or ponds (Farmer *et al*, 2008; Mazza *et al*, 2011). Whole or part field options, such as fallow areas (particularly where whole fields are left fallow) can also help to improve water quality by reducing input use such as fertilisers and plant protection products (The Voluntary Initiative 2011). Whole field options, especially where they are accompanied by soil cover such as cover-crops²¹, or stubbles, can also help to prevent soil erosion, and

²¹ Crops planted in between conventional cropping patterns in order to provide soil cover

thus reduce the potential for sedimentation in adjacent water bodies. In-field features such as erosion prevention strips are common elements in Mediterranean AES with beetle banks having been used to similar effect in some Member States. Terraces are widely used in steep terrain in Southern Europe to facilitate cultivation and to reduce soil erosion and are particularly important for containing erosion in permanent crops (Calatrava-Leyva *et al*, 2005; Farmer *et al*, 2008; Mazza *et al*, 2011). EFAs also have the potential to mitigate the effects of wind induced soil erosion through the maintenance or creation of wind breaks, such as hedgerows and lines of trees, which are usually found at the field edge.

At a landscape scale there is also evidence to suggest that the placement of EFA land in strategic areas within a catchment could help to improve downstream water quality (for example Perrot-Maître 2006)²². If EFAs were to be implemented in this way they might need to be co-ordinated within particular water catchments rather than being located purely at the discretion of the individual farmers.

There is limited information on the extent to which the delivery of landscape objectives in different regions would depend on locational factors within the farm or a wider zone. However, if seven per cent of EU arable and permanent cropland was to be managed for the environment, and this included a range of locations, the effect would be substantial. If the EFA measure is designed to include the maintenance existing types of environmental features such as hedgerows which is desirable for other reasons and if Member States can adapt their eligibility criteria appropriately there is the potential for not only the retention of different landscape features, through the proposed GAEC standards, but also their continued maintenance through the EFA measure.

The evidence reviewed indicates that the location of EFA land within a holding and across the farmed landscape has a direct relationship to the type, range and level of environmental benefits they have the potential to deliver. Furthermore a combination of different locations within the holding may be required in order to deliver the greatest level or range of benefits.

3.2 Permanency

The greening proposals clearly indicate that EFAs will need to fit within the Pillar 1 annual system. This raises the question as to the potential for changing the selection and management of environmental features between years and the impacts of doing so. EFA features will, in principle, be subject to change and how farmers do this and to what extent will affect their environmental value. Under AES and, in practice, usually under cross compliance as well, most features are maintained on a multi-annual basis. For cross compliance this may relate to the requirement to buffer permanent features such as water courses and hedgerows since no multi-annual agreement is involved whereas for AES multi-annual management is a fundamental design feature. In practice some of the same considerations will be true of EFAs, particularly for the more traditional farmland features

²² Sustainable Catchment Management Programme Information available at: <http://www.rspb.org.uk/ourwork/projects/details/218780-scamp-sustainable-catchment-management-programme>

and it therefore seems likely that a certain proportion of EFA features will not be rotated year by year²³.

Whether land that is managed for the environment remains in the same place year after year or its location changes around the farm can have an impact on both the number of objectives being served and the level of benefit for each objective. Often sustained management in one place is preferable to the rotation of land, particularly where there is an established and valued landscape feature. Cumulus consultants (Silcock and Lovegrove 2007) evaluated the relative benefits and dis-benefits of rotational versus non-rotational set-aside²⁴ on different environmental objectives (Table 3). This showed that most environmental benefits were greatest under non-rotational arable set-aside and this also contributed towards a wider range of objectives (further supported by IEEP 2008; RSPB 2009). However, the value of rotational set-aside should not be overlooked, with particular benefits for farmland bird species including many specialists that are declining widely in Europe (Poláková *et al*, 2011). It is therefore important to consider the potential benefits of permanent versus temporary EFAs in relation to individual objectives.

Table 3: Environmental benefits and dis-benefits of different types of set-aside in the EU

Environmental aspect	Rotational set-aside	Non-rotational set-aside
Biodiversity		
<i>Birds</i>	++	+
<i>Mammals</i>	+	++
<i>Invertebrates</i>	+	++
<i>Plants</i>	+	++
Landscape	-	-
Historic Environment	-	++
Water Quality	- or +	++
Soils	- or +	++
Air	-	-
Climate change	-	+

Key: ++ = particular benefit; + = some benefit; - = dis-benefit

Source: reproduced from (Silcock and Lovegrove 2007)

Some environmental pressures, such as those on soils vulnerable to erosion or areas at risk of nutrient run off, are determined to a large degree by the physical characteristics of the field or farm and the way in which they are managed. For example areas with erosion prone, sandy and silty soils in sloping landscapes are more vulnerable to soil erosion than areas on lesser slopes or different soils²⁵. Equally watercourses directly adjacent to cropped land on particular soil types are more at risk of nutrient pollution and surface run-off than those separated from agricultural practices by greater distances. Structural aspects such as these

²³ Depending on whether or not EFA land can be leased or shared between farms could have an impact on how rotational or permanent EFAs are in practice.

²⁴ In the UK, set-aside was 45.5 per cent non-rotational and 42.4 per cent rotational (IEEP 2008). In the UK, set-aside was 45.5 per cent non-rotational and 42.4 per cent rotational (IEEP 2008).

²⁵ In England between 40 and 58 per cent of arable land areas assessed as moderate / high / very high erosion risk and Water Framework Directive (WFD) Risk Classification methodology suggests that 42 per cent of England and Wales are at risk from phosphate losses and 13 per cent from sediment loss (Anon 2008).

and the environmental risks with which they are associated are for all intents and purposes permanent. Consequently, the management that would be needed to mitigate these risks largely would need to be applied in the same place year after year. In such cases the permanency of the EFA can be more important than the proportion of land which is managed or taken out of production, for example (ADAS 2008).

The age of different environmental features can also play an important role in the level of environmental benefits realised. There is evidence to suggest that long established landscape features are generally of higher environmental value than those which are newly created as they are better developed to deliver environmental benefits. The improved capacity of hedges and stone walls to deliver biodiversity benefits and greater interconnectivity over time or the increased reduction of nutrient leaching through grass buffer strips are examples (IEEP 2008). Furthermore, certain species may take a number of years to establish and there is evidence to suggest that the more natural an area the greater the benefit to biodiversity, for example invertebrates (Clarke *et al*, 2007; IEEP 2008).

In some cases the EFA feature itself may be permanent, as with ponds, stone walls, certain afforested land, or hedgerows. These features are largely considered in Table 2 as 'traditional farmland features' and are likely to have been in-situ for years. As these features do not naturally change location they will also need the same management in the same location over successive years. However, depending on the number of different features present within the holding that could contribute towards the EFA, farmers may choose to manage different features or different proportions of each feature in successive years and thus reduce the continuity of management.

The evidence suggests that a greater range of environmental benefits is usually found in relation to land that is maintained out of production or managed for continuous periods of time over successive years, as opposed to that which is rotated on an annual basis. It is therefore worth exploring further the potential for the promotion of this type of approach within the EFA measure. Furthermore the evidence also suggests that generally older features, if properly managed, tend to be of higher value particularly for biodiversity and landscape but also for climate objectives such as carbon sequestration.

3.3 Proportion of holding involved

There is a considerable body of research that looks at the benefits of maintaining different proportions of uncultivated on a farm land for environmental purposes. Most research is focussed on biodiversity objectives, particularly in relation to the proportion of land that would be needed to help the recovery of different species. A number of studies even suggest the required proportion of land per species or species group (see for example Aebischer and Ewald 2004; Holland *et al*, 2007; Butler *et al*, 2010; Winspear *et al*, 2010; Oppermann *et al*, 2011; HGCA 2011). Such studies suggest that the greater the area managed the greater the benefits for biodiversity²⁶, but all studies underline the importance of appropriate management and the impact this has on environmental delivery. For other

²⁶ In this context it is worth highlighting the wording in the Commission's proposals which refers to 'at least' seven per cent. No formal upper limit is proposed.

objectives, such as water and soil protection there is less evidence available to suggest the proportion of area required under management. Such objectives tend to be more influenced by local conditions, including the hydrology, the type of vegetation present on the land, how the land is managed and the location of the EFA (IEEP 2008).

