



Farming Independent inquiry
on farming and
climate change in
Scotland for 1.5°

Evidence submission on the Agriculture

(Retained EU Law and Data)

(Scotland) **Bill to the**

Rural Economy

and Connectivity

Committee of the

Scottish Parliament

Farming for 1.5°C is an independent inquiry, sponsored by Nourish Scotland and the National Farmers Union of Scotland, to find solutions for Scottish agriculture to contribute to limiting global warming to 1.5°C as committed to in the Paris Agreement (2016).

The panel is innovative in its diversity of expertise with scientists, environmental NGO's and farmers; and approach, as it seeks consensus on how to tackle climate change while being mindful of the communities involved and the nature emergency.

The panel is co-chaired by Nigel Miller, livestock farmer and Mike Robinson Chief Executive of the Royal Scottish Geographical Society. Members include

- Andrew Barbour, Highland livestock farmer and forester
- Russell Brown, East of Scotland arable farmer and Chairman of Scottish potato co-operative
- Robert Fleming, South-West Scotland livestock farmer
- Dr Sheila George, Food and Environment Policy Manager WWF
- Dr Deborah Long, Chief Officer Scottish Environment Link
- Pete Ritchie, organic farmer and Chief Executive Nourish Scotland
- Prof David Reay, Professor of Carbon Management, University of Edinburgh
- Prof Geoff Simm, Director of the Global Academy of Agriculture and Food Security, University of Edinburgh
- Dr Sarah Skeratt, Director of Policy Engagement, SRUC
- Phillip Sleight, Aberdeenshire arable and pig farmer
- John Smith, South West Scotland dairy farmer and chair of NFU Dairy board
- Steven Thompson, Senior agricultural economist SRUC and SEFARI

The panel is supported by a secretariat including Keesje Avis, Nourish Scotland and Ruth Taylor, NFUS.

Overview

The progress of what is primarily an enabling Act is welcome; legislation which provides continuity of the core EU regulatory system and support measures over a period of political and market uncertainty can help underpin the rural economy through a period of potential disruption. Market conditions in 2019 have already been challenging across sectors.

The powers to simplify and improve the EU legislation is a useful device which has the potential to ease implementation and provide an escalator to a new support model post 2024. However, we would all benefit from knowing what the government's expectation of agriculture and land management is at the top of said escalator.

The Brexit process and the proposed withdrawal agreement has still to deliver clarity, and unfortunately has stalled policy development, over a period when responding to climate

change is becoming increasingly urgent. The regulatory framework and agricultural support system from 2024 must provide a pathway to a net zero emissions economy. The 2021 to 2024 period of stability is a brief period to kick-start that change. If we wait until 2024, it will be too late to make the difference needed.

The Intergovernmental Panel on Climate Change's recent Special Report on Climate Change and Land states "Actions can be taken in the near-term, based on existing knowledge, to address desertification, land degradation and food security while supporting longer-term responses that enable adaptation and mitigation to climate change. These include actions to build individual and institutional capacity, accelerate knowledge transfer, enhance technology transfer and deployment, enable financial mechanisms, implement early warning systems, undertake risk management and address gaps in implementation and upscaling". This is relevant to Scotland, now. Further, number 13 of the Sustainable Development Goals, to which Scotland is signed up to, is to: "Take urgent action to combat climate change and its impacts".

Narrowly focusing on climate change and greenhouse gas emissions will create unintended consequences. The Intergovernmental Science Policy Panel on Biodiversity and Ecosystem Services (IPBES) report, published in May 2019, outlined the ongoing and worsening declines in biodiversity across the globe. More recently the State of Nature Scotland 2019 report, published in October 2019, found that Scotland is mirroring these global trends, with no overall let up in the loss of biodiversity. Yet, the report also showed that "nature-rich areas secure carbon, benefit species and provide vital ecosystem services." As 70% of Scotland is agricultural land, the positive management of the interactions between agriculture, biodiversity and climate change are key to creating a resilient future for all of these, as well as our rural communities.

