

This project report, (one of five case studies which provide input to the main published study), is an internal document and is deposited on this repository with OECD's permission. The research was financed by OECD in the context of the OECD Green Growth in agriculture project. This report's contribution is explicitly acknowledged in the published study:

Dwyer, Janet C and Reed, Matt (2014). *Promoting Green Growth in English and Welsh Agriculture: Evaluating the Role of "Soft Measures" - Training, Advice and Extension, Consultant Report. Project Report. OECD internal document.*

Published in OECD (2015) Fostering Green Growth in Agriculture: The Role of Training, Advisory Services and Extension Initiative, OECD Green Growth Studies OECD Publishing, Paris, and available online at:

<http://dx.doi.org/10.1787/9789264232198-en>

We recommend you cite the published (post-print) version.

The URL for the published version is <http://dx.doi.org/10.1787/9789264232198-en>

Disclaimer

The University of Gloucestershire has obtained warranties from all depositors as to their title in the material deposited and as to their right to deposit such material.

The University of Gloucestershire makes no representation or warranties of commercial utility, title, or fitness for a particular purpose or any other warranty, express or implied in respect of any material deposited.

The University of Gloucestershire makes no representation that the use of the materials will not infringe any patent, copyright, trademark or other property or proprietary rights.

The University of Gloucestershire accepts no liability for any infringement of intellectual property rights in any material deposited but will remove such material from public view pending investigation in the event of an allegation of any such infringement.

PLEASE SCROLL DOWN FOR TEXT.

**TRADE AND AGRICULTURE DIRECTORATE
ENVIRONMENT DIRECTORATE**

Joint Working Party on Agriculture and the Environment

**PROMOTING GREEN GROWTH IN ENGLISH AND WELSH AGRICULTURE: EVALUATING THE
ROLE OF "SOFT" MEASURES -- TRAINING, ADVICE AND EXTENSION**

**24-26 November 2014
OECD Conference Centre
Paris, France**

This document is submitted for DISCUSSION to the 38th Session of the Joint Working Party on Agriculture and the Environment, to be held from 24-26 November 2014.

This study is mandated under the Programme of Work and Budget 2013-14 (3.2.3.2.1 Green Growth for Agriculture and Food).

The document, which is one of the five case studies which provide input to the main report, has been prepared by consultants.

(Item 8a)ii) if the Draft Agenda)

Contact person:
Dimitris DIAKOSAVVAS
(email: dimitris.diakosavvas@oecd.org)

JT03365632

Complete document available on OLIS in its original format
This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

NOTE BY THE SECRETARIAT

This study is mandated under the Programme of Work and Budget 2013-14 (Output Result, 01132 *Green Growth for Agriculture and Food*, 3.2.3.2.1 *Policy Options and Market Approaches for Green Growth*). It complements the work that is currently undertaken on the analysis of policy options and market approaches for green growth for agriculture and food.

The present document is one of the five case studies which provide inputs to the Main Report [*Fostering Green Growth in Agriculture: The Role of Training, Advisory Services and Extension Initiatives* [COM/TAD/CA/ENV/EPOC\(2014\)6/REV1](#)].

This document has been prepared by consultants, Janet Dwyer, Professor of Rural Policy and Director, Countryside and Community Research Institute (CCRI), University of Gloucestershire and Dr Matthew Reed, Senior Research Fellow, CCRI.

A first draft of this case study was presented at the meeting of the Joint Working Party Agriculture and the Environment (JWPAE) held in April 2014. The present document incorporates comments submitted by Delegates at the April 2014 meeting of the JWPAE, or submitted subsequently in writing, as well as new material.

This document is submitted as consultant's report to the JWPAE for **DISCUSSION**, will not be published by OECD, will be referred to in the main report and will be made available upon request.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
1. Introduction	7
1.1. Structure of the report.....	7
1.2. Context	8
1.3. Environmental knowledge exchange and policy in England.....	10
1.4. Environmental advice and policy in Wales	12
1.5. Study methods and data.....	12
2. Results and comparative evaluation	15
2.1. Agri-environmental schemes, advice and value-added	16
2.2. Voluntarism and the development of networks.	18
2.3. Stand-alone initiatives with some access to capital grant funding	20
2.4. Agrisgôp and the action learning approach	21
2.5. Farmer networks – standalone initiatives representing empowerment.....	24
2.6. Farmer-centred approaches extending to the wider community.....	25
2.7. Comparative evaluation.....	26
3. Cost effectiveness of soft measures	29
4. Conclusions and recommendations	31
REFERENCES	35

Tables

Table 1. CCRI studies and evaluations of soft-measure approaches, since 2006	13
Table 2. Interviewees	14
Table 3. Summary of good practice in soft measure design and delivery	32

Figures

Figure 1. The spectrum of approaches to soft measure provision.....	16
---	----

EXECUTIVE SUMMARY

1. The main objective of the paper, which has been prepared by consultants, is to provide insights into the operation, strengths and weaknesses of the agricultural knowledge system in England and Wales, seeking to assess the value of “soft” measures, such as advice, training and extension policy mechanisms, as a means of supporting the transition towards sustainable agriculture. These policy approaches work on the basis of providing or stimulating knowledge exchange and skills acquisition as a trigger to changes in practice, in contrast to those which contract directly to support changes in practice with payment, via mechanisms such as agri-environmental schemes (AES) or farm investment grants; or those which seek to achieve change through prohibition, conditions or disincentive such as regulating the use of certain agrochemicals, or applying eco-taxes. The UK Agricultural Knowledge and Information System (AKIS) is diverse in its strategies, and in the nature of the agents and methods deployed to deliver advice, information and training. The resulting complexity has been criticized as being both confusing for, and adding costs to, businesses as they navigate between different sources of information (Curry 2010; Defra, 2013). It does, however, provide a rich array of case studies for considering the relative effectiveness of differing techniques of transferring knowledge and training provision for sustainable agriculture.

2. For this report, direct evaluation experience from Countryside and Community Research Institute (CCRI) studies has been complemented with a review of both academic and ‘grey’ literature published by government departments, agencies, NGOs and the commercial sector, on the general topics of knowledge exchange and mechanisms to promote sustainable farming, in England and Wales. As well as this, selected interviews with key informants were held, discussing their experience with the provision of agricultural knowledge and extension and its ability to support environmentally-sustainable farming.

3. It should be noted at the outset that the very nature of soft mechanisms - where actions result from indirect influence rather than legal obligation and much depends upon changes in understanding, attitudes and motivations - makes them difficult to analyse or evaluate using quantitative methods. Instead, the way in which they work and the extent of impact is more suited to investigation and analysis using qualitative methods which provide diagnostic capability and capture perceptual and knowledge change as well as, or prior to, evidence of practice change. In this context, the robustness of research findings relies not upon quantitative indicators such as sample sizes, standard deviations or statistical representativeness; but on qualitative indicators such as careful triangulation of evidence sources, coherence of causal explanations and commonality of experience drawn from contrasting situations. In our review, therefore, we assess the weight of (mostly qualitative) evidence on the effectiveness of soft measures by reference to these kinds of indicator, but quantitative evidence is also presented wherever possible.

4. There is a tendency to characterise approaches to the provision of advisory, training and extension measures with binarisms: e.g. ‘top down’/‘bottom up’ or insider/outsider styles of initiative. From the evidence assembled for this report, we suggest that the reality is more complex than this, with individual projects, services and/or initiatives spread across a landscape of differentiation in approach, broadly delineated by two intersecting axes.

5. On the horizontal axis is the spectrum of styles of knowledge transmission, from ‘classic KT’ - direct instruction in the use of a tool or technology (perceived as a unidirectional flow of information); through to methods of knowledge ‘co-creation’ where different people with knowledge work with a family or members of a social network, to empower individuals to recognise, develop and then realise their ambitions themselves.

6. On the vertical axis of variation is then the context within which the advice, knowledge or training is delivered, which spans a spectrum from stand-alone advisory services through to approaches where information and/or advice is only given as an adjunct or accompanying aid to other interventions, such as capital grant funding, or multi-annual agri-environment schemes. In England and Wales, reports and studies have examined initiatives covering all four quadrants of the resulting landscape.

7. Taking stock of the findings of the different evaluations, there is a considerable body of qualitative evidence based upon recorded farm-level and field-level changes, farmer reporting and explanation of their evolving practices and the reasons for change, and adviser and (third party) stakeholder or expert experience of the development and achievements of initiatives. The weight of this evidence supports a conclusion that advice, training and information have demonstrated significant value as mechanisms to assist or encourage transformation towards sustainable agriculture, in a wide variety of situations and contexts. This impact is noted at farm level, across local territories and within food supply chains, and is recognised by a range of different stakeholders (i.e. views and stated experience are triangulated and show common features in contrasting situations). In addition, a small number of larger-scale evaluations of specific advisory initiatives indicate positive environmental impacts from advice and training (e.g. CSFDI, for water quality, ETIP for AES targeting), whilst other relevant, large-scale studies remain to be completed later in 2014 (Agrisgôp in Wales, AES higher-level scheme advice in England). And whilst some of the approaches mentioned here are too recent to have formal evaluations of impact, they are seen by participants to have important potential for positive impacts.

8. The evidence also gives much information about how soft measures appear to work, providing plausible explanations which add weight to the positive judgements of studies. From this, we find that advice can personalise the process of raising awareness among farmers about environmental challenges and possible solutions; and training, particularly if designed and implemented in ways which are sensitive to the needs and aspirations of farm families and their businesses, can demonstrate how solutions can be put into practice. For the farmer, these approaches provide a key means to translate general environmental information and understanding into decisions to modify their own practices on the farm.

9. In considering how these soft measures differ from 'hard' mechanisms such as capital grants or AES, it should be recognised that they work primarily at the level of seeking to change attitudes and understanding as a means to engender changes in practice, rather than the other way around. Direct funding for new or changed farm practices will clearly secure a particular change at a particular point in time, but it may not ensure the durability of that change after the funding ceases to be given because it may not have triggered any underlying change in attitudes or understanding. By contrast, funding advice, training or information may not immediately result in farm changes on the ground, in terms of practices or systems, but where farmers report that it has 'made a real difference' to their understanding or their attitudes towards certain actions, the implication is that changes in practice follow at some point beyond that (with supporting evidence – see Dwyer et al., 2007; CSF Evidence team, 2011) and these may be more lasting, once they arise. For some of these initiatives, those changes can already be demonstrated (e.g. case studies of Agrisgôp initiatives, and changes detected in AES management performance following the training of farmer participants), whereas for others, the link to change on the ground has yet to be measured.

10. It is particularly difficult to assess *impact net of the counterfactual* in cases where studies are tasked only with recording to what extent a project or initiative has met its objectives because very few such evaluations are required to consider a counterfactual. However, several studies did make a point of asking participants to reflect on the degree of additionality involved therein (i.e. what these soft measures offer that goes beyond what else already exists, to help support moves towards more sustainable practice). Where it was seen as significant, additionality appears to have been a particular feature of approaches involving a knowledge-exchange or co-creation philosophy, in which farmers are directly engaged in learning processes alongside people with other kinds of expertise, rather than more formal, uni-directional KT provision. Key

to this observation is the fact that a learning process, in contrast to a one-off training or information event (even a single farm advice visit, in isolation), provides much more scope for the farmer to absorb, test and re-create the main messages involved in the knowledge exchange process – this can be key to what psychologists term ‘central route processing’ of new information, increasing its likelihood of direct impact on practice (Dwyer et al., 2007).

11. The greatest barrier to achieving a robust assessment of the *cost-effectiveness* of soft measures is undoubtedly the neglect of this issue within the process of scheme and programme evaluations. Appropriate data on costs, and results or outcomes, is simply not being gathered in the majority of cases – overwhelmingly, projects report outputs (e.g. courses run, attendance levels, visits made) and general farmer feedback on their quality. This may be related to a lack of demand for more information from the commissioning sponsors within government departments and agencies, or the short timescales over which evaluations are made (e.g. too early to capture much more than outputs), or the integrated nature of much delivery alongside ‘hard’ measures which makes its influence difficult to disentangle from overall performance. To the extent that the available data on costs and impacts is representative of these approaches more widely, we suggest that it is possible for training and advice to appear relatively cost-effective mechanisms for achieving impacts, by comparison with popular alternatives. Training costs per annum, per beneficiary or per hectare, appear lower than agri-environment scheme costs, which in turn appear lower than those for capital investment grants, whilst the nature and scale of positive environmental impacts varies from low to significant among all these approaches. At the same time, there is evidence of transaction cost and other barriers to uptake of soft measures among farmers as well as evidence of under-provision in cases where they offer direct economic benefits, suggesting that private markets do not perform optimally in this respect and thus some policy intervention could be warranted.

12. This does not overcome the significant challenge, however, of demonstrating *ex-ante*, the extent of eventual environmental impact that should be anticipated from this form of policy support. This uncertainty concerning the scale and timing of final impact may partly explain why these measures appear likely to continue to receive a relatively low share of funding, in public policy.

