

**Working Paper 1**

Factors Influencing Farmer Participation In Agri-Environment Schemes (AES) – Evidence From The Social Sciences

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# Executive Summary

The Brexit referendum in 2016 and the electorate’s decision for the UK to leave the European Union (EU) has provided the Government with an opportunity of redesigning the governance arrangements of UK agricultural land use for the first time since the country was incorporated into the EU's Common Agricultural Policy (CAP) in 1973. Determined to achieve a 'Green Brexit', the Government has tasked the Department for Food, Environment and Rural Affairs (Defra) and its key delivery partners (including Natural England (NE)) with the design of a new environmental land management system of payments and new agri-environment schemes (hereafter ELMs). ELMs will provide UK farmers and others with annual payments for the production of 'public goods for public money’, which, according to the Government’s 25-year environment plan, include enhanced biodiversity, improved soil, water and air quality.

ELMs will replace the current EU CAP system under which claimants are allocated payments based upon the amount of land they own, and agri-environment schemes (AES) currently in operation will gradually be phase out. The changes now agreed upon have the potential to affect as many as 218 000 agricultural holdings and 70% of UK land – some 17.4 million hectares. It is paramount to get ELMs right, and Defra is committed to achieving this with as many stakeholders as possible, including farmers and land managers. To test innovative mechanisms of ELMs in practice, ‘Trials and Testing’ projects are currently undertaken. These will be followed by national pilots in 2021. The full rollout of the new schemes is envisaged to commence in 2024, depending on political decisions and negotiations. Apart from stakeholder inputs and the experiential knowledge of farmers and land managers, the design of ELMs will rely heavily on natural- and social science knowledge.

This Working Paper (WP) draws together social science evidence on factors found to influence the decision of farmers to participate in agri-environment schemes (AES) and undertake pro-environmental management activities. It provides recommendations to policy makers based on this evidence. The WP summarises key findings of 34 peer-reviewed articles published in academic journals between 1983-2018 that are either detailed empirical studies or literature reviews focused on England, Scotland and Wales. These articles generally reference other case studies and papers, and apart from drawing on their own empirical research, their analyses and conclusions were informed by over 160 case studies. Unpublished reports produced by Natural England since 2016 were also consulted and are referenced in the text where discussed. **Key questions** addressed by the WP, identified by academics from the University of Sheffield together with social scientists from Defra and NE, are:

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| * *What motivates farmers to engage in ELM initiatives and maintain positive environmental practices/behaviours?* * *What motivates farmers to embrace change and take up conservation management?* * *What factors influence transitions and motivate change in management behaviours?* * *What are the messages for policy making and scheme design derived from the evidence gathered on farmer participation in ELM?* |

Among the key messages for policy makers from the review are that farmers are not a homogenous group; they differ from each other in how, when and why they make decisions related to their holdings. Typologies or segmentations of different farming styles, sectors and individual farmer identities (based on empirical research) can serve as organising frameworks for understanding diversity and be useful for targeting policy messages. However, they are of limited utility when it comes to explaining *why* farmers decide to join or not to join AESs and undertake pro-environmental management activities. Although economic capital in the form of financial incentives is an important motivating factor for joining a scheme, other forms of capital - referred to by social scientists as social and cultural capital - are equally significant in influencing farmer decision-making in that regard: the size and characteristics of a farmers’ social network, his/her trust in governmental institutions, his/her ability to gain access to group resources (e.g. information and cooperation), his/her acceptance into a group and standing within the group; his/her notion of what constitutes ‘good farming’ and good farming outcomes (e.g. tidy landscapes). Like economic capital, social and cultural forms of capital can be accumulated or lost: resources in the form of social relations, knowledge, skills, credentials, and culturally significant objects (e.g. immaculately kept fields or well-maintained holdings). These resources increase or decrease a farmer’s standing within the communities and social groups they belong to and whose opinion they value. Considering them during the planning stage of a new scheme could result in the design of better schemes, better scheme uptake, and the achievement of better results. Unsurprising, there is strong evidence to suggest that involving stakeholders – especially farmers and land managers – in scheme design would be highly beneficial. Co-design can help strengthen relationships and build trust and mutual understanding between participants. This, in turn, can generate social and cultural capital, prevent disengagement, and increase trust in government. In the context of public policy, it has been found that co-design creates ‘a feeling of involvement and ownership’[[1]](#footnote-2) by generating ‘a shared understanding and shared language between participants and designers’ and by supporting ‘a sense of immersion, dialogue and empathy for the perspective of those who will use and experience the design’.[[2]](#footnote-3) Responsibility and control are often devolved to users of services in public services design efforts – something the Government aims to achieve in the case of ELMs co-design –, meaning that users become active partners in designing, shaping and resourcing services rather than being just passive recipients (Tsouvalis and Little, 2019)

Below, these key findings are summarized in boxes, followed by a set of policy recommendations. This is followed, on pp. 16-30 by an in-depth discussion that adds contextual and analytical depth to the findings presented and more detailed advice (pp. 31-37) on how the successful co-design of ELMs might be achieved.

# Key Findings

Social science research into farmer participation in AES spans nearly half a century and provides a wealth of knowledge for the design of better, more relevant, and more practical ELM schemes. While there are factors that impact on farmer decision-making regarding AES uptake that policy can do little about (e.g. physical farm characteristics, farm type (e.g. dairy, livestock, arable), farm labour, farmer age, and farmer health) others, if taken into consideration during the planning stage, can lead to the design of schemes that support and encourage farmers to undertake pro-environmental management activities and achieve ELM objectives. These are summarized in the boxes below.

**Key finding 1**

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| Farmers are a heterogeneous professional group; they follow diverse and dynamic development pathways. Farmer typologies, segmentation and behavioural profiles have limited utility in predicting farmer decision-making and should not be mistaken for fixed behavioural pathways that farmers will follow. [[3]](#footnote-4) They can capture maximum similarities within each type and maximum variation within types and be usefulness for informing the targeting of policy messages.[[4]](#footnote-5) However, to explain farmer decision making, a broad range of social, cultural, economic, political, bio-physical and historical factors needs to be considered. |

**Key Finding 2**

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| Financial incentives are only one of many factors that influence farmer decision-making regarding pro-environmental management. Others include personal, socio-cultural, economic, bio-physical, and historical ones and are in constant interplay. For example, implemented past decisions can impact on present-day possibilities. Their success or failure can affect how new challenges and opportunities are met. Concerns about the future (e.g. the long-term survival of the farm) can also impact on the decision to participate in an AES. |

**Key Finding 3**

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| The size and characteristics of farmers’ social networks, their trust in governmental institutions and officials, their ability to gain access to group resources (e.g. information and cooperation), their acceptance into a group, and their standing within a group influence how they take decisions and why they act in certain ways. These parameters and resources are referred to by social scientists as *social and economic capital*,and like economic capital, can be both accumulated or lost over time. Economic-, social-, *and* cultural capital are important factors in pro-environmental management and need to be considered in scheme design. |