Part 1 of the Bill

SIMPLIFICATION

Clearly, simplification is attractive to both the farming community and the competent authority; the Red tape review carried out by Brian Pack provides a catalogue of potential action areas. However in the closing period of the extended CAP period, expending energy, time and legislative effort, in simplifying the existing legal frameworks appears misplaced when the priority must be developing a new framework to move agriculture and land use towards Scotland's 2045 net zero target. Any changes should provide a pathway into the new framework or introduce priorities that can drive efficiency and reduce emissions.

During the interim period there is however an opportunity to simplify compliance standards and introduce a more proportionate penalty system. SEPA has demonstrated how culture change can foster a more collaborative approach; RPID should be given space to adopt a similar operating model and we would strongly recommend the use of an official advisory service. RPID can be a catalyst for change within Scottish agriculture, a more collaborative culture is a key component of that role.

This is also an opportunity to ensure alignment with other legislation, such as the Climate Change Act.

INNOVATIVE SCHEMES

The proposed mechanisms to create a budget for innovative schemes is an exciting opportunity to inject new techniques and start culture change. Initiatives linked to the core support system have the potential to reach all farm, croft and land managers.

The Farming for 1.5°C inquiry group believes this is an opportunity to put soil health at the centre of farm systems and create a foundation for future low carbon production. Central to this is the creation of a second generation model for both soil sampling and analysis that can quantify both field carbon and nutrient status. We would recommend a national framework of soil testing [utilising the new standardised methodology] to coordinate the soil sampling of all enclosed land on a rotational basis. This soil carbon survey would capture the baseline soil status for on farm-use and as a national resource, through a central database. Supporting this survey effort with a specialist soil advisory group can start a process that leads to a more sophisticated level of nutrient budgeting, smart cropping systems and the building of carbon rich soils which are more resilient to extreme climate events. The advisory effort should develop target ranges for pH, nutrients and organic matter on a field basis taking account of soil type, region, climate, and proposed land use. Targeted carbon management of soils can move production efficiency up a gear, while quantifying a significant and dynamic carbon store. Accurate measurement of the carbon saved and sequestered over time is needed to indicate whether or not various measures are working. This proposed soil carbon initiative builds on the work of the Carbon Positive Pilot [saos] that has had technical input from the Hutton Institute.

A soil carbon initiative will generate key baseline data, underpin low carbon production, optimise sequestration and importantly trigger a culture change in many farm businesses. A soil carbon initiative delivered as part of the core support scheme will touch all of Scotland's farmed area and create a platform for a low carbon farming framework from 2024.

The Panel also feels that it is important to link with existing legislative commitment, particularly within the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. This includes measures relating to agricultural land use, such as the nitrogen balance sheet and reports on the land use strategy. It further refers to the Climate Change Plan, of which the updated Plan, expected in 2020, is likely to have different emission reduction and sequestration targets for the agricultural sector. Delivering on these will need funding - additional to what is currently provided to ensure a Just Transition for Scotland's rural communities.

The New Climate Plan, expected by 2024, is required to point to ways to reduce whole farm greenhouse gas emissions through the use of a variety of measures. It is key for the stability of land managers that all government measures are coherent across departmental sectors. This transition period and the measures and simplification within it need to take this into account.

IMPROVEMENT

The question of moving funding from pillar one to pillar two

Within the Inquiry group there is a range of views both positive and negative regarding the movement of funding from pillar 1 at this stage of the support cycle. That division of view mirrors the views of the wider stakeholder community. There is however a recognition that the climate challenge requires an early response and that the support system should move focus and incentivise a low carbon farming economy with a step towards a new climate change approach in 2024. New funding is being made available for all other sectors, such as transport, energy and more, to transition to net zero GHG emissions by 2040. The agriculture and land management sector has been named by many as both the biggest problem and potential saviour in delivering net zero GHG levels for Scotland and the UK. It should therefore be supported appropriately to both reduce its emissions and increase its sequestration potential.