Despite the correlation between the total area of uncultivated land and the environmental benefits accrued un-cropped land by itself is rarely sufficient to deliver the benefits expected from EFAs. A key factor to ensure the delivery of such environmental benefits is appropriate management (Stevens 1995; Weibull *et al*, 2000; Kleijn *et al*, 2001; Winspear *et al*, 2010). Where the right environmental management is targeted towards the best chosen locations, similar level of benefits can be delivered but over a much-reduced area. For example Winspear *et al* (2010) suggest that by managing seven per cent of arable land under the England entry-level agri-environment scheme Entry Level Stewardship (ELS) farmland bird numbers would be likely to increase but that this area could be reduced to three to four per cent by adopting a package of more precise prescriptive management practices that are designed for specific declining species. Such findings are further supported by Hart *et al* (2011).

The modelling work carried out by Butler *et al* (2010) explores this proportionality separately from the management actions by looking at the possible mitigation impact on farmland bird populations of enhancing or taking areas out of production areas that vary from five to ten per cent of the holding (see Box 1). The results indicate that at most there is a doubling of the mitigation impact between the two areas, but this depends on focusing all mitigation on in-field measures such as the provision of fallow land. Nonetheless, the conclusion that they draw argues that even with ten per cent of the holding out of production, targeted management actions on these areas are needed to offset current risks to farmland bird species, as taking land out of production alone will not suffice.

Although there is some evidence to suggest that different proportions of uncultivated land provided different levels of benefit for particular objectives and certain species, there is little research that looks at the combinations of these objectives as a whole. Most land management actions, and areas taken out of production, will deliver multiple environmental benefits, even where the management undertaken is just above the reference level (Keenleyside *et al*, 2011). It should also be recognised that farmers are not starting from a 'zero base' scenario. Many holdings already have areas that are either uncultivated or provide significant environmental benefits via the adoption of less intensive management practices. Mapping exercises show that semi-natural landscape features currently comprise between two and six per cent of the arable area of the EU (Oppermann *et al*, 2011). The precise area of land that could be considered suitable for inclusion within an EFA will depend on the definition of the EFA and the interpretation of eligibility rules in different Member States.

Box 1: Area requirements to maintain species populations.

Butler *et al* (2010) developed a trait-based modelling study for European farmland birds investigating the potential impacts of four land use and policy scenarios on the European Farmland Bird Indicator (EFBI) in 2020. Under the baseline scenario, under which current policy and land use conditions persist, the EFBI is expected to fall by 23 per cent compared to the 2005 level. The remaining three scenarios introduced further risks to birds in addition to those considered in the baseline and all show consequential declines in the EFBI. The scenario of most interest to the proposed EFA measure, scenario two, examined the loss of compulsory arable set-aside (which has subsequently occurred) and predicted that the EFBI in 2020 would be eight per cent lower than under the baseline. Despite some uncertainty in the models, the results clearly indicate that further substantial declines in farmland bird populations (and by implication, probably other taxa groups) are likely, unless large-scale effective mitigation measures are implemented.

Further trait-based modelling was undertaken by Butler *et al* in 2010/11 to investigate the potential benefits for EU bird populations of mitigation measures in improved and intensive agricultural habitats (Poláková *et al*, 2011, p.278 Annex 2.9 for a detailed account of the scenarios). The mitigation measures assessed considered the impacts of placing five per cent or ten per cent of land under conservation management, with various proportions allocated to in-field, margin and hedgerow related measures. Under each conservation measure scenario the predicted EFBI was higher than under the baseline scenario, ie if current conditions persist. However most importantly, allocating more land and targeting efforts towards resource delivery within the cropped area had the greatest benefit. The best predicted outcome was found to occur if ten per cent land was allocated to beneficial cropped area management for all three resource types, ie summer and winter food and nesting habitat, resulting in the EFBI in 2035 being seven per cent higher than if current conditions persist. However, whilst all scenarios were favourable compared to the baseline, most benefits were slight and none were sufficient to halt overall farmland bird declines. This suggests that the allocation of more than ten per cent of land to biodiversity focussed management measures may be required to halt further declines of the EFBI. However, this result is based on the assumption that risk reduction is proportional to land allocated to conservation measures. Under simple generic schemes, such as proposed under the EFA measure, this assumption may be realistic. But studies in the UK suggest that the use of well designed efficient tailored mitigation measures that require small areas of land, for example planting of seed crops for birds, when combined with appropriate targeting, may be able to significantly reduce the total land area required to meet biodiversity conservation targets (Hart, Baldock, Tucker, *et al*, 2011; Winspear *et al*, 2010).

In general terms the greater the proportion of uncultivated land present on a farmed holding, particularly that which is managed for environmental purposes, the greater the positive impact on the environment. However targeted interventions have been shown to deliver greater environmental benefits within a smaller area providing they are in the right location (see Section 3.1), are retained for a significant period of time (see Section 3.2) and managed in an appropriate way (see Section 3.4).

3.4 Management of EFAs

It can be helpful to consider three interrelated approaches to management of EFAs:

- a) the continued production of agricultural commodities²⁷;
- b) the cessation of production, or restriction of agricultural practices or fallowing; and
- c) the adoption of specific practices that are designed specifically to benefit the environment. The relative environmental benefits delivered from these three approaches vary, with evidence suggesting that the benefits from land that continues to be cultivated, even under more extensive management, are likely to be much lower than those of uncultivated land or those managed specifically for the environment (Silcock and Lovegrove 2007; IEEP 2008; Poláková *et al*, 2011). This underlines both the potential tensions with farmers' general preference to maintain cropping where possible and the benefits of appropriate management.

3.4.1 Agricultural production

The relationship between agricultural management and the delivery of environmental objectives is complex. Certain types of agricultural production bring with them a wide variety of environmental pressures, from one-off or occasional agricultural improvements (ie drainage, ploughing and reseeded) to routine intensification or modernisation of management, such as cultivations, the use of fertilisers, irrigation and pesticides (Poláková *et al*, 2011). For certain objectives such as biodiversity it is important to note that appropriate production is not incompatible with environmental benefits in most cases. For example winter stubbles are a significant source of seeds of overwintering birds, in particular when weed-rich and left fallow (Donald *et al*, 2001). Indeed some semi-natural agricultural habitats are highly dependent on the continuation of a number of beneficial agricultural practices, such as extensive grazing with appropriate livestock, traditional haymaking and traditional agro-forestry, which may be lost through either intensification or abandonment (Poláková *et al*, 2011). Table 2 makes a distinction between those environmental features that are more traditional elements of the EU farming system and those that are not. Many traditional features, such as hedgerows, cannot be brought into agricultural production without their removal. Terraces and fallows are obvious exceptions. However, most of the 'other' features, such as buffer strips, could support appropriate agricultural production. For those environmental features that have the potential to be brought under agricultural production this raises the question as to the types of practice, if any, that should be allowed and how these may impact on the delivery of environmental benefits.

Crop production will undermine the pursuit of certain environmental objectives on EFAs, such as high levels of carbon sequestration, but less intensive practices in particular may be valuable for biodiversity. Trade-offs will need to be addressed and local priorities might be rather decisive. The same goes for livestock production. Whereas few intensive livestock management regimes have environmental merits, low intensity grazing on permanent vegetation can be helpful for many environmental purposes. Nonetheless, stock may need to be excluded from particular areas.

