

DEBATE SUMMARY

Delivering the Agri-tech Strategy - improving the quality and productivity of the UK food production and processing sectors

Held at The Royal Society on 21st May, 2014

The Foundation is grateful to the Wearsheaf Group and the Technology Strategy Board for supporting this debate.

The hash tag for this debate is #fstagritech .

Chair: **The Earl of Selborne GBE FRS**
Chairman, The Foundation for Science and Technology

Speakers: **George Freeman MP**
MP for Mid-Norfolk
Dr Peter Bonfield OBE FREng
Independent Chair, British Food Plan, Defra and Chief Executive, BRE Group
Lord Haskins
Former Chairman, Northern Foods, and House of Lords

Panellist: **Dr Stephen Axford**
Deputy Director, Head of Agri-tech Sector Strategy, Office for Life Sciences, Department for Business, Innovation and Skills

MR FREEMAN outlined the importance of delivering the Agri-Tech strategy¹; the challenges and opportunities in doing so and the priorities for 2014. He acknowledged that in the past governments had not recognized the importance of the sector, not only for domestic food production, but for the export of goods and services. But this was now changing. The government recognized the importance of the sector, had identified it as one of eight priority areas for research and development. Around £450 million was spent on agricultural and food related research and development in 2011/2012. Government was aware of the intimate links the science base and applied research of this sector could have with other sectors. Underlying the Government's strategy was the need to increase food production to meet the growth in demand from a global population growth, changing food habits, and adapting to climate change and dealing with water shortages.

The UK had many advantages - a strong science base, reliable supply chains and

access to, and knowledge of, global markets. But these strengths must be integrated and work together, guided by and funded by the industry and government together. We needed to ensure that the research base was collaborative, not competitive; that the industry understood, and was prepared to fund, long-term research, with the payoff of exports of goods and services to other countries.

Farmers must be able to utilise the latest knowledge in practical terms through application in their own farms or through seeing innovation in use in demonstration farms. The industry, as a whole needed to be more ambitious in its global aims. The government must work hard to ensure UK regulation is appropriate and effective while resisting unnecessary EU regulations which could hinder research and the development outputs being transferred into practice on farms.

The priorities for 2014 were resolving the problems of onerous EU regulation; working with the industry to provide leadership and co-investment in innovation hubs; setting up a UK Centre for Agricultural Metrics; getting consumer and public support for scientifically

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www.gov.uk/government/uploads/system/uploads/attachment_data/file/227259/9643-BIS-UK_Agri_Tech_Strategy_Accessible.pdf

based “progressive” farming; and seeing some early wins, such as inward investment and commercialisation of innovation.

£160 million has been budgeted for the implementation of the Agri-tech Strategy over a five year period. £70 million to be spent on a Catalyst (industry-academic joint R&D, from feasibility studies through to industrial research and late stage awards); including £10m of funding from DfID and £90 million for Centres of Agricultural Innovation or hubs, of which the first will focus on agri-informatics and sustainability metrics.

DR BONFIELD described the background and aims of the Defra led British Food Plan (BFP) project. The public sector - schools, hospitals, prisons, the military - procure 7 per cent of food sold in the UK. Public procurement policies and practices are of vital importance, not just to the economy of the food industry but to the health and welfare of every citizen. More should be done to promote health policies, such as reducing obesity and diabetes, and, above all, reducing food waste. The BFP is being developed using methods that helped to deliver the Olympic Games in 2012. A key tool that contributed to that success was the use of a “Balanced Scorecard” - i.e. a system which looked at all items in terms of their cost, quality, assurance of safety, and responsibility for delivery. This system is being adapted for the BFP.

Central to implementation was a shared vision of what has to be done - which means bringing together all Whitehall Departments involved in food procurement to agree a common set of standards and processes for procurement.

All actions should be assessed on the scorecard in terms of cost, health, public reaction, assurance about safety, and resource efficiency. Research should stem from industry needs, and evidence based policies. But while the food sector delivered innovation, the public sector enabled it to happen, both through appropriate regulation and its procurement activities. The overall aim was not only to improve the long-term health of the population and the availability of food at reasonable prices, but also to promote a profitable food producing and processing industry. This required constant innovation, and knowledge transfer from researchers to farmers, food processors and retailers. While he felt that progress could be made, by establishing pilot projects, it was important not to over-hype the possible long-

term results. Success would come from a cultural change stimulated by government and industry action but this would take time.

LORD HASKINS said we should not be overwhelmed by the problems that we faced from future global population growth, changes in lifestyle, water shortage, and climate change. Our forefathers in the nineteenth and twentieth centuries had faced equally challenging issues on population growth, concerns about starvation and famines, and challenges over environmental protection. But these had been overcome with mechanization following innovations from manufacturers such as Ford and John Deere, the introduction of better pesticides and application of fertilizers and many other innovations. Increasing prosperity enabled farmers to invest capital in modernisation of their farms.

We do not need to worry about food security - as long as we remained in the EU - even though our food imports have risen to around 47 per cent². However, he was concerned that there were still too many UK farmers not using advanced technology for example the advantages of using satellite positioning systems and precision farming. Too many farms were not run for economic efficiency but for lifestyle reasons, and so slowed down the productivity growth of the whole sector.

Great advances in food processing could potentially come from robotics and analysis of data.

Innovation could be exported. There was a priority to help farmers in developing countries utilise new knowledge and innovation.

The UK research base should be more globally conscious, and also seek to learn from other countries as well as sharing our ideas. Food wastage was a huge issue - in developing countries it came from inability to harvest or transport produce, in developed countries from over consumption (eating too much, ignorance, indolence, neurosis – fears of food poisoning when the shelf life was exceeded), by over ordering by supermarkets to avoid stock outs or by suppliers overproducing to guarantee delivery volumes. Media food scares made the public distrust scientific advice on food.