13. In order to address gaps in the evidence base, we suggest that future work should seek to address more fully the sequence of changes at farm level that are triggered by soft measure initiatives. Early attitudinal surveys can be used to measure changes in awareness and willingness to act; and this can be followed up by later surveys which calibrate how far those translate into changes in practice – whether environmental, social and/or economic. Ideally, work should also examine how far this sequence of changes becomes repeated through an ongoing process of learning and application, giving rise to further direct and indirect impacts. This implies ongoing evaluation rather than ‘snapshot’ studies, and raises the possibility that some action might be undertaken most efficiently by farmers themselves working alongside evaluators. Increasingly, online methods facilitate the collection, collation and aggregation of such data at relatively low cost, although some level of independent verification needs also to be built in. This should enable both the generation of impact data comparable to that already available for other measures (notably AES), as well as comparisons of cost-effectiveness for different soft and hard-measures approaches in varied contexts.

14. England and Wales provide contrasting approaches to how advice and training are delivered to farmers through public policy. Whilst public-funded provision in Wales is undoubtedly more co-ordinated (through a particular major provider with a diverse portfolio of services); that in England comes via a mix of separate contracts for different types of environmental objective and/or different agri-policy instruments. Regardless of these differences, we conclude that soft measures appear most effective when they focus on a common set of practical approaches derived from and delivered alongside specific environmental insights, which are close to the business motivations of farmers but able to go beyond their immediate business concerns and perspectives, and which are well-informed by both environmental expertise and community understanding. These characteristics enable farmers to appreciate the environmental goals being pursued and

the efficacy of related action, to apply this information to their own individual situation and to be supported in making environmentally-appropriate changes in that context, and to reflect and learn from the result of these changes in ways which act as a stimulus to further environmentally-beneficial actions.

15. We also note that the agricultural sector and farming community have been pro-active in addressing training and advice needs, but that not all farmers and farm businesses are equally included in those activities, and sector or farm business goals do not always match societal or public policy goals for sustainable farming. Non-policy action for achieving environmental improvements has tended to focus on either improved profitability through resource efficiency; or no/low-cost amenity actions; which, whilst important, on their own are insufficient to address societal demands. Nevertheless, the most active facilitated farmer groups and local integrated partnerships appear to be taking on a more ambitious set of future challenges (e.g. soil management, climate change adaptation and mitigation) with positive input from government and other environmental stakeholders, which should increase their potential for significant and lasting impact, in future. A partnership approach to soft measure provision therefore appears warranted, for the future.

1. Introduction

1.1. Structure of the report

16. The current, multiple pressures on agriculture and the food system at national and international levels have led to a significant public policy focus on the role of farmers as key players in meeting the challenge of sustainability. The pressures include volatility in the prices of food commodities, the effort to ensure food safety and integrity in often highly complex supply chains, questions about the use and impact of new technologies, as well as increased understanding of the environmental impacts of farming practices individually and in aggregate. All these require the operators of farm businesses to play their part in pursuing a broad range of national and trans-national policies and outcomes (The Royal Society, 2009).

17. Understanding what motivates farmers to change their farming practices and associated enterprises has thus become an urgent requirement for policy makers and those working within the food chain (Ingram et al., 2013a; Ingram et al., 2013b). The challenge of environmental sustainability, including climate change mitigation and adaptation, poses a particularly complex set of interlinked problems, and these goals must be interwoven with those of farmers and other landowners and managers, in order to be achieved in practice.

18. The purpose of the paper is to use contemporary evaluation and research findings in order to provide insights into the operation, strengths and weaknesses of the agricultural knowledge system in England and Wales, seeking to assess the value of advice and other “soft” policy mechanisms as a means of supporting the transition towards sustainable agriculture.

19. “Soft” measures encompass those policy approaches which work on the basis of providing or stimulating knowledge exchange and skills acquisition as a trigger to changes in practice, as opposed to those which contract directly to support changes in practice, via mechanisms such as agri-environmental payments or farm investment grants.

20. In particular, the report aims to:

- i. Provide a review of the main advisory and training measures used in England and Wales to support implementation of sustainable resource management;
- ii. Assess the cost-effectiveness of these measures; and
- iii. Draw lessons on how these measures can be most cost-effective (best policy practices, coherence of policies, etc.).

21. The structure of the report is as follows. The remainder of this chapter provides a broad contextual background to advice, training and extension in England and Wales, and then a brief consideration of the methods used and the evidence base for the report. Chapter 2 then covers the evaluation of various schemes and programmes in England and Wales. This discussion attempts to characterise the ‘landscape’ of types of soft approaches, using key axes of variation which enable us to examine both public and private sector actions, as well as different styles of provision, from the unidirectional and classic concept of (usually technical or factual) ‘Knowledge Transfer’ from experts to practitioners, to the much fuller concept of ‘communities of learning’ which represent a form of farmer empowerment and are notable within more recent initiatives, in particular.

22. Chapter 3 then makes a brief examination of the cost-effectiveness of the various approaches deployed, as far as the evidence allows, while Chapter 4 takes stock, drawing conclusions concerning the value of these approaches, some lessons about best practice in policy design and delivery, and raising broader issues for future policy, in this area.

1.2. Context

23. Agriculture in England and Wales is not a large constituent of the economy; in 2011 it contributed 0.62% of GVA in England and 0.63% in Wales, accounting for 1.12% of employment in England but a more significant 4.29% in Wales. Farm incomes in both countries have been volatile in recent years, reflecting not just macro-economic flows but also specific events, such as severe adverse weather conditions in 2012 and 2013. However, overall the agricultural industry in the UK has “outperformed the industry in the European Union as a whole, by all income measures” (National Statistics, 2013).

24. Agriculture has wider importance to UK society through its roles within the agri-food sector, and in respect of the environment. The GVA of the UK agri-food sector in 2010 was 7% of that for the total economy, and the sector provided 14% of national employment (Defra 2012:10). Consumers spent GBP 159 billion on food and drink in 2011, and food prices in the UK rose by 12% in real terms between 2007 and 2012, which represents a greater increase than experienced in other EU countries, over the same period.

25. In addition to its role in food supply, agriculture uses 70% of the land surface of the UK and this places farming, its systems and practices at the centre of discussions about the management and condition of the natural environment. The UK has a long tradition of concern for the environment, linked to its early and widespread industrialisation and to the roots of the nature conservation movement in the late 19th century. It is not by accident that the government department in London with responsibility for farm policy is entitled the ‘Department for Environment, Food and Rural Affairs’: this wording reflects the relative priority accorded to environment, and then food (as opposed to agriculture), among government policies more generally. The UK was a pioneer in developing agri-environmental schemes as an element in farm policy back in the 1980s, and it has been a strong supporter of the concept of ‘greening the CAP’ (Europe’s Common Agricultural Policy) within policy reform debates in Europe, since the 1990s.

26. The ‘greening’ of farming as a business and operational strategy at farm level can embrace a broad spectrum of actions; ranging from simple changes introduced to achieve greater resource efficiency, or

protect particular features of value to wildlife (e.g. hedgerows, trees, ponds), through to complete changes in farming systems such as adopting no-tillage systems or organic methods. To a significant degree, UK policy since the 1970s has sought to influence these processes through a mix of tactics and mechanisms, including regulations, incentives, action plans and strategies with targets, as well as support for knowledge transfer or exchange in various forms. It is widely recognised that promoting increased farmer knowledge and understanding of the environmental impacts of agriculture can be an important ingredient in the policy mix, although direct support for soft mechanisms has been highly variable, in both extent and character, over the period (Sutherland et al., 2013).

27. Promoting advisory, training and extension measures for sustainable agriculture has not been the exclusive preserve of public policy. From a business perspective, knowledge has been described as the ‘fourth factor of production’, with a widespread agreement that the information demands on successful farm businesses are increasing (Ingram, 2008). Processors, retailers and customers in the agri-food sector are all making demands that are increasing both the technological sophistication of farming, and its need to ensure higher standards in resource use and environmental performance. The consequent demand for farmers to have better knowledge *in the field of sustainable land management* usually links to three specific requirements:

- ensuring compliance with relevant environmental regulations and with environmental conditions associated with the Common Agricultural Policy (i.e. cross-compliance);
- ensuring the most efficient and effective use of purchased inputs and capital assets on-farm, in order to maximise profitability; and
- enabling compliance with processor or retailer-led quality assurance schemes which, whilst primarily focused on reducing concerns about food safety, commonly include some basic environmental or sustainability standards.

28. Whilst compliance with protocols is obviously important to the market for food and drink (the scale of which is described above), the efficiency argument is also worth a considerable amount since the value of purchased agricultural inputs in the UK is approximately GBP 6 billion a year. The CAP funding driver also remains critical as a result of the significance of its support for farm incomes and viability: the UK receives approximately GBP 3.3 billion a year from the CAP (Gibbs, 2013).

29. Since the 1980s, the UK has fostered a diverse and differentiated agricultural knowledge and information system (AKIS), with a distinct policy of encouraging a market in information, advice and training (Sutherland et al., 2013). Under the devolution settlement in the UK, responsibility for agricultural policy now rests with national governments in Wales and Scotland, Defra in England and the Department of Agriculture and Rural Development (DARDNI) in Northern Ireland, and each of these has evolved a slightly different approach to this area of policy and action. Thus we survey a landscape which is both broad in its subject matter, as well as composed of a highly varied mosaic of providers, including the public sector, NGOs and commercial businesses of contrasting size and scope (Gibbs, 2013).

30. The UK AKIS is diverse in its strategies (i.e. determining what sorts of AK are needed, for which purposes), and in the nature of the agents and methods deployed to deliver advice, information and training. The resulting complexity has been criticized as being both confusing for, and adding costs to, businesses as they navigate between different sources of information (Curry, 2010; Defra, 2013). It does, however, provide a rich array of case studies for considering the relative effectiveness of differing techniques of transferring knowledge and training provision, for sustainable agriculture.

31. The contemporary provision of non-policy-driven, bespoke advice reflects the spatial specialisation of agriculture in the UK. Evidence suggests that approximately 80% of crop farmers seek advice from their

own (commercial) crop advisor/agronomist on questions of nutrient management; while another survey found that 92% of its crop-farming sample used the services of a professional agronomist for at least some part of their operations (Gibbs, 2013:14).

32. Those farms using commercial farm advice tend to be concentrated among arable and field vegetable producers in the east of England and Scotland. These farms tend to be larger than average and involved in cropping, where the farmer's 'tacit' knowledge (their direct, practical understanding) is likely to be outstripped by the need for specific, specialist 'scientific' knowledge, for example in respect of the appropriate choice of chemical inputs for each particular crop in each locality, and over the full growing season.

33. By contrast, in the west of England and most of Wales farms are smaller and tend to be involved in animal production, either for meat or dairy. Among these farms the apparent farmer demand and the resources for commercial and technical advice are lower, with many farmers more reliant on their tacit knowledge and/or the advice given by those with whom they have to deal for other purposes, such as vets and representatives of input merchants, or those companies to whom they supply their produce. In such a situation, farmers will also tend to be more reliant on statutory or regulatory 'advice' in respect of sustainable agricultural practices, as they lack the services of highly trained and professional advisors who can engage actively with these issues.

34. In Defra's own review of advice provision in England in 2013, a large-scale customer perception survey found that only 45% of farmer respondents had accessed advice or information from independent advisors or agronomists in the past year (Defra, 2013b). This suggests a less than comprehensive penetration of the sector, by private providers.

35. In a review of farmer attitudes to environmental management on farm (Mills et al., 2012), the following conclusions were drawn concerning the state of farmer awareness of these issues in England, and their willingness to engage with sustainable practices.

The research suggests that the key to ensuring long term farmer behaviour change is to change farmers' mindsets so that they are willing to adopt environmental management practices. This requires internalisation of the values underpinning environmental management activities and it would appear from the farmer interviews that there is an increased acceptance within the farming community of the need to demonstrate their environmental credentials. Farmers generally appear to have a much greater sense of social responsibility for the environment than previous generations, sometimes resulting in intergenerational divergence of opinion on the farm.

It is against this varied backdrop, therefore, that advisory, training and extension measures to promote more sustainable agriculture need to be assessed.

1.3. Environmental knowledge exchange and policy in England

36. The EU Framework research Project SOLINSA, in which CCRI is a collaborating partner, required a detailed analysis of the agricultural knowledge system (AKS) in England as part of its preliminary work packages. The full report has been used to inform this report, but it has not been published, as yet (Ingram et al., 2011). Therefore, here we use text from the published comparative report on AKS, briefly summarising the policy situation.

In the late 1980s the pre-existing, state-funded AKS system was dismantled in England. The state funded advisory service ADAS was [largely] privatized and state-funded research went through a period of review and consolidation. In 1986, MAFF (the Ministry at the time) started to make a phased withdrawal of funding for near market R&D, leaving the levy bodies to fund such

research... The demand for agricultural knowledge is constrained by farmers being mainly focused upon profit. Government has an interest in providing knowledge on sustainable agriculture but funding for sustainable knowledge is often short-term, and impermanence is a problem. Policy is fragmented: there is no clear national policy, but different ministries apply different instruments. New rural networks originate from both public and private organisations and operate on all scales from local to international and even virtual. A partnership approach is being increasingly used by governments to initiate change with stakeholders from the public sector, academics, NGOs and industry. However, its effectiveness for innovation and learning is unclear.... The retreat of government from managing agricultural research and extension resulted in a diversification of the sources of agricultural research and extension and opened new opportunities for the private sector. Vertically, the AKS became fragmented as the change in status of ADAS meant that the government has struggled to find the mechanisms to connect research on environmental protection and sustainable agriculture to farmers, as the traditional research-extension links and advisory practices have become less relevant to end users... Scientific results on these issues hold too little concern for commercial application, thereby losing the sector's interest. Farmers instead transfer their allegiance from state-funded to commercial advice, for business decision-making.