²⁷ Given the focus of the EFA proposals, here we are referring more specifically to the production of crops, however the same may be said for livestock production.

3.4.2 Restriction of agricultural practices

To maintain some types of features it may be necessary to carry out certain types of conventional agricultural management, such as cutting or grazing in order to maintain a suitable sward height. Such management approaches are applied in entry-level agri-environment practices across the EU; although actions such as the use of inputs, cutting, grazing, and ploughing are permitted, generally they are restricted to certain frequencies and within certain periods of the year (Keenleyside *et al*, 2011). For example it may not be necessary to restrict the cutting or grazing of vegetation for the whole year but instead restrict practices to certain times, such as during bird breeding seasons (Henderson *et al*, 2000; Grice *et al*, 2007; Poulsen *et al*, 1998). The environmental management required on EFA land can be objective-specific but certain practices such as limits to fertiliser application, the use of vegetative soil cover, and minimum size requirements for certain features (such as the width of buffer strips) are likely to provide a range of benefits and will be essential in some cases. The specific restrictions on these types of management will depend on the particular objective which is being addressed. This topic will need to form part of the implementation guidelines for the specific practices under the EFA measure.

Uncultivated agricultural land, or fallow, has been shown to have positive benefits for a wide range of environmental objectives, depending on its location and permanency (Farmer *et al*, 2008). However a simple obligation to dedicate a proportion of land to an agreed set of environmental uses in an EFA does not appear the most effective way to maximise the potential benefits. A significant body of evidence suggests the added benefits of positive environmental management (for example (Butler *et al*, 2007; Butler *et al*, 2010). Many of these benefits for biodiversity, landscapes, soil and water quality and climate change mitigation objectives have been demonstrated through evaluations of AES (Pywell *et al*, 2006; Natural England 2009; Perkins *et al*, 2011; Kovács-Hostyánszki *et al*, 2011) and also through the evaluation of set-aside (Kennedy 1992; Moreby and Aebischer 1992; Poulsen *et al*, 1998; Henderson *et al*, 2000; Hodge *et al*, 2006; Silcock and Lovegrove 2007; Grice *et al*, 2007; IEEP 2008). Some management requirements for particular categories of EFA would need to be built into the rules, others could be incentivised by further voluntary agreements within agri-environment programmes.

3.4.3 Practices that benefit the environment

Many environmental features require some form of management to be sustained at all or to provide a satisfactory level of benefit. Beyond the restriction of conventional agricultural practices environmental management can involve more positive interventions such as the sowing of certain seed varieties, active management of specific features or the creation of new areas of habitat. The management required will differ depending on the type of EFA land and can be an important determinant of the resulting environmental benefits. For example the creation of wildlife strips can involve the planting of specified seed mixes to provide enhanced floristic diversity and seed provision benefiting a range of species as well as pleasing landscapes (Natural England 2009; Potts *et al*, 2009; HGCA 2011)²⁸.

²⁸ Bumblebee abundance and diversity can be significantly increased by sowing wildflowers or pollen and nectar mix as arable field margins at the local and 10km² scale, compared with sown grass margins, natural regeneration or conservation headlands (Natural England 2009).

The targeting and tailoring of such interventions, important to deliver the required management in the right areas, will require support and advice to be effective (Natural England 2009; Poláková *et al*, 2011). Some of this tailoring can be built into the design of the EFA practices themselves, for example in the design of buffer strips, which have been demonstrated as being more effective in delivering their objectives where minimum width requirements are specified and where they are appropriately located (see for example Collins *et al*, 2009; Tredanari 2011). Such tailoring can also help to deliver multiple environmental benefits from EFAs. For example, minimum width requirements and specified orientations can help beetle banks also to prevent soil erosion.

Where environmental objectives require specific tailoring and targeting and bespoke management these are likely to be better provided through AES or other rural development measures. If there is scope to include agri-environment management practices on EFA land the benefits of the measure could be significantly enhanced. How rural development measures, particularly agri-environment, could interact with the EFA requirements is discussed in more detail in Section 4.6.

Within the scope of the EFA measure the evidence that has been reviewed suggests that in comparison to continued agricultural production the level of environmental delivery is likely to be greater on those areas that remain uncultivated and greater still on those areas that are subject to tailored environmental management. The type of management required will depend on the objectives sought as well as the type and design of the EFA. Consideration should also be given to the advice and support needed for the effective implementation of the EFAs in practice.

Different environmental objectives will require different approaches to management and this will be more effective if it is location and context specific. The evidence suggests that by using a mixture of types of EFA land, both in field and field edge, together covering a significant area of the farm holding and managed for successive years, there will be the potential to deliver benefits for a large range of objectives. However the EFA measure, as proposed, seems to require simple, general and annual practices. As noted in the Commission's impact assessment, within these limitations it would be difficult to design and manage an EU wide measure with specific management and location requirements. As a result rural development measures are needed to '*further build on this baseline and further support green infrastructure*' (European Commission 2010b). This is an important consideration and raises the question of how the EFA measure fits in relation to both cross compliance requirements and AES.

4 CONSIDERATIONS ON THE IMPLEMENTATION OF THE EFA MEASURE

This section considers some of the practicalities involved in implementing EFAs, how they are likely to be perceived by farmers, how they fit within current agronomic practices, farming systems and the administrative and enforcement implications. It concludes by considering the interrelation between EFAs, cross compliance and the agri-environment measure.

4.1 Farmer attitudes

The attitude of farmers in relation to two issues appears particularly relevant: perceived competition for land between food production and environmental service delivery, and voluntary versus compulsory approaches.

EFA's are likely to comprise areas of natural features on farms, field margins, and the fallowing of part or entire fields. The fallowing of land in arable rotations has been a traditional practice across Europe for much of its agrarian history. Rotating crops and leaving land un-cropped provides a range of agronomic benefits including weed control, disease prevention and improved soil fertility for future cropping (IEEP 2008). Yields along field margins are generally below average. However the incentives to increase agricultural production, along with technical progress brought about significant changes in arable production during the latter half of the twentieth century, such as the shift towards winter sown cereals and continuous arable cropping. These have led to a reduction in the use of fallow land²⁹.

The buoyant demand for agricultural commodities has meant that the Commission's proposals to devote seven per cent of arable and permanent crop land as EFA has been met with some criticism from the farming community, with many believing this would lead to significant areas of prime agricultural land coming out of production to the detriment of food security. Such responses demonstrate real concerns and reflect to some degree the lack of information contained within the proposals themselves. It is therefore all the more important to clarify how far the area currently occupied by 'traditional farmland features' as identified in Article 32(1) of the proposals and further elaborated here in Table 2, can be considered as part of the required seven per cent. If Member States choose to include the relevant features in their declared eligible area, it is likely that the seven per cent requirement would amount to a smaller aggregate impact in practice – probably with considerable variations between farms.

The choice between voluntary and compulsory approaches raises other issues about the attitude and motivation of farmers. Generally, farmers are more sympathetic towards objectives that they understand and see value in. This is one of the presumptions underlying the development of voluntary, contractual, AES under the EAFRD. Such approaches, when combined with the appropriate levels of advice, are more likely to engage the positive enthusiasm of farmers and can lead to more effective environmental delivery, although this also depends on the objectives. One voluntary scheme with objectives of a similar kind to the EFA is an initiative introduced in England in response to the end of environmental benefits arising from mandatory set-aside, known as the Campaign for the Farmed Environment³⁰. This has had mixed results. At the same time farmers in Europe are becoming accustomed to cross compliance as a compulsory requirement of those receiving support under the Single Payment Scheme (SPS) and it now underpins the delivery of a range of different environmental objectives. In Switzerland, although outside the EU, the

²⁹ Although the practice is still common in some agricultural systems for example extensive arable systems in parts of central Spain (IEEP 2008).

