

All-Party Parliamentary Group on Science & Technology in Agriculture

Inaugural Meeting:

Unlocking our food production potential – the role of UK agricultural science

**Monday 15 November 2010, 4.30 – 6.00pm,
Committee Room 12, Palace of Westminster**

Present:

Members

George Freeman MP
Earl of Selborne
Earl of Lindsay
Lord Taylor of Holbeach
Laura Sandys MP
Roger Williams MP
Jim Paice MP

Stakeholders

Chris Atkinson, East Malling Research; Neil Hipps, East Malling Research; Julian Little, abc; Colin West, MAGB; Nick von Westenholz, NFU; Dominic Dyer, CPA; Wendy Gray, CPA; Owen Bethell, abc; Penny Maplestone, BSPB; Nigel Moore, BSPB; Lindsay Hargreaves, Nuffield Scholar; Ian Crute, AHDB; Vicky Foster, AHDB; Colm O'Siulleabhan, Embassy of Ireland; Paul Bristow, HoL EU Committee; Alistair Dillon, HoL EU Committee; Sue Popple, Defra; John Chesworth, Royal Society of Chemistry; James Ruddock-Boyd, WFU; Rosie Bryson, BASF; Niamh Tye, SIAFU Comms; David Alvis, TSB; Calum Murray, TSB; Chris Warkup, Biosciences KTN; David Cooper, Defra; Charlie Battle, AIC; Helen Ferrier, NFU; Catherine Lehane, nabim; James Turner, DeHavilland; Mark Buckingham, Monsanto UK; Margaret Gibson, WFU; David Leaver, RASE; Ionwen Lewis, Women in Agriculture; George Fisher, DairyCo; Tim Pollock, Lallemand Animal Nutrition; Nigel Scollan, IBERS; Gavin Milligan, Royal Society of Chemistry; Richard Whitlock, Richard Whitlock Ltd; Daniel Pearsall, Group Co-ordinator

INAUGURAL MEETING & ELECTION OF OFFICERS

1. Welcome & Introduction

George Freeman MP welcomed attendees to the meeting, highlighting the Group's vital role in raising the profile of agricultural science given its importance in addressing a wide range of national and international challenges, from food security and climate change to economic growth, protection of the countryside and safeguarding the nation's health.

As chair-elect, GF highlighted his personal interest and involvement in science and agriculture, including declared interests as an adviser to Norwich Research Park and a director of Elsoms Seeds.

GF noted that the make-up of the House of Commons had undergone wholesale change since the General Election, with 250 new MPs, 150 alone on the coalition side. The challenge for the Group was to encourage debate and participation across as wide an audience of politicians and stakeholders as possible.

GF announced the publication on the Group's web-site of a report authored by Professor David Leaver, summarising a series of meeting hosted by the Group in 2009/10 to investigate the research targets and needs of different sectors of UK agriculture.

The report considered what steps were needed – from an agricultural research perspective - to ensure the UK played its part in raising global food productivity by 50% over the next 20 years. This was against a background of progressive erosion and withdrawal over the past 25 years of public sector investment in applied agricultural research and extension, reflected in a gradual decline in the relative production efficiency and international competitiveness of UK agriculture.

GF highlighted the latest Agricultural Outlook report from the OECD and FAO, which projected just 4% growth in European crop yields over the next decade, little better than forecasts for Sub-Saharan Africa, while yields in other countries such as Canada, the United States, China and Brazil were expected to increase by as much as 40% over the same period.

To reverse this decline, the APPGSTA report called for a renewed emphasis on applied and translational research in agriculture to shift the focus from the UK being a 'world leader in basic research' to the UK becoming a 'world leader in basic research and its translation into practice.'

This would require a recognition within Government that funding applied research in agriculture was a public sector as well as a private sector responsibility, and that reinvigorating the UK agricultural R&D pipeline would not only involve a switch of funding priorities from basic to applied disciplines, but also providing attractive career opportunities and rewards for applied scientists, and developing new targets and measurement systems for the outputs of R&D investment.

GF noted that many of the messages contained in the report were entirely consistent with the observations and recommendations made in the review of agricultural research produced by Lord Taylor earlier this year, and that later in the meeting he would present the APPGSTA report to Defra Minister Jim Paice as a contribution to the development of policy in this area.

2. Election of Chairman

Group co-ordinator Daniel Pearsall reported that sufficient Members across political parties and from both Houses of Parliament had expressed support for the Group to be re-convened and re-registered as an All-Party Group with approved status.

Nominations were invited from Members in addition to George Freeman willing to serve as Chair of the Group. None were received.

Mr Freeman's nomination as Chair was duly approved with the agreement of all Members present.