37. From the 1970s, government funding has been used to support the provision of some types of environmental advice, information and training to farmers in England. To begin with, agronomic and some environmental services were offered within the state-funded Agricultural Development and Advisory Service (ADAS), and specific funding was devoted to support the work of the Farming and Wildlife Advisory Group (FWAG), which was a farmer-oriented network where farmer members often chose to deploy a trained 'conservation advisor' to work with them, to improve their environmental performance. In these models, conservation advice was effectively in 'stand-alone' mode, although advisers could choose to focus their efforts upon various contemporary (government-led) environmental initiatives and priorities.

38. Accompanying the development of agri-environmental schemes from the mid-1980s onwards, the government has funded 'project officers' or advisors specifically to promote and help secure these agreements and their subsequent environmental outcomes, in varying quantity and in different kinds of relationship (direct employee, sub-contractor, partner). Some such funding supported advisors in public sector posts, but over time, a greater share of it has been used to sub-contract advice and training services to private and voluntary sector providers, leaving public sector staff to concentrate upon the formal securing, management and enforcement of contractual agreements. Again over time, even the enforcement role has become partially contracted out to third parties.

39. Reviews of the case for market failure in respect of advice and training for farmers during this early period tended to recommend that all 'near-market' forms of advice – that is, where the farmer would benefit financially from following the advice – should be left for markets to provide, whilst governments focused upon advice covering public goods and services – i.e. where the resulting changes were primarily to benefit society, rather than an individual farm business.

40. As part of the legal requirements of the CAP, since 2000 governments in all EU member states have been required to provide a 'Farm Advisory Service' (FAS) covering at least the provisions of cross-compliance on environmental and welfare standards. We mentioned above, the longstanding English policy position that wherever possible, services should be provided through a market for advice (Winter 1997); thus the FAS is largely 'outsourced' to different commercial providers. Likewise, the monitoring and some of the enforcement action related to cross-compliance within the CAP has been contracted out to various private-sector bodies.

41. Another area of government policy where advice in particular, as well as some training, has been a notable element in the policy mix in the last decade, has been in respect of compliance with environmental

regulations and/or standards, particularly in respect of water and soils. Sometimes action targets improved farm-level practices that result in reduced breaches of existing regulations but equally, it has been used as a means of preparing farmers for the anticipated roll-out of stronger regulation.

42. Perhaps the most well-known initiatives in England since 2000 have centred around addressing diffuse agricultural pollution, in the specific context of targets set within the EU Water Framework Directive, and an expanded coverage of Nitrate Vulnerable Zones under the EU Nitrates Directive following policy reviews, in 2002. The Catchment-Sensitive Farming Demonstration Initiative (CSFDI) represents one of the longest-established such programmes, where advisers work within priority catchments to improve understanding and standards of practice on farms.

43. In 2013, Defra published a review of policy on advice and advisory services, which re-emphasised that the government seeks to avoid ‘crowding out’ of private sector advisors by making its documentation ‘open source’ and only providing public-funded advice in instances of clear market failure (Defra, 2013). Defra also signalled a 25% reduction in its expenditure on farm advice (down to GBP 15 million per annum), and primarily through enhanced on-line provision of information. The department is emphasising the importance of partnership with private and third sector bodies in order to ensure effective knowledge diffusion within agriculture. Its aim is that advice meeting public needs will be delivered flexibly through a variety of channels, with ‘realistic’ expectations regarding participation, and targets based on shared goals and simple tasks. Regulatory advice remains outside the scope of this flexible approach but Defra suggests that it will be delivered in a more integrated manner, often through partners in the industry (e.g. farmers, commercial agronomists, input suppliers, processors and retailers). (Defra 2013).

1.4. Environmental advice and policy in Wales

44. Since devolution in the 1990s, Wales has established its own distinctive approach to agriculture and farm policy. With relatively small, family farms and a predominance of livestock production, the provision of many kinds of advice and training to Welsh farmers has been seen by the Welsh government as a legitimate purpose of policy. Although ADAS in Wales went through the same privatisation process as occurred in England, successive administrations have committed to supporting farm advisory services and initiatives in a more comprehensive manner than now prevails in England.

45. Of particular note in Wales was the setting up and operation of extension or coaching based upon the development of learning processes through farmer groups (Agrisgôp), established to undertake collective learning as a means of enhancing business performance (Pearce and Williams, 2010). In addition, resources were devoted to ensuring that farmers joining agri-environment schemes in Wales were obliged to undertake some basic training in environmental management, funded via rural development and Cohesion policies. And finally, the Welsh government has shown long-term commitment to funding specific advisory services and/or methods (e.g. Farming Connect) that have now been in place for several decades, rather than opting to encourage competition and a wide variety of providers, as happens in England. One organisation, Menter a Busnes, currently provides these multiple soft measure initiatives, in Wales, under contracts to the Welsh Government.

1.5. Study methods and data

46. Recent international meta-reviews of the academic literature (Birner et al., 2009; Faure et al., 2012) have tended to ignore a significant body of other relevant literature pertaining to the roles and the effectiveness of soft-measures, which has been generated through research subcontracted by various government departments or stimulated by industry concerns and initiatives. This means that such reviews under-estimate both the complexity of the advisory and training context as it operates in the UK, as well as the richness of evidence pertaining to the performance of these tools.

47. This report seeks to capture a broader range of research outputs on this topic, in part by drawing upon the specific experience of the authors and their colleagues. The Countryside and Community Research Institute (CCRI) has carried out a wide range of studies for Defra, the EU and the Welsh Assembly Government (WAG) since 2006, examining and evaluating various examples of advice and training provision, in different regions in England and Wales. This has enabled a relatively small team of researchers to build up an extensive knowledge of the AKIS and the performance of contrasting soft-measure approaches, including those funded by governments and those instigated and/or driven by commercial concerns or NGOs. Key studies that have resulted from this process are listed below (**Table 1**).

48. As well as covering a contrasting range of projects and programmes, the evaluations have adopted and/or adapted different social-science methods and tools for evaluation, which has allowed some analysis and reflection on the most useful ways to capture the added value of soft-measure approaches. As is apparent from Table 1, study methods include a common core of semi-structured interviews, but also deploy a variety of other methods including quantitative (attitude surveys, social network analysis and the Social Return On Investment – SROI - method) and qualitative (workshops, focus groups) approaches, as well as some triangulation with empirical farm and ecological survey data analysis.

49. Direct evaluation experience from CCRI studies has been complemented with a review of both academic and ‘grey’ literature published by government departments, agencies, NGOs and the commercial sector, on the general topics of knowledge exchange and mechanisms to promote sustainable farming, in England and Wales. As well as this, selected interviews with key informants were held, on the topic of their experience with the provision of agricultural knowledge and extension. Interviewees were chosen to cover examples of significant scale or impact that were identified as either highly dynamic or not yet subject to published evaluation, or a combination of both attributes, meaning that it was not possible to assess them from secondary sources (**Table 2**).

50. In addition to those listed here, this report is informed by interviews and discussions that the informants wished to remain confidential, in part because it relates to what they consider to be commercially-sensitive information, and also for lack of authority to speak on behalf of a wider organization or grouping of businesses. We have respected those confidences and sought to reflect the themes developed from those discussions by reference to publicly available sources, as far as possible.

51. It should be noted at the outset that the very nature of soft mechanisms - where actions result from indirect influence rather than legal obligation and much depends upon changes in understanding, attitudes and motivations - makes them difficult to analyse or evaluate using quantitative methods. Instead, the way in which they work and the extent of impact is more suited to investigation and analysis using qualitative methods which provide diagnostic capability and capture perceptual and knowledge change as well as, or prior to, evidence of practice change. In this context, the robustness of research findings relies not upon quantitative indicators such as sample sizes, standard deviations or statistical representativity; but on qualitative indicators such as careful triangulation of evidence sources, coherence of causal explanations and commonality of experience drawn from contrasting situations.¹ In our review, therefore, we assess the weight of (mostly qualitative) evidence by reference to these kinds of indicator.

Table 1. CCRI studies and evaluations of soft-measure approaches, since 2006

Project Title	Focus	Methods	References
---------------	-------	---------	------------

1. These are established methods for seeking to ensure the quality and robustness of evidence and arguments based upon qualitative approaches – for those unfamiliar with these principles, a simple parallel could be drawn with well-known qualitative evaluation processes such as judiciary systems, historic and criminal investigations.

Understanding And Influencing Positive Environmental Behaviour Among Farmers And Land Managers	Evaluation of 'good practice' in respect of fostering behaviour change through different designs of soft measure approaches	Literature review, four detailed case studies with semi-structured interviews, and practitioner and policy workshops	Dwyer et al., 2007
South West Uplands Initiative (Swui)	Project evaluation, training and demonstration projects and facilitation/advice	Semi-structured interviews, survey and discussion groups	(Gaskell et al., 2013)
Key Factors That Lead To Successful Agri-Environmental Co-Operatives.	Comparative analysis of successful co-operative learning structures and approaches	Semi-structured interviews, key informants and social network analysis	(Mills et al. 2008; Mills et al., 2011)
The Benefits Of LEAF Membership.	Evaluation of impacts of belonging to a self-help integrated farming systems (IFS) initiative, linked to a quality label developed with a retailer	Semi-structured interviews, survey data.	(Mills et al., 2010)
Farmer Attitudes And Evaluation Of On-Farm Environmental Management.	Assessing the connection between agri-environment scheme performance and farmer knowledge	Structured survey, field visits by ecologists.	(Mills et al., 2013)
An Assessment Of The Value-Added Of Axes 1 & 3 Of The Rural Development Programme For England (RDPE) 2007-2013.	Evaluating the impact of this element of RDPE– this included funding for projects incorporating training and advice, sometimes combined with capital grants.	Social Return on Investment (SROI) monetary valuation method, and targeted Interviews for qualitative data.	(Powell and Courtney 2013)
The Campaign For The Farmed Environment: Evaluation Of Local Partnership And Wider Impacts.	Project evaluation of how far this voluntary initiative was effective in using soft measures to improve farmers' environmental actions	Semi-structured interviews, on-line surveys, group discussions and media analysis.	(Powell et al., 2012)
Inspiring And Enabling Local Communities: An Integrated Delivery Model For Localism And The Environment.	Assessment of a 'bottom up' development process using engagement mechanisms to promote farmer understanding of multiple agency environ-mental goals and targets.	Interviews, discussion groups and observation.	(Short et al., 2010)

Table 2. Interviewees

Programme or project	Innovation discussed
Duchy Originals Future Farming Project	Field Labs – demand driven and participatory farmer science.
AgriChat	Innovative use of social media
Farming Connect, Wales	Innovative methods for KE/learning, and evaluation experience
Agricultural Industries Confederation	Developments in professional training provision and policy.

52. For the analysis and discussion of cost-effectiveness, this report has made a largely qualitative evaluation, as a result of the paucity of quantitative measures of the value or impact of these kinds of measure. In so far as this was possible, information on the costs, or at least the financial scale, of the different approaches has been gathered, and an attempt has been made to consider how this compares to costs for other, alternative or complementary policy approaches. When combined with the findings from the

comparative analysis of evidence of impacts, it is possible to make some general, albeit tentative, judgements concerning the relative cost-effectiveness of soft measures as a mechanism to encourage sustainable agriculture, in England and Wales.

2. Results and comparative evaluation

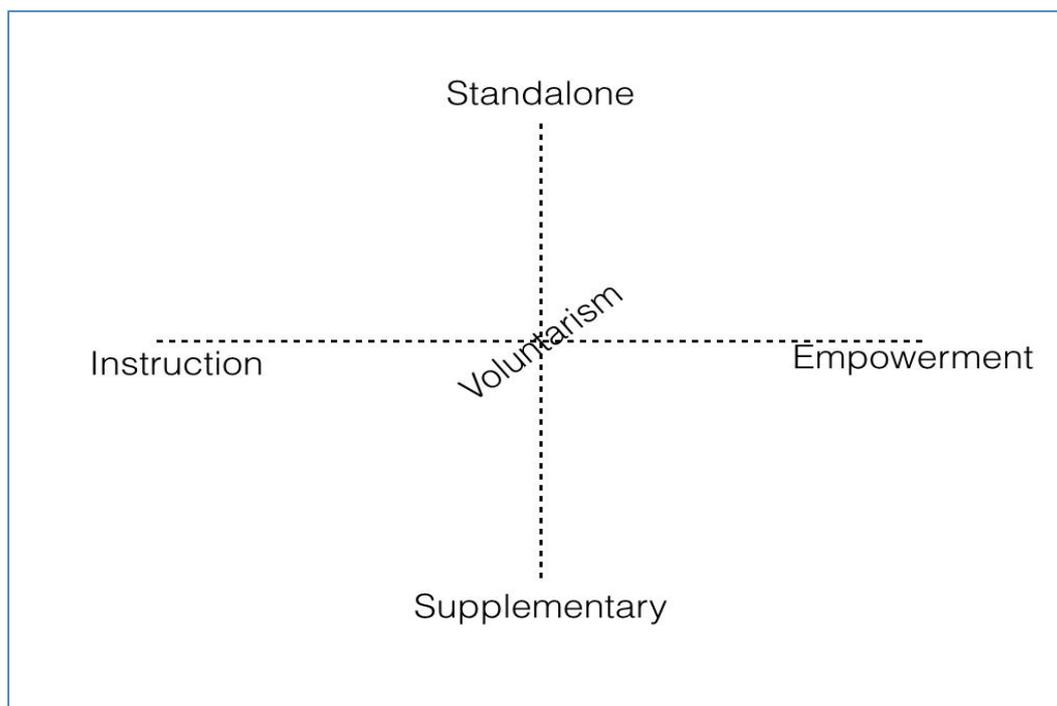
53. There is a tendency to characterise approaches to the provision of soft measures with binarisms: e.g. ‘top down’/‘bottom up’ or insider/outsider styles of initiative. From the evidence assembled for this report, we suggest that the reality is more complex than this, with individual projects, services and/or initiatives spread across a landscape of differentiation in approach, broadly delineated by two intersecting axes.