**Key Finding 4**

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| ‘Good farming’ and ideas of what makes a ‘good farmer’ are predominantly rooted in productivism and linked to industrialized, intensive, food-production orientated farming practices. Long-term changes in environmental attitudes and farming practices can only be achieved if agri-environmental measures come to be seen by farmers as ‘good farming’. ELMs need to build on farmers’ personal and intrinsic motivations for participation (e.g. their love of nature, pride in acting as the stewards of the countryside, and feelings of duty), and create opportunities for them to share their conservation achievements with others and with society at large, as they currently can through ‘tidy’ farming landscapes and healthy livestock. |

**Key Finding 5**

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| Lessons learnt from pilot projects - including about farmer identities, family priorities and the practicalities and benefits of conservation activities – can act as important starting points for conversations about the future of land management between policy makers and farmers. Demonstration farms and organized farm visits play a key role in knowledge- and information exchange about pro-environmental management activities and schemes. |

**Key Finding 6**

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| Farmers who cooperate to achieve environmental objectives that extend beyond their individual farm holdings are more likely to develop positive attitudes towards the environment long-term. Group dynamics experienced by farmers who cooperate with each other to achieve landscape-scale environmental benefits play a key role in shaping how pro-environmental activities are perceived and valued. Long-term cooperation can lead to changes in socio-cultural and environmental norms, such as the perception of what counts as ‘good farming’ and is vital for the achievement of landscape scale benefits. |

**Key Finding 7**

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| Scheme design impacts on the take-up, implementation and success of a scheme. Farmers are more likely to incorporate AES requirements if schemes align well with their existing business plans, farming systems, and natural environments. Where farmers can identify with and support the objectives of a scheme and its conservation goals, success is more likely. Where farmers perceive the positive effects of their scheme activities on the landscape, they are more likely to enter into it. |

**Key Finding 8**

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| Stakeholder participation and end-user involvement in scheme co-design are key to designing schemes that are relevant, practical, and implementable in diverse contexts. Research evidences the many benefits that can be gained from involving farmers, land managers, government representatives, business people, and others in scheme design, the setting of conservation goals, and the development of strategies needed to achieve them. Involving farmers who have a history of environmental management and those involved in tests & trials and pilots is likely to further enhance the success of the new ELM policy and its associated schemes. |

# Recommendations

* **Key findings 1 & 2:** For the new ELM schemes to be successful, they should be attuned to the complex set of factors that influences farmer decision making and to the fact that farmers and land managers are heterogenous professional groups. ELM might design-in and highlight ‘hooks’ which would encourage farmers with different world-views and values to participate. This would point to potential barriers to certain types of farmers participating and to addressing them early on.
* **Key finding 3:** Agri-environmental policy needs to take account of social and cultural capital and their influence on farmer decision-making. Potential losses of social or cultural capital and the fear of farmers of these losses should be considered by ELMs planners and designers as they can act as a powerful hinderance to scheme uptake. ELMs could be designed in ways that foster the growth of social and cultural capital on the farm, for example, by enabling farmers to enact and display skilled behaviour in relation to environmental activities. Opportunities for this could be offered on demonstration farms, pilot farms, and through initiatives and events that farmers involved in ELMs could participate in or stage to share their experiences with others and to make their efforts of producing public goods known to the public.
* **Key finding 4:** The ability to display the skills needed to produce public goods and to share the benefits of ELMs engagement with others – particularly other farmers and land managers – should result in these skills gradually becoming associated with ‘good farming’ and a ‘good farmer’ identity. ELMs policy should create opportunities for achieving this – such as providing support for farmer discussion groups or facilitating farm visits (both for other farmers and for the public) – to foster ‘good’ farming images that are decoupled from productivist farming practices and linked to the multiple public and environmental benefits of farming, including sustainable food production.
* **Key finding 5:** Agri-environmental policy could have built-in support for test and trial projects, pilots, ELM-advocates and demonstration farms, all of whom can act as champions of the benefits of ELMs. Mechanisms should be put in place to make sure that the knowledge and experience gather through them is widely distributed and shared across the farm-extension community, and funding should be allocated for farmers and other stakeholders, including the public, to visit pilot- and demonstration farms.
* **Key finding 6:** ELM policy should provide for the development of initiatives of environmental cooperation and agri-environment networks. Informal networks, such as farmer discussion groups, could also be facilitated as they can play an important role in increasing the awareness of farmers of environmental concerns and the schemes available to address them. A coherent policy and advice framework, in which regulations and incentives (including for cooperation) are important elements for signalling societal norms and expectations will support farmers in coming to perceive pro-environmental activities as ‘good farming’. This could help overcome the deeply entrenched view that productivist farming and farming for environmental outcomes fundamentally stand at odds with each other, which hinders AES participation.
* **Key finding 7:** Scheme design impacts on the take-up, implementation and success of a scheme. Different designs appeal to different sections of the farming community and need to have the flexibility to be tailored to their existing business plans, farming systems and circumstances, and natural environments. Farmers need to be able to identify with and support the objectives of a scheme and its conservation goals, adapt it to their farm, and understand the positive effects that scheme activities are having on the landscape.
* **Key finding 8:** Stakeholder participation and end-user involvement in scheme co-design are key to designing schemes that are relevant, practical, and implementable in diverse contexts. Stakeholder engagement in scheme design has many mutual benefits; it empowers people to develop schemes and strategies for implementation that work in the context of their everyday lives and activities, benefits scheme uptake, and fosters success and the delivery of the objectives to be achieved.

## Introduction

The Government has pledged to maintain current levels of funding for farm support until the end of this Parliament (Defra, 2018a). To achieve a 'Green Brexit', it has tasked the Department for Food, Environment and Rural Affairs (Defra) and its key delivery partners, including Natural England (NE), to design a new environmental land management system of payments and associated schemes (ELMs). ELMs will replace the current EU CAP system which allocates payments based upon the amount of land claimants own and are likely to replace the current Entry Level Stewardship (ELS) and Countryside Stewardship (CS) approaches. New innovative ELMs mechanisms are currently being tested through a ‘Trials and Testing’ programme (the first round of projects was approved in 2019), to be followed by national pilots in 2021. ELMs aim to offer a reduction in prescription and bureaucracy, increased participation, and environmental improvements countrywide. Public money will be allocated for multi-annual agreements to support UK farmers to produce and deliver a range of public goods, which are set out in the Government’s 25-year environment plan. They include:

* clean air
* clean and plentiful water
* thriving plants and wildlife
* reduced risk from environmental hazards such as flooding and drought
* sustainable and efficient use of natural resources
* enhanced beauty, heritage and engagement with the natural environment.

