

The Right Honourable Michael Gove, MP
Secretary of State for Environment, Food and Rural Affairs
17 Smith Square
London SW1P 3JR

06 November 2017

Dear Secretary of State,

You will know what a crucial role agriculture and the natural environment have to play in cutting UK emissions of greenhouse gases (GHGs) and in preparing for a changing climate. The lack of progress in these areas to date, despite many cost-effective options, increases the urgency for action to start now. There is an opportunity, as you develop a strategy for agriculture and land use, to address the failings of current policies including the Common Agricultural Policy (CAP), whilst maintaining those aspects that are working:

- There has been no progress in reducing UK GHG emissions by agriculture over the past six years. Its share of overall emissions is increasing, reflecting the slow rate of progress in this sector and the faster pace of decarbonisation in others. In land use and forestry, the amount of net carbon sequestration is projected to decline due to the ageing profile of trees and the low level of new tree planting.
- Whilst some measures to reduce the natural environment's vulnerability to climate change have been delivered, climate risk is increasing across a number of areas including the condition of the farmed countryside and upland peatlands.

There are cost-effective, win-win measures that can reduce emissions and help prepare for future climate change, improve soils, reduce water pollution and/or improve biodiversity whilst also cutting costs for farmers.

The Committee has considered ways that policy could support delivery of these opportunities after leaving the EU. We identify the following priorities:

- **Maintain existing protection provided by EU Directives, regulations and measures that are shown to be working.** Regulation can be effective to protect against extreme risks. The Nitrates Directive has helped to reduce emissions¹ and EU livestock directives have protected animal welfare. The Rural Development Programme has supported tree planting and there are ambitious standards for the condition of UK natural habitats set through the Habitats and Birds Directives and Water Framework Directive. These should be strengthened or at the very least retained.

¹ Defra (2012) '2012 review of progress in reducing greenhouse gas emissions from English agriculture'.

- **Use benchmarks to improve the performance of the least productive and higher emitting farms.** Benchmarks could cover soil protection, type of nitrogen fertiliser and application rates and livestock diets and health care. Effective use of new information and data (e.g. from the new Smart Inventory and linking with existing and new tools such as GPS mapping) has the potential to spread best practice and raise standards across the sector.
- **Focus public money on the delivery of public goods** by paying farmers or landowners to implement measures to deliver both emissions reduction and build resilience.
- **Increase support for innovation and R&D.** Productivity improvements of UK farms lag those of key competitors. More could be done to foster on-farm innovation, e.g. through financial incentives or an innovation fund, and to support moves towards low-emission, higher productivity farming.
- **Help consumers to make food choices which reflect government nutritional advice and which support lower carbon food products.** The carbon footprint of UK agriculture reflects choices by consumers as well as producers and the wider food industry. Further measures should be considered to encourage a shift to healthier diets, in line with current nutritional guidelines, with lower red meat and dairy content which also cut emissions.

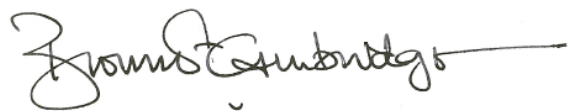
The success of any new strategy will be dependent on building a strong monitoring and reporting system that tracks GHG emission reductions and environmental improvements. We need robust national and local data to be able to assess the impact of actions and to monitor improvements over time.

The Committee is keen to work together with Defra to seize the opportunity to put in place an integrated approach to farming and the natural environment as the UK prepares to leave the EU. We would welcome the opportunity to discuss these issues with you in the coming weeks.

Yours sincerely,



Lord Deben
Chairman, Committee on Climate Change



The Baroness Brown of Cambridge
Chair, Adaptation Sub-Committee

Annex

Progress reducing emissions and preparing for climate change

Our 2017 Progress Report to Parliament² showed that there has been little change in UK agricultural emissions over the past six years. The share of agriculture in overall emissions reached a high of 10% in 2015, reflecting the slow rate of progress in reducing the sector's emissions and the faster pace of decarbonisation in other sectors. Since 2009 there has been no real improvement in the emissions intensity associated with growing crops, although nitrous oxide and methane emissions related to livestock production have reduced.