³⁰ <http://www.cfeonline.org.uk/>

Ecological Compensation Areas (ECA), approach as described in Box 2, has gained wide acceptance and provides one conceptual model on which the EFA measure is based. In assessing how to implement the EFA measure it would be useful to assemble more European evidence on the relationship between effective environmental delivery and the degree of voluntarism in schemes.

Box 2: Example from Swiss Ecological Compensation Areas (ECA)

Under the Federal Agricultural Act and in compliance with relevant environmental legislation, farmers in Switzerland must provide 'proof of ecological performance' (PEP) in order to receive direct payments. The PEP must show that they comply with six criteria relating to restricted use of fertiliser and plant protection products, crop rotations, soil protection, types of livestock and ecological compensation areas (ECAs) (FOEN and FSO 2011). Support in the form of voluntary agri-environment payments for ecological management is also used to complement the obligatory management within ECAs. (Source: Nitsch and Osterburg 2005).

A central element of the ECAs is to maintain, create and increase the ecological value of landscape elements. Farmers have to prove the existence of a certain percentage of ecological compensation area at the farm level (for example set-aside land and field strips, hedges or field woods, small water bodies, stone walls, traditional orchards, natural tracks and extensively managed grassland) and requirements exist for the maintenance and management of these features. If necessary, these areas have to be created or leased additionally.

There are no restrictions on the type of land that can be used for an ECA (Vermont 2005) and, according to a recent inventory of ECAs, the majority of agricultural land used for ECAs is extensively managed grassland (51.6 per cent of all ECAs). Less intensively managed grassland and standard fruit trees are the second most common category of ECAs with hedges, wildflower strips, buffer strips and conservation headlands forming only a very small proportion of the land used for ECAs (between 0-2 per cent) (FSO 2012). This translates as three quarters of ECAs being extensively managed hay meadows, and wildflower strips covering a much smaller area of 3,500 hectares (SFOA 2007 in; Aviron *et al*, 2009).

There is a 90 per cent uptake of direct payments by farms in Switzerland, with associated ECAs. The area of agricultural land dedicated to ECAs has remained constant since 2001 at approximately 120,000 hectares (12 per cent of UAA) (Vermont 2005; FOEN and FSO 2011). Since 2006, ECAs are obliged to comply with the Ecological Quality Ordinance which sets out where they are characterised as being of particular biological quality or connectivity. From 2006 until 2008 the area of ECA meeting these biodiversity criteria has increased from 50,000 to 58,000 ha despite the overall area of ECAs remaining constant (FOEN and FSO 2011).

EFA's will have some impact on productive areas but the total area of land removed from production will be very much less than seven per cent of the cropped area. There will be large variations between farms with those that have retained or reinstated features will benefit from having done so. Member States will have considerable influence on the outcome by virtue of the way in which they define the eligible agricultural area.

The remainder of this section considers some of the practical implications of the EFA approach and the possible reactions of farmers to its implementation in practice.

4.2 Agronomic feasibility

In practical terms, farmers are likely to seek compliance with EFA measure by first identifying those areas of land not currently in production and which could qualify as EFAs, such as hedgerows or terrace walls. If these areas do not amount to the full seven per cent requirement, the experience gained from set-aside suggests that farmers will then identify what they judge to be their least productive land or that land which is most difficult to farm such as the stony, wet, tree or hedge-shaded, steep, low-lying, distant or otherwise less

productive land. This is entirely rational. Beyond these areas farmers are likely to achieve their seven per cent EFA requirement by using areas of land which impact least on their productive area by using field margins or field corners. For example in England these types of land made up 40 per cent of individual set-aside land units (distinct whole fields or parts of fields) in 2007 with a later survey revealing that of those farmers who intended to leave some arable land un-cropped in future years, 81 per cent would leave field margins and corners with 41 per cent leaving out their least productive fields (Defra 2008). As outlined in Section 3 there are benefits from siting EFAs both at the margins and in-field, depending on the objectives. Insofar as in-field measures are a priority in a particular locality, it will probably be necessary to incentivise these more actively, for example by attractive complementary agri-environment measures, as farmers probably will tend to avoid them for agronomic reasons. More broadly, it will be important to help farmers to acquire better advice on the best way of implementing the measure, including ways of calculating returns from their less productive land, as well as the preferred scale, location and management requirements in order to meet the environmental objectives. Agronomic and environmental considerations will need to be evaluated together.

4.3 Impacts on different farm types

Some farms will be impacted more by the EFA proposals than others, particularly those with few farmland features currently and those which have only small areas of arable or permanent crops. This is well illustrated in the Commission's impact assessment (European Commission 2010c). A number of concerns have been raised by farmers in particular categories, which are relevant to policy design and monitoring.

Permanent grassland livestock farms will not have any obligations under the EFA measure assuming the proposals are implemented as currently specified. However there are some important practical interactions between the three greening measures. One example concerns the interaction between the definition of permanent grassland (Article 4(1)h) and the definition of eligible hectares (Article 25), as discussed in Section 2.2, the effect of which could have a major impact on the application of the seven per cent EFA requirement on some upland farms³¹. Strictly speaking, under the definition of 'eligible hectares', as set out in Article 25(2)a, rough grazing areas where 'herbaceous forage' does not remain predominant could be deemed eligible for the EFA measure. If this were to happen, farms with large areas of non-herbaceous forage, for example heathland and blanket bog, could in effect be subject to a substantial EFA requirement akin to that of large arable and permanent crop farms. If this were to be the case then the list of potential EFA features would need to be expanded so as to be applicable to such land types. In practice it seems unlikely that the Commission intends the EFA to apply to such grazing land. Recent discussions have revealed a willingness on the part of the Commission to revisit the definition of permanent grassland and this should help to resolve this confusion (European Commission 2012).

³¹ National Assembly for Wales: Environment and sustainability committee – Common Agricultural Policy task and finish group. Submission by Cyngo Cefn Gwlad Cymru/Countryside Council for Wales.

Predominantly grazing livestock and mixed farms that have a small area of arable land, but exceeding the lower threshold of three hectares, often used to grow a single crop of feed grain, might be amongst the farms most affected by the greening requirements. The EFA requirement, although proportional at seven per cent, could have a greater impact on such farms, particularly where areas of land would need to be left uncultivated. In combination with other greening requirements such as crop diversification EFAs could be most inconvenient on some farms in this category, especially if they had no existing features. One potential impact to consider is that, as a result, some such farms might decide to avoid the EFA obligation by stopping arable cultivation altogether and become an all-grass farm. This would result in a loss of mixed farming, with potentially negative environmental impacts in some cases and the position would need to be monitored.

Intensive dairy farms based on an all-temporary grass system, perhaps accompanied by an area of fodder maize or other feed crops may also find the EFA requirement more difficult to implement than some other categories. It has proved difficult to devise as full a range of options for such farms in AES as it has for mixed and arable farms and the enrolment of specialist dairy farms in such schemes has been relatively low in many countries. For this reason an EFA might be effective in introducing environmental elements into a category of farm where voluntary schemes have been less effective but there may be particular sensitivities about the options available to such farms, particularly where hedges, ditches, wet patches, trees etc are absent.

Large arable farms and ***specialist crop farms***³² which have undergone significant enlargement of parcels and are now left without many of the more traditional farmland features, would need to find most of their seven per cent from land which is currently in cultivation. From an environmental perspective it is these areas which are often most in need of environmental interventions yet from a farming perspective the opportunity costs will be highest on farms with a low proportion of either land qualifying as EFA of linear features, which generally depress yields along the margins. If derogations are available within the finalised regulations farmers will undoubtedly seek them for all or part of the EFA requirement; this might include pursuing one of the EFA sharing options examined below. It may be that some of the most profitable farms may choose to forgo the 30 per cent of their direct support in lieu of implementing the greening requirements. The environmental impact of any such exceptions could only be assessed on a case-by-case basis.