Approximately 70% of the UK’s land area is currently under agriculture (some 17.4 million hectares), and around 466,000 people worked in the UK agricultural sector in 2016. There were 218,000 agricultural holdings. Taking the broader agri-food sector into account, such as the manufacture, distribution and preparation of food in catering establishments, the workforce associated with agriculture exceeds 3.5 million people or 13% of the UK’s total workforce. In 2015, the agri-food sector contributed £109 billion to the UK economy, which is around 6.6% of the national Gross Value Added (GVA).[[5]](#footnote-6)

### Approaches to encouraging the delivery of public goods through

### land management

To prevent and reverse the negative impacts of productivist agriculture on the environment, different policy instruments and approaches are available. They include:

* ***Regulation*:** law enforced directives and statutes that farmers and land managers have to follow to safeguard the environment
* ***Agri-environment schemes (AES)*** (*subsidised environmental activity*)***:*** financial incentives for farmers to carry out activities that benefit the environment
* ***Voluntary approaches*** (*unsubsidised environmental activity*)***:*** encouragement for farmers to care for the environment without regulatory requirements or financial rewards
* ***Industry-led agri-environment initiatives:*** promoted by agricultural producer groups to dissuade the Government from introducing further environmental regulations and controls
* ***Government supported industry-led partnerships:*** work with farmers and advisers to embed environmental management principles in farming businesses for which they receive no financial reward (e.g. the Campaign for the Farmed Environment (CFE) in England, a partnership of agricultural industry and environmental organisations that wants to safeguard and improve the environmental condition of agricultural habitats and landscapes).

### 1.2 Current agri-environment schemes (AES)

Different types of AES that were introduced in Britain under the CAP are currently in operation. The Environmental Stewardship Scheme (ESS) for England, which is funded by the Rural Development Program for England (RDPE), was closed to new applicants in 2014. Existing agreements will continue in operation until their agreed end date. The ESS is being replaced by the new Countryside Stewardship Scheme (CSS) opened in 2015, which was considerably improved for 2018 applications. It launched four new, improved mid-tier offers for wildlife, making it simpler and easier for farmers and land managers to apply.

In terms of **expenses**, in 2017

* England spent £350 million on its *ESS* and *CSS* schemes;
* Scotland spent £15 million under the Scottish Rural Development Programme (SRDP) on its *Rural Priority and Land Manager option scheme*;
* Wales spent £56 million under its Rural Communities Rural Development Programme on its principal agri-environment scheme, *Glastir*; and
* Northern Ireland spent £3 million under the new Rural Development Programme on its *Northern Ireland Countryside Management Scheme* (Defra 2018a, pp75-76).

The **area of land** under AES in England, Wales, Scotland and Northern Ireland is detailed in Defra’s (2018a) report ‘Agriculture in the United Kingdom, 2017’. In England in 2017

* 2.8 million hectares of land were managed under the Entry Level Scheme of the (ESS);
* 1.2 million ha were managed under the Higher Level Scheme; and
* 221’000 ha of land (mid- and higher tier strands only) were managed under the new CSS (the first agreements went live in 2016).

Concerning **numbers of agreements**, in 2017 there were 17,000 ESS Entry Level Scheme agreements and 12,500 ESS Higher Level Scheme agreements in England. 6,000 agreements had been entered into under the new CSS; 3,900 more than in 2016 (Defra, 2018a).

### 1.3 Reforming agri-environmental governance post-Brexit

The UK Government considers exiting from the European Union as an opportunity to develop new approaches to agri-environmental governance and to motivating farmers and land managers to embark on pro-environmental activities. The approach taken by the Government is guided by natural capital principles, which it believes will ensure ‘that the benefits the natural environment provides for people and wildlife are properly valued and used to inform decisions on future land management'[[6]](#footnote-7). The objectives of the new ELMs are aligned with the delivery of the public goods outlined in the 25 Year Environment Plan and the Clean Growth Strategy and include clean air; clean and plentiful water; thriving plants and wildlife; reduced risk of harm from environmental hazards such as flooding and drought; using resources from nature more sustainably and efficiently; enhanced beauty, heritage and engagement for the natural environment and mitigating and adapting to climate change (Defra, 2018a). The new schemes will be introduced in the following parliament.

***Elements of the new schemes as outlined in Defra’s (2018) Health and Harmony report (Defra, 2018b) include:***

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| * *Future Environmental Land Management schemes (ELMs) will offer multi-annual agreements to support the delivery of valuable environmental improvements countrywide* * *The new ELMs will offer a reduction in prescription and bureaucracy to encourage participation and enable environmental improvements to occur countrywide* * *Land managers will be incentivised to cooperate to secure environmental improvements at landscape and catchment level* * *Capital grants could be available to support land managers in adopting sustainable practices and to reduce negative environmental impacts in a transition towards a fuller application of the ‘polluter pays’ principle* * *New approaches will continue to be trialled to achieve better environmental outcomes and improve value for money* * *Different payment options will be investigated to enable fair rewards and strong incentives for participation, in return for increased levels of public benefits from improved environmental outcomes* |

To devise ELMs, the Government is considering the expertise of a wide range of stakeholders – ranging from farmers to food producers to environmental experts and others, across Britain - in every stage of the development process of ELMs. It intends to draw on the best available natural- and social science evidence to ensure that the new agricultural policy will benefit British farmers, the environment, consumers, taxpayers and the wider rural community alike. This Working Paper (WP) forms part of the endeavour of co-designing ELMs. Based on social science research, it outlines key factors that have been found to influence farmer participation in AES and motivate them to undertake activities that benefit nature and the environment. It highlights key findings from social science research that policy makers can use to co-design the new ELMs and provides policy recommendations based on these findings.

A considerable amount of knowledge has been accumulated by social scientists about farmer participation in AES since they were first introduced under the CAP, and about the quality of participation in schemes. This WP draws together findings from an academic literature review conducted under the Defra-funded project ‘Brexit and the Environment: Using social science to redesign Environmental Land Management payments’ by social scientists from the University of Sheffield in 2018. Together with Defra-NE’s joint ‘Social science evidence for improving Environmental Land Management policy outcomes’ project, it forms part of Defra’s Future Farming (post-Brexit) policy development work and supports NE in its development of a Greener Farming Programme. Associated reports that policy makers co-designing the new ELMs will also find useful include Hall (2014[[7]](#footnote-8); 2018[[8]](#footnote-9)), Rose (2018)[[9]](#footnote-10) and Rose *et al* (2018)[[10]](#footnote-11). This WP presents, synthesises and discusses social science data from studies of farmer participation in previous and current AES to aid ELM policy development for improved environmental outcomes. It highlights evidence gaps and offers policy recommendations derived from this data. A separate WP on co-design and co-production complements it. Where relevant materials overlap, they are included in both papers. A third WP on farm advice, authored by NE (Brockett, B 2019), also forms part of this WP series.

