BIS | Department for Business Innovation & Skills

SHAPING A UK STRATEGY FOR AGRI-TECH

Call for evidence

11 OCTOBER 2012

Contents

This call for evidence invites you to submit views and information that will help shape a Government strategy to promote UK economic growth and international development by making best use of science and technologies relevant to agriculture.

1 Introduction

In the coming decades agricultural production will be placed under increasing pressures to provide more outputs for food production and the raw material for non-food uses. This will need to be done in an environmentally, socially and economically sustainable way.

The global population is predicted to increase both in size (from 7 to 9 billion by 2050)[1] and in prosperity. According to some estimates, the demand for food globally will increase by 70% by 2050 [2] while the competition for land use, water and energy resources will also intensify. This coupled with the impact of climate change will have profound effects on the well-being of societies throughout the world in the future. Indeed, it is looking increasingly likely that we will be unable to prevent the global average temperature rising beyond the 2 degree target of international negotiations. This will lead to an increased frequency of both floods and droughts throughout the world, hitting global agriculture with lower yields and increasing risks.

The Foresight project on Global Food and Farming Futures published in 2011 highlighted the overwhelming evidence that whilst the global food system currently delivers for many, it is failing on two fronts: it is consuming the world's natural resources at an unsustainable rate and failing the world's poorest, with almost one billion still suffering from hunger. Additionally the Taylor Report Science for a New Age of Agriculture published in 2010 highlighted the need to:

- encourage private sector investment in R&D
- reinvigorate applied research
- ensure research is translated into practical benefits
- equip our farmers and growers with the skills to succeed
- drive scientific advances and technological innovation across the world.

Change is, therefore, urgently needed to increase and secure the world's capacity to produce sufficient safe nutritious food and biomass in the future, whilst preventing the continued degradation of the environment and the

[1] UN estimates published on 11 March 2009
[2] OECD – FAO Agricultural Outlook 2012-2021

depletion of earth's limited natural resources.[3] Innovation building on scientific research and development will be key in developing solutions to meet these challenges.[4]

This increased demand in turn creates an important commercial opportunity for the UK Agri-Tech sector. The UK has the potential to be at the forefront of developing these innovative solutions and in the process of doing so, make fuller use of its agri-science base. The translation of fundamental and applied scientific research into innovative technologies, practices and information has the potential to enable countries worldwide to meet the food and environmental challenges ahead while also contributing significantly to the growth of the UK economy.

With its world class plant, animal and environmental research base, [5] the UK is well placed to contribute to the global effort needed to improve the sustainable intensification of agriculture both at home and overseas, raising yields without using more land while adapting to climate change, reducing emissions, and maintaining biodiversity and other ecosystem services. This will involve engaging a very wide range of disciplines including natural (plant, animal, agronomy) and social scientists, engineers, and experts in risk management, economics and modelling.

With this in mind the Government is developing a long-term 'Agri-Tech strategy' focused on knowledge transfer and the application of technology to the agricultural sector, as part of the UK Industrial Strategy announced by the Secretary of State for Business, Innovation and Skills in September. The proposed strategy complements the Life Sciences strategy published in December 2011, as part of the Government's comprehensive vision for the UK's knowledge economy. In addition, the strategy will complement and build on the foundation of other existing Government initiatives in the agricultural sector such as the Sustainable Agriculture and Food Innovation Platform, the Green Food project, the UK Cross-Government Strategy for Food Research and Innovation, the Driving Export Growth in the Farming, Food and Drink Sector Action plan and the multi-partner Global Food Security programme to promote more coherence and co-ordination across public funded agri-food research and innovation.

[3] The Future of Food and Farming: Challenges and choices for global sustainability Foresight report 2011
[4] See http://www.iagre.org/sites/iagre.org/files/repository/IAgrEGlobal_Food_Security_WEB.pdf
[5] For example, see http://www.pirbright.ac.uk
http://www.rothamsted.ac.uk
http://www.jic.ac.uk/corporate/index.htm
http://www.slcu.cam.ac.uk

Objectives

The aim of the 'Agri-Tech Strategy' is to provide a clear, shared long term vision for unlocking the full economic potential of the UK's world leading research. This will help to deliver:

- improved agricultural production efficiencies (for both food and non-food manufacturing) whilst avoiding environmental harm
- solutions to global food security whilst maintaining natural resources and preserving biodiversity
- sustainable international development and wider international collaborations
- increased engagement with the business sector including through inward investment to further stimulate enterprise and accelerate the translation of research into practical applications
- increased UK exports of knowledge, products, systems services and technology
- a well networked, professional, highly skilled and technology-aware agricultural sector with improved access to advice for the farming community on best practice and new technologies.