54. On the horizontal axis is the spectrum of styles of knowledge transmission, from ‘classic KT’ - direct instruction in the use of a tool or technology (perceived as a unidirectional flow of information); through to methods of knowledge ‘co-creation’ where different people with knowledge work with a family or members of a social network, to empower individuals to recognise, develop and then realise their ambitions themselves.

55. On the vertical axis of variation is then the context within which the advice, knowledge or training is delivered, which spans a spectrum from stand-alone advisory services through to approaches where information and/or advice is only given as an adjunct or accompanying aid to other interventions, such as capital grant funding, or multi-annual agri-environment schemes.

56. There could even be a third axis of differentiation which describes the extent to which an approach is privately or publicly-driven and/or funded, although the positioning of individual examples along this axis could be difficult in those cases where there is a close functional inter-relationship between public drivers and private co-ordinators of initiatives, such that it is difficult to see clearly how far the approach is mainly aligned to policy goals, or to private operational interests.

57. We have therefore organised this description of the main findings of evaluations around the first two axes of differentiation (**Figure 1**), starting with initiatives in the bottom left-hand corner of the figure (advice as an adjunct to other policy tools and approaches, given as unidirectional KT to the farmer), and moving across slowly to the top-right hand corner ‘type’ of approach (advice as a stand-alone policy tool, acting very much as a multidirectional, shared and co-owned knowledge exchange approach).

Figure 1. The spectrum of approaches to soft measure provision

2.1. *Agri-environmental schemes, advice and value-added*

58. Agri-environmental schemes (AES) have been a key method of recognising the role of agricultural activities in co-producing many of the ecosystems and much of the biodiversity of the UK (Evans et al., 2002). Payments are given to reflect the costs of work and/or materials needed to undertake prescribed management actions, plus the income forgone from otherwise more profit-driven agricultural use of the land. The payments thereby seek to offer an adequate incentive to farmers to participate in the scheme and indeed uptake levels generally suggest that in this, they succeed. However, the precise scheme requirements are frequently controversial, with some farmers' organisations arguing that they interfere in too much detail with the business of commercial farming.

59. No UK agri-environmental schemes are delivered without some element of accompanying advice, training or information. However, the types of such supporting measure, and the extent to which these supports are made available and are funded through policy, vary considerably between schemes. Three recent evaluations of these schemes have included some (mainly indirect) assessment of the value of 'soft measure' approaches in influencing scheme participation and/or performance, which we will discuss here.

60. Against the backdrop of the promotion of the Entry Level Stewardship Scheme (ELS) an entry level AES and a wider, voluntary scheme called the Campaign for the Farmed Environment (CFE), the CCRI was tasked with examining how far these mechanisms had changed farmer perceptions about the environment. The evaluation team interviewed 60 farmers, with interviews centred on the farmers' understanding of the schemes and their own evaluations of the efficacy of the management practices required. Afterwards, ecologists from FERA² visited the same farms and made an assessment of the quality of the land and its management, from an environmental perspective. The farmers were then re-interviewed

2. The Food and Environment Research Agency, formerly the Central Science Laboratory (see below).

to discuss the ecologists' findings, capturing differences or co-incidences of understanding with their own (Mills et al., 2013).

61. In the analysis of key factors affecting farmers' attitudes towards, and acceptance of, the goals of AES, advice was identified as one of these.

'Often the catalyst for undertaking environmental management activities was contact with external advice. For one farmer it was contact with a University that led him to become much more aware of environmental management practices on the farm.... Another farming couple became more interested in the environmental management on their farm following approaches to join CSS, and subsequent surveys undertaken on the farm.

"We were approached because it was at a time when English Heritage and English Nature were trying to take control. We had a monument which had not been ploughed up in the 80,s like most of them had, and it was who was going to take control so that we could not plough it up. We were approached to go into CSS so that the monument would be protected. We weren't that environmentally aware before we went into AES, although before that we didn't plough up the grassland because it did seem a bit of shame. We have learnt a lot. We didn't know that we had a 100 species of grass weeds here until people came and counted them. (medium-sized, mixed, tenant farm in Eastern region); (Mills et al., 2013)

62. In the early evaluation of the Environmental Stewardship agri-environment scheme in England, Natural England (2008) drew some interesting conclusions concerning the value of advice as an aid to effective targeting of scheme option uptake.

'...where face-to-face geographically-tailored advice on option uptake was available, this had a significant influence on option choice... CSL³ concluded that, 'It appears that options are to some extent being targeted to areas where they are most appropriate, and at least for diffuse pollution and arable flora, it seems probable that local advisory programmes had some influence on the observed distribution of options.' CSL also recommended that 'carefully targeted advice provided through farmer meetings, farm walks, short visits from advisers, etc., as currently provided by the Conservation Advice Programme, are likely to have more impact.'

63. Lobley and colleagues report on a research intervention into the ELS that reveals the challenges presented by such schemes, as the authors note: the original intention was that ELS could operate as a 'broad and shallow', 'hands off' scheme with little or no specialist advisory and/or training input required (Lobley et al., 2013). However, discussion with farmers indicated that they were often uncertain as how to implement the in-field requirements of the scheme. The researchers thus tested the perceived impact of providing specific training to help farmers to understand the rationale and consider best management approach, for two ELS options: sowing a Wild Bird Mixture (WBM) and establishing a Pollen and Nectar Mix (PNM) in field margins, to support pollinator species. Both options required a moderate level of skill to implement and have been demonstrated to be effective in encouraging wildlife.

64. Farmers were recruited in 2007, trained by an agronomist in the management of the options and then re-interviewed in 2010 to identify what they perceived as the impact of the supplementary training upon their understanding and/or management actions, within the scheme. 18 of the 24 farmers reported that the training had been significant or very significant to them, in improving the management of their ELS options. The authors suggest that the intervention boosted farmers' confidence, encouraging them to view environmental land on a par with productive land and requiring the same professional management. They

3. The Central Science Laboratory – a Defra-funded research institute contracted to undertake the evaluation

suggest that training might be made an option under ELS with financial incentives to participate, but that this would require further research to establish which approach would be most effective.

65. These studies suggest that even when an agri-environment scheme aligns with the strategy of the farm business sufficiently to encourage farmers to join up, advice or training can add value by helping farmers to choose the most appropriate options to maximize potential environmental gains, and that bespoke training can help farmers to improve the quality of their environmental management, once they are in a scheme. Both these effects should lead to enhanced environmental impact.

66. Other literature and interviews have addressed the more general role of advice and information in promoting AES scheme uptake. A lack of confidence in how to implement measures, as well as a reluctance to adopt AES on productive land, may underlie farmer reluctance to take up AES schemes, and advice, information and training can all help to address these barriers by enabling farmers to understand scheme requirements more fully, and to recognise how to tailor agreements to what they feel is compatible with their business needs (Morris and Potter, 1995; Lobley and Potter, 1998; Battershill and Gilg, 1997; Napier et al., 1988).

67. The Lobley et al. study clearly indicates that farmers themselves found that training enhanced their understanding of, and therefore their management responses to, the AES. However, as the researchers conclude: “it will be important to explore the extent to which the impact of training is reflected in environmental outcomes” (Lobley et al., 2013).

68. A programme of advice to support better environmental targeting of options in the England AES – Environmental Stewardship – was devised in 2010, called the ELS Training and Information Programme (ETIP). Its objectives are: to ensure high renewal rates into ELS; to ensure strong uptake of the Upland ELS; to bring in new entrants to the scheme; and to improve option choice and option implementation. An early evaluation of the impact of this initiative concluded:

In addition to a subtle impact in terms of [increased rate of] scheme agreement renewals and a more significant [doubling of] impact in terms of taking on different options (including arable options potentially), ETIP is also having a broader impact which should result in improved environmental outcomes:

Farmers have reported increased general awareness and understanding of options as a result of events, 1:1 visits and literature

They have also demonstrated good awareness and understanding of options as applied to their farm, when identifying the importance of their options to different environmental features on their farms.

These should both make a positive contribution to the establishment and management of options on the ground, and hence environmental outcomes (Cumulus and Delta, 2011).

2.2. Voluntarism and the development of networks.

69. The Campaign for the Farmed Environment (CFE) started in 2009 as an initiative led by the National Farmers Union (NFU) to forestall potential legislation that was proposed to address the shortcomings of previous AES schemes and secure gains from compulsory set-aside that was coming to an end. The NFU and partners⁴ argued that this would be costly in terms of regulation, remove 4-6% of land

4. The CFE partnership includes the National Farmers Union (NFU), Country Land and Business Association (CLA), Agricultural Industries Confederation (AIC), Game and Wildlife Conservation Trust (GWCT),

from cultivation and make farmers more resistant to taking part in the ELS scheme. In its place they proposed working with landowners to institute voluntary measures focused on farmland birds, resource protection and biodiversity, that might lead to greater participation in ELS.

70. The local delivery, in lowland England, was based on the work of Local Liaison Groups and Campaign Co-ordinators who provide information for farmers through events and advice, working with conservation partners at a local level. Defra provided approximately GBP 1.5 million of public money to support the project, with the NFU and CLA providing administrative support. Hence this initiative could be characterised as more or less a standalone advisory initiative, but with strong links to a policy driver, and taking the form of voluntarism, somewhere in-between traditional KT and a fully farmer-led approach.

71. The CCRI evaluation found that CFE environmental actions have often not been of the quality or quantity hoped for, with targets missed and questions about the accuracy of reporting (Powell et al., 2012). However, whilst the campaign itself was making slow progress in achieving its targets in respect of field-level conservation on the ground, all partners tended to view it positively because of the indirect beneficial impacts of partnership working:

The overwhelming view of respondents was that the partnership had worked well and was a considerable source of strength of the Campaign (Powell et al., 2012).

72. The evaluation found that promotion of joint working at a regional and county level between people who had previously often taken opposing or critical positions was beginning to generate positive social capital. The stakeholder dialogue fostered by the CFE process was evaluated as being the most important outcome realised to date, from the initiative.

73. Whilst this might initially seem like a negative evaluation of the impact of CFE as an advisory initiative, by reference to its simple ability to ‘get farmers to deliver more environment’; it also points to a more complex process which the CFE was uncovering, whereby farmer actions were conditioned by underlying antagonisms between farming and environmental organisations at local level, often arising from lack of understanding of each party’s position, which in turn reduced their perceived scope for mutually beneficial action. The implication of the positive attitudes of interviewees towards CFE is that the campaign has been effective in promoting better understanding between these groups which will in due course stimulate increased opportunities for them to come together to promote more sustainable farming at local level. If they are correct, the ultimate impact should therefore be positive but the mechanism much less direct than was initially anticipated.

74. Whilst the prescriptions of public policies and government-funded initiatives for sustainable agriculture have tended to capture most research attention, private sector quality assurance standards have become the key gateway to markets for most agri-food sectors and many of these now incorporate some aspects of sustainability within their prescriptions. Failing the required protocol standards and thereby losing access to one or more key market outlets is potentially an equal or more severe sanction for a farm business than the kinds of penalty which may arise from a transgression of environmental regulations (notwithstanding cross-compliance, by which farmers stand to lose CAP subsidies if they fail to observe regulatory requirements).

75. The protocols required or used by different suppliers take various forms, and whilst most have some very basic standards in respect of environmental management which barely go beyond existing

Linking Environment and Farming (LEAF), Royal Society for the Protection of Birds (RSPB) Central Association of Agricultural Valuers (CAAV), Association of Independent Crop Consultants (AICC) Defra and its agencies; Natural England and the Environment Agency.

legislation, others are much more ambitious. These include organic certification, as well as other indications of environmental quality (Reed, 2009). In these contexts advice, information and occasionally training may be provided to farmers via the certifying organisation; it may be offered directly by the buyer (a processor or retailer); or it may be a self-help product of farmer members actively exchanging views and experience with one another, because of their common interests in the venture. These kinds of initiative therefore sit on our spectrum somewhere to the left of the horizontal axis (as outside experts, rather than farmers themselves, tend to determine the environmental agenda), and more or less at the mid-point of the vertical axis, as they are neither completely stand-alone (due to the link with supply chain requirements) nor formally tied to a particular policy measure, in seeking beneficial environmental change.

76. LEAF – Linking Environment And Farming, established in 1991 – is an initiative to support farmers wishing to adopt integrated farming system methods, and/or to supply the Waitrose supermarket chain via producing to a relatively ambitious environmental standard, in order to gain accreditation of the ‘LEAF marque’ label. LEAF works through networking and information exchange, as well as having a small core staff team which provides supporting advice and various ‘tools’ such as the ‘LEAF audit’ (a self-assessment check of how environmentally sustainable the farm management approach is), to subscribing members.