3. Election of Officers

Daniel Pearsall reported that current nominations for Vice-Chair were Lord Selborne and Lord Haskins. These nominations were approved with the agreement of all Members present.

4. OPEN MEETING

Guest Speakers:

Professor Ian Crute, Chief Scientist, Agriculture and Horticulture Development Board (AHDB)

[Please note that full copies of speakers' slide presentations are available to download via the Meetings section of the All-Party Group web-site at www.appg-agscience.org.uk]

Professor Ian Crute (IC) highlighted an essential role for agricultural science and technology in addressing the major global challenge of producing more food using fewer resources and with reduced environmental impact.

In considering the major factors limiting food crop productivity – temperature, water and radiation - IC noted that North West Europe (including the UK) was less vulnerable to the production-limiting effects of climate change and increased agricultural production in these regions would therefore be vital for global food security. Furthermore, the imbalance between available arable land and concentration of populations at a global level implied that food, rather than people, would need to be redistributed to match future production and demand.

In raising global crop productivity, IC highlighted the need to deliver a 'sustainable intensification' of land currently in cultivation rather than eating into grassland, forests or other non-agricultural land, which provided essential carbon sinks for the planet.

IC also emphasised the importance of effective crop protection – chemical, biological and genetic – in improving the efficiency of crop production by preventing harvest losses due to diseases, weeds and pests. Without crop protection, an estimated 5.9bn ha of land would be required by 2025 to feed a global population of 8bn. On top of 1.5bn ha of arable land currently in cultivation, this would require an additional 4.4bn ha of grassland, prairie and forest to be brought into production.

IC stressed that different landscapes brought different values, and that the primary objective of land use for agriculture was the efficient conversion of solar energy into varied and valued sources of chemical energy to meet mankind's needs. Some land was best used to produce forage for feed for livestock as intermediates in the energy conversion process. Maximising production efficiency in terms of output and resource use provided the opportunity to free up land for other objectives – carbon sinks, maintenance of biodiversity etc.

Producing food as efficiently as possible on the smallest area of land capable of meeting market requirements was the 'greenest' option and usually the most profitable way to farm.

Against this background, IC considered that priorities for the future should focus on improving production efficiency by identifying a limited number of carefully chosen targets for agricultural research and deploying sufficient resources to deliver on them.

Across Europe, the bioethanol market was emerging as a major new source of demand for wheat, requiring an additional 43m tonnes (+30%) of supply by 2020. IC questioned whether this additional demand could be met by scaling up yields, noting that UK wheat yields had been flat for 10 years despite plant breeders' success in increasing yield potential by 0.5 – 1% per year. IC singled out blackgrass as a major constraint on wheat yields, observing that access to herbicide tolerant strains of GM wheat would alleviate some of this constraint.

In addition, the predicted effects of climate change could potentially increase the area of UK land suitable for intensive crop production – eg in Scotland – to support increased food production. However, ploughing up large tracts of grassland could compromise areas of high conservation or biodiversity value, and would result in a major release of soil carbon to the atmosphere.

This example demonstrated a clear need to understand better how to manage and measure the interaction and balance between output efficiency, resource use and environmental impact. IC called for the development of new sustainability metrics which would allow such interactions to be assessed and provide a platform for future policy decisions and targeting of research objectives.

In considering future research priorities, IC highlighted the potentially devastating effect of disease on the efficiency of crop and livestock production, not only in reducing yields – in some cases causing 100% wastage – but also in driving up the relative impact of resource use and greenhouse gas (GHG) emissions per unit of output produced.

IC pointed to data from Genesis Faraday which showed the beneficial effect of improvements in livestock breeding in reducing greenhouse gas emissions per tonne of product, and provided examples of effective disease resistance in crops which breeders had delivered through advances in genetic selection.

The ‘sustainable intensification’ of agriculture called for by the Royal Society would require careful balancing and proportionality between inputs and outputs. IC noted that the UK Climate Change Act 2008 established targets for reducing GHG emissions in different sectors, including agriculture. While Nitrogen had been fundamental to the first Green Revolution and remained absolutely fundamental to productivity, the second Green Revolution would be dependent on advanced genetics in improving the efficiency of N and water use, as well as disease and pest resistance, in protecting and optimising yield potential.

Turning to protein production, IC noted that the EU was particularly vulnerable to deficiency in protein supply for livestock production, pointing to the superiority of soya beans as a source of protein relative to all other UK- or EU-grown crops. Significant research effort would be needed to address Europe’s major deficit in pulse production – developing a 5 tonne/ha protein break crop for the UK was suggested as a target for legume improvement.