## Methodology

The objective of the study of ‘Farmer participation in AES’ was to elicit sound social science evidence for the development of post-Brexit agricultural policy and the design of the new ELMs. Data collection methods used for the study were the traditional or narrative literature review and the meta-synthesis. The former entailed collecting data from a body of literature made up of relevant studies and knowledge that address the subject area. As a formal data collection process, this involved gathering information in a targeted, comprehensive way and critically assessing it. The literature review formed the basis of what Sandelowski and Barroso (2007) refer to as a meta-synthesis, where a set of related research questions is addressed for the purpose of integrating results. A meta-synthesis is a non-statistical technique which involves activities such as identifying, recording, analysing, integrating, evaluating and interpreting findings of multiple qualitative research studies and qualitative studies with a quantitative element with the purpose of identifying common core elements and themes and identifying evidence gaps and inconsistencies in a body of knowledge. We selected these methods to provide an overview of best available current knowledge of farmer participation in AES and farmer’s reasons for undertaking pro-environmental management activities to aid Defra and its delivery partners in the co-design of the new agricultural policy and ELMs. The review focused on key questions identified by academics from the University of Sheffield together with social scientists from Defra and NE. They were:

* *What motivates farmers to engage in ELM initiatives and maintain positive environmental practices/behaviours?*
* *What motivates farmers to embrace change and take up conservation management?*
* *What factors influence transitions and motivate change in management behaviours?*
* *What are the messages for policy making and scheme design derived from the evidence gathered on farmer participation in ELM?*

Answers to these questions were sought in studies of farmers and their engagement with AES undertaken in different parts of the UK over the past four decades (1983-2018). Two comparative studies of farmers based in other EU countries were also considered, as was one focusing on the conservation activities of farmers in the US. These were consulted for informative and comparative purposes. References to specific papers are provided in the footnotes and the bibliography. These are indicative of the range of evidence consulted and/or show the most robust/recent examples (‘robust’ here refers to papers that covered a large number of references or provided findings from in-depth empirical work). In total, 34 peer-reviewed articles detailing or analysing empirical studies and published in main stream journals were analysed for this report. As most articles discussed or cited other case studies and papers, in total well over 160 thematically related studies informed the evidence presented in this Working Paper.

## Key Findings - Discussion

#### ‘Farmers’ are not a homogenous group; typologies, segmentation and behavioural profiles are of limited utility

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| Farmers are a heterogeneous professional group; they follow diverse and dynamic development pathways. Farmer typologies, segmentation and behavioural profiles have limited utility in predicting farmer decision-making and should not be mistaken for fixed behavioural pathways that farmers will follow. They can capture maximum similarities within each type and maximum variation within types and be useful for informing the targeting of policy messages.[[11]](#footnote-12) However, to explain farmer decision making, a broad range of social, cultural, economic, political, bio-physical and historical factors needs to be considered.[[12]](#footnote-13) |

Farmers are a heterogeneous professional group and differ in their decision-making from each other. Farm-specific, local, regional, national and international factors impact on farming practices and attitudes. Their effects on scheme uptake is significant. For the new ELM schemes to succeed in embedding pro-environmental behaviour change and increasing environmental ambition into policy, taking wider agricultural practice, economic, social and cultural drivers into account is essential.*[[13]](#footnote-14)*

Much effort has been expended into devising farmer typologies and behavioural profiles to explain farmer behaviour in the social sciences since the early twentieth century. However, they need to be treated with caution as they are based on the motivations, objectives, values, attitudes and behaviours of *individuals*. Ashby (1926), for example, identified four main groups of *motivations* among farmers regarding their work:

1. a desire for economic advantage/a fear of economic need;
2. a hope of reward/a fear of punishment;
3. a feeling of honour and striving for recognition/a fear of shame;
4. a need for occupation and pleasure in activity

However, he recognised that individuals do not operate in isolation and emphasised the importance of considering the socio-cultural context of their life and the role played by their sense of belonging, identity and self-worth in decision-making. Behavioural studies carried out from the 1970s onward have tended to base their typologies on the *values* of farmers, considering them as important predictors of environmental behaviours. Values are commonly identified through questionnaire responses to a range of statements. Gasson’s classic study from 1973 identified four broad ‘value orientations’ among farmers:

1. ‘instrumental’ (making money, expanding the business)
2. ‘social’ (gaining prestige, supporting the family, maintaining a tradition)
3. ‘expressive’ (self-respect, creativity, responding to challenges) and
4. ‘intrinsic’ (independence, enjoyment of work tasks, lifestyle preference).[[14]](#footnote-15)

Gasson found that the predominant value orientation among UK farmers was intrinsic, indicating that profit maximisation was *not* a dominant motive for farmers even when operating in a highly commercialized agricultural environment. During the mid-1990s, the notion that farmers constitute a coherent attitudinal group was increasingly questioned and the view of farmers as individual actors and decision-makers begun to lose credibility.[[15]](#footnote-16) The impact of social conditions and farming cultures was recognized.[[16]](#footnote-17)

In regard to AES participation, behavioural research evolved from a focus on uptake quantification. Through profiling of AEP participants, it aimed at deriving an understanding of the attitudes, motivations and behaviours of participants and non-participants. This research highlights that a complex mix of personal, family, farm business, and external contextual factors influence the ‘willingness' and ‘ability' of farmers to participate in AES.[[17]](#footnote-18)

Brockett (2019)[[18]](#footnote-19) notes that typologies or segmentations of different farming styles, sectors and individual farmer identities derived from empirical research can serve as useful organising frameworks by capturing maximum similarities within each type and maximum variation within types. However, she emphasises that they should only be taken as a rough guide to understanding farmer behaviour as they obscure important differences within- and similarities between identified groupings. Typologies are based on specific assumptions and tend to ignore interactions between different types of farmers, farmers moving between different types over time, and gaps between what people say they value and what they actually do in practice (referred to as the ‘attitude-behaviour gap’) (Burton and Wilson 2006).

Brockett notes that typologies designed to understand the uptake of innovation within the farming industry, which could be taken as a proxy for the willingness to consider changes to land management practice such as engaging in pro-environmental activities, show that it is in general younger, better educated farmers as well as owner-operators and operators of large land-bases that are more likely to diversify.[[19]](#footnote-20) Diversification in general tends to be undertaken by smaller farms as a ‘survival’ strategy, but by larger farms as an ‘accumulation strategy’ (i.e. to accumulate and generate more wealth).[[20]](#footnote-21)

These insights could prove useful for the assessments of the level of advice and resources that certain farmers will need to help them make the decision to change their management behaviour in the first place. However, Barnes and Toma (2012) have found that innovative farmers are not necessarily the ones who are open to introducing environmental management practices. Indeed, Dampney *et al* (2001) suggest that less profit-orientated farmers often tend to be the ones to expend more effort on conservation, and those who value farming as a way of life, as opposed to simply a business enterprise, tend to be conservation innovators. Risk aversion also impacts on the decision to embark on environmental management, with those less averse to risk being more likely to embark on environmental innovation (Ervin 1982).

