

Environment

Agriculture and Climate Change: Evidence on Influencing Farmers Behaviours

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Farmers have a key role to play in mitigating climate change. The Scottish Government has estimated that agriculture and related land use could contribute around 20% of total Scottish greenhouse gas (GHG) emissions. However, farming can also fix carbon in the soil, acting as a permanent sink. Given Scotland's ambitious targets in relation to reducing GHG emissions, it is important to understand the range of factors which may influence farmer behaviours, the effectiveness of approaches taken by governments to influence farmer decision making and practice, and to consider how uptake of policy initiatives might be improved. These are the summary findings from a national and international literature review and interviews with a range of opinion formers in the agricultural community in Scotland. The research was undertaken by Scottish Government analysts in 2011-12.

Main Findings

- Farmers' behaviours are influenced by a **wide range of factors**. External factors (eg farm size and type) create the context within which behaviours can, or cannot, be influenced. Internal factors (attitudes, values and habits) are important, as are social factors (the influence of family members, peers, neighbours etc). Above all, agricultural systems are dynamic: continuously responding to changes in crop and livestock yields, food prices, resource availability etc. Economic factors are therefore key when considering how uptake of initiatives can be increased.
- A **range of policy approaches** is available to governments to encourage positive environmental behaviour among farmers. Many are already being used in Scotland. Success depends on a range of factors, and understanding the interplay between these different elements can be crucial to understanding how and why policy approaches succeed or fail in different situations.
- **Cost of measures and/or profitability** of the farm business are usually the most important factor that influences farmers' uptake of climate change mitigation measures. It is important to promote farmers' role as **environmental stewards** in tandem with business benefits, as behaviour change is unlikely to be sustainable without corresponding attitudinal conviction.
- Farmers place trust in, and are influenced by, their **social networks**. If they can see neighbours trying and benefiting from new practices, they are more likely to consider them positively. This means it is particularly important to encourage, endorse and promote the behaviour of innovators and early adopters.
- Communication with farmers needs to be able to convince them of the **science** of climate change as well as the science, **ease of implementation** and **quality** of proposed mitigation measures and the likely impacts on their land. Farmers are busy people, so messages need to be topical, snappy, personally relevant, and coming from a trusted source with knowledge of local issues.
- The farming community is diverse. Better targeting of initiatives that are **sensitive to farmers values, as well as their circumstances**, is likely to increase uptake. Groupings need to make sense to Scottish farmers, but much can be learned from pioneering segmentation work carried out by Defra.

Policy context

The Scottish Government (SG) has estimated that agriculture and related land use could contribute around 20% of total Scottish greenhouse gas (GHG) emissions. The Climate Change (Scotland) Act 2009 sets in statute the target to reduce Scotland's emissions by 80% by 2050, with an interim target of a 42% reduction by 2020. Farmers have a key role to play in meeting the targets, both because of the contribution of agriculture to total GHG emissions, and because farming can fix carbon in the soil, acting as a permanent sink.

The overarching context for agricultural policy in Scotland is the Common Agricultural Policy (CAP). Currently the CAP provides a level of income security to farmers, as well as a 'cross compliance' framework for sustainable management of the environment. The CAP will undergo major reform at EU level post 2013. There is potential for specific climate change mitigation measures to be made mandatory through the cross compliance regime, as well as opportunities for introducing further climate action measures.

Within Scotland, *Farming for a Better Climate (FFBC)* is currently the only policy initiative set up by the SG with the specific aim of mitigating climate change in agriculture. FFBC is a targeted communication strategy designed to encourage farmers to adopt efficiency measures that reduce emissions while having an overall positive impact on business performance.

Given Scotland's ambitious GHG targets, it is important to understand the range of factors which influence farmer behaviours, the effectiveness of approaches taken by governments to influence farmer decision making and practice, and to consider how uptake of policy initiatives might be improved.