Post CAP, the redesign of greening can provide a significant tool for change backed by a budget that can drive uptake; with a delivery mechanism in place it has the potential to reach every IACS holding. A well-designed Scottish Greening scheme has the potential to gain the buy-in of land managers and to deliver positive change across all farm and croft holdings.

The group suggests Scotland's Greening should be a mitigation menu with a wide spectrum of context-appropriate management options that drive efficiency, reduce emissions and increase sequestration. The greening obligation would be met by farmers delivering on selected options which fit with the farm profile and resources; the options might be scored to ensure that a threshold level of greening activity was achieved by each holding.

Farming for a Better Climate in Scotland and the Mitigation Menu developed in the Republic of Ireland have identified climate change management options. These approaches aim to use best practice or new management techniques to improve the carbon efficiency of existing systems or to incentivise land use options that sequester carbon. As a package they are projected to reduce emissions by over 20% (accepting that some holdings will already have adopted best practice). The Farming for 1.5°C Inquiry group have reviewed options and believe the following should be considered as part of a Scottish Greening Mitigation Menu. The fact that some businesses have already adopted some of the techniques is a strength, demonstrating their value as part of today's systems and demonstrating that the proposed management changes are accessible and practical.

However, it must be recognised that there is a huge difference between the top 10% performing farmers and the bottom 10% across the livestock and arable sectors. Solely relying on the motivation of improved efficiency, productivity and thus income has not so far changed behaviour. A new approach is needed, where best practice includes strategies to tackle climate change and biodiversity concerns and is considered by all land managers. Maximising the use of benchmarking, innovations in science and technology, robust relevant advice and farmer-led best practice need to be easily accessible to all involved.

Potential Greening Menu

1. Precision techniques:

- Soil and/or crop mapping
- Precision application of inputs
- Autosteer

2. Nutrient budgeting

(This ties in with the Nitrogen balance sheet already included in the Climate Change Act (2019))

- Manage N inputs –
 - a. Budgeting
 - b. Alternative Nitrogen sources
 - c. Greater use of nitrogen fixing crops
 - d. Replace the use of untreated urea fertiliser
 - e. Increase clover incorporated in reseeds and pasture rejuvenation
- Slurry management – store design/roofing
- Slurry/digestate spreading – stop the use of anything other than trailing shoe or injection

3. Crop/pasture Management

- Maintain permanent pasture – 7 year plus
- Direct pasture rejuvenation or re-seeding [no till]
- Break crops
- Stubble management

4. Livestock Management

- Increased use of sexed semen in cattle to maximise production efficiency
- Bull fertility testing to improve system efficiency
- Use of high genetic merit animals based on Estimated Breeding Values (EBVs) – selecting breeding stock ranked in the top deciles of those available for sustainable production (including production, efficiency, health and welfare-related traits) will indirectly reduce GHG emissions intensity in all species; there is scope to explore introducing direct emphasis on carbon efficiency in livestock breeding programmes, especially ruminants. (For example, the introduction of breeding values for improved food conversion efficiency and reduced enteric methane emissions can add further value to this approach particularly in cattle and sheep.)
- More targeted support for agroforestry on the field scale to provide shelter from extreme weather, as well as alternative foraging

5. Sequestration and Ecosystem Services Management

- Increased hedge planting and better hedge management
- Woodland creation
- Better management of existing woodland for sequestration and biodiversity
- Wetland management and creation
- Management of deep and medium peat land
- Herb rich pasture management
- Better incorporation of agroforestry at the field (including arable) and farm scale

This list is not exhaustive nor detailed but gives an indication of the spectrum of actions which may contribute to emissions management and how they impact across a range of farm systems. Clearly some options also contribute to biodiversity and the Greening Menu would be expected to reflect priority outcomes beyond climate change mitigation alone (e.g. resilience, biodiversity, air and water quality).