The strategy will focus on technology across the agricultural sector from the research laboratory through the food supply chain. The emphasis will be on the application of technologies to primary production taking into account the requirements of manufacturers, processing, retail and catering sectors within the food supply chain. Engagement between the various part of the agri-food supply chain, from farmers/primary producers to end users is crucial to driving/adopting/incentivising innovation to meet the challenges of food safety, nutritional quality of food to help consumers eat healthy diets and also of other non-food uses.

The strategy should lead to the effective exploitation of the science base in the UK to increase the competitiveness of domestic agriculture and contribute to global challenge of food security. Some initiatives arising from the strategy may only be applicable to England, while others will be applicable across Scotland, Wales and Northern Ireland as appropriate.

A diagram of the scope of the strategy is attached at Annex A.

2 Purpose for this call of evidence

The Government is inviting contributions from all stakeholders with an interest in the agricultural sector (including business, farmers, the research community, NGOs and the public). The questions below are intended to provide you with an opportunity to inform the development of the strategy and to contribute to its implementation after launch (anticipated in early 2013).

The Government is seeking to establish a strong evidence base derived from existing knowledge in the agricultural sector to help inform its understanding of role of agricultural technology, its strengths and weaknesses and the potential benefits to global food production. We aim to gain better understanding of where there could be potential opportunities for UK businesses including growth in exports of products, technology and know-how, and inward investment.

3 How to Respond

Please respond to this call for evidence by completing the online survey

Alternatively email, post or fax the completed response form at Annex B to the Department for Business, Innovation and Skills (BIS).

Email: lsas@bis.gsi.gov.uk

Postal Address:

Andrew Kitney
Office for Life Sciences
Department for Business, Innovations and Skills
1 Victoria Street
London SW1H 0ET

Fax: 020 7215 2842

This call for evidence will close on Thursday, 22 November 2012 at 2.00pm.

The Department may, in accordance with the Code of Practice on Access to Government Information, make available, on public request, individual responses.

4 Confidentiality and Data Protection

Information provided in response to this call for evidence, including personal information, may be subject to publication or release to other parties or to disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). If you want information, including personal data that you provide, to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

5 Help with queries

Questions about the policy issues raised in the document can be addressed to:

Name: Maria Gonzalez-Rey
Team: Office for Life Sciences
Department of Business, Innovation and Skills
Postal address: 1 Victoria Street, London SW1H 0ET

Tel: 0207 215 5944
Email: maria.gonzalez-rey@bis.gsi.gov.uk

All comments are welcome and we particularly encourage submission of evidence from a wide range of institutions, organisations and representative bodies with an interest in agricultural technologies. Please briefly describe the organisation that you represent (if appropriate) and outline your reasons for responding to this call for evidence.

6 Call for evidence questions

1. The aims and objectives of the Agri-Tech strategy are outlined above in the introduction to this call. Please give your views on:
    a. The need for and potential benefits of having such a strategy.
    b. The appropriateness of the objectives proposed.
    c. Desired outcomes and indicators of success of the strategy, and the role for Government in enabling delivery of these.
    d. Any potential drawbacks / unintended consequences associated with these outcomes and how these could be mitigated.

2. What in your view are the current strengths and weaknesses of the UK agricultural technology sector? Please provide evidence in support of your responses.

3. How do you think the ability of the agri-tech sector to bring growth to the UK economy could best be facilitated or supported by Government working with the industry? Please cite/suggest appropriate mechanisms and measures to attract new revenues to the agricultural technology sector, that are feasible, value for money and effective, while paying attention to UK, EU and global finance available for agricultural science.

4. What is the potential and what should be the role of technology in addressing the needs of UK farmers, and meeting the challenges of global food security and the increasing demand for non-food bio-renewable products and resources? This would include new technologies (such as nanotechnologies, robotics, remote sensing), modern biotechnology techniques (such as genomics analysis, cloning, GM) and engineering solutions. Please provide examples where technologies may be particularly transformative in their impact, and how research skills in these may be enhanced.

5. What do you think are the main barriers to the achievement of the proposed strategic objectives and how do you think they might be overcome?

Follow-up

Please let us know if you/your organisation would like to be considered to take part in future activities that may arise as a result of the implementation of this strategy.

Glossary

Genomics analysis
Genomic analysis involves looking for differences in the DNA that makes up the genes of different organisms. It enables the identification and selection through conventional breeding of genes that are associated with beneficial features of an organism e.g. disease resistance in crops or in an animal.

GM
GM normally involves the insertion of genes carrying a specific trait (eg pest resistance) from one organism into another. This introduction can be novel genes from the same species (cisgenics), or from another species (transgenics), individually or in small groups.