#### Farmer decision-making - a highly complex and dynamic process

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| Financial incentives are only one of many factors that influence farmer decision-making regarding pro-environmental management. Others include personal, socio-cultural, economic, bio-physical, and historical factors which are in constant interplay and subject to temporal dynamics. For example, implemented past decisions can impact on present-day possibilities. Their success or failure can affect how new challenges and opportunities are met. Concerns about the future (e.g. the long-term survival of the farm) can also influence the decision to participate in an AES. |

Considerable variations exist between *how* farmers take decisions and *why* they take them. Personality, age, education, ownership, economic circumstances, values, perceptions, bio-physical factors and the socio-cultural environments in which farmers live and work all influence how they respond to and engage with environmental land management. Temporal factors, such as past decision-making experiences and concerns about the future (e.g. the long-term survival of the farm), influence present-day thinking, whilst decisions implemented in the past can impact on present-day possibilities. Fearcan affect farmer decision making to participate in AES in many ways. Common concerns are the fear of:

* diminished returns (loss of economic capital)
* a loss of identity or the loss of status within the peer group (loss of social and cultural capital)
* taking too great a risk in committing to an AES (linked to the fear of losing any of the above or of not being up to the task)

Certain farm environment related factors have also been shown to play a role in AES uptake. The decision to participate can be influenced by:

* the size and presence of existing wildlife habitats on the farm
* the impact of previous decision pathways on present day possibilities
* the fit of an AES with the situational characteristics of the farm (e.g. land tenure arrangements, farm size, bio-physical characteristics, others) and situational characteristics of the farming system (e.g. sources of income, advisory network).

Studies of farmer and land-manager participation in AES overwhelmingly agree that *no single factor* consistently influences decision-making in this regard. ELM schemes that align with farmers’ beliefs about how farmland ought to look like, how good farming should be done, and that are administered by ELM advisors who understand a farmers emotional relationships with his or her farm are more likely to be successful.[[21]](#footnote-22) Furthermore, participation rates have been found to be higher for schemes where farmers and land managers can target species for which they have strong emotional regard.[[22]](#footnote-23)

#### Economic, social and cultural forms of capital and their influence on farmer decision making regarding AES uptake

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| The size and characteristics of farmers’ social networks, their trust in governmental institutions and officials, their ability to gain access to group resources (e.g. information and cooperation), their acceptance into a group, and their standing within a group influence how they take decisions and why they act in certain ways. These parameters and resources are referred to by social scientists as *social and economic capital*,and like economic capital, can be both accumulated or lost over time. Economic-, social-, and cultural capital are important factors in pro-environmental management and need to be considered during scheme design. |

Although many studies show that financial considerations, such as profits or farm improvements to be made from AES payments, play an important role in scheme uptake, this might be due to a bias in the methodologies employed in such studies. Siebert et al.’s (2006) review of over 160 studies of why farmers support biodiversity policies reaches this conclusion. It discovered that most of them overstated the importance of economic capital as a motivating factor in farmer decision-making due to their focus on individual economic interests. Other considerations were disregarded.

In recent years, scholars have begun to make amends for the evidence gap this bias has created. Since 2000, a growing body of research has confirmed the importance of social and cultural factors on how farmers operate, and the impact on decision making processes of social values and expectations, self-perception and sense of identity, social-networks and peer-influence. They emphasize the importance of understanding the socio-cultural context around which farmers and land-managers think and act to engage with them effectively[[23]](#footnote-24).

Social and cultural capital are notions that have gained credibility in social science studies of agricultural activity and farming communities in recent years.

They ‘provide an important corrective to the reductive focus on the role of economic capital in guiding farmer involvement in AES[[24]](#footnote-25).

***Social capital*** refers to social relationships and factors that enable [social groups](https://en.wikipedia.org/wiki/Social_group) (like farmers) to operate and work together. They include interpersonal relationships, a shared sense of [identity](https://en.wikipedia.org/wiki/Identity_(social_science)), a shared understanding of what farming is about, shared [norms](https://en.wikipedia.org/wiki/Social_norm) and values, [trust](https://en.wikipedia.org/wiki/Trust_(social_sciences)), [cooperation](https://en.wikipedia.org/wiki/Cooperation), and [reciprocity](https://en.wikipedia.org/wiki/Reciprocity_(social_psychology)). Social capital allows members of a (professional) group – like farmers - to achieve shared sets of goals - e.g. producing food or achieving environmental goals – and plays a key role in their decision-making processes. Peer pressure can work to encourage or discourage environmentally-friendly land management, despite or in combination with financial incentives.[[25]](#footnote-26) Living up to public expectations and adopting an outlook of care for the environment and for the impact of one’s actions has also been found to bestow social endorsements and recognition on farmers and land managers. This can confer benefits upon them such as improved relations with other farmers and/or being valued – and less likely to be interfered with – by wider society and regulators.[[26]](#footnote-27)

***Cultural capital*** refers to resources in the form of knowledge, skills, credentials, character and the possession of culturally significant objects that increase a persons’ standing in the social class or group he or she belongs to.[[27]](#footnote-28) For example, farming landscapes are culturally significant objects of farmers. They constitute a highly valued form of cultural capital as they are not simply places where farmers produce food, but places where they display their knowledge, values, skills and work ethic.[[28]](#footnote-29) Farming landscapes, research has shown, are critically evaluated and judged by other farmers and can increase or decrease a farmers’ social standing within the group. Consequently, the level of cultural capital a farmer possesses influences the desire of others (especially other farmers) to associate with him or her. The more cultural capital an individual possesses, the higher is his/her standing within a social network or group (de Krom, 2017, p354).[[29]](#footnote-30) Cultural capital symbolizes cultural competence, which means insider knowledge of the norms, values and ways of the group a person belongs to. It conveys status and authority on individuals and plays a key role in identify formation and a person’s sense of self-worth. Cultural capital also creates as sense of collective identity and group position, and this is where its significance for decision makers concerned with perpetuating pro-environmental management activities lies.

Since the second world war, agricultural policy in Britain has centred on food production, which, accompanied by the industrialization and mechanization of agriculture, has led to what social scientists refer to as ‘productivism’.

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| ‘Good farming’ and ideas of what makes a ‘good farmer’ are predominantly rooted in productivism and linked to industrialized, intensive, food-production orientated farming practices. Long-term change in environmental attitudes and farming practices can only be achieved if agri-environmental measures come to be seen by farmers as ‘good farming’. ELMs need to build on farmers’ personal and intrinsic motivations for participation (e.g. their love of nature, pride in acting as the stewards of the countryside, and feelings of duty), and create opportunities for them to display their conservation skills and achievements as they currently can through ‘tidy’ farming landscapes and healthy herds. |

Productivism is linked to input intensive forms of farming which are known to have caused many of the environmental problems that AES seek to ameliorate. Over time, it has given rise to a farming culture where ‘good farming’, for example, in relation to farming landscapes, has come to be associated with straight, uniformly spaced furrows, ‘tidy’ weed- and pest free fields, and the achievement of high-yields.[[30]](#footnote-31) Farming landscapes are a particularly important form of cultural capital for farmers as they represent a farmer or land manager’s knowledge, values, work ethic and skills. They are carefully evaluated by others (e.g. neighbouring farmers and land managers) and contribute to a farmer’s reputation and standing in the community and among his or her peers. A ‘good’ farmer or land manager, according to productivist criteria, is one who knows how to exploit the land to the fullest and achieve the highest yields, be it in regard to crops, dairy products or livestock.