But while global demand for food was increasing, the effect of 30 years of neglect and erosion in UK applied research capacity had brought a marked decline in the efficiency and competitiveness of UK agriculture. Looking forward, IC highlighted the role of the Agriculture and Horticulture Development Board (AHDB) as a platform and catalyst for targeting of key activities to help ensure British science could best contribute to global food security.

IC singled out the six core functions – R&D funding, marketing, market intelligence, technical information, communications and business information – through which AHDB, working closely with partners across the industry and research community, served the needs of 300,000 SMEs (farming businesses).

In conclusion, IC stated that increased production in NW Europe (including the UK) would be vital for global food security, and the UK had the potential to show the way in balancing increased productivity with less land, water, emissions and waste. But increased investment in applied research and restoring close connectivity along the R&D pipeline between researchers, suppliers and practitioners was essential, alongside a clear policy imperative to

re-allocate available resources to target increases in crop and livestock production efficiency.

Jim Paice MP, Minister of State for Agriculture and Food, Defra

Jim Paice (JP) opened by thanking George Freeman and Members of the All-Party Group for the report into UK agricultural research targets and needs, which was extremely timely and would feed into deliberations taking place within Defra and across Government on this issue. JP undertook to study the report and respond to the Group on behalf of Defra.

JP emphasised that the coalition Government's top priority was to reduce the public deficit after inheriting a dire financial situation from the previous administration. Against a background of cuts in public sector expenditure, the decision to freeze the R&D budget was a major achievement and a clear recognition of the importance attached to this policy area.

In JP's view, the previous Government had been right to establish an innovation platform on sustainable agriculture within the Technology Strategy Board – not without its initial problems given the loss of longstanding LINK programmes, but the right decision in principle.

Lord Taylor's review of agricultural research would provide a platform for the continued development of policy in this area, and officials at Defra were working on a response to his report.

However, JP stressed that action was already taking place in a number of areas. The decision to merge the Veterinary Laboratories Agency and the Institute for Animal Health would improve the ability to research and respond on animal health issues. Defra continued to work closely with Professor Beddington's Foresight programme on global food security, with a high-level report soon to be published exploring how agricultural research and technology could be brought to bear in securing global food supplies. He also highlighted the Government's recent announcement of £12m in research to understand agriculture's contribution to climate change, thought to contribute around 8% of GHG emissions but a complex area – eg grassland acting as a carbon sink against cows belching out methane.

But public perception in many of these areas could not be overlooked. For example, housing livestock indoors could in practice offer better opportunities to contain and control GHG emissions, yet there were strong public views that livestock should be kept outdoors. The current debate over the proposed large-scale dairy farm at Nocton in Lincolnshire highlighted the current lack of public awareness of modern livestock production systems.

There was also a need, highlighted in the Taylor report, to identify shortfalls in applied research and extension services. JP supported Lord Taylor's suggestion of the development of a network of demonstration farms, allowing farmers and advisers in the front line of the development and adoption of new technologies and practices to transfer their knowledge and experience on the ground to other practising farmers.

Overall, Defra was committed to helping the UK agricultural sector produce more food within the limitations of resource use, GHG emissions, public attitudes and Government policy. Agriculture was a hugely important industry, and the number one item on Defra's programme of business was to create a sustainable and profitable farming sector in this country.

5. Questions and Discussion

The following key issues were discussed:

JP saw a key role for the All-Party Group in continuing to raise awareness across Government and within Parliament of the contribution agriculture makes to the UK economy;

Members of the public would always question and challenge the use of science and technology in agriculture, and there was an ongoing role to educate and engage a predominantly urban population;

According to IC, rebuilding the UK's applied agricultural research capacity was a long-term, perhaps 10 year project. No shortage of enthusiasm among young people but inadequate capacity to train the next generation of research scientists. Strategic approach needed, targeting resources to identified areas of need – eg soil science, weed science, pathology etc. Knowledge exchange onto farm would also depend on effective partnerships between public and private sector – BBSRC's development of Advanced Training Partnerships seen as potentially valuable in harnessing the commercial sector's regular on-farm contact to improve research communication and knowledge transfer to farmers;

JP identified scope for food retailers to become more involved in supporting the agricultural R&D process – many were funding related research but often focused on their own specific needs and interests;

UK Government was seeking to forge constructive links with other like-minded EU Member States, not only in relation to the need for a more science-based approach to policy and decision-making, but also in addressing agricultural policy in economic rather than social terms on broader issues such as CAP reform.

6. Future meetings / activities of the Group

In conclusion, GF thanked guest speakers, Members and stakeholders for their participation in a lively and informative debate, and issued an open invitation for attendees to submit suggestions for future issues or topics for the Group to consider.