In the land use and forestry sector, the amount of net carbon sequestration was broadly unchanged in 2015. It is projected to decline as the level of new tree planting – which is below the government's ambition of 5,000 additional hectares per year – is insufficient to offset the declining capability of existing forests to sequester carbon. Our conclusion is that both agriculture and land use emissions are above the cost-effective path needed to meet future carbon budgets.

Our report also evaluated progress in adapting to climate change. The capacity of commercial agriculture to adapt to climate change will be greatly reduced if the stock of natural capital on which it depends, namely soil and water quantity and quality and the condition of habitats, continue to be degraded. For example, most of the available indicators for the farmed countryside continue to show long-term declines in species composition, including for farmland birds and pollinators.

Incentivising the uptake of measures

Despite the lack of progress in these sectors, there are cost-effective options to reduce emissions and prepare for climate change. Our analysis for the fifth carbon budget³ showed that measures directed at improving soil management and planting different crops, improving livestock health, diets and breeding and waste and manure management combined with additional tree planting could save 9 MtCO_{2e} by 2030. Moreover, we identified the vast majority (80%) of abatement in agriculture was cost-saving to farmers – there are clear win-wins for GHG reduction and reducing farmers' costs.

The ASC's analysis on land management options⁴ also identified options to farming related measures that could improve resilience. These measures include the restoration of upland and lowland peatlands and other habitat types, tree planting, and on-farm use of buffer strips, improving irrigation efficiency and on-farm water storage, changes to crop type, use of cover crops, and contour ploughing.

The current policy framework, based around the CAP and voluntary approach to emissions reduction in agriculture, is not delivering the actions required. The CAP 'greening' measures in Pillar I have been ineffective in reducing GHG emissions. It is not known how soil condition has changed, as no surveys have been conducted since 2007.

² CCC (2017) *'Meeting carbon budgets: Closing the policy gap'*.

³ CCC (2015) *'Sectoral scenarios for the fifth carbon budget'*.

⁴ ASC (2013) *'Managing the land in a changing climate'*.

The new post-CAP policy framework must deliver deeper reductions in agricultural emissions and increase sequestration in the land sector, while ensuring resilience in the natural environment to the impact of climate change. We welcome the recent intention set out in the Clean Growth Strategy to address this.

There are also opportunities in reforming the current system to raise productivity of UK farms. UK agricultural productivity has risen by around 1.4% p.a. since 1961, while in other comparable countries e.g. Germany, the Netherlands, and Denmark, total productivity has risen at more than double this rate. This gap has widened in the past 15 years⁵. Moves towards more efficient farming practices in New Zealand and the continuous adoption of innovative agricultural technologies in the Netherlands have enabled both countries to significantly improve productivity whilst reducing the emissions intensity of output (Box 1).

Our work in these areas will continue, but in developing options, our initial priorities are:

- **Maintain existing protection provided by EU Directives, regulations and measures that are shown to be working.** Regulation can be effective to protect against extreme risks. The Nitrates Directive has indirectly helped to reduce emissions, while the Habitats Act has protected the natural environment and EU livestock directives have protected animal welfare. The Rural Development Programme has helped with funding for tree planting although take-up levels have been low largely due to the onerous application process. There are ambitious standards for the condition of UK natural habitats set out in the Habitats and Birds Directives and Water Framework Directive. These should be strengthened or retained.
- **Use benchmarks to improve the performance of the least productive and higher emitting farms.** Benchmarks could cover many areas of farming practice including soils, type of nitrogen fertiliser and application rates and livestock diets and health care. The top performing farms are marginally better in all areas rather than significantly better at any one thing, suggesting the benefits of benchmarking could be significant for some farms. In addition, effective use of new information and data (e.g. from the new Smart Inventory when it becomes available and linking with existing and new tools such as GPS mapping) has the potential to spread best practice and raise standards across the sector.
- **Focus public money on the delivery of public goods.** This would involve paying farmers or landowners to implement measures to deliver both emissions reduction and protect the stock of natural capital (e.g. payments for ecosystem services). This should cover measures to improve soil and water quality, increased afforestation and improving the condition of natural habitats such as peatland. This could be in the form of specific measures to reduce emissions on farms or for environmental improvements in catchments that are particularly degraded. We expect to see some coverage of this in the government's forthcoming 25-year Environment Plan.
- **Increase support for innovation and R&D.** Defra spending on agriculture R&D decreased by two-thirds between 2004 and 2017. While the Agri-Tech strategy and other sources of R&D spend go some way to address this historical under-investment, more could be done to foster on-farm innovation e.g. through financial incentives or an innovation fund.