Productivist farmers – with whom the ‘good farmer’ identity is most prominently associated - see themselves first and foremost as food producers. In consequence, many struggle with the idea of farming for environmental benefits. This, as research has shown, can prove a hinderance to AES uptake and could hamper the success of the new ELM schemes, whose key objective is rewarding farmers with public money for the production of public (environmental) goods. Deep-seated values are hard to change. They have evolved over many decades and in regard to agriculture are rooted in post-WW2 concerns about the provision of adequate food supplies and the building up of a strong economy. Even the Governments’ 2018 Health and Harmony consultation document describes natural capital as essential for “economic growth and productivity over the long-term”. In capitalist societies, economic growth and productivity are deeply ingrained values and they continue to shape attitudes to nature, including those of farmers.

Farmer’s cultural preferences for symbols of agricultural productivity – such as weed-free, ‘tidy’ farming landscapes - conflict with alterations in farming practices that require changes in the visual appearance of these symbols, e.g. ‘untidy’ landscapes with ‘weeds’ that foster species diversity and benefit birds. Sustainable, environmentally friendly and conservation orientated farming practices tend to result in landscapes that are less agriculturally productive and more complex and ‘messy’[[31]](#footnote-32). Therefore, to be successful, the new ELMs need to incorporate provisions for farmers involved in public goods production to find ways of displaying their conservation skills and share their achievements with others. Just as they share productivist- and business-orientated farming practices and their benefits with others (e.g. high yields, tidy fields), they need to be able to share the benefits of producing public goods with others. Policy makers could think about how to make increased bird- or bee numbers-, the reduction of harmful chemicals in watercourses-, or cleaner air *visible* to other farmers and the public. They need to think about how ELM schemes can offer farmers and land managers opportunities to demonstrate ‘status-generating’ farming skills related to the production of environmental public goods to others?[[32]](#footnote-33) Standardised scheme prescriptions tend to offer few opportunities to innovate, discuss with others, and develop ideas about and approaches to conservation management. Involving farmers in the co-design of the new ELM schemes and facilitating discussion groups and farm visits could go some way in meeting this challenge.

Evidence confirms that attitudes towards the environment in farming can and do change. For example, less intensive forms of farming like organic farming have led to more nuanced perceptions among many farmers as to what counts as and is valued as ‘good farming’[[33]](#footnote-34). Evidence also suggests that longer-term engagement with AES has similar effects and that certain symbols of ‘good farming’ linked to productivism are gradually losing their status (e.g. excessive fertilizer use or the removal of hedges). Rather than constituting a complete break from the past, studies of these changes suggest that ‘environmentally good farmers’ combine pre-existing symbols of good farming with the knowledge and skill to operate within scheme prescriptions. Hence encouraging long-term AES engagement is important and could provide a solution to barriers to change linked to productivist farming identities.[[34]](#footnote-35)

Financial incentives on their own have been found to lead to pro-environmental management activities that are short-term and unsustainable. Whilst regulatory approaches and financial incentives have been effective in achieving some environmental management behavioural change amongst farmers[[35]](#footnote-36), ultimately these can be viewed as transient drivers without long-term sustainability if they do not create cultural change within the industry. Incentives based on increasing social and cultural capital – such as providing good facilitation for collaborative actions or increasing skills and knowledge through training to encourage intrinsic motivations to engage lead to long term and sustainable changes in pro-environmental behaviours, increased ambition and additionality. Evidence confirming the importance of the wider social worlds of farming is plentiful. Friends and neighbourhood networks[[36]](#footnote-37), family[[37]](#footnote-38), and advisor networks affect farmer decision making through the development and circulation of social and cultural capital.[[38]](#footnote-39)

#### Pilot projects, scheme advocates and demonstration farms are important for scheme development and uptake

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| Lessons learnt from pilot projects - including about farmer identities, family priorities and the practicalities and benefits of conservation activities – can act as important starting points for conversations about the future of land management between policy makers and farmers. Demonstration farms and organized farm visits play a key role in knowledge- and information exchange about pro-environmental management activities and schemes. |

Farmers involved in, or living close to, pilot projects and demonstration farms are more in tune with environmental concerns and more knowledgeable about the aims and objectives of specific AESs. Consequently, they are more likely to get involved in AES themselves and/or undertake conservation activities on their holdings.

For example, a recent study of the ‘goods and services’ approach to achieving environmental objectives involving fifty farms in Wales found that those directly involved in or living nearby case study projects were more knowledgeable of what the approach was trying to achieve, and similar studies found that neighbouring farmers’ experiences and their views of AES are a strong influencing factor on farmer decision making regarding scheme uptake.

Additionally, environmental practices demonstrated by people that farmers respects and who belong to their social network increases the likelihood that they themselves will embark on pro-environmental management activities.

Farm visits and demonstration farms are important in show-casing to farmers what is possible and how the production of public goods might be achieved. They provide farmers with constructive ideas regarding the relevance of pro-environmental activities to farming in general and/or to their holdings in particular and increase their confidence in committing to ELM.

#### Cooperation among farmers is essential for the achievement of environmental benefits that extend beyond individual farm holdings

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| Farmers who cooperate to achieve environmental objectives that extend beyond their individual farm holdings are more likely to develop positive attitudes towards the environment long-term. Group dynamics experienced by farmers who cooperate with each other to achieve landscape-scale environmental benefits play a key role in shaping how pro-environmental activities are perceived and valued. Long-term cooperation can lead to changes in socio-cultural and environmental norms, such as the perception of what counts as ‘good farming’ and is vital for the achievement of landscape scale benefits. |

One particular benefit of long-term cooperation that studies have identified is the potential to change deeply held believes about farming, such as the view that productivist farming is ‘good farming’, which can hinder the uptake of environmentally friendly farming practices. Studies evidence that farmer cooperation can have positive effects on the uptake of unsubsidised conservation activities and on changing social, farming and environmental norms.

An unpublished pilot study carried out by Hall (2018)[[39]](#footnote-40) lists the many benefits farmer collaboration could have for ELMs. Immediate benefits – relevant to this Working Paper - include feelings of empowerment, ownership and security (through the sharing of concerns about the future of farming with others, or the learning about impending policy changes and the objectives of policies); an increased understanding of the value of the biodiversity on their holdings; pride in aiding nature’s recovery; a greater willingness to embark on challenging agri-environment options due to personal support; a safe space for learning about the natural environment, and overcoming a lack of environmental knowledge. In the short-term, collaboration can improve the quality and reduce the cost of public goods production and lead to the better management of existing agreements whilst retaining post-scheme benefits. Facilitators can develop personalised approaches to individuals, which are essential for initiating and securing long-term behaviour change. Farmers might develop new interests in other areas of conservation and a collective responsibility for diffuse pollution at a micro-catchment scale level has been shown to result.

Trust between farmers and government agencies has been shown to grow through the work of facilitators who mediate this relationship and through collaboration, which can help create a better environment for an effective launch and uptake of ELM.

Medium-term benefits (taking two to three years to achieve) include starting biological recording by farmers, farm staff and local volunteers to build trust between farmers and local people and improve their wellbeing; the sharing of resources; and awaking farmers’ interest for species re-introductions.