The introduction of a Greening Mitigation Menu has the potential to fast-track change by changing both management focus and farm systems to a more carbon efficient model; a catalyst for interventions on all farms which actively cut agricultural emissions. Driving efficiencies into existing production and land management delivers immediate carbon savings and a pathway to the adoption of new approaches to low carbon production post 2024.

Some of these activities will require significant investment - such as slurry store covers and spreading equipment. We would recommend these are eligible for investment support.

CARCASE CLASSIFICATION

EU definitions of veal and young bulls do not fit well with UK rearing systems. Rigid definitions may block the development of efficient systems that grow bull calves from the dairy herd and reduce the flexibility of bull beef enterprises. Clearly there are concerns as to how bull dairy calves are handled, there are also efficiency issues in bull beef systems which have a carbon impact. Reviewing the classification of cattle at slaughter should seek to address these issues and provide a pathway for the rearing of all calves.

The present EUROP grid, which is at the core of carcase classification, does not directly relate to yield in value terms and fails to take account of measurable eating quality features. In carbon efficiency terms the focus on hind quarter development does not always reflect the demands of retailers and may impact on the levels of dystocia in some high grading phenotypes of cattle and lambs. Reproductive efficiency and calving/lambing ease are key performance indicators in both carbon and economic terms. An expert review of carcase classification and premium grids should be rolled out focused on the demands of consumers and retailers however there should be regard to the carbon/economic efficiency and welfare of livestock systems.

PART 2 of the Bill

DATA COLLECTION

The focus on the food-chain is hard to understand given that in future agriculture will continue to be multifunctional and will grow its role in delivering biodiversity, sequestration and public access (including access for sport). We would recommend a wider view of data mapping than purely focused on the supply chain.

Clearly, collecting data should only be progressed when there is value in the process and the interface is well designed to avoid inappropriate burdens on producers, land managers and processors. The gaps in our data bank are not however always linked to collection failures as there are examples of 1] survey design leaving gaps, or 2] links between databases being absent or incomplete. We have also had evidence that the large amount of data already collected could be better utilised.

The purpose of collecting data should include the mitigation of risk including those both directly and indirectly relating to climate change. For example this may include better disease data collection as the instances of certain diseases are expected to rise with high temperatures. The Scottish Pig sector is a case in point of excellent communication and data sharing across producers allowing the quick identification of disease risk. The collation of soil carbon (as recommended above) and nitrogen data would measure the success of activities and further links into other existing legislation already mentioned.

DATABASE LINKS

Data on the red meat production chain – BCMS, FSS Data. Commercial data, Health scheme data, genetic data [FCE], BES data, eating quality factors require integration to drive efficiencies into the chain and for genetic and health potential to be realised.

DATA GAPS

Survey design and delivery

There are policy areas where data is not available or not developed into formats that can guide either regional policy or scheme applications.

1. Land Use mapping/habitat mapping is incomplete.

Decisions on tree planting consents and the appropriate type of planting, where consent is appropriate, has no robust evidence base in many regions of Scotland. Biodiversity, landscape and carbon sequestration values are at risk from the existing decision-making process. This needs to be tackled as a priority so that the right trees are planted in the right place. This would happen with an outcome focused approach that takes account of local contexts i.e. increased carbon sequestration, reduced soil erosion, habitat provision, shelter and/or downstream flood alleviation rather than action focused i.e. number of trees planted.

Regional land use frameworks and partnerships represent a major opportunity to deliver this integrated and context-aligned approach, while reducing trade-offs and maximising public goods delivery. The pilot projects in the Borders and Aberdeenshire have excellent learning points that can be taken forward quickly.

2. IACS Mapping is incomplete

Currently there is no indication of hedges and farm woodland mapping in the survey data. IACS should capture these features and there should also be mapping to show wetlands, deep peat, thin organic soils, and other features which will determine carbon sequestration and biodiversity status, risks and opportunities. We have heard that this is being pursued in government and we would urge urgency on this.