⁵ Lattimore (2006) *'Farm Subsidy Reform Dividends'*.

Continued investment in R&D and technological improvements will be key for reducing the environmental impact of the sector and protecting crops and livestock from pests and diseases in a changing climate. As the UK prepares to leave the EU, greater competitive pressures are likely to be exerted on the sector. New ideas and practices will be essential to enable a move towards low-emission, high productive farming.

- **Help consumers to make food choices which reflect government nutritional advice and which support lower carbon food products.** The carbon footprint of UK agriculture reflects choices by consumers as well as producers and the wider food industry. Previous work by the Committee has demonstrated that a shift to healthier diets with lower red meat and dairy content could cut emissions by around 3MtCO₂e while also freeing up significant amounts of land. Options to support consumers to make more informed food choices should be considered, alongside current nutritional standards and guidelines, and should involve the whole food industry working with government and consumers. Such shifts will be particularly important for the longer term, when deeper cuts in agricultural emissions will be needed.

The Committee will be undertaking further work in this area, taking into account new evidence of abatement opportunities that the new Smart Inventory in agriculture may identify.

Box 1. Agricultural Reform in New Zealand and the Netherlands

In 1984, New Zealand implemented wide-scale structural change as government assistance to agriculture was radically reduced. This led to a sharp decline in sheep numbers, improved efficiency and led to a rise in other sectors such as dairy and diversification into other activities e.g. horticulture, fruit, wine and rural tourism. It also led to improved erosion control and water quality. These changes led to almost a doubling in productivity growth from 1.5% p.a. to 2.5% p.a. Since 1990 GHG emissions have risen by 16% but a focus on genetics, animal health and diets has reduced livestock emissions intensity by over 20%.

In the Netherlands, the widespread and continuous adoption of innovation is a big factor behind the country's growth in high value agricultural output and sustainable productivity gains. Driven by a national commitment to produce *'twice as much food using half as many resources'* almost two decades ago, the Netherlands ranks as the second largest food exporter in value terms, behind the USA, but with only a fraction of the land.

Innovative practices including the use of drones over potato fields to monitor soil, nutrient and water conditions, and growing most of its horticultural products in climate controlled greenhouses, has reduced the need for water, soil, pesticide and inorganic fertiliser. This has produced high yielding crops.

Source: Beef + Lamb New Zealand Economic Service

Monitoring and Evaluation

Crucial to the long-term success of any new strategy is building a strong monitoring and reporting system that tracks the contribution of farmers and landowners to delivering GHG reduction and environmental improvements. This includes agreeing on indicators that will make it possible to assess the effectiveness of individual measures as well as policies like agricultural R&D spend and Agri-Tech Strategy. The Committee is keen to work with Defra to develop robust indicators of progress.

While we can monitor GHG emissions across the sector as a whole, the lack of effective monitoring of the current industry-led approach means it is impossible to link measures and activities to GHG reduction and therefore to assess what works on the ground. The launch of the Smart Inventory is increasingly urgent and will provide essential information on a range of factors that influence emissions such as type of animal feed, quantity of dry matter intake and method for covering slurry storage tanks.

This will enable the Committee and Defra to better monitor progress and to develop a set of new GHG indicators which, for the first time, cover the take-up of farming practices. Any incentives to protect the stock of natural capital should include outcome-based targets to measure progress against and there are some gaps in this regard. For example, the Countryside Survey and National Soil Inventory last reported on soil condition across England in 2007 and 2003 respectively. No further assessment has taken place, so neither the current state nor recent trends in the condition of English soils are known.

More strategically, there is significant uncertainty in the composition of agricultural and non-forested land given the last Countryside Survey was conducted in 2007, and represents only a sample of the UK's countryside. More recent land cover map data are available for 2015, but data collection periods for both surveys depend on funding being agreed between Government and The Natural Environment Research Council. There is a need to develop a more accurate and repeatable way to track land use and how it changes.