



All-Party Parliamentary Group on
Science and Technology in Agriculture

INNOVATION AGENDA FOR UK AGRICULTURE

30:50:50

A new vision to re-frame the farm
policy, regulatory and R&D agenda
for UK agriculture

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Introduction

The next 25 years are likely to be the most critical yet in the history of global agriculture, with the world's population set to exceed 10 billion people by 2050, and the increased urgency of reducing global agricultural emissions. Farmers everywhere must produce 'more with less'. More food with fewer inputs, less greenhouse gas emissions and a reduced environmental footprint.

With its good soils, temperate climate, professional farming sector and world-class agri-science base, Britain is well-placed to produce more food, more sustainably, and reduce our dependence on food imports. In doing so, we will also be better placed to contribute to the global food security challenge by developing and exporting technological solutions, and fostering international R&D collaboration.

But the UK agricultural sector lacks clarity and consistency about its purpose. Current farm policies incentivise farmers to take land out of production, and reward lower-yielding practices on highly productive farmland. Our over-precautionary and under-resourced regulatory processes are stifling access to farming innovations which are readily available to producers elsewhere. And while our agricultural scientists remain global leaders in academic terms, their research is no longer translating into domestic productivity growth at the practical farm level. Our dependence on imports in some sectors, including fresh produce, vegetable oil and protein crops, is at record highs.

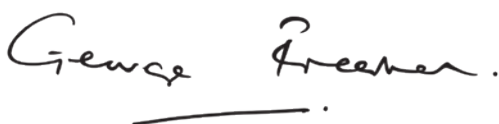
To deliver on a new vision, we believe the UK needs to set clear, long-term objectives for our agricultural sector, with measurable targets for sustainable efficient production. We also need mechanisms in place to benchmark and monitor progress over time against those targets. And we need joined-up policies for farming and land use, regulation of new technologies and R&D – all pointing in the same direction, with innovation at the heart of the agenda.

In November last year, in a break from the previous Government's aim to 'broadly maintain domestic production', Defra food security minister Daniel Zeichner MP told the AIC Conference: '*This Government wants the country to produce more food.*' Earlier this month, speaking at the Oxford Farming Conference, Environment Secretary Steve Reed MP also confirmed that producing food is the '*primary purpose*' of farming.

Based on data and evidence submitted to the All-Party Group, this document puts some figures behind the Ministers' statements. In doing so, we have been inspired by USDA's Agriculture Innovation Agenda¹, recently presented to the Group, which aims to stimulate innovation with a goal of increasing production by 40% by 2050 while cutting the environmental footprint of US agriculture in half per unit of output.

This vision document is intended to be the start of an ongoing conversation. Mirroring the US approach, it proposes an **Innovation Agenda for UK Agriculture**, with a high-level objective of increasing domestic self-sufficiency in food production from its current 60% to 75% by 2050.

Over the coming period, members and stakeholders of the Group will consider in greater detail what policy drivers and initiatives are needed to deliver on this objective. We actively encourage input and comment from others to support this process.



George Freeman MP
Chair, APPG Science & Technology in Agriculture



INNOVATION AGENDA FOR UK AGRICULTURE

Overview

The urgency of UK and global food security, affordability and sustainability challenges mean clear, long-term objectives are needed to help Britain's farmers produce 'more from less' by harnessing the latest advances in agricultural science and innovation.

Food security minister Daniel Zeichner MP has confirmed that the UK Government wants the country to produce more food. The Government has also made growth and investment key priorities of its Industrial Strategy, with an ambition to accelerate the green transition.

But even the Government's own assessments warn that current farm policies will reduce food production. Meanwhile our regulatory processes stifle access to agricultural innovation and, despite increases, R&D investment is not translating into farm-level productivity growth.

A new vision is needed to re-frame the policy, regulatory and R&D agenda with an ambitious, high-level objective to increase domestic food self-sufficiency while reducing UK agriculture's environmental footprint.

Can we increase domestic food security, affordability and sustainability at the same time? Yes, absolutely.

The United States has set out a high-level Agricultural Innovation Agenda, with a goal to increase production by 40% by 2050, while halving US agriculture's environmental footprint.

The UK must adopt a similar, long-term objective, with an ambition to increase domestic food self-sufficiency from 60% to 75% over the next 25 years.

This will mean increasing UK agricultural production by 30% by 2050, while reducing farming's environmental footprint by 50% per unit of output, in terms of greenhouse gas emissions, land use, water use and soil health. The 30:50:50 agenda.

The weight of scientific evidence indicates that it will require a shift away from 'land-sharing' farm policies to more of a 'land-sparing' approach, with an emphasis on high-yield farming on a smaller land area to free up more space for intact nature and carbon sequestration.

