

All-Party Parliamentary Group on Science & Technology in Agriculture

Notes of a meeting held on Wednesday 28 February 2018
Grimond Room, Portcullis House

Policy priorities for UK agri-science post-Brexit

Present:

Members

Julian Sturdy MP (Chair)
Lord Inglewood
Viscount Ridley

Guest Speakers

Tom Hind, Chief Strategy Officer, AHDB
Dr Helen Ferrier, Chief Science & Regulatory Affairs Adviser, NFU
Professor David Leaver, President, BIAC

Stakeholders

Dr Tina Barsby, NIAB; David Flanders, AgriMetrics; Susan Twining, CLA; Catherine Barrett, AIC; Alice Midmer, LEAF; Jonathan Carruthers, Royal Society of Biology; Andrew Spence, Defra; Mark Filley, Defra; Oliver Hill-Andrews, BBSRC; Joss Wallace, Defra; Calum Murray, Innovate UK; Anne Thompson, Dow Agrosiences; Stuart Hill, Hutchinsons; Chris Brown, Society for Applied Microbiology; Martin Emmett, RHS; Eleanor Smart, Royal Society of Biology; Pierre Broun, Nestle; Paul Smith, IRTL; Dr Arjomand Ghareghouis, IRTL; Alistair Griffiths, RHS; Adrian Bell, AgroMavens; Charlotte Milligan, CHAP; Stephen Oldfield, PWC; Daniel Pearsall, Group Co-ordinator

1. Welcome & Introduction

Julian Sturdy (JS) welcomed members and stakeholders to the meeting and thanked all for their attendance, particularly in view of the adverse weather conditions which unfortunately had prompted a significant number of apologies, including from guest speaker Dr Belinda Clarke of Agri-Tech East.

JS briefly introduced the topic for discussion – *Policy priorities for UK agri-science post-Brexit* – noting that while the overall position of the UK Government was positive in viewing agriculture and food production as key economic drivers post-Brexit, the recent command paper from Defra on options for a future domestic agricultural policy also pointed to future reductions in production-based support.

Against this background, JS highlighted the positive opportunity for a revolution in modern, science-based agriculture to address the UK's relatively slow growth in agricultural productivity compared with other countries. He described the coming period as a challenging but exciting time for British farming, and one in which scientific and technological innovation would be fundamental to shaping and driving the development of the sector and its ability to compete on more open world markets post-Brexit.

2. Guest speakers

[Guest speakers' slides are available to download via the meetings section of the All-Party Group web-site at www.appq-agscience.org.uk]

Tom Hind, AHDB

Tom Hind (TH) explained that in producing its recent Horizon report '*Driving productivity growth together*', AHDB had sought to address three key issues: (i) what productivity is and why it matters; (ii) what is holding the UK back in terms of agricultural productivity growth; and (iii) what can be done about it bearing in mind the current opportunity to re-shape agricultural policy in the post-Brexit era.

TH described productivity growth as the defining challenge of our age, highlighting UK agriculture's relatively slow growth in total factor productivity (TFP) since the early 1960s compared to other agricultural economies such as France, Germany, the Netherlands and the United States. A similar pattern could be seen for international comparisons of labour productivity.

TH explained that productivity was not a measure of yield, or how much is produced, but of how efficiently inputs are converted into outputs. It was therefore a key factor in determining both competitiveness in the market place as well as environmentally responsible use of resources. Addressing the productivity challenge was fundamental to the future sustainability of the industry.

TH focused on six key drivers of farm business performance identified by OECD: the business environment, natural capital, competitive pressures, policy, ideas and people. The AHDB report sought to identify which of those factors differentiates the UK or presents major barriers compared to European and other global competitors.

TH concluded that the UK business environment was generally favourable to agriculture in terms of a sound economy with good underpinning household incomes, access to finance, and a stable legal and regulatory framework.

A similar conclusion could be reached in terms of natural capital. While some areas of the UK are less favoured and there may be localised constraints such as access to water and soil fertility, for large parts of the country there are no obvious barriers to productivity – indeed the UK has a relatively benign climate which might actually favour the ability to farm more productively.

In relation to policy, while some economists argue that CAP subsidies impedes productivity growth, this was not viewed as a differentiating factor for the UK since the rate of agricultural productivity growth in other EU member states, such as the Netherlands, Denmark and Germany, was significantly higher than the UK.