Immediate priorities were revising EU and UK regulation to make the regulations fit for purpose. For example changing regulations to make the international transfer of breeding livestock easier. Securing industry sign up to long-term investment in research and training (and US experience showed this was possible) and helping poorly run, undercapitalised farms to improve their performance. The work to develop the BFP and Agri-tech Strategy were moves in the right direction.

DR AXFORD, in opening the discussion session, said he supported the strategy and the food plan. He agreed it was vital to remove the constraints that EU regulations were placing on the bioscience industry. It was a misapplication of the precautionary principle. Businesses agreed that there was much that could be done to meet common challenges by working together, improving nutritional qualities of food which would benefit all. Innovation is taking place in the sector. The societal impact would be massive if better food choices can stem the growth of obesity, diabetes and other problems of modern diets.

In the discussion that followed there was wide support for both the Agri-tech Strategy and the BFP project but there was concern that some issues had been either underplayed or overlooked. These were:

(a) UK regulations (and UK interpretation of EU regulations) and policies need to be looked at. They were over prescriptive, and hindered innovation.

(b) The single farm payment system operated by Defra should be revised to improve delivery and stop dysfunctional behaviour of farmers.

(c) Demonstration farms were crucial if farmers were to learn how to apply good science on their own farms. The variability of production on farms was very wide; much of it came from insufficient knowledge of the management of soil conditions, as well as from actual farming practices. Few knew how to use water economically and restrict energy use. The demonstration farms should bring all aspects of farming together, so as to improve the economics of the sector, and to play a major role in helping farmers produce healthier, quality food. This was an aspect of the "balanced scorecard" in the BFP. It was not clear how many such farms would come

into being quickly, or whether they would be a network or regional centres.

(d) There was an assumption in the strategy that it was for the government to do much of the work in stimulating innovation and economic growth of the food production and processing sectors. Universities and government research institutes did much of the research, but implementation would be driven by competitive market forces.

(e) While research and innovation was being done by major international agricultural engineering companies such as Ford or John Deere, there was very little being done by small UK manufacturers. New technologies such as robotics, data mining, new materials, engine performance improvement and satellite positioning could all help to improve productivity. Equally important was the design and manufacture of food processing equipment, in which there was no doubt room for an expansion of UK capacity.

(f) There needed to be further genetic research of cattle for both improving beef and dairy production productivity. Low margins in the sale of meat and milk production was holding back investment in innovation.

(g) Knowledge of the quality of the land was important. There needs to be a land use strategy and improvements in how land quality is measured.

(h) The needs of the horticulture sector should be specifically addressed. It was an important element in the overall sector with its own issues of how to increase productivity.

(i) Speakers endorsed the emphasis in the Agri-tech strategy on the need to understand why productivity varied so greatly between farms, and on the need to collect much more detailed data about inputs and outputs.

(j) The importance of breaking down the barriers to international trade would benefit the UK economy through exports, and also accelerate learning from other countries.

(k) It was noted that it was easy to lose sight of the pleasure people take in eating food. Food was not just a commodity product. Diversity and quality were important.

(l) A concern was that universities had cut back on plant science research, and that it was difficult to recruit talented people to do

research in this area. There was also a wider issue of attracting young people into the sector. It was seen by some as a low tech, humdrum, poorly paid industry. But with the use of new technologies leading to precision farming, with the use of GPS, and highly complex equipment farm workers will need a higher degree of education, and higher pay.

While both the Agri-tech strategy and the BFP project were necessary, farming, at least by considering land values, was not doing badly, and retailers were at last beginning to understand the connection between price, health and quality. But, much more needed to be done. The concluding messages from the discussion were:

1. Farms were very different in their ability and willingness to adopt new technology and that we should concentrate on those

progressive farmers who would adapt and change;

2. Data collection was vital;
3. Demonstration farms should be established quickly;
4. The message to the public must be that the agricultural sector is of great importance to the economy; and that the application of research and the acceptance of innovation would deliver high quality, safe, food at attractive prices.

Sir Geoffrey Chipperfield KCB

Useful URLs:

(open with Adobe Reader outside the browser and click on the URL to go to the sites)

Agri-tech Strategy – Department for Business, Innovation and Skills
www.gov.uk/government/uploads/system/uploads/attachment_data/file/227259/9643-BIS-UK_Agri_Tech_Strategy_Accessible.pdf

Biotechnology and Biological Sciences Research Council
www.bbsrc.ac.uk

BRE Group
www.bre.co.uk

Department for Environment, Food and Rural Affairs
www.gov.uk/defra

Economic and Social Research Council
www.esrc.ac.uk

Engineering and Physical Sciences Research Council
www.epsrc.ac.uk

Food Statistics Pocketbook 2013
www.gov.uk/government/uploads/system/uploads/attachment_data/file/307106/foodpocketbook-2013update-29apr14.pdf

The Foundation for Science and Technology
www.foundation.org.uk

Government Office for Science
www.bis.gov.uk/go-science

Improving food in hospitals and schools
www.gov.uk/government/news/improving-food-in-hospitals-and-schools

Natural Environment Research Council
www.nerc.ac.uk

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Research Councils UK
www.rcuk.ac.uk

Royal Agricultural University
www.rau.ac.uk

The Royal Society
www.royalsociety.org

Sustain
www.sustainweb.org/hospitalfood

Sustain School and Hospital Food Campaign - Government Response
www.gov.uk/government/news/improving-food-in-hospitals-and-schools

Technology Strategy Board
www.innovateuk.org

UKTI
www.gov.uk/government/publications/agri-tech-in-the-uk-investment-opportunities/agri-tech-in-the-uk-investment-opportunities

Wheatsheaf Group
www.wheatsheafinvestments.com

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