77. A CCRI assessment of members’ perceptions of the benefits of LEAF, based upon in-depth interviews with a contrasting range of farmers across the UK, found that all those interviewed felt the approach was beneficial to them, and most were able to identify specific financial, social and environmental benefits from membership, including significant positive financial impacts, improved confidence and self-esteem, and more biodiverse farm habitats. The interviews recorded how the LEAF approach – particularly self-completion of the audit, discussion and advice from other LEAF members, and working to achieve LEAF certification standards - had led farmers to review and to change their practices in environmentally-beneficial ways.

2.3. *Stand-alone initiatives with some access to capital grant funding*

78. The South West Uplands Initiative (SWUI) used funding from the training budget of the Rural Development Programme for England (RDPE) 2007-2013 to develop advice, information and training tailored to the needs of upland farms in the region. These needs were as indicated by the findings of previous discussions in farmer groups, which met to identify the problems faced by agriculture in these three areas (Bodmin, Exmoor, Dartmoor). Research commissioned by the South West Uplands Forum had identified profitability problems amongst the small livestock farms that are predominant on the moors, as well as finding that AES payments were playing an important part in supporting the incomes of farmers. So, the purpose of SWUI was both economic and environmental, seeking to improve performance whilst respecting the environmental goals of land management, in these circumstances.

79. The SWUI teams, working through Local Steering Groups involving farmers and other stakeholders, identified and delivered a range of events, advisory meetings and training courses to farmers within their areas. The evaluation of the SWUI by a CCRI team found that its performance relied heavily on the particular skills of the Project Officers in gaining the trust of local farmers in respect of their ability to meet real needs. However, there was good anecdotal evidence of positive environmental influence, from these initiatives (Gaskell et al., 2013).

80. The SWUI project officers supported the Local Steering Groups through the initial phases of the project; then worked with farmers to build their confidence to apply for funding and engage with training. The success of engagement with farmers via training to improve animal health outcomes, which resulted in higher profit levels through better efficiency and carcass quality, was also picked up as an important impact in the programme-level evaluation of Axes 1 and 3 aid under the RDPE, as well (Powell and Courtney 2013

– see later). The SWUI evaluation concluded that strong facilitation was crucial to initiate positive environmental change, both in farmer groups and within individual farm businesses; and that all three initiatives (Dartmoor, Exmoor and Bodmin) had shown some evidence of such change, over the period of time of the evaluation.

81. The importance of personalised advice supported by a small capital grants budget, in a carefully monitored programme, can be seen in the English Catchment Sensitive Farming Delivery Initiative (ECSFDI), which ran from 2006 to 2011. The initiative targeted 50 priority catchments, which covered about 40% of England, to improve the problem of diffuse water pollution therein. Approximately GBP 2 million a year was provided in a joint programme by Defra, Natural England and the Environment Agency, with a GBP 5 million per annum capital grant scheme and GBP 1 million per annum monitoring and evaluation budget which facilitated a relatively large-scale and quantitative evaluation of impact. By the end of February 2011, the ECSFDI had delivered advice to 9 023 holdings covering an area of 1 320 400 hectares (CSF evidence team, 2011). Catchment Officers provided training events, clinics and one-to-one advice in order to raise awareness of the links between agriculture and diffuse pollution, as well as encourage practical action.

82. Different delivery mechanisms were used, tailored to the particular messages being communicated. 11 157 one-to-one visits provided farm-specific advice for reducing diffuse water pollution from agriculture. A further 2 988 farm visits were undertaken to collect soil, manure and foliage samples for nutrient analysis, to help engage farmers. 1 257 group events covered a wide range of topics and 373 clinics provided farmers with the opportunity to seek advice. There were a large number of repeat engagements, with 60% of holdings engaged on two or more occasions, reflecting the fact that behavioural change can take time. Typically, a farmer would attend an introductory event, followed by a workshop, before receiving farm-specific advice through a one-to-one farm visit.

83. The evaluation found clear evidence that:

- the intervention had raised farmer awareness of the problem;
- 58% of control measures (as agreed in one-to-one advice visits) had been implemented;
- 65% of farmers had implemented at least half the recommendations of their advisors; and
- 83% of the decisions to implement control measures were judged as being ‘solely because of ECSFDI advice’ (i.e. actions taken as a result of advice alone, as opposed to actions taken in response to advice plus other drivers including capital grants and AES).

84. The impacts on pollution arising from the measures adopted following advice and training varied considerably by catchment, with reductions in pollutants typically in the region of 10%, but with differences in sub-catchments, and uncertainties in the modelling used to look at longer-term effects. Nevertheless, the policy was judged to demonstrate that through concerted advice, it was possible to have impacts on farmers’ awareness and positive environmental management practices, with tangible environmental impact.

Water quality monitoring has demonstrated reductions in pollutant loads and concentrations resulting from the ECSFDI. These reductions were up to around 30 per cent across targeted sub-catchments within representative catchments and, for pesticides, across targeted catchments. We are confident these reductions represent real improvements associated with the initiative. (CSF Evidence Team, 2011).

2.4. *Agrigôp and the action learning approach*

85. Welsh experience of collaborative learning initiatives embraces a range of examples, but not all of them include the pursuit of more environmentally-sustainable agriculture. The distinctive approach in Wales

of the ‘Agriscôp’ process, which is led by an independent agency Menter a Busnes but funded by the Welsh government, has been to view many of the problems of Welsh family farming as a sub-set of the broader challenges of managing any business, and adopting an ‘Action Learning’ or ‘Participatory Action Research’ approach, in which the group leader is trained to act as its convenor, facilitator and educator in more effectively meeting these challenges. Thus, only a proportion of Agriscôp groups focus specifically upon promoting environmental sustainability in farming, but there are some interesting instances where this is indeed the case, and it is often combined with a business performance improvement agenda (e.g. adding value from direct sales, labelling and branding, etc.)

86. Action Learning is based on the insights of Reg Revans who argued that people or organisations do not flourish when the pace of change of change outstrips their capacity for learning, and that all learning needs to be tightly related to change. The process of transformation of farming practices in Wales has been attempted by training group leaders to form groups of farmers to both reflect on the problems that they face and then to work on ways of acting on those, this is expressed in the positive terminology of ‘creating the case for change’; ‘creating future possibilities’; and then ‘experimenting with new plans’ (Pearce and Williams 2010). This approach drew from an understanding of the particular challenges faced by Welsh-speaking farming communities, as members of the community unintentionally reinforced their shared disadvantages through established customs and habits, and could only resolve those puzzles through better communication with one another and with some external support.

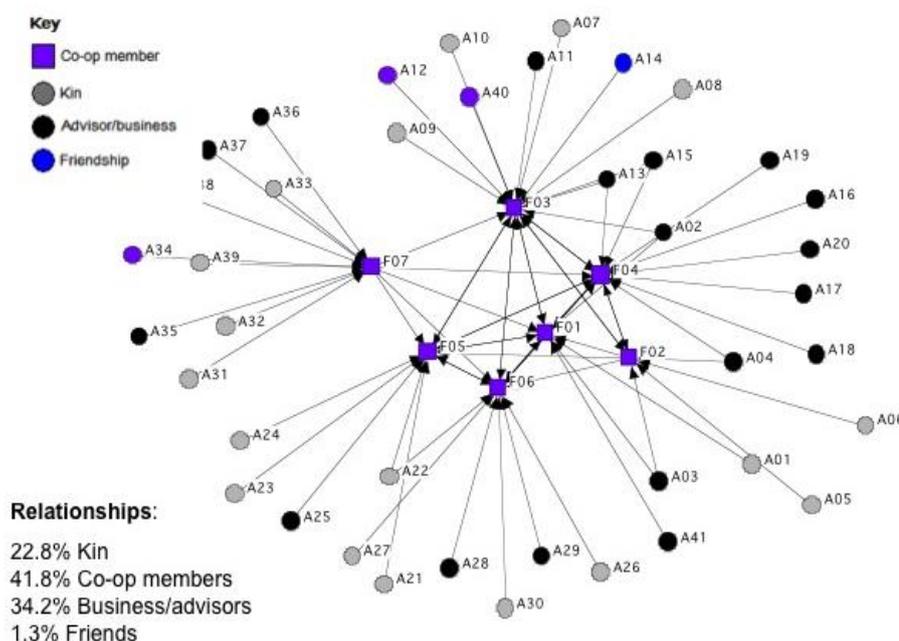
87. Among the Agriscôp groups which incorporated specific sustainability goals, the Dolaucothi lamb co-operative (formed in 2003) was examined in a CCRI evaluation of the potential of collaborative approaches for environmental benefit (Mills et al., 2008). The group succeeded in gaining a prestigious National Trust Fine Foods award and label, demonstrating that it had met high standards of environmental management. The co-operative comprises a group of farmers whose land is on the same National Trust estate in mid-Wales. Initially brought together under the Agriscôp scheme by the group leader Huw Davies, the farmers reviewed their situation as businesses working in a high-value natural environment with low economic returns, and decided to set up a cooperative and develop a strategy that could increase the economic and environmental performance of their farms.

88. With the assistance of the company that processed their lamb, and detailed National Trust advice and encouragement, they developed their own brand with clear environmental and quality attributes and through an interview with Sainsbury’s, gained a place within that retailer’s product range. For the group this provided an important demonstration that they could create, market and control a premium brand of lamb with strong links to quality environmental management. "This first taste of success gave us confidence, the confidence to know that we could make a difference and the confidence to continue to deliver" (Davies, quoted in Pearce and Williams, 2010).

89. Agriscôp works on farmers’ self-identity indirectly, or as Alun Jones describes it: “influencing the influencers”, by working with families across generations and between genders, to ensure that they own the changes they need to enact (Pearce and Williams, 2010).

90. The CCRI used social network analysis to examine the flows of information and influence apparent within the Dolaucothi co-operative. As can be seen in **Figure 2** there was a dense network of advisors and influencers within the co-operative. The members of the co-op were well-linked to each other but also to advisors outside the core group, so that new kinds of information were also available to the group. Interviews with group members found that they were looking beyond the immediate opportunity of the brand, to new possibilities of selling their produce.

Figure 2. Social network of relationships within the Dolaucothi cooperative



91. The evaluation provided only a snapshot of processes of the group but it was apparent that these processes had strengthened levels of integration within the cooperative, and changes to the self-identity of the group members resulting from this process were key to its success as a co-operative, and to the environmental management benefits linked to that process.

92. Outside of the case studies evaluated in Mills et al., at present there is little information regarding the overall effectiveness of the Agrisgôp approach. However, a 1 000 beneficiary survey designed to measure attitudinal transformation among farmers due to Agrisgôp membership is underway within an independent evaluation by Agraceas which will report in late 2014. At present, although the geographical spread across Wales is broad, there are sections of the farming population that the organisers feel are not being reached: those farming on their own; older farmers; those not using ICT; and possibly some part-time farmers for whom the business incentives to join are therefore insufficient.

93. Overall, where there is a focus on sustainability within the chosen themes and interests of Agrisgôp groups, Menter a busnes believes it tends to be mostly seeking to improve their resource efficiency. Some environmental goals may be stimulated in response to private sector requirements about carbon foot-printing, or triggered by interactions with other government policies⁵. Nevertheless, the case studies provided by Menter a busnes suggest that the approach has considerable potential to enhance environmental sustainability at farm level, largely through raising farmer awareness and interest in management for this purpose, stimulating new practices.

5. Evidence from interview.

2.5. *Farmer networks – standalone initiatives representing empowerment*

94. We examine two examples of initiatives that demonstrate that the wider farming community is experimenting with means of disseminating information, promoting research and the exchange of ideas around more sustainable practice, within the broad spectrum of actions that is the focus of this report. ‘AgriChat’ is a voluntary initiative set up by people involved in the farming community but which has attracted the attention of major institutional actors. The Duchy Originals Future Farming Programme (DOFFP) has funding from the private sector and academic partners, and uses models of bi-directional knowledge exchange pioneered in the developing world. These are both no/low budget interventions that demonstrate the importance of facilitation and farmer learning in supporting sustainability, but also highlight the potential of different forms and modes of action, from the ‘person in the field’ approach to the fully on-line and mediated network.

95. The DOFFP is a partnership between the Duchy Originals brand at Waitrose, the Prince of Wales’s Charities, The Soil Association and The Organic Research Centre (all NGOs) that runs from 2012 to 2015. It aims to take agro-ecological approaches to improving yields and nutritional performance in low-input and organic farming systems. That means the goals of the approach are simultaneously environmental and economic, linked by a commitment to agro-ecological systems and methods, although farmers who engage may decide to do so for purely economic reasons.

96. Its main mechanism is farmer and grower-led ‘Field Labs’ where groups of farmers, along with researchers, identify practical challenges, design experiments and share their know-how. “Close to 20” (interview response) Field Labs had been convened by early 2014, exploring a diverse range of topics from cereal and vegetable varieties for low-input systems, and the use of biochar, through to extending the lives of chickens in poultry systems, with plans for more topics in 2014. These labs are augmented by events such as farm walks, workshops and conferences that have attracted 1 500 farmers to date; and by a farmer-led research fund, sourced through the Soil Association and established in 2012.