Specialist permanent crop farms, particularly those that are intensive in nature, share similar issues to those highlighted for large arable and specialist annual crop farms. One of the key issues relating to the creation of EFAs on permanent crop farms is the type of EFA features/land that could be used to make up the seven per cent given the permanent nature of the crops. Where permanent crops, such as olives or vines, are grown on steep banks using terraces, the terrace wall may contribute to the required area. However, where this is not the case it may be necessary to define additional EFA type features that could deliver

³² for example vineyards and some other permanent crops, flood-irrigated rice cultivation on graded land, and some horticultural production on highly fertile soils

environmental benefits, such as maintaining grass cover under the crops or requirements to limit or even prevent the use of inputs (fertilisers, plant protection products) in such areas.

4.4 Sharing and leasing

There are a number of ways in which the EFA obligation might be shared amongst farmers and questions have been raised about whether it should be permitted or even encouraged. Can it be controlled, and what might be the effects?

4.4.1 Sharing for environmental benefits

The EFA could be shared in the sense that the seven per cent requirement did not have to be fulfilled wholly within the boundaries of a single farm but could be met by two or more farms in combination. If the sharing of EFA across farms in a locality was purposively planned by cooperative effort amongst farmers supported with sound environmental advice this could be beneficial and perhaps preferable agronomically. If, in this way, the location, permanence and management of the EFA was planned according to the ecology, hydrology and soils of the area it could ensure that the greatest environmental benefit was realised. Indeed this could be a mechanism to bring about the kind of landscape scale delivery of environmental management that is required to deliver certain objectives, for example the catchment scale water quality objectives discussed in Section 3.1. The synergistic environmental effects of arranging the EFA over a group of farms could be far better than that achieved by individual farms working without advice, and taking a narrower view of their annual obligation. Indeed there have been proposals from environmental interests in the Netherlands that group applications of EFA should be facilitated by the regulations (PBL 2012)³³. The concept is that farmers form a cooperative to jointly plan and manage their EFA and associated matters. The understanding is that farms providing less than seven per cent EFA on their land would compensate those providing more. These transactions would be handled by the cooperative, which would also handle any issues of overall compliance. Individual farmers would still make the direct payment applications.

Such arrangements would require checks on the eligible, arable and ecological focus areas of groups of direct payment applicants who are in a cooperative agreement. This is likely to require greater effort on the part of the administrative agencies in the Member States. It has to be discussed if these sorts of group arrangements, which require direct payment applications to be linked, are feasible from the point of view of CAP payment agencies. Administrative complexity could stop group application for some Member States, particularly where the current administration of direct payments is already problematic and the current proposed changes to the direct payment scheme pose a significant challenge.

4.4.2 Leasing for agronomic benefits

It is again useful to look at the response to mandatory set-aside in the past. In the UK certain types of farms chose to 'rent in' areas of set-aside, ie land that was not part of their current holding. It is highly likely that if this option is available to farmers it will be pursued. From an economic point of view it is a rational response and ensures that farms which have greater than seven per cent of their land which has relatively low productivity and thus a

³³ Anon, pers comm, March 2012

low opportunity cost from having it defined as EFA can make such land available to those for whom the seven per cent EFA requirement is more demanding and more costly (in production terms). From a food production perspective, the outcome that EFA is located on the less productive land, and thus the best agricultural land is retained for food production is rational. However it is harder to generalise about the environmental effect of such 'leasing'.

The practicality of the formal or informal leasing of such land to make this possible (either on an annual or multi-annual basis) is something that land managers are well accustomed to doing. Such arrangements are commonly used for cropping licences for potatoes and peas, and were applied for set-aside. In the context of the Single Payment Scheme (SPS), and this will also apply in the new proposed Direct Payment Scheme (DPS), it requires farmers to keep track of payment entitlements and to ensure the farmer making the claim has the land at their disposal at the requisite time. When dealing with rotated crops this leasing of land requires annual leasing of payment entitlements. This is permitted by the Single Payment regulations although not implemented in all Member States. From a paying agency point of view keeping track of annual transfers of entitlements undoubtedly creates complications. The renting-in of EFA land is more likely to be on a multi-annual basis as, unlike crop rotation, it will be a continual and consistent requirement year on year.

From an environmental perspective there is a concern that if the EFA measure is not applied on a farm by farm basis, large, intensive and profitable arable (and permanent crop) areas will merely rent-in land from farms in other parts of the country some of which may have 'surplus' EFA and it could result in zero environmental additionally as well as a geographically skewed response. Such approaches run counter to the idea that the environmental sustainability of EU agriculture, particularly in intensive systems, has to be improved. It is not yet clear if the renting-in of EFA land will be permitted in the new regulations or indeed if it can be stopped. The legal arrangements for the leasing, contracting and licencing the use of agricultural land is highly complex and vary greatly between Member States. What is clear is that there are environmental risks and therefore great care needs to be taken in assessing the relative trade offs of allowing such an approach.

4.5 Administration and enforcement considerations

Even without group applications for the leasing of EFA land, the reform proposals for targeting and greening of direct payments constitute a significant extension to the current SPS. At the same time there is a strong political drive for simplification.

4.5.1 Monitoring, evaluation and control

The experience gained in AES to date is that greater benefits are provided by carrying out environmental management in the right location, at the right scale, for the right duration and at the right time of year. Yet such approaches require additional monitoring, checking and reviewing in order to ensure the most efficient use of resources and the development of effective approaches. Member States that have created multi-annual AES have already devoted considerable resources to setting up the control systems and monitoring and evaluation of these rural development measures. It is therefore a significant step to introduce environmental measures into the Pillar 1 direct payment scheme and to ask the

very different administrative systems developed for Pillar 1 schemes to adapt. It is for this very reason that the Commission insists that the Pillar 1 greening measures must be simple, annual and generalised.

In order to be eligible for support the land over which direct payments are paid has to be recorded and identified under the Integrated Administration and Control System (IACS) on the national Land Parcel Identification System (LPIS)³⁴ (see Article 68(2) of the proposed horizontal regulation³⁵). Those features that are not already within the eligible area for direct payments are in most cases not mapped or recorded on LPIS. The mapping and recording of such features requires a significant undertaking and has been completed to varying degrees in different Member States, the Czech Republic being perhaps the most advanced³⁶ (see Keenleyside *et al*, 2011). The inclusion or exclusion of such features within the eligible area definitions will greatly affect the total area of additional land that may need to be taken out of cultivation in order to meet the greening requirements.

4.5.2 Flexibility

The issue of flexibility has been raised at varying levels within the current debate.

Amongst these are the extent to which Member States can interpret and specify the detailed requirements of EFAs and the acceptable practices within it, the scope for regional variation, the freedom of farmers to make choices within the rules and the possibility of a 'menu' approach. In parallel there is a wider debate about the flexibility of farmers to choose between the three proposed greening measures and any others that might be added.

The evidence assembled in Section 3 provides some of the case for providing tailoring of greening practices to ensure they are best suited to local circumstances to maximise environmental effectiveness. However, if Member States can choose from a menu at the level of the three greening measures there is a danger that some will misuse such flexibility to make life easier for farmers rather than use it to increase environmental benefit. Complication then invariably arises, as 'flexibility' usually requires more monitoring, evaluation and control to ensure real environmental outcomes and also to maintain a level playing field for agricultural production. This is one core of the debate on greening and on EFAs. There are clearly trade offs between administrative simplicity and environmental effectiveness, as illustrated in Figure 1. The report of the European Court of Auditors on the design and management of agri-environment measures pointed to the difficulty of, *inter alia*, assessing the effectiveness of some of these measures given insufficient clarity about the environmental outcome sought by each measure (European Court of Auditors 2011). The task faced in the design and implementation of the EFA measure is to avoid similar criticism

³⁴ Required as part of national Integrated Administration and Control System (IACS) under Title III, Chapter 4 of Council Regulation Council Regulation (EC) No.1782/2003

³⁵ COM(2011) 628/3 Proposal for a regulation of the European Parliament and of the on the financing, management and monitoring of the common agricultural policy

³⁶ As an artefact of the land ownership history in the Czech Republic most of the 'environmental features' present in the farmed landscape are owned and managed by the local and regional municipalities rather than the farmers themselves. The mapping and recording burden therefore lies with the municipality.

in the future, ensuring proportionality between environmental benefits and administrative effort, whilst delivering the objectives of the approach.