It will also mean policy reform in terms of land use, regulation of new agricultural technologies, and a re-organisation of our fragmented R&D landscape to focus on the delivery of innovation and translation into practice against the 30:50:50 objective.

30:50:50



DELIVERING AN INNOVATION AGENDA FOR UK AGRICULTURE IN THREE CLEAR STEPS

STEP 1

Set clear, measurable targets for Sustainable Efficient Production (SEP)

Responding to the Government's stated policy aim for the country to produce more of its own food, we propose a target of **75% self-sufficiency by 2050** (up from current ~60%).

With forecast UK population growth of 12.5% by 2050, this equates to a **30% increase in production**.

Mirroring the US Agriculture Innovation Agenda, we also propose a **50% reduction in UK agriculture's environmental footprint per unit of output. The 30:50:50 agenda.**

Based on a review of existing environmental benchmarking initiatives in agriculture, including Field to Market² and the SAI Platform³, and taking account of the Institute of Grocery Distribution's eco-labelling recommendations⁴ developed as part of the Government's Food Data Transparency Partnership, we propose the following four parameters, expressed per unit of output, as the basis for a new combined metric for Sustainable Efficient Production (SEP) in agriculture – the **SEP Index**.

GREENHOUSE
GAS EMISSIONS

WATER USE

LAND USE

SOIL/WATER
QUALITY

STEP 2

Develop a consistent, evidence-based approach to the collection and integration of farm-level data to provide a single metric for consumers, policy-makers and investors

The All-Party Group has long advocated⁵ the need to embed data science and sustainability metrics at the heart of a policy agenda focused on securing the optimum balance between food production, resource use and environmental impact.

Access to metrics capable of objectively and consistently monitoring that balance are essential to:

- Benchmark and measure progress against the high-level 30:50:50 objectives
- Inform the farm policy and R&D decision-making agenda
- Understand and advise on best practice throughout the industry
- Develop new mechanisms to support and reward improvements at individual farm level
- Provide meaningful information to consumers about the sustainability impact of their food choices.

To deliver on these objectives, we recommend the establishment of a new **National Agri-Data Institute**, funded by Defra, to create a centralised system for industry-wide sharing, collation and analysis of the vast silos of farm-level data – on-farm and in research settings – which are not currently being properly integrated or exploited.

STEP 3

Ensure the policy agenda is joined up across three key pillars

FARM SUPPORT
AND LAND USE

REGULATION OF
FARMING INNOVATIONS

RESEARCH
& DEVELOPMENT

We believe co-ordinated action across these three core policy areas is needed to deliver on the 30:50:50 innovation agenda. This in turn must be supported by an innovation-centric approach in areas such as fiscal and planning policies, and in ensuring effective public outreach and engagement.

Over the coming period, members and stakeholders of the Group will be examining these policy areas more closely to understand how each is performing in terms of the 30:50:50 agenda, and in terms of wider policy objectives for economic growth, inward investment and regulatory reform.

We actively encourage input and comment from others to support this process.



Discussion

Farm support and land use policies

There is strong evidence to suggest, including from the Government's own impact research⁶ and the National Audit Office⁷, that Defra's current 'land-sharing' farm policies will reduce and displace domestic food production, increasing our dependence on imports and exporting our climate impact. One independent assessment⁸ has suggested that farm output could be reduced by 24%.

By contrast, there is strong scientific evidence⁹ to indicate that a 'land-sparing' approach, which involves harnessing farming innovations to optimise high-yield production on as small a land area as possible, so leaving more room for intact nature and carbon sequestration, offers a more efficient and cost-effective farm policy to deliver on food, climate and biodiversity goals.

In the context of the long-awaited land use framework, UK research indicates that a land-sparing approach, with an allocation of land of about 60% high yield farming, 25% natural habitat and 15% low intensity farming, would provide the optimum balance for the country as a whole.

Regulation of farming innovations

Confirmation of the timetable for implementing the Genetic Technology (Precision Breeding) Act 2023 marks a positive step forward for UK-based innovation in plant breeding. Parallel implementing rules are also urgently needed for gene editing in farmed animals.

At the same time, however, over-precautionary and under-resourced regulatory processes are delaying access to farming innovations in many other areas, including the registration and approval of new crop varieties, crop protection products, GMO imports, novel feeds and feed additives.

Research and development

The All-Party Group is keen to understand why, when the UK leads the world in terms of high-impact academic publications in agriculture-related sciences, we continue to lag behind competitors in domestic agricultural productivity growth. Is our agricultural science policy and R&D framework fit for purpose? Is the transmission from laboratory to field working effectively for the UK, and focused on the right priorities? Can we learn lessons from other countries?

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