97. The aim of DOFFP is to involve farmers in farming research from the beginning of the process but also to engage researchers in understanding the problems faced by these farmers, in small-scale research initiatives that can lead to change on the farm or to further research. Tom MacMillan, Director of Innovation at the Soil Association, reported that internal monitoring shows that two out of five participants (40%) is motivated to change practices on their farms after engaging in DOFFP. This motivation often results from simple exchange of information about each others’ current practices, before any experimentation has taken place. More than half of those taking part in Field Labs say that they want to take part in more research. All of the work is overseen by a steering committee comprising scientists, farmers and stakeholders, some of whom are ‘critical friends’ of organic farming such as the ecologist Professor Tim Benton, who is quoted as saying the following.

I think the attempts for a two-way flow of information from organic to non-organic farmers, and the field labs – as a means of farmer-centred learning – are really innovative. The future of farming has to include greater efforts to enhance sustainability, by whatever routes, and the Duchy Originals Future Farming Programme is developing inspiring and challenging new approaches – many of which can benefit agriculture broadly. (The Soil Association, 2013:12)

The programme is still evolving, the results of the field labs have yet to be consolidated and it has yet to be formally evaluated.

98. AgriChat illustrates the new possibilities that social media offer to people who share an identity or want to discuss a topic. Every Thursday evening a group of volunteers hosts a discussion using the index term (hash tag (#) in Twitter terminology) #AgriChat, on a subject that is topical within, or of interest to, the

wider agricultural community. A small group of 7 volunteers manages the organisation and Twitter account of @Agrichat. Since the first discussion in April 2011 the team of volunteers has grown in order to manage the success of these discussions. During a two hour discussion on a Thursday evening there can be over 700 tweets posted, the @AgrichatUK account has more than 11 000 direct followers but through Retweets (forwarding) discussions can reach directly 270 000 people and indirectly millions of people.

99. The aim of AgriChat is not directly educational but conversational, yet as the organisers note, whilst for some people it is just a Thursday evening's entertainment, other people learn something new and others make new contacts. The potential of AgriChat has now been recognised by institutional actors within UK agriculture with Defra using it for consultations on policies, and other institutions being active participants in the discussions. This could be regarded as an indication of the latent capacities of the agricultural community to embrace learning online, although the extent to which such learning focuses upon sustainability will clearly be quite variable. How such a voluntary initiative can sustain itself and capitalise on the insights it has gained is part of the future agenda of the volunteers who are the lynchpins of @Agrichat. But the success of the initiative already indicates the level of interest among farmers in engaging in what is undoubtedly a "soft measures" mechanism with potential to change farming practices.

100. The advent of the smartphone and its widespread adoption by farmers signals a shift in their opportunity as a group to gather and share information. AgriChat demonstrates that mass, direct participation is possible using social media, with only some of its potential yet realised in training and advice. Without further evaluation it is not possible to comment on how this approach adds to, or complements other approaches, or how much it might ultimately achieve. It is distinctive, however, in not being driven by a marketing incentive and not being a closed group of members, but functioning as an open, facilitated network of learning and exchange. The only limitation on its reach is that fora such as these are addressing directly only those with the interest and capacity to participate. As such, they present an interesting model which is worthy of deeper evaluation in the context of this paper and which has already been advocated in developing-world contexts as a key enabler for spreading sustainable agricultural practice (Tree Aid, 2014).

2.6. *Farmer-centred approaches extending to the wider community*

101. Recent action-research by a CCRI team has focused on promoting environmental learning among farmers and other stakeholders in the Walmore area of Gloucestershire, that is characterized by flood vulnerability and high value natural features, and features among the 'environmental priority areas' of a wide range of public agencies. The research started with the goals of realizing the importance of local knowledge and of engaging the local community in the process of land management, in order to improve its sustainability and resilience to climate change. Its starting premise was:

The perception that external goals, however worthy and legally upheld, are being imposed by national or international institutions without the engagement of local people, who feel distanced and even disenfranchised from their own land as a result, undermines the environmental imperative (Short et al., 2010:4).

102. Prior to the start of this initiative, various agencies had been trying to influence the actions of the limited number of people who manage the land in this area, by means of a range of un-co-ordinated messages and schemes, without considering the existing motivations or priorities of those land managers. As a result, there was confusion, suspicion and a lack of farmer engagement. The project established a form of community-led planning or integrated local delivery (ILD) that sought first to understand the priorities and understanding of local people, before then seeking to acknowledge and respond to the stated goals of external agencies. Many people were brought together – not only farmers or land managers, but also other local stakeholders - to discuss the needs of the locality and then to think about wider public goals in that context. The approach appears to have been particularly successful in stimulating enhanced response to government

incentives for environmental management: “using this process FWAG⁶ and its partners delivered more AES spend [here] during the 2009/10 financial year than in any other county in the country” (Short et al., 2010).

103. The process of engagement through the community encouraged farmer participants to become more interested in the ecology and hydrology of the area, based on an increased awareness of their complexities and value. This was an opportunity that FWAG and partners then used to recruit many more farmers into AES schemes. It also demonstrated the value of connecting farming to the local community; because this changed the context of the land management decisions of each farmer, so they were deciding not only for themselves but as a contribution to the local community, its welfare and resilience (particularly in the context of increased concern about flooding linked to climate change). By widening the peer group of the project to include other non-farming local stakeholders, the approach expanded the community of learning in which the farmers were involved. As well as improving enrolment into AES schemes, public agencies have recognised significant savings in transaction costs through improved co-ordination between different agencies and interests, in the area covered by the ILD group.

104. The ILD experiment is just one of a number of local, land-based initiatives in which the CCRI has become engaged as facilitator-evaluator, as its interest in farmer-led and collaborative approaches has become more widely known. Further initiatives have included work on a Payment for Ecosystem Services (PES) scoping exercise with farmers in Exmoor, a developing PES scheme in Gloucestershire and a farmer-led Nature Improvement Area in the Wiltshire Downs. In all these examples, discussion with farmers to gather their opinions and experience of how to promote more sustainable agriculture suggest a particular demand for, and positive results from, increased advice, discussion, collective evaluation and active learning in dialogue between environmental experts and farmers, in a local context (e.g. Short, in press; Short and Dwyer, 2012). Whilst none of this yet amounts to firm evidence of positive impacts from soft measures it certainly indicates a buoyant level of demand among the target population for this kind of learning opportunity.

2.7. Comparative evaluation

105. Taking stock of the findings of the different evaluations, there is a body of qualitative evidence based upon recorded farm-level and field-level changes, farmer reporting and explanation of their evolving practices and the reasons for change, and adviser and (third party) stakeholder or expert observed experience of the development and achievements of initiatives. The weight of this evidence supports a conclusion that advice, training and information have demonstrated significant value as mechanisms to assist or encourage transformation towards sustainable agriculture, in a wide variety of situations and contexts. This impact is noted at farm level, across local territories and within food supply chains and is recognised by a range of different actors (i.e. opinions are triangulated, rather than unduly biased by virtue of the source(s) used; and there is a good commonality of experience from contrasting examples).

106. The evidence also gives much information about how these soft measures appear to work, providing plausible explanatory logic which adds weight to the positive conclusions of the evaluations. From these studies, we find that advice can personalise the process of raising awareness among farmers about environmental challenges and possible solutions; and training, if designed and implemented in ways which are sensitive to the needs and aspirations of farm families and their businesses, can demonstrate how solutions can be put into practice. For the farmer, these approaches provide a key means to translate general environmental information and understanding into decisions to modify their own practices on the farm. And whilst some of the approaches reported here are either too young, or insufficiently established to have

6. Farming and Wildlife Advisory Groups

attracted any formal evaluation of impact, they are seen by those who participate in them to have important potential for positive impacts.

107. Perhaps most crucially, in considering how these soft measures differ from ‘hard’ mechanisms such as capital grants or AES as policy instruments, it is recognised that they work primarily at the level of seeking to change attitudes and understanding as a means to engender changes in practice, rather than the other way around. Direct funding for new or changed farm practices will clearly secure a particular change at a particular point in time, but it may not ensure the durability of that change after the funding ceases to be given because it may not have triggered any underlying change in attitudes or understanding. By contrast, funding advice, training or information may not immediately result in farm changes on the ground, in terms of practices or systems, but where farmers report that it has ‘made a real difference’ to their understanding or their attitudes towards certain actions, the implication is that changes in practice are likely to follow at some point beyond that, and last for longer as a result. For some of these initiatives, those changes can already be demonstrated (e.g. the achievements of Agrisgôp initiatives, and the changes detected in AES performance following the training of farmer participants), whereas for others, the link to change on the ground has yet to be measured.

108. The ways in which the wider socio-cultural and/or economic environment either supports, or works against, an effective linkage between attitude/understanding and changed practice therefore becomes an important consideration, in seeking to assess soft measures’ effectiveness: a weak supporting environment with little peer support or where businesses are risk-averse and vulnerable, which tends to undermine farmers’ capacity to follow through, is likely to reduce the impact on the ground of soft measure initiatives, whilst a broader supportive context which builds farmers’ confidence to act by providing peer support or financial confidence for experimentation, or provides frequent opportunities for reflection and discussion, generating more ideas for change, can help to turn intentions into behaviours.

109. Examining further, it is necessary to ask to what extent the studies identified either perceptual or action-based benefits, *net* of what might have happened without these specific approaches. It is particularly difficult to assess net impact in cases where studies are tasked only with recording to what extent a project or initiative has met its objectives because very few such evaluations are required to consider a counterfactual. However, several studies did make a point of asking participants to reflect on the degree of additionality involved therein (e.g. with questions such as ‘what difference has it made to how you farm?’). Where it was seen as significant, additionality appears to have been a particular feature of approaches involving a knowledge exchange or knowledge co-creation philosophy, in which farmers are directly engaged in learning processes alongside people with other kinds of expertise, rather than more formal, uni-directional KT provision. Key to this observation is the fact that a learning process, in contrast to a one-off training or information event (even a single farm advice visit, in isolation), provides much more scope for the farmer to absorb, test and re-create the main messages involved in the knowledge exchange process – this can be key to what psychologists term ‘central route processing’ of new information, increasing its likelihood of direct impact in practice (Dwyer et al., 2007).

110. Another group of studies which enable some assessment of the additional value of advice or training are those where there has been an explicit attempt to assess the difference made to the effective targeting or the management performance of AES, by providing advice or training to accompany scheme uptake or early management. Both the work by Lobley et al., and that undertaken in respect of ETIP, found some evidence that the choice of scheme options and/or the quality of implementation of management was positively affected by advice or training, compared to what it would have been without this.

111. The examination of these initiatives and their evaluation triggers some reflection on the appropriate role of policy, in this context. In section 1 it was noted that the government in England has held the position that public-funded advice is only justified in cases of clear market failure (i.e. public goods or externalities,

of no direct benefit to the farm) and that commercial advice should provide wherever the farm business can gain financial benefit from adopting new tactics or practices. In reality, much advice to promote sustainable agriculture actually falls somewhere in between these two extremes, making it difficult to determine ‘*a priori*’ how much of it needs to be state-funded, or to separate out the implied ‘public’ from the implied ‘private’ elements of the perceived value of advice. For instance, whilst it should be financially beneficial for farmer to learn how to reduce losses of fertilisers from fields into watercourses, few commercial advisors have yet specialised in providing this level of expertise for their clients –perhaps because the scale of potential savings is under-recognised by both parties, or maybe other factors, such as the transaction costs of securing reliable advice of this kind, are reducing apparent demand. As a result, significant initiatives have been public-funded with apparent success and demonstrable additionality (CSF, 2011). By contrast, whilst tree-planting and pond creation bring almost no financial benefit to those farmers who choose to learn about them, there are NGOs and commercial advisers that provide this information in England for a fee, often within the context of locally-embedded social networks. Non-monetary motivations therefore seem potentially important, in this market.

112. The studies also highlight the significance of market imperfections and transaction costs in respect of barriers to the adoption of more environmentally-friendly practices. These, which are identified and discussed in many of the evaluation studies, frequently mean that commercial advice and training are under-utilised, relative to the economic optimum, because farmers (like many other SMEs), tend to under-invest in it. At the same time, public-funded advice and information focused only on public goods runs a risk of being misunderstood as proselytizing, or irrelevant, or ‘not for us’; on the basis that it fails to incorporate sufficient commercial incentive to ensure that it is listened-to, because it concerns those outcomes which have the weakest connection to farmers’ business goals. In these situations, any ‘soft measures’ approach, public or private, needs first to incentivise farmers to make the effort to engage (addressing imperfect information, mistrust, reluctance to change established behaviours), and to consider their willingness and capacity to change (initial perceptions, family and business constraints, financial and non-financial drivers) as well as the public benefit that could result from adopting more sustainable practices. These elements are identified and analysed in depth in Dwyer et al. (2007).

113. The success of active learning models lies at least partly in their ability to overcome transaction cost barriers to taking in advice and new information, by making the learning process convenient and enjoyable, offered in a flexible format which suits the particular work and home routines of those for whom it is provided. And some of the studies reviewed here provide evidence that advisory initiatives which start with a clear *economic* perspective and a wish to understand farmers’ own challenges and business needs, before seeking to increase their knowledge about environmental management, can be particularly effective in establishing credibility and respect among their target audiences.