It should however be observed that the very definition of the land and types of management eligible to be considered as Ecological Focus Area is likely to offer flexibility. In the Commission proposal there are already five examples offered of land which could constitute the EFA. It is assumed that these will be teased out further by the Commission in their delegated acts, and then probably further elaborated by the Member States in their implementation and in the literature developed to advise farmers. This is likely to yield choice at the farm level. For example a farmer could achieve their seven per cent EFA by choosing only to fallow whole fields. Another might opt mostly for grass margins, others will combine all these practices. Member States might well multiply up the EFA options as illustrated by the many variations in the English Entry-Level Stewardship scheme (Annex 1), or the Austrian Öpul scheme. Flexibility and thus choice at this level can be a good thing to enable farmers to adapt the requirements to the agronomic and environmental needs of their farm. However inevitably it also offers the possibility of allowing farmers the choice of the easiest or least costly option, which can be unsatisfactory for the environment. If farmers all choose the same option it is likely to reduce the environmental benefit of the measure too. This is a key area for trade-offs and intelligence in combining the most beneficial with the most practical approaches.

4.6 Practical relationship between EFAs, cross compliance and agri-environment

Section 1.4 considered the conceptual relationship between EFAs, cross compliance and AES. In practice, there are important interactions that have wide ranging consequences and deserve further consideration. The two most important and intertwined considerations relate to double funding and payment rates.

4.6.1 Double funding

In the literal interpretation of the EFA measure based on Article 32(1), it is likely that the EFAs will include the areas on a farm made up of existing farmland features with the addition of field margins and a variety of other field-edge, in-field, and whole-field features. Many of these same features are currently managed or available for support under AES (see for example Keenleyside *et al*, 2011). While there are variations between administrations in the quality of AES, such schemes have been designed to ensure the farmer is delivering sufficient environmental services to justify their admission into the scheme and to receive the due payment. An example of the degree to which similar measures to those proposed for EFAs are found currently within agri-environment schemes in the UK is illustrated in Table 4 (Annex 3). This suggests that of the 67 management practices present in the English entry-level agri-environment scheme, Entry-Level Stewardship (ELS), up to 53 have the potential to be considered under the EFA measure (Country Land and Business Association 2011). With the introduction of EFAs, questions arise about the changes that this implies for the payment rates for EFA-like management under AES to avoid double funding.

There is also a degree of overlap between cross compliance and the features included under the EFA measure. For example cross compliance already requires that landscape features be

retained under the GAEC standard for retention of landscape features³⁷. The GAEC requires where appropriate the retention of hedges, ponds, ditches, trees in line, in a group or isolated, field margins and terraces, and including a ban on cutting hedges and trees during the bird breeding and rearing season and possible measures for avoiding invasive species and pests. In addition, Member States are required to introduce standards for water protection including the establishment of buffer strips along water courses³⁸. There will be some variations between Member States application of cross compliance rules.

Clearly there is the potential for significant overlap between EFA requirements and many actions in AES (European Commission 2010b). The base or reference level from which the voluntary agri-environment measure will operate is effectively being raised and as such may necessitate the adjustment of some or all agri-environment contracts post 2014. This would be a significant undertaking and should be handled carefully and with the involvement of contract holders in order to ensure that farmer confidence in long term (five and ten year) land management contracts is not undermined. Practical issues about the timing of any changes to AES agreements will need to be incorporated in the final arrangements for a modified CAP.

4.6.2 Payment rates

As they stand the Commission's proposals would lead to simultaneous changes in AES and cross compliance alongside a new greening layer in Pillar 1. Clearly a new model needs to be coherent in policy terms, workable in administrative and farm management terms and capable of leveraging the best environmental outcome for the resources expended. It will be necessary to alter the baseline and therefore the payment rates for AES because of proposed changes to cross compliance as well as the introduction of greening, including EFAs. If double funding under Pillar 1 and Pillar 2 for measures taken on the same land is to be avoided, both because it would be a waste of resources and a failure to capture the intended environmental benefits of greening adjustments in the baseline or reference level, then it will need to be ensured that current AES options that are the same as those funded via the green direct payments are only eligible for agri-environment payments on land that is not receiving funding for the same actions under Pillar 1.

Farms who have joined existing schemes which include elements that will be part of EFAs in future will, in many cases, find that future payments for the management involved will be drawn from a combination of Pillar 1 greening and Pillar 2 payments. They may also be able to benefit from additional AES measures aimed at tailoring the management of EFAs to maximize their environmental benefit. Consequently the payments they receive for environmental management in relation to the land involved should be stable or increase as a result of the greening initiative, ignoring any changes that arise from alterations in cross compliance, although changes may occur to other elements of their CAP receipts. On the other hand, farmers, particularly arable farmers, who have stayed out of AES, often because they found the payment rates unattractive, will now face a new set of options.

³⁷ GAEC 8 as written in Annex II of COM(2011) 628/3 Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy.

³⁸ GEAC 1 as written in Annex II of COM(2011) 628/3 Proposal for a regulation of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy.

Communication on these issues needs to be extremely clear once the package has been settled, with the delivery arrangements for farmers kept as simple as possible. Agencies administering a revised regime will need some lead time to adapt as well as farmers.

5 CONCLUSIONS

One of the core parts of the European Commission proposals for the reform of the CAP for 2014 to 2020 is to increase significantly the quality of environmental land management on farms throughout Europe. To this end it proposes that as a condition of receipt of direct payments all farms must deliver 'agricultural practices beneficial for the climate and the environment'. Of the three measures proposed the one with the greatest potential to deliver environmental benefit is the Ecological Focus Area (EFA).

Many aspects of the proposals remain unclear and as such this report has focused on the spirit of the proposed EFA measure in its attempt to raise the environmental performance of agriculture in the EU.

The evidence presented in this report makes two broad assumptions. First, that as a result of EFAs, and greening as a whole, the environmental reference level across Member States would be raised. This would ensure complementarity with other CAP measures and the delivery of greater environmental additionality. The second is that the criteria for eligible land for Pillar 1 direct payments could be brought in line with those of the EAFRD to ensure that important environmental features are not excluded from the EFA measure. This also would help to ensure greater complementarity between different CAP measures, limiting the negative impacts on agricultural production and helping to maintain the environmental benefits associated with existing farmland features. However, changes to eligibility rules, if required, will represent a significant undertaking for most Member States in the recording and mapping of EFA features in LPIS.

There is a strong overlap between the EFA concept and many of the specific practices that have been encouraged by AES in Member States over the last decade or more. Because there are formal procedures to monitor and evaluate Rural Development Programmes (RDPs) there is a growing evidence base on the effectiveness of these schemes. Summarising our review in Section 3, the evidence suggests that the principal characteristics for effective implementation of the EFA measure would include:

- consideration of the environmental objectives sought by the EFA measure in each situation;
- the targeting and tailoring of certain types of EFA land to address specific environmental objectives;
- a mix of different environmental features and land types retained and managed throughout different locations within the holding, including in-field, field edge and whole field options;
- retention of these areas for periods greater than one year with associated multi-annual management;

- limits to the agricultural operations that can be carried out on such land specifically the use of inputs (fertilisers and PPPs) and cultivation techniques such as ploughing; and
- the adoption of beneficial management practices either through the EFA measure or through AES.