Long-term benefits include bringing together all farming initiatives that use collaborative approaches, basing them on social science principles, and limiting the risks associated with a top-down delivery of the Nature Recovery Network. Barriers to cooperation identified in a study of farmers who had selected the collaborative option in their higher-level stewardship agreements included:

* difficulty arranging meetings of farmers and other stakeholders;
* reaching agreement on how to ensure that each stakeholder complies with individual liabilities and responsibilities;
* meeting the costs of farmer meetings and other organisational costs (e.g. updating the local commons association register of right holders);
* developing or maintaining the agreement’s governance structure, entailing regular meetings;
* agreeing on the division of agri-environment scheme payments between collaborating stakeholders;
* overcoming resistance to the agreement by a small minority of stakeholders;
* agreeing the extent to which agri-environment management should be prioritised given the typical multifunctional objectives of the management of the commons; and
* in some areas, difficult obtaining suitably qualified legal advice (Frank 2014, p54)

ELM policy could make provisions to overcome such barriers and formulate incentives for cooperation as part of the new ELMs, which is key to achieving landscape scale environmental benefits.

#### Scheme design impacts on participation and success

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| Scheme design impacts on the take-up, implementation and success of the scheme. Farmers are more likely to incorporate AES requirements if schemes align well with their existing business plans, farming systems, and natural environments. Where farmers can identify with and support the objectives of a scheme and its conservation goals, success is more likely. Where farmers perceive the positive effects of their scheme activities on the landscape, they are more likely to enter into it. |

Studies show that scheme factors, such as scheme duration, payment levels, entry requirements, and objectives to be achieved can impact on participation rates. Getting these right is essential for the success of the new schemes.

Schemes that require higher levels of active management are generally less attractive to farmers. Where farmers need to commit to longer contracts and where there is less flexibility and more paperwork, schemes require higher incentives for farmers to join them. Scheme flexibility in terms of scheme objectives and delivery options is highly valued by farmers as it makes it easier for them to make management adjustments in response to unexpected events (weather, machinery breakdown, livestock illness etc). Shorter contracts are preferred by older farmers, tenants and those highly dependent on the income from the farm. Longer contracts (which require higher incentives) are preferred by larger farms and those who own their farms. Scheme participation and the quality of engagement is higher in cases where farmers are already aware of and can name the species or habitats that need protection and where they know about their ecological requirements.

Evidence from a study of participants of ESA / CSS schemes[[40]](#footnote-41) shows that scheme design impacts on ‘why’ farmers participate. Different designs appeal to different sections of the farming community.

#### Stakeholder participation in ELM scheme design can foster scheme uptake and success

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| Stakeholder participation and end-user involvement in scheme co-design are key to designing schemes that are relevant, practical, and implementable in diverse contexts. Research evidences the many benefits that can be gained from involving farmers, land managers, government representatives, business people, and others in scheme design, the setting of conservation goals, and the development of strategies needed to achieve them. Involving farmers who have a history of environmental management and those involved in tests & trials and pilots is likely to further enhance the success of the new ELM policy and its associated schemes. |

Scheme co-design matters for success. There is a wealth of evidence from public services delivery organizations available that testifies to the benefits of end-user engagement in policy- and product design and transferring this knowledge to policy design for ELM will lead to the delivery of schemes that are relevant, practical, and attractive to farmers. Benefits identified by studies of collaborative policy co-design include:

* facilitation of a joint exploration of the policy problem;
* involvement of relevant and affected policy actors in agreeing on novel ways of defining ‘the problem’;
* the constructive use of scientific knowledge in a process of mutual learning and creative problem-solving;
* enabling the careful evaluation of alternative solutions through a joint assessment of potential risks and gains that may draw on an experimental testing of prototypes;
* the opportunity for relevant and affected actors to participate in the design of innovative solutions;
* the sense of joint commitment to and responsibility for the implementation of the innovative policy design;
* the establishment of common ground for creative problem-solving.[[41]](#footnote-42)

Similar to the benefits identified in relation to the use of co-design in policymaking are those found to result from collaborative environmental resource management. Studies found that

* engagement can facilitate learning and lead to changes in attitudes and values among participants;
* the acceptance of outcomes can increase;
* better informed decision-making can take place due to a wider range of information inputs and knowledge exchanges taking place;
* the likelihood that decisions are actually implemented increases as they are tailored to the needs and priorities of stakeholders.[[42]](#footnote-43)

## Policy recommendations – achieving success

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| **Farmers and their Farms** |
| * Farmers have a wealth of in-depth, historical and practice-related knowledge of the ecology of their farms, which is indispensable for the production of public goods from agriculture related activities. Such knowledge should be utilized by enabling farmers to interpret and adapt universal ELM prescriptions to their holdings. Benefits of this include farmers engaging more deeply with ELM objectives, fostering the likelihood of achieving them, and farmers feeling valued, trusted, and appreciated, which could increase their well-being. |
| * Future ELM schemes should be attuned to and build in capacity to work with a range of decision makers and scheme deliverers on the ground, including family members, friends, contractors, and land owners. |
| * ELM design would benefit from understanding and accounting for the diverse and dynamic development pathways that farms follow, the opportunities or constraints that are associated with specific periods in a farm’s life cycle, and the socio-cultural-, economic- and bio-physical context of the farm. |
| * Understanding and accounting for the range of attitudes farmers have to schemes and the importance these attitudes have for agreement success would benefit ELM design. Ongoing monitoring and evaluation work should include measuring attitudes and changes in attitudes and how they affect participation numbers and uptake success. |
| * Social science studies of farmer- and land-manager values, knowledges, and practices regarding the nature and possibilities of sustainable countryside management are indispensable for successful scheme design. |
| * Future ELM schemes should appeal to a range of different farmer identities as proposed changes to farm management might challenge existing identities and put into question norms and values that are important to farmers and those they associate and identify with. For many farmers, farming is (about preserving) a way of life as well as enacting a professional identity. |
| * Failure to consider farmers and land managers as diverse occupational groups when designing agricultural policies can lead to program failure |

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| **Farmer networks and the benefits of cooperation** |
| * Farmers who have successfully implemented schemes are the best ambassadors for their promotion and are in an ideal position to influence other farmers, especially neighbours. Involving them in the persuasion and decision stages of the adoption process could help those not yet in an AES to get a better sense of what joining a scheme would entail, and why doing so might be beneficial for their holdings and for the environment. |
| * Environmental associations, cooperatives, agri-environment networks and farmer discussion groups have the potential to change or create social norms connected to farming and the performance of agri-environmental measures. Policy should provide for enabling and facilitating them. |
| * Supporting cooperation is likely to increase both the social capital of specific localities andtofoster the achievement of landscape scale AES benefits needed for achieving increased biodiversity. |
| * Farmers favour localised networks populated by farmers who have similar farming systems. They are more positively disposed to joining collaborative groups aimed at developing geographically focussed solutions to environmental problems. Policy makers should involve them in the co-design of ELMs. |

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| **The importance of social and cultural capital** |
| * Intrinsic motivations and sustained pro-environmental behaviour are connected. Fixed-rate AES governmental remuneration cannot incite farmers to develop, display and recognise skilled cultural competences related to achieving environmental goals. These require the facilitation and support of demonstration farms, pilots, and events that will assure farmers that what they are doing in terms of public goods production is valued by their peers and society at large. |
| * Where farmers fear losing cultural and social capital as a result of AES involvement, higher financial incentives will be needed to motivate them to undertake AES activities. The loss of social and cultural capital needs to be accounted for in ELM planning and design. |