114. Taking stock of the extent and quality of the evidence base reviewed here, it is clear that some significant gaps exist. There are few large-scale evaluations which have been able to gauge tangible outcomes of advice or training. Most evaluations have focused on individual projects or initiatives with relatively short life spans, and have been constrained to examine impact as measured by farmer and expert attitudes and perceptions concerning the value of the approach. The studies generally share a small ‘n’ problem in respect of quantitative indicators, meaning that the numbers of participants who could be interviewed or whose practices interrogated was low (Powell and Courtney, 2013). Some projects such as the ‘Farmer Attitudes Project’ led by Mills and colleagues sought to reduce the risk of consequent non-representative results by up-scaling the sample findings using data from the Farm Business Survey (FBS) (Mills et al., 2013). However, with the possible exception of the CSFDI evaluation (over four years), none of these sources includes an empirically-based study of a longitudinal nature, enabling researchers to understand how, and to what extent soft measures stimulate attitudinal changes which then work through into measurable changes in practice and environmental impact, over time.

115. The emphasis in the studies has been on using qualitative research to gather insights into farmer-, expert- or advisor-reported attitudinal and/or behavioural change, or attempting the measurement of proxy indicators of impact. The project-driven nature of the research tends to focus on measurements deemed most relevant to the intervention (i.e. project goals and targets), rather than giving opportunities to consider wider outputs or more fundamental impacts (Reed, M. and Courtney, 2013). As demonstrated in the discussion below, there is often a gap between the intended impacts of soft measures (e.g. better habitat) and what appear to be the actual outcomes of these approaches (e.g. improved confidence to act and to learn, stronger social networks). It therefore seems highly likely that, even where soft measures have been evaluated, only a proportion of their impact has been captured. We return to this point in the discussion of cost-effectiveness in chapter 3.

3. Cost effectiveness of soft measures

116. A common gap in most research on farmer advice, information and training is that quantitative methods are seldom deployed to measure impacts, not least because of the complexity – with both temporal and conceptual challenges – of so doing (Faure et al., 2012). It is therefore not possible to do simple cost-benefit analyses of this type of measure, to examine cost-effectiveness. Instead, a range of both quantified and qualitative data is discussed and brought together in an attempt to assess some of the main constituents, and the potential scale, of net costs and benefits.

117. At the macro level, it is possible to gather some figures on the costs of providing these kinds of approach. Recent figures from the AIC suggest that the input supply industries in the UK with trade valued at GBP 6.5 billion spend approximately GBP 200 million a year on advisors and representatives, investing in the region of GBP 40 million in near-market R&D in the same period. They point to ‘risks of up to GBP 1 000 per hectare being dependant on farmers having the correct agronomic information’ (referring to the value of lost output, if inputs are inappropriately or under-used, indicating the importance of professional and research-informed advice (Gibbs, 2013). However, the same sources are not able to provide robust data on the impact of the advice provided: it would appear that the industry itself judges the benefits of such investment to outweigh the costs, using illustrative figures such as these to underpin that decision.

118. At the other extreme of the scale of intervention, the CCRI evaluation of LEAF membership, which had a very limited, illustrative sample size of 10 farms, suggested considerable benefits from the advice, information and networking offered by LEAF, among the interviewed farmers. Among the reported benefits were savings on fertilizer use ranging between GBP 2 500 and GBP 10 000 per farm, per year; and livestock producers reported cost savings of around 10% of business turnover, due to improved animal health. Others reported that the process of joining LEAF had increased the speed of IFS adoption on their farm; so realising savings on input costs much earlier than would have occurred, otherwise. This was cited as producing a GBP 14 000 per year saving on one farm (Mills et al., 2010). Members also noted significant non-monetary benefits from membership. The training and social interaction of LEAF membership was reported as effective at reducing members’ isolation, improving confidence. In turn this led to greater confidence in dealing with regulatory requirements, better communication with non-farming neighbours and better environmental outcomes. Several interviewees believed that they were subject to fewer regulatory inspections by public bodies, because of their LEAF membership. These responses are indicators of potentially significant reduced transaction costs to members as a result of joining the organisation and taking advantage of the information and advice offered therein.

119. As a non-profit networking initiative, LEAF costs relatively little (between GBP 75 and GBP 350 per year) for individual farmer members to join. Most of the central costs of LEAF initiatives are funded through public and private sponsored projects and donations. On this basis, therefore, this small illustrative study suggests that environmental advice, training and information can be a very cost-effective option for individual farms.

120. The CCRI's evaluation of Axis 1 and 3 of the Rural Development Programme for England (RDPE) – a suite of schemes funded under the second pillar of the CAP and mainly targeting socio-economic goals, deployed a Social Return on Investment (SROI) methodology applied at a programme level but within case study areas, to attempt a monetisation of all its impacts. The method involves seeking to record stakeholder views about the full range of project or programme impacts and then identifying indicators for those impacts which can be monetised, using a variety of estimation approaches. In this project the evaluation was limited by a very short timeframe and modest resources, leading to a low sample size. The researchers also faced specific challenges in finding proxy monetary values for the environmental gains made from the programme, in particular. Nevertheless, some interesting impacts were indicated.

121. In Axis 1 (the competitiveness priority), based upon case study areas in counties where much of this funding was devoted to training and advice, SROI estimated that for every GBP 1 of public money spent there was a return of GBP 2.37, whilst the return on private investment (pertaining mainly to capital investment expenditures under this axis) was only GBP 1.03. The key areas of return for public funding in the south-west of England were in resource efficiency gains and through animal health improvements, each of which was associated with a large-scale initiative to provide better training and information to farmers, supported by some capital funding to enable them to implement changes following receipt of new knowledge. The model is similar to that already discussed for the case of catchment-sensitive farming, in chapter 2.

122. By contrast, the estimated SROI returns from Axis 3 RDPE funding were found to be higher, of GBP 4.36 per GBP 1 of public money invested. This was largely realised through the programme funding the creation of new micro-businesses, as well as 'processes to strengthen or develop social capital'. Unfortunately, detailed data pertaining to this axis does not allow us to extract the relative role of soft measures within the funded projects (Powell and Courtney, 2013).

123. These partial estimates of the value of impacts can be compared to the costs of provision, for RDPE "soft" measure approaches. Of a total value of the RDPE of GBP 3.9 billion, measures for training or advice were allocated the following:

- Measure 111 – vocational training GBP 126 million;
- M 111 – advisory services - GBP 4.1 million;
- M115 – farm advisory services GBP 6.8 million.

Which totals approximately GBP 137 million (or about 3.5% of the RDP budget). If the returns on this funding were similar to those found in the study, the benefits of this expenditure would be around GBP 280 million. Note, however, that these are figures for all training, advice and information, and not specifically for that which targets sustainable agriculture.

124. The expenditure on soft measures is a tiny sum by comparison with the figure for AES funding under the RDPE, which absorbed nearly 75% of the total funds and was the single largest spending element in the programme. Unfortunately, there is no SROI-type assessment of the value of the impacts of AES, but there is consolidated qualitative evidence on the nature and depth of their positive impacts (e.g. Natural England, 2008). This suggests that some elements of AES spending, ELS in particular, offer quite low additionality and therefore have low net impact – largely representing actions which farmers were already doing prior to scheme entry. On the other hand, significant positive benefits have been reported from the higher level and more ambitious elements of these schemes. Overall, the current enrolment in schemes is much higher for entry-level than for these higher levels, which would tend to suggest that cost-effectiveness for the total England AES budget might not, at present, compare favourably against that for soft measures

(note that the costs of advisory support to AES is not generally included in the total scheme budgets as reported in studies such as these, which refer to the budgets devoted to paying farmers under AES contracts).

125. At the EU level, within the ‘Review of rural development instruments’ undertaken by Dwyer et al. in 2008 for the European Commission, a focus upon the cost per beneficiary of different actions was used to give some indications of relative cost-effectiveness. In these measures, discounting for outliers, there were indications from Italian data – the most complete set that was available for this purpose – that the cost per beneficiary for training and advisory measures was the lowest cost of all RDP measures, whereas the cost per beneficiary for AES was somewhat higher, on average, whilst that for investment aids was the highest⁷. This pattern is intuitively logical, given the nature of the methods deployed, in each instance, to encourage a change. Thus, to the extent that this same pattern is found in costs for the RDPE schemes, we suggest that it is possible for training and advice to appear relatively cost-effective mechanisms for achieving impacts, by comparison with alternatives.

126. This does not overcome the significant challenge, however, of demonstrating *ex-ante*, the extent of eventual environmental impact that should be anticipated from this form of support; which may explain why these measures appear likely to continue to receive a relatively low share of funding, in the Programme. In Defra’s recent consultation on the future shape of the CAP in England, the section covering first ideas on the next RDP specifically sought ideas for reducing the costs of advice within the programme, by moving away from the provision of face-to-face advisory support and more towards online methods. This pattern has been repeated in the Defra review of advice, cited in chapter 1 of this report. Whilst our review has not been able to compare the performance of contrasting styles of soft measure approaches in any quantified manner, it has highlighted the importance of trust, credibility and building local communities of shared learning through direct interaction between farmers and environmental experts, in maximising their effectiveness. A significant or too-rapid move to online approaches could therefore jeopardise some of the positive achievements of soft measures, if it weakens these attributes.

127. The greatest barrier to achieving any robust assessment of the cost-effectiveness of soft measures is undoubtedly the neglect of this issue within the process of scheme and programme evaluations. Appropriate data on costs, results and outcomes (either changes in perceptions, understanding and intentions to act, or actual changes in practice) is simply not being gathered in many cases. This may be related to a lack of demand for such information from the commissioning sponsors within government departments and agencies. The example of the work being done now in the evaluation of Agrisgôp shows that this kind of evaluation should indeed be possible. It is unfortunate that because of an extension to Agrisgop’s funding contract, the results of that evaluation were not available at the time of writing this report. Similarly, CCRI’s current evaluation of the advisory support offered within England’s Higher Level Stewardship AES will not be completed until the end of 2014.

4. Conclusions and recommendations

128. This report has surveyed the available evidence from documents and selected interviews, concerning the value of ‘soft measures’ in promoting sustainable agriculture in England and Wales. In sum, this demonstrates the many and varied ways in which advice, training and information are being used to promote this goal, within public, private and third sectors. It also indicates that (to an extent) the varied positive impacts of these tools have been recognised, explained and documented, although there are problems and challenges in achieving any comprehensive evaluation or quantification of impacts from the existing

7. The report concludes, more generally: ‘The unit cost of agreements involving investment aids tend to be higher than the unit cost of agreements involving annual compensatory or land management payments. Also, the cost per beneficiary of delivering training aid is lower than the cost of delivering aids in the form of physical capital’ (Dwyer et al., 2008).

evidence base. It is also clear that no studies to date have provided sufficient information on the costs and benefits of these measures to enable a full assessment of their cost-effectiveness. This would be needed to enable some element of benchmarking, or robust comparison against the cost-effectiveness of other approaches including agri-environmental payments or Payments for Ecosystem Services (PES); or funding investments to facilitate more sustainable practices.

129. Nevertheless, the findings reviewed and analysed in this report do enable us to bring together a series of conclusions. Firstly, we can identify a series of common messages in the evaluation studies, concerning how best to design and deliver effective ‘soft measure’ approaches in policy. These are summarised in **Table 3**. The table summarises the findings of how best to tailor advice and training packages for farmers. Looking back, the substantial difference of the messages in this table from the situation as assessed in 2007 (Dwyer et al., 2007) is that the importance of understanding processes of farmers’ and communities’ self-identity, and how these might be changed through engaging with new knowledge, is recognised more fully.

Table 3. Summary of good practice in soft measure design and delivery

At the Farm Level	The Community Level	Project Level
Advisors should be local, expert, and associated with a well-established and trusted institution.	Farming is connected to the local community, initiatives that explore and demonstrate connections promote this benefit	There is a need to understand that incentives only become sustainable when coupled with learning
Sustainability advice should still be orientated towards building the profitability of the farm business.	Skilled facilitation is the core of delivering a successful project: building capacity, confidence and reflexive capability among farmers	Understand the needs of localities by involving local people is especially valuable
Profitability is a key way of discussing continuation of the farm - the central goal of much family farming.	Positive changes to the self-identity of farmers can be achieved in community development settings which engender trust and encourage farmers to feel that they can do things that will really ‘make a difference’	There is a need to build answers to environmental challenges from locally-appropriate / embedded solutions
Solutions should be produced with farmers rather than for them.	Ditto for the local community – involving them enlarges the scope of possible solutions	Clear and unambiguous communication is vital to combat ‘hearsay’
Problem solving should build on farmers’ own knowledge and show pathways to using and improving upon that.	Knowledge from other community members can provide insights into new potential business-environment linkages on farm	Monitor during the process to understand progress, and react during the programme.
Advice delivered by a small core team is trusted	Expert facilitation may be key to build effective links between farm decision-making and community goals	Spatial Integration of multiple agency goals is key – at present, many agencies seek different actions on the same areas of land, creating confusion at farm level.

130. As is apparent from the discussion assessing the cost-effectiveness of these measures, there is a limited evidence base in the body of evaluation studies conducted to date, which is largely focused on ‘snapshots’; and often based on low numbers of participants in interviews and surveys. This ‘deep but narrow’ style of evaluation has proved very useful in helping industry and policy makers to understand the causal linkages between soft measures and their impacts, and to focus on how to encourage participation and communicate effectively with farm businesses. However, it has not yielded large-scale data concerning the positive environmental impacts of these approaches.