Section 4 of the report goes on to highlight the value of underpinning these considerations with monitoring and advice to ensure effective environmental delivery as well as providing the necessary clarity regarding how the proposed EFA approach fits in relation to existing measures.

Different farm types and categories of agricultural land will be affected in different ways across the EU. Some areas, such as intensive arable production where modernisation has seen a major reduction in traditional agricultural features, clearly will be affected more by the proposed measure than areas of more mixed and traditional farming. Farmers in intensive areas with few features may seek to lease land on which to apply their EFA requirement. Although from an agronomic perspective this may be a rational response for some farms it would undermine the environmental effectiveness of the EFA measure as a whole, particularly its impact on areas where environmental components in the landscape are most scarce.

Coherence between the EFA measure, agri-environment schemes and the requirements under cross compliance will be important. To be effective in raising the standard of environmental management across the farmed area of the EU, the greening measures as a whole should result in a raised environmental reference level from which the voluntary agri-environment type management will operate. This will require the modification of agri-environment contracts post 2014 both with regard to the actions required and the consequent payment levels. This will be a significant undertaking and will require careful handling and collaboration between a wide range of stakeholders, particularly contract holders.

The proposed EFA measure has significant potential. If the environmental reference level achieved by a large proportion of European farms is raised and those enrolling in AES are subsequently encouraged to deliver more, including enhanced management of EFA land, then significant additionality could be achieved. How much of this potential is realised clearly depends on how the proposals are shaped at EU level and subsequently implemented by Member States, and the attitude adopted by farmers. Critical factors in environmental delivery include the location, permanence, scale and management of EFA and provision of information and advice to farmers. There are now opportunities to consider how such factors are best addressed in the elaboration of the EFA concept.

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ANNEX 1: ARTICLES RELATING TO CROP DIVERSIFICATION AND PERMANENT GRASSLAND

The objectives are set out by the Commission in the following quotations from the Explanatory Memorandum of the proposed Regulation COM(2011)625/3 (European Commission 2010a).

'Agriculture and rural areas are being called upon to step up their efforts to meet the ambitious climate, and energy targets and biodiversity strategy that are part of the Europe 2020 agenda. Farmers, who are together with foresters, the main land managers, will need to be supported in adopting and maintaining farming systems and practices that are particularly favourable to environment and climate objectives because market prices do not reflect the provision of such public goods.'

'This reform accelerates the process of integration of environmental requirements. It introduces a strong greening component into the first Pillar of the CAP for the first time thus ensuring that all EU farmers in receipt of support go beyond the requirements of cross compliance and deliver environmental and climate benefits as part of their everyday activities.'

'Thirty per cent of direct payments will now be tied to greening, and these payments will ensure that all farms deliver environmental and climate benefits through the retention of soil carbon and grassland habitats associated with permanent pasture, the delivery of water and habitat protection by the establishment of ecological focus areas and improvement of the resilience of soil and ecosystems through crop diversification.'

Recital 26 spells out the greening idea in more detail:

'One of the objectives of the new CAP is the enhancement of environmental performance through a mandatory "greening" component of direct payments which will support agricultural practices beneficial for the climate and the environment applicable throughout the Union. For that purpose, Member States should use part of their national ceilings for direct payments to grant an annual payment, on top of the basic payment, for compulsory practices to be followed by farmers addressing, as a priority, both climate and environment policy goals. Those practises should take the form of simple, generalised, non-contractual and annual actions that go beyond cross-compliance and are linked to agriculture such as crop diversification, maintenance of permanent grassland and ecological focus areas.'

The greening payment component is then defined in Chapter 2 of the Regulation entitled 'Payment for agricultural practices beneficial for the climate and the environment', in Articles 29 to 33. Article 29 (1) identifies the three greening 'practises' (sic) as crop diversification, maintenance of permanent grassland and ecological focus areas as follows:

'(a) to have three different crops on their arable land where the arable land of the farmer covers more than 3 hectares and is not entirely used for grass production (sown or natural), entirely left fallow or entirely cultivated with crops under water for a significant part of the year;
(b) to maintain existing permanent grassland on their holding; and
(c) to have ecological focus area on their agricultural area.'

Importantly, Article 29.4 concerned with organic farming, introduces (implicitly) the concept of equivalence to greening measures by proposing that:

'Farmers complying with the requirements laid down in Article 29(1) of Regulation (EC) No 834/2007 as regards organic farming shall be entitled ipso facto to the payment referred to in this Chapter.'

The only further details are laid out in the articles for the three specific agricultural practices for Crop Diversification, Permanent Grassland and Ecological Focus Areas.

Article 30 for Crop diversification,

'Article 30(1) Where the arable land of the farmer covers more than 3 hectares and is not entirely used for grass production (sown or natural), entirely left fallow, or entirely cultivate with crops under water for a significant part of the year, cultivation on the arable land shall consist of at least three crops. None of those three crops shall cover less than 5% of the arable land and the main one shall not exceed 70% of the arable land.'

Article 30(2) The Commission shall be empowered to adopt delegated acts in accordance with Article 55 laying down the definition of a 'crop' and the rules concerning the application of the precise calculation of shares of different crops.'

Article 31 Permanent grassland

Article 31(1) Farmers shall maintain as permanent grassland the areas of their holding declared as such in the application made pursuant to Article 74(1) of Regulation No XXX (HZ) for claim year 2014, hereinafter referred to as 'reference areas under permanent grassland.'

The reference areas under permanent grassland shall be increased in cases where the farmer has an obligation to revert areas into permanent grassland in 2014 and/or 2015 as referred to under Article 93 of Regulation (EU) No [...] HZR.

Article 31(2) Farmers shall be allowed to convert a maximum of 5% of their reference area under permanent grassland. That limit shall not apply in the case of force majeure or exceptional circumstances.

Article 31(3) The Commission shall be empowered to adopt delegated acts in accordance with Article 55 laying down rules concerning the increase of reference areas under permanent grassland as laid down in the second subparagraph of paragraph 1, the renewal of permanent grassland, the reversion of agricultural area into permanent grassland in case the authorised decrease referred to in paragraph 2 is exceeded, as well as the modification of the reference area under permanent grassland in case of transfer of land.

For completeness the definition of permanent grassland is contained in Article 4(1)

Article 4(1) h "Permanent grassland" means land used to grow grasses or other herbaceous forage naturally (self-seeded) or through cultivation (sown) that has not been included in the crop rotation of the holding for five years or longer; it may include other species suitable for grazing provided that grasses and other herbaceous forage remain predominant;

Article 4(1) i "grasses and other herbaceous forage" means all herbaceous plants traditionally found in natural pastures or normally included in mixtures of seeds for pastures or meadows in the Member State (whether or not used for grazing animals);

Article 32 Ecological focus areas

Article 32(1) Farmers shall ensure that at least 7% of their eligible hectares as defined in Article 25(2), excluding areas under permanent grassland, is ecological focus area such as land left fallow, terraces, landscape features, buffer strips and afforested areas as referred to in article 25(2)(b)(ii).

Article 32(2) The Commission shall be empowered to adopt delegated acts in accordance with Article 55 to further define the types of ecological focus areas referred to in paragraph 1 of this Article and to add and define other types of ecological focus areas that can be taken into account for the respect of the percentage referred to in that paragraph.

Finally, Article 33 spells out that, for the purposes of these greening payments *'Member States shall use 30% of the annual national ceiling'*

This is the full extent of the information officially available on the purpose, nature and approach to implementing the greening proposals as confirmed in the Commission's impact assessment (European Commission 2010c). The proposals therefore leave a great deal to be interpreted and further defined, which may not occur until the publication of the proposed delegated acts. This does give space to consider further how the greening could be implemented, and perhaps influence the drafting of these acts.