A programme of evidence gathering was carried out by SG analysts in 2011-12. Drawing primarily on findings from a national and international literature review and interviews with a range of opinion formers in the agricultural community, this Research Findings sets out to answer a number of questions relating to farming behaviour and meeting GHG emissions targets.

Which factors influence farmers behaviours?

Farmers, like other people and other businesses, are affected by a wide range of social, external and internal factors. However, farmers operate in

circumstances that are distinct from other industries, because climate variability has a strong influence on yield, productivity and, ultimately, farm income.

Economic considerations are likely to be the most important motivating factor for farmers. They do not necessarily require short term business profitability: farmers may be content to break even, or accept short term loss in the interest of a long-term economic gain. Also of key importance is the '**goodness of fit**' between a farmer's own management plan and the package of incentives and restrictions which are part of any policy initiative.

External factors create the *context in which farmer behaviours can, or cannot, be influenced*. Some environmental behaviours are just not possible in certain farm environments.

Attitudes, values and beliefs are important factors, and farmers, like everyone else, are heavily influenced by **habit**. Once routines are developed, it is difficult to persuade people to make changes. In addition, farmers work to long timescales so, once they commit to decisions, they are often tied into specific actions for several years.

Social factors and **social networks** are also very important to farmers. The ability to demonstrate their skills improves how farmers perceive themselves, and how others perceive them. Likewise, if respected authorities within local farming communities are seen to take up new ideas and new technologies, farmers are likely to be more receptive.

Is change practical and possible for farmers?

No matter how willing a farmer may be, s/he may not have the **capacity to change**. Much depends on the size, type, location of the farm business; tenure arrangements; soil type and geographic location.

Make it easy for farmers to change. Flexibility within regulation, access to finance, a range of possible actions that do not involve major changes to the farm business, and cutting down on bureaucracy all help to make change easier for farmers, as do appeals to their underlying values and motivations.

There are also particular **times and circumstances when farmers are more likely to be receptive to change**. For example, if they are planning to extend or diversify production, they are already aware that change and outlay of funds are inevitable.

Take account of different farming styles. The farming community is diverse, and much work has been

done to consider the motivations, objectives and attitudes that underpin different farming styles. The segmentation approach, adopted and promoted by Defra, provides opportunities to target initiatives in a way that is sensitive to farmers' value systems as well as their circumstances. Scotland's Farm Accounts Survey can be used to explore farm performance and the values and attitudes which underlie farmers' approach to their businesses.

What do farmers need to know about the impact of climate change, and how they can help to mitigate its effects?

Interviews with opinion formers in the agricultural community highlighted a number of areas where Scotland's farmers would find specific information useful. For example:

- Clear information about the actual and potential impacts of climate change on agriculture in Scotland, and in different parts of Scotland
- That it **is** possible for an individual, or an individual farm business, to make a difference
- Some farmers expect emissions targets to be introduced at the level of the individual farm and plan to wait before implementing their 'quick hit.' There is a need to make it clear that targets, if introduced, would relate to broad management practices, and that farmers will not be penalised if they adopt technologies and practices that anticipate targets
- Farmers' trust can be damaged when the messages they receive at different times appear to be inconsistent. It is important to acknowledge that science evolves, and that actions encouraged at one time will not necessarily be the same as those promoted two or three years later.

How can communication with farmers be improved?

The SG and its agencies communicate with farmers about a wide range of issues, including updates to regulations, news about initiatives and opportunities to try out new technology. Defra have produced a good practice guide, which provides a useful range of principles and checklist for advice provision:

www.programme3.net/water/P345GoodPracticeGuide.pdf

Key messages from the literature focus on:

The mechanism. The farming press, and mass media more generally, is the main vehicle for giving farmers information. More interactive approaches, such as one-to-one advice and demonstration events, are more effective at encouraging farmers to take up new techniques and technologies, although only those directly involved may benefit

The message needs to be topical, snappy, and personally relevant. Advice is most likely to be well received and acted upon if it makes sound business sense.