131. In order to address these gaps in the evidence base, we suggest that future work should seek to address more fully the sequence of changes at farm level that are triggered by soft measure initiatives. For example, early attitudinal surveys can be used to measure changes in awareness and willingness to act; and this can be followed up by later surveys which calibrate how far those early indications translate into changes in practice – whether environmental, social and/or economic. Ideally then, work should also examine how far this process becomes repeated through an ongoing process of learning and application, giving rise to further direct and indirect impacts. This implies ongoing evaluation processes rather than ‘snapshot’ studies, and raises the possibility that at least some such action might be undertaken most efficiently by farmers themselves working alongside evaluators to record and explain their strategies. Increasingly, online methods facilitate the collection, collation and aggregation of such data at relatively low cost, although some level of independent verification needs also to be built in. This kind of information should enable both the generation of impact data comparable to that already available for other measures (notably AES), as well as comparisons of cost-effectiveness for different kinds of soft and hard-measures approach, in different contexts. Similarly, evaluations of hard measures should be designed to take into account the additional impact of soft measures in contributing to their success.

132. As recognised in Defra’s recent policy review and indicated by the figures provided by AICC in their report, it seems clear that the role of professional advisors operating in the commercial sphere can be key to improving farm businesses through the provision of advice that maximises market performance. The recent creation of by the AIC of a Register of Feed Advisors⁸ extends the industry’s investment in Training and Continual Professional Development (CPD) and professional standards more deeply into the livestock sector, helping to counterbalance what has traditionally been much stronger provision for cropping farms. Thus a tactic of extending the reach of professional advice into issues of sustainability, as recognised by the input industry and Defra, could be useful for policymakers. However, commercial in confidence issues currently limit the extent to which government goals can be robustly pursued via retailer/food processor protocols (MacDonald et al., 2006); and it remains the case that the less than comprehensive nature of penetration of commercial advice across the sector, noted in section 1, will limit its ability to deliver policy goals for sustainable farming.

133. From the evidence discussed in this report, we conclude that significantly improved environmental results might be achieved through improving the training and advice that accompanies AES schemes – a conclusion echoed in the MESME (making environmental schemes more effective) review process undertaken by Defra agencies, in recent years (Natural England, 2014). Training to address confidence about specific activities helps to address broader questions of participation in schemes and initiatives, even including those that were originally designed to be adopted widely without specialist advisory support (vis. ELS).

134. There appear considerable gains to be made in greater uptake and more effective use of existing technologies for sustainable agriculture, by including more farmers in the circles of self-help or government-supported advice and training that have already developed, in a variety of contexts. The focus of evaluation studies on farmer participation has perhaps tended to obscure the importance of the wider context – i.e. the

8. www.feedadviserregister.org.uk/

self-perception of the farmer in terms of their community identity, personal sense of efficacy (the notion that they can make a real difference to the environment through their own actions), and ease of access to relevant and directly applicable information, in these initiatives – in achieving positive change. The evidence examined here suggests that initiatives enabling ongoing learning, with group discussions and processes with peer-support, can be more effective than conventional one-to-one, unidirectional KT provision.

135. The limitations of the existing research evidence indicate that the effectiveness of different forms of training, advice and extension are not yet comprehensively understood. Public and private investment decisions are therefore being made upon a narrow evidence base, suggesting that they may not be providing optimal returns.

136. England and Wales provide contrasting approaches to how advice and training are delivered to farmers through public policy. Whilst public-funded provision in Wales is undoubtedly more co-ordinated through a particular major provider, that in England comes via a mix of separate contracts for different types of environmental objective and/or different agri-policy instruments. Regardless of these differences, we conclude that soft measures appear most effective when they focus on a promoting to farmers a common set of practical approaches derived from and delivered alongside specific environmental insights, which are close to the business motivations of farmers but able to go beyond their immediate business concerns and perspectives, and which are well-informed by both environmental expertise and community understanding. These characteristics enable farmers to appreciate the environmental goals being pursued and the efficacy of related action, to apply this information to their own individual situation and to be supported in making environmentally-appropriate changes in that context, and to reflect and learn from the result of these changes in ways which act as a stimulus to further environmentally-beneficial actions.

137. We also note that the agricultural industry and farming community have been pro-active in addressing training and advice needs, but that not all farmers and farm businesses are equally included in those activities, and sector or farm business goals do not always match societal or public policy goals for sustainable farming. Thus, achieving environmental improvements has tended to settle on the common denominators of either: improved profitability through resource efficiency; or no/low-cost amenity actions; which, whilst important, on their own are insufficient to address societal demand. Nevertheless, the most dynamic facilitated farmer groups and local integrated partnerships appear to be taking on a more ambitious set of future challenges (e.g. soil management, climate change adaptation and mitigation) with positive input from government and other environmental stakeholders, which should increase their potential for significant and lasting impact, in future.

REFERENCES

- Battershill, M.R.J., A.W. Gilg (1997), "Socio-economic constraints and environmentally friendly farming in the Southwest of England", *Journal of Rural Studies*, Vol. 13.
- Birner, R., K. Davis, J. Pender, E. Nkonya, P. Anandayasekeram, J. Ekboir, A. Mbabu, D.J. Speilman, D. Horna, S. Benin and M. Cohen (2009), 'From Best Practice To Best Fit: A Framework for Designing and Analyzing Pluralistic Agricultural Advisory Services Worldwide', *Journal of Agricultural Education and Extension*, Vol. 15, No. 4.
- Boatman, N. (2013), 'Evaluating the impacts of limiting free choice in management option by ELS applicants', Natural England Commissioned Reports, Number 117.
- CSF Evidence Team (2011), 'Catchment Sensitive Farming. ECSFDI Phase 1 & 2 Full Evaluation Report'. Environment Agency, London.
- Curry, N. (2010), 'Differentiating Trust in Rural Decision-making, Drawing on an English Case Study', *Sociologia Ruralis*, 50 (2), 121-38.
- Cumulus and Delta-Innovation Ltd consultants (2011), Preliminary Assessment of the Effectiveness of ETIP in influencing ELS Option Selection. Report for Department for Environment Food and Rural Affairs. CC-P-509, March 2011.
- Defra (2012), "Food Statistics Pocketbook 2012", (London: Defra).
- (2013a), "Review of Environmental Advice, Incentives and Partnership Approaches for the Farming Sector in England", (London: Defra).
- (2013b), "Evaluation of selected advice and incentives schemes", March 2013
- Dwyer, J., J. Mills, J. Ingram, J. Taylor, R. Burton, K. Blackstock, B. Slee, K. Brown, G. Schwarz, K. Matthews and R. Dilley (2007), "Understanding and influencing positive environmental behaviour among farmers and land manager - a project for Defra by CCRU/MLURI", (CCRI, Cheltenham, Gloucestershire).
- Dwyer, J, Mantino, F, Schiller, S, Baldock, D, Farmer, M, Knickel, K, Prazan, J, Trantinova, M, Lewis, N, Thomson, K, Kambites, C, Kirwan, J, Tarangioli, S, Monteleone, A, Bolli, M, Clark, M, Bradley, D, Bartley, J, Hart, K, Keenleyside, C (2008), Rural Development Instruments Review. Report to DG-Agriculture, European Commission. At: http://ec.europa.eu/agriculture/analysis/external/rurdev/full_report_en.pdf
- Evans, N, Morris, C, and Winter, M (2002), 'Conceptualizing agriculture: a critique of post-productivism as the new orthodoxy', *Progress in Human Geography*, 26 (3), 313-32.
- Faure, G., Y. Desjeux and P. Gasselin (2012), 'New Challenges in Agricultural Advisory Services from a Research Perspective: A Literature Review, Synthesis and Research Agenda', *Journal of Agricultural Education and Extension*, 18 (5), 461-92.
- Gaskell, P., J. Mills, N. Lewis and S. Curzon (2013), 'South West Uplands Initiative Evaluation - Final Report', (Gloucester: CCRI), 29.

- Gibbs, C. (2013), 'The Value of Advice Report', (Peterborough: Agricultural Industries Confederation Ltd.).
- Ingram, J. (2008), 'Are farmers in England equipped to meet the knowledge challenge of sustainable soil management? An analysis of farmer and advisor views', *Journal of Environmental Management*, 86, 214–28.
- Ingram, J, P. Gaskell, J. Mills and C. Short (2013a), 'Incorporating agri-environment schemes into farm development pathways: A temporal analysis of farmer motivations', *Land Use Policy*, 31, 267–79.
- Ingram, J., H. Wright, L. Foster, T. Aldred, D. Barling and T. Benton (2013b), 'Priority research questions for the UK food system', *Food Security*, 5, 617-36.
- Ingram, J., N. Curry, J. Kirwan and D. Maye (2011), 'Overview of the current state and functioning of the national AKS, England. Preliminary report for SOLINSA', (Gloucester CCRI).
- Lobley, M., E. Saratsi, M. Winter and J. Bullock (2013), 'Training farmers in agri-environmental management: the case of Environmental Stewardship in lowland England', *International Journal of Agricultural Management*, 3 (1), 12-20.
- MacDonald, N., Dwyer, J., Groves, S, Dinsdale, K, Kirwan, J and Ingram, J (2006), The influence of produce protocols on water use and land management. EA project A20: project report to the Environment Agency of England and Wales by ADAS and CCRU (unpublished), Feb 2006.
- Mills, J., J. Ingram, M. Reed, C. Short, D. Gibbon and J. Dwyer (2008), 'Evaluation of key factors that lead to successful agri-environmental co-operative schemes', (Report to the Welsh Assembly).
- Mills, J., D. Gibbon, J. Ingram, M. Reed, C. Short and J. Dwyer (2011), "Organising collective action for effective environmental management and social learning in Wales", *The Journal of Agricultural Education and Extension*, Vol. 17, No. 1.
- Mills, Jane, Lewis, Nick, and Dwyer, Janet (2010), 'The Benefits of LEAF Membership: a qualitative study to understand the added value that LEAF brings to its farmer members', (Gloucester: CCRI).
- Mills, J., P. Gaskell, M. Reed, C. Short, J. Ingram, N. Boatman, N. Jones, S. Conyers, P. Carey, M. Winter and M. Lobley (2013), 'Farmer attitudes and evaluation of outcomes to on-farm environmental management- summary', (Gloucester: CCRI).
- Morris, C., Potter, C. (1995), Recruiting the new conservationists: Farmers' adoption of agri-environmental schemes in the U.K. *Journal of Rural Studies* 11, 51-63.
- Napier, T.L., Thraen, C.S., Camboni, S.M. (1988), Willingness of land operators to participate in government-sponsored soil erosion control programs. *Journal of Rural Studies* 4, 339-347.
- National Statistics (2013), 'Agriculture in the United Kingdom 2012', (Office for National Statistics).
- Natural England (2008), Environmental Stewardship: review of progress. Defra – Natural England 2008. NE, Peterborough.
- Pearce, D. and E. Williams (eds.) (2010), *Seeds for Change. Action Learning for Innovation* (Aberystwyth: Menter a Busnes).

- Potter, C., Lobley, M. (1996), The Farm Family Life Cycle, Succession Paths and Environmental Change in Britain's Countryside. *Journal of Agricultural Economics* 47, 172-190
- Powell, J. and P. Courtney (2013), 'An assessment of the Social Return on Investment of Axes 1 and 3 of the Rural Development Programme for England', (Gloucester: CCRI).
- Powell, J., J. Mills, D. Gibbon, J. Ingram, M. Reed, C. Short and J. Dwyer (2012), “*The Campaign For The Farmed Environment: Evaluation Of Partnership, Local And Wider Impacts*”, (Gloucester: CCRI).
- Reed, M. and P. Courtney (2013), 'Developing farm-level social indicators: Measuring their networks, well-being and capacity for social innovation.', paper presented at the XXVth (*European Society for Rural Sociology* (ESRS) Congress, Florence, Italy.
- Reed, M. (2009), 'For Whom? - The Governance Of Organic Food And Farming In The UK', *Food Policy*, Vol. 34, No. 3.
- Short, C. (2014), “Governance and Institutions within Integrated Catchment Management: early lessons on micro-level design and adaptive governance from the Catchment-Based Approach in England”, *Environmental Science and Policy*, forthcoming.
- Short, C., J. Dwyer (2012), “Reconciling pastoral agriculture and nature conservation: developing a co-management approach in the English uplands”, *Pastoralism: Research, Policy and Practice* 2012, 2:13.
- Short, C., R. Griffiths, and J. Phelps (2010), 'Inspiring and Enabling Local Communities: an integrated delivery model for Localism and the Environment.', (Gloucester: CCRI).
- Sutherland, L.-A., J. Mills, J. Ingram, R.J. Burton, J. Dwyer and K. Blackstock (2013), 'Considering the source: Commercialisation and trust in agri-environmental information and advisory services in England', *Journal of Environmental Management*, 118, 96-105.
- The Royal Society (2009), 'Reaping the Benefits: Science and the Sustainable Intensification of Global Agriculture', (London: The Royal Society).
- The Soil Association (2013), 'Duchy Originals Future Farming Programme Annual Report 2012-2013', (Bristol: The Soil Association).
- Winter, M. (1997), 'New Policies and New Skills: Agricultural change and technology transfer', *Sociologia Ruralis*, Vol. 37, No. 3.