In relation to ideas, or more specifically how much the UK spends on R&D and how it is invested, TH suggested there was a paradox that the UK invests more in terms of public and private sector agricultural R&D than many of our major competitors but is still lagging behind in terms of productivity growth. The analysis suggested that the UK was investing too little in near market R&D relative to investment in 'blue sky' academic research.

The second consideration was how quickly and effectively new ideas and innovation were transferred into on-farm practice. The AHDB report identified a very fragmented landscape for knowledge exchange, with up to 80 different sources of advice for farmers. In TH's view the ability to join that landscape up and improve the co-ordination of knowledge exchange would be pivotal to future productivity growth in UK agriculture and horticulture.

In relation to people, TH observed that UK agriculture and horticulture invest less in skills and training than many other industrial sectors of the economy, and less than counterparts in other countries. Understanding why this was the case and unlocking the potential to invest more in skills and training would also be fundamental to prospects for future productivity growth.

The AHDB report therefore concluded that three basic factors were holding back growth in UK agricultural productivity: inadequate investment in near-market R&D; a fragmented knowledge exchange landscape; and the need to boost investment in skills.

In response, the report proposed a five-point plan to bring together Government and all sectors of the industry, research and knowledge exchange community:

- (i) R&D – driving a more industry-centric approach to research and innovation with a focus on key productivity challenges;
- (ii) A ‘What Works’ centre as a single repository for evidence for agriculture and horticulture;
- (iii) Better co-ordination of existing knowledge exchange networks
- (iv) New national skills strategy and framework
- (v) Boosting farmer to farmer learning and benchmarking across the industry.

Dr Helen Ferrier, NFU

Helen Ferrier (HF) opened with a reminder of the statement produced last year by a working group facilitated by NFU and Rothamsted Research, which brought together representatives from industry, academia, Government and research funders to focus on the opportunities and priorities for agri-science in a post-Brexit world.

HF explained that the workshop did not start from a blank sheet of paper but sought to build on initiatives such as the cross-industry Feeding the Future Report, the Government’s Agri-Tech Strategy and the more recent Industrial Strategy, which together demonstrate that agriculture is taken seriously as a strategically important sector of the economy.

HF outlined three key recommendations to emerge from the workshop, following a wide-ranging discussion, as follows:

- (i) Funding models and mechanisms – need to promote a more strategic and joined up approach between research funders, paying careful attention to the balance between fundamental and applied science, and considering which models and mechanisms work well elsewhere, either in other UK sectors or in other countries;
- (ii) Policy alignment – ensure policies on agriculture, planning, R&D, finance, connectivity etc are part of a joined-up approach between Government departments, especially BEIS and Defra, and do not work against each other;
- (iii) Collaboration – greater collaboration generally is needed to unlock the productive potential of R&D investment, whether between farmers, between public and private sector, between countries, or between Government departments and agencies.

But HF emphasised that the ultimate test of these recommendations for NFU members was whether innovative farm businesses were able to see an uplift in their productivity as a result.

Beyond agriculture, HF noted that there were active discussions taking place on the impact of Brexit for British science generally, with major uncertainty facing the research community.

Turning to the recently published Defra command paper *Health and Harmony* on which NFU would be consulting members widely during March, HF noted that while the document did not discuss R&D funding it consistently highlighted the importance of innovation to the sector's future competitiveness. HF welcomed the fact that productivity and competitiveness were referenced in the chapter dealing with the delivery of public goods.

HF observed that many progressive farmers were already using technology and innovation on their farms - from sensors and real-time monitoring to improve precision in crop production to enhanced genetic selection for desired traits in livestock. However, the prospect of Brexit introduced a major element of uncertainty and the risk of failure was a critical factor for an individual family farm's decision to invest in such innovation.

HF suggested that - even more than the Agri-Tech Strategy - the new Industrial Strategy Challenge Fund presented a positive opportunity to reset the balance and the culture towards access and uptake of innovation across the sector, working for the whole industry and not just the top performers.

In conclusion, HF reiterated the need to bridge the disconnect between investment in science and the practical, commercial needs of farmers. While recent policy initiatives in the agri-science sector presented positive and unprecedented opportunities to transform farming and the R&D infrastructure around it, a major challenge would be to maintain the interest and support of politicians long enough to enable these initiatives to drive uptake of innovation and productivity gains across the entire industry.