The messenger should combine experience, practical knowledge, listening skills, energy and enthusiasm, and common sense. The reputation, and agenda, of the organisation employing advisers is also important. It can take a long time to earn farmers' trust which, if lost, cannot easily be regained.

The local network. Farmers place a premium on information from locally known and credible sources. Developing solutions with farmers is important and needs to involve an ongoing process of informing farmers about issues and contextualising them within local farming circumstances. Messages passed through a group are likely to have higher 'in-group' status and create a positive social norm.

It is important to consider knowledge exchange activities that acknowledge farmer experience and expertise, and involve them in discussion and direction setting. Scientists and farmers need to understand and respect each other's needs.

How can uptake of measures be encouraged?

Cultural capital issues. It is important to farmers that they are able to demonstrate their expertise, and that signs of their skills are visible to others. Productivist symbols are easy to demonstrate, but environmental stewardship ones are less so. Allowing farmers more innovation in conservation practices, through providing greater flexibility about how they meet defined goals, might encourage a greater sense of pride in demonstrating their expertise.

Demonstrate new farming techniques and technologies. Farmers like to try things out for themselves, but their time is limited and they need to be sure that techniques and technologies will work on their type and size of farm, in their geographical region, with their soil conditions. Demonstration

activity does not necessarily require a permanent network of fixed farms. Using a wider range of farms for specific activities would make it more convenient and relevant for farmers to attend demonstration events.

Mandatory policy measures will always have high levels of uptake. However, if farmers resent, or do not understand the reason for them, there are implications for the cost of monitoring and enforcement, as well as the possibility of breakdown in trust between farmers and policy makers/regulators. This may impact on uptake of **voluntary measures**, a crucial point, because long-term behaviour change is more likely if farmers make the choice to adopt actions. Actions may then become embedded in individual habits.

Climate change has many impacts which are difficult to address at the level of the individual farm, and major renewables initiatives may only be feasible if several farm businesses collaborate with each other. The evidence in relation to **collective action** is mixed. Further research (to examine models operating in other OECD countries, for example) may provide useful lessons for Scotland.

Evidence shows that it is important to consider **all available policy levers** and obtain a mix of measures to work in tandem. *Farming for a better climate* focus farms use all four types of policy levers (**engaging, enabling, encouraging and exemplifying**). Scotland's current proposals for CAP reform provide opportunities to use a range of policy levers, or strengthen levers already in use, through, for example expanding farm advisory services, additional investment in research and innovation, and steps to translate research results into practice.

How do we achieve sustainable farmer behaviours in relation to climate change mitigation?

Many farmers are influenced by the activities of their peers. This makes it important to support and promote the activities of innovators and early adopters of technology and climate change mitigation practices.

Farmers who will not engage present more of a challenge to policy makers than those who are actively resistant. New channels of information transfer may be attractive to farmers in this group, but more research is needed to explore engagement techniques.

Many farmers respond to messages about business benefit, rather than to concerns about climate change. Although economic incentives can encourage farmers to make changes to their business, it is difficult to tell whether behaviours will be sustained when the incentive is no longer available.

There is an increasing body of evidence on the importance of using intrinsic values (concern about bigger-than-self problems) in a consistent and systematic way to drive long-term culture change. Values can be both **activated** (by encouraging people to think about the importance of particular things) and **strengthened**, for example through exposure to these values through influential peers and the media, so that they become easier to activate. Promoting farmers' environmental stewardship role, in addition to business benefit motives in farming may encourage a balance of business and environmentally oriented behaviours, stimulating sustained behaviour change.

This document, along with full research report of the project, and further information about social and policy research commissioned and published on behalf of the Scottish Government, can be viewed on the Internet at: <http://www.scotland.gov.uk/socialresearch>. If you have any further queries about social research, please contact us at socialresearch@scotland.gov.uk or on 0131-244 7560.