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| **The importance of social and cultural capital (cont.)** |
| * ELM schemes that facilitate ways for farmers to display their skills in producing public goods and make results visible and accessible to the broader farming community/public generate social and cultural capital. This can foster unsubsidised environmental management (reducing the cost of pro-environmental management overall), improve the quality of engagement, promote long-term behaviour change (linked to intrinsic motivations for environmental activities) and encourage managed and progressive ambition. |

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| **The value of locally/geographically specific scheme design** |
| * Schemes tailored to the values that farmers, stakeholders and the public attach to specific landscapes and that use these values as a resource (in communication) are likely to experience higher participation rates. |

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| **The role of communication, the media and advice** |
| * Advice providers that establish familiarity with farming communities and gain their trust are more successful in communicating new information to them. |
| * High quality messages, high levels of institutional trust, and trusted individuals communicating messages (such as farm advisors) are essential to the uptake of new schemes. Advisors also play a key role in translating policy messages for the individual context. Farmers need evidence that links specific farming practices to desired environmental improvements and shows the cost-effectiveness of on-farm interventions in order to embark on them. Advisors can make evidence accessible, understandable, and robust. |

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| **Achieving Long-Term Changes in Behaviour** |
| * Long-term changes in environmental attitudes can only be achieved if agri-environmental measures become seen by farmers as ‘good farming’. To achieve this, the knowledge, skills and outcomes associated with public goods production activities need to be made ‘visible’. Policy can foster this through the support of knowledge-exchange activities, farm visits, demonstrations farms, and farmer discussion groups, among others. |
| * To achieve long-term sustainable environmental management behaviour, a coherent policy and advice framework is needed in which regulations and incentives are important elements for signalling societal norms and expectations. |
| * Advice and engagement are vital for understanding existing intrinsic and extrinsic motivations of farmers and encourage sustained behavioural change. |

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| **Questions for scheme designers concerning farmers** |
| * Is it economical for farmers to join the scheme? (e.g. entry requirements, financial rewards offered compared to cost of undertaking an activity, investment of time required by the activity)? |
| * How does the scheme affect the current and future organisation and management of holdings? |
| * Does the language of the scheme and its underpinning assumptions (e.g. scientific prescriptions for conservation practices; natural capital principles; notion of ‘public goods’) conflict with the knowledge and understanding of farmers? Does it incorporate and leave room for their experiences and understandings, both in regard to the schemes’ interpretation and its implementation? |
| * Are the objectives of the scheme clear? |
| * What are the social and cultural cost/gains of the changes proposed? |
| * What other policies might affect the farm household / rural community and influence the decision to participate in ELMs? |
| * Advice services and agricultural related organization (public and private) play an important role in promoting the adoption of new schemes. Does ELM policy provide for workshops and other activities linked to the package of measures used to promote the benefits of the new schemes to influential groups? |
| **Questions for scheme designers concerning farmers (cont.)** |
| * Providing training for farmers in agri-environment management can expedite learning, lead to sustained scheme engagement, and encourage the uptake of more complex conservation tasks. Does the scheme facilitate and support training? |
| * How can ELM pilot projects be made responsive to farmer identities, family priorities, temporal frameworks and other key factors identified in this review as impacting on scheme success? |
| * Does ELM policy facilitate the exchange of knowledge and experience gained from pilots widely across the farm-extension community involved in delivering information inputs to farmers?[[43]](#footnote-44) |
| * ELM pilot projects need to consider how the concepts of natural capital and ecosystem services can be explained and communicated to potential participants in simple terms based on their experience. |
| * How does the new ELM policy communicate to farmers that ‘good farming’ and ‘good farmers’ are those who both produce food and agricultural products *and* protect the environment and produce public goods? What steps does ELMs take to conjoin good farming with environmental stewardship? |

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| **Questions regarding scheme design generally** |
| * What institutional arrangements are in place to facilitate the *co-design* of the new ELM scheme? |
| * Supporting farmers to critically reflect on their approach to farming and identify where their objectives clash with ELM policy objectives (double loop learning) has the potential of enabling them to move away from perceiving farming as a primarily production-orientated enterprise to one where multiple objectives – including conservation activities – can co-exist. How does the new ELM policy provide for expert farm advisors to facilitate the process of double-loop learning? |
| * Farmers, local people and relevant stakeholders are indispensable for scheme uptake and success. How will they be involved in the co-design of the new ELM schemes, including the setting of conservation goals and the design of management practices? Is a coherent co-design strategy in place? |
| **Questions regarding scheme design generally (cont.)** |
| * How can schemes be made flexible enough to accommodate local landscape factors that might affect public good outcomes at the farm scale and, if relevant, the landscape scale? |
| * Do the new ELM schemes have the flexibility for existing agreements to be adapted to align with public-goods objectives? Are they designed to ensure timely payments? Have current mapping and inspection issues been resolved? Addressing these issues prior to launching the new schemes will help restore trust in government agencies. |
| * How does scheme design address factors that can impact on the delivery of agreements (e.g. successors, contractors, landlords, tenants)? How does it deal with changes in contracts and management? |
| * What steps have been taken to enable farmers to act as innovators in scheme implementation and the achievement of environmental goals? |
| * What kind of values and farming identities do the new schemes promote? |
| * Are different types of schemes or multiple scheme approaches needed to achieve goals for the delivery of different public goods? |
| * Does ELM provide the knowledge exchange mechanisms needed to succeed in demonstrating links between good management and the delivery of ecosystem services? |

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| **Questions regarding the implementation of ELMs** |
| * The support of a broad range of people ranging from governments, businesses, farmers, and local residents can increase successful scheme implementation. What measures will be taken to get them on board? |
| * During the introductory phase of new schemes, advertising through radio, newspapers, the farming press, agricultural shows, etc. is pivotal. Have provisions been made for this? |
| * ELM policy advice and information needs to be tailored to individual farmers, and collaboration facilitated in areas where landscape-scale management changes to achieve environmental objectives are required. Have provisions been made for this? |

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| **Questions regarding the implementation of new ELMs (cont.)** |
| * Implementation, including the formal application procedure, requires inputs from dedicated and specialist change agents (e.g. advisers) that can provide farmers with support, guidance and technical assistance. Have provisions been made for this? |
| * Strategies need to be in place for the clear communication of ELM scheme objectives and the problems that they try to solve, providing local and relatable evidence. Have provisions been made for this? |
| * The pace at which changes related to the new ELM policy and schemes are introduced will need to be matched to bio-physical, economic, socio-cultural and other factors. Have provisions been made for this? |
| * Farmers who have a history of environmental management enhances scheme success and should be engaged and worked with during implementation. Have provisions been made for this? |
| * *Post adoption* requires continued support from project officers, environmental organisations and farmer user groups to maintain commitment and help land managers adapt practices and develop ambition. Have provisions been made for this? |

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