ANNEX 2: DESCRIPTION OF ENVIRONMENTAL FEATURES AS LISTED IN TABLE 2

Traditional farmland features

Hedgerows

Hedgerows are linear features that often consist of rows of short trees with a developed scrub layer. They are traditionally used as boundary features to prevent livestock movement and to demark parcel boundaries.

Stone walls (including terrace walls)

Stone walls and terrace walls are usually linear features comprised of (usually) local stone arranged (usually) without mortar to form boundary walls. Traditional stone walls vary in height and width throughout the EU, they can be topped with earth, be placed on top of an earth bank etc. They are traditionally used as boundary features to prevent livestock movement and to demark parcel boundaries. Terrace walls are used as a retaining feature to enable the creation of level areas of ground on sloping terrain in order to grow crops.

Ditches

Ditches are linear water features found usually in lowland and wet areas such as large parts of the Netherlands or the East of England. In such areas ditches often have a dual role in acting as a drainage channel to maintain water levels and as a boundary feature to prevent livestock movement and to demark parcel boundaries.

Banks

Linear landscape feature consisting of a bank of earth usually at the field edge and often associated with aquatic features such as ditches, rivers and dykes.

Field corners

Field corners are similar to *grass buffer strips* and *wildlife strips* but are specifically located in field corners or areas of fields which are often difficult to reach with machinery and are often less productive.

Terraces

Terraces are raised, flat-topped banks of earth, created to control erosion and provide flat surfaces for farming on sloping land, and are usually constructed with a retaining dry-stone wall.

Archaeological features

Archaeological features describe unfarmed features that form part of the archaeological heritage of an area or place. These can include sub-surface archaeology such as burial mounds or can include features which are clearly visible such as a monoliths or ruins.

Ponds

Ponds can include small traditional ponds included in fields for cattle rearing purposes or more naturally forming areas of standing water.

Trees: single, lines, groups

As the name suggests these features are variations in the grouping of single trees. These can represent traditional remnants of rural landscapes such as the isolated single trees of old parkland systems, or can be part of modern agricultural landscapes such as lines of Poplar trees used as wind brakes.

Fallow (part and whole field)

Fallow describes those parts or whole field areas that are left uncultivated throughout one rotational period. Fallow can include the use of plant protection products and ploughing to prevent the establishment of weeds, however this is not recommended if fallow areas are to deliver environmental benefits.

Other features

Grass buffer strips

Buffer strips are linear features characterised by a grassy appearance with herbs. They are mainly situated at the boundaries of cropped fields adjacent to features such as hedgerows or trees or adjacent to water features.

Wildlife strips, seed mixes, game bird areas and conservation headlands

These areas describe an area of land (strip or patch) managed specifically for the purposes of wildlife management. Wildlife strips and game bird areas can be similar to grass buffer strips but with the addition of planted vegetation and seed mixes to provide food and habitat resources for different species. Conservation headlands and some game bird areas describe areas of a crop, often a strip, which is left unsprayed and clear of plant protection products. Game bird areas can also be placed infield.

Skylark plots

These are unsown plots or areas within a crop (or grass plot) aimed at providing nesting and forage areas for birds (eg skylarks).

Beetle banks

Beetle banks are ridges which run from one side of a field to the other while still allowing the field to be farmed. They are usually covered with grassy vegetation but can include other wildflowers and plants and provide habitat for ground-nesting birds, small mammals and insects (including those that feed on crop pests).

Wet areas

Wet areas are small marshy or damp areas of a field that are either naturally forming or have been created as part of agri-environment management or other forms of intervention. They differ from ponds in that the area may not remain wet for the whole year and can often represent marshy ground as opposed to a standing body of water.

Features outside of cultivated areas

Certain afforested land

Referring specifically to Article 25(2)ii or the proposed regulation on direct payments (COM(2011)625/3. The proposed regulation describes these areas as afforested pursuant to

Article 31 of Regulation (EC) No 1257/1999 or to Article 43 of Regulation (EC) No 1698/2005 or under a national scheme the conditions of which comply with Article 43(1), (2) and (3) of Regulation (EC) No 1698/2005 and Article 23 of Regulation (EU) No [...] [RDR];

Small areas of woodland

Small areas of woodland are part of many of the traditional farmland landscapes across the EU. Small is a relative term which will likely vary between Member States but may include areas less than three hectares in size comprised of mainly native tree species.

Restored and recreated habitats

This term is used to capture those semi-natural habitats on a holding that are not utilised for agricultural production and have been restored or recreated through agri-environmental management or other forms of intervention. These areas are usually significant areas of habitat that can comprise whole fields.

COMPARISON OF EFA MEASURE AND THE AGRI-ENVIRONMENT MEASURE

relationship between the EFA measure and Environmental Stewardship

ELS Option	Unit	Points	Beneficial to climate and environment	Ecological Focus Area	Focus of the measure			
					Biodiversity	Soils	Water	Climate
farm Environment Record	ha	3	1		1	1	1	1
hedge management both sides	100m	22	1	1	1			
hedge management one side	100m	11	1	1	1			
enhance hedge management	100m	42	1	1	1			
stonefaced hedgebank management both sides	100m	16	1	1	1			
stonefaced hedgebank management one side	100m	8	1	1	1			
ditch management	100m	24	1	1	1			
half ditch management	100m	8	1	1	1			
combined hedge and ditch management + EB1	100m	38	1	1	1			
combined hedge and ditch management + EB2	100m	26	1	1	1			
combined hedge and ditch management + EB3	100m	56	1	1	1			
stonewall protection and maintenance	100m	15	1	1	1			
earth bank management both sides	100m	14	1	1	1			
earth bank management one side	100m	7	1	1	1			
protection of infield trees on arable land	tree	16	1	1	1			1
protection of infield trees on grassland	tree	11	1	1	1			1
Maintenance of woodland fences	100m	4	1	1	1			
Maintenance of woodland edges	ha	380	1	1	1			
establishment of hedgerow trees by tagging	tree	1	1	1	1			1
hedgerow tree buffer strips on cultivated land	ha	400	1	1	1			
hedgerow tree buffer strips on grassland	ha	400	1	1	1			
Maintenance of weatherproof traditional farm buildings	M2	2	1	1				
take out of cultivation archaeological features on cult land	ha	460	1					
reduced depth, non-inversion cults archaeological features	ha	60	1					
Management of scrub on archaeological features	ha	120	1					
Management of archaeological features on grassland	ha	16	1					
5M Buffer strips on cultivated land	ha	300	1	1	1			1
10M Buffer strips on cultivated land	ha	400	1	1	1			1
15M Buffer strips on cultivated land	ha	400	1	1	1			1
5M Buffer strips on grassland	ha	300	1	1	1			1
10M Buffer strips on grassland	ha	400	1	1	1			1
15M Buffer strips on grassland	ha	400	1	1	1			1
Offering in-field ponds in improved permanent grassland	ha	400	1	1	1	1	1	1
Offering in-field ponds in arable land	ha	400	1	1	1	1	1	1
5M buffer strips on cultivated land next to watercourse	ha	400	1	1	1	1	1	1
10M buffer strips on intensive grassland next to watercourse	ha	400	1	1	1	1	1	1
Management of field corners	ha	400	1	1	1	1	1	
Wild bird seed mix	ha	450	1	1	1			
ectar flower mix	ha	450	1	1	1			
Overwinter stubble	ha	120	1	1	1			
Beele banks	ha	580	1	1	1	1	1	
skylark plots	plot	5	1	1	1			
In-fertilised cereal headlands	ha	100	1	1	1			
In-harvested cereal headlands	ha	330	1	1	1			
In-cropped cultivated margins for rare plants	ha	400	1	1	1			
In-cropped cultivated areas for ground nesting birds on arable land	ha	360	1	1	1			
Reduced herbicide cereal crops followed by overwintered stubble	ha	195	1	1	1			
Extended overwintered stubble	ha	410	1	1	1			