3. Review of developments since the 2010 APPGSTA report: '*Support for agricultural R&D is essential to deliver sustainable increases in UK food production*' – Professor David Leaver

Presenting a personal perspective on the progress made on the recommendations contained in his 2010 report produced for the APPG on R&D priorities in UK agriculture, Professor David Leaver (DL) highlighted the key drivers for the report as follows:

- Declining national capability in applied R&D since the mid-1980s, resulting in reduced translation of the outputs of the UK's world-class basic science base, and its impact on the declining rate of growth in agricultural productivity;
- A fragmented R&D pipeline and a failure to recognise not only that knowledge flows in two directions but also that innovation occurs at all levels from basic science right through to on-farm practice;
- A concern that UK self-sufficiency in food had declined from over 70% to less than 60% over a period of 15 years.

Since 2010, however, DL acknowledged that there had been a significant policy response from Government in relation to agricultural research and its translation into practice, and this was to be welcomed. But while the strategy and vision were right, DL warned that the key priority now was effective delivery and implementation. An integrated, joined-up approach would be critical.

DL highlighted key developments in UK policy since the 2010 report, including the 2013 Agri-Tech Strategy and the Government's renewed recognition of agri-science as one of the 'eight great technologies' in which the UK could be a world leader; the Higher Education Research Bill 2017 and the establishment of UKRI bringing together Innovate UK with the seven research councils; recognition in BBSRC's Strategic Plan of agriculture and food security as a core priority, with renewed emphasis on three cross-cutting themes of exploiting innovation, new ways of working and partnerships; and finally the Industrial Strategy White Paper and its ambition to put the UK 'at the forefront of a global move to high-efficiency agriculture' and to grow markets for innovative farming technologies such as drones and robotics.

But DL reiterated his concerns over the delivery and implementation of these objectives, which would require top-class scientists with understanding and experience of both the academic world and industry. This would still require changes to how scientists are funded and recognised, and a move away from publication-driven career structures which still predominate. DL emphasised his view that applied scientists deserve the same degree of recognition and opportunities for career progression as scientists working solely in academic institutions.

In conclusion, DL highlighted the need above all for a joined-up approach to implementing the Government's strategic objectives for agriculture and agri-science. The industry was facing major challenges and uncertainties, but at the same time this was one of the most exciting and rapidly advancing times for agricultural science and innovation, in which the UK had the opportunity to regain its position as a world leader.

4. Questions and discussion

The following key points were raised during discussion:

Whether the degree of co-operation within the farming industry could in part explain the relative difference in rates of productivity growth between the UK and other member states;

The need for better signposting of R&D funding opportunities, particularly for SMEs and not just focusing on traditional agribusiness sectors, since future sources of agricultural innovation may come from other industrial sectors or disciplines;

As an established industry with historic organisations and traditional ways of operating, UK agriculture may be slower to change its ways or adopt innovation than the emerging economies of eastern Europe, Asia and Latin America where these established organisations and structures do not exist;

Whether there is a need for more research into the psychology of embracing innovation in agriculture – to understand how farmers interact and learn, and what influences their decision to adopt new technologies and practices;

The challenge of addressing a fundamental disconnect between competitive, short-term R&D funding mechanisms and the long-term objectives for UK agriculture, eg in terms of productivity growth and sustainable resource use. Still too little investment is taking place in near-market R&D and knowledge exchange;

A need to recognise that for every £1 spent on fundamental R&D a further £10 is needed in translational and applied research investment. Repatriation of the Single Farm Payment may provide an important opportunity for long-term, strategic investment in the UK's underpinning agri-science infrastructure;

R&D funding mechanisms must reflect the realities of agricultural research, including the need for long-term trials and the fact that uncontrollable external events such as the weather can disrupt trials. Need to move to a system more like the pharmaceutical sector where the majority of R&D funding is concentrated on clinical trials;

Whether the UK culture towards innovation needs radical change to develop and apply disruptive new business models, eg why is the UK building solar farms and taking land out of production while importing horticultural and other crops from countries with similar conditions such as the Netherlands;

Given the enormous potential of plant breeding innovations such as genome editing, whether there is an ongoing role for the All-Party Group to focus on post-Brexit policy and regulation to ensure UK scientists, farmers and consumers can benefit fully from these technologies.

Closing the meeting, JS thanked guest speakers and attendees for their contribution to an informative and productive session.