Cloning
The production of genetically identical organisms.

Remote sensing
The observation and analysis of agricultural land or livestock without the need for manual handling. For agricultural land this can be done from aircraft or satellite to assess and map features such as crop yield or diseases. Information from remote sensing can be used to increase farm management practices and animal welfare.

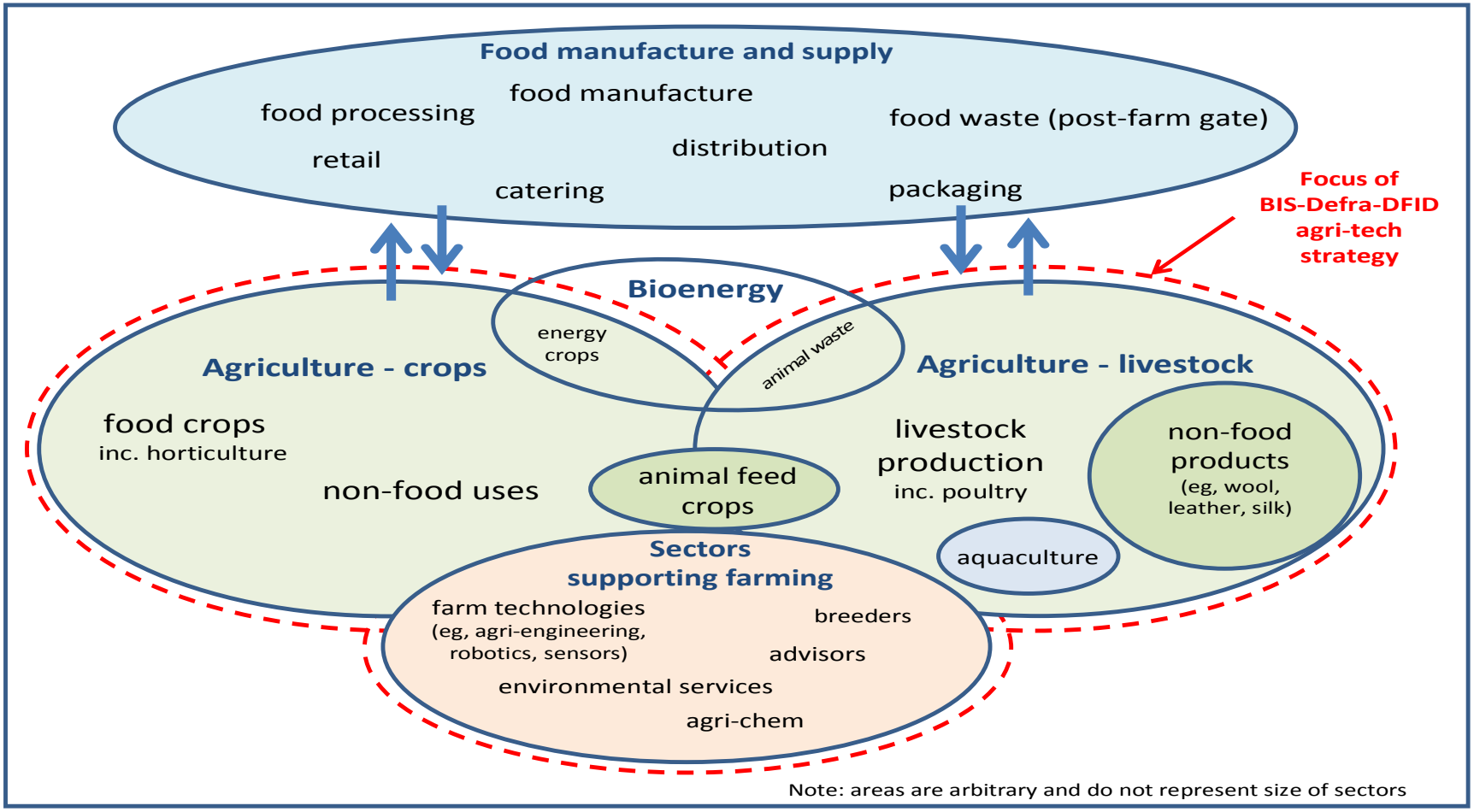
Nanotechnology
Nanotechnologies can be thought of as any technology which either incorporates or employs nanomaterials (e.g. carbon nanotubes) or involves processes performed at the nanometre scale. A nanometre is one billionth of a metre, around 80,000 times smaller than the diameter of a human hair.

Robotics
The engineering of machines to perform farming tasks automatically and autonomously e.g. GPS guided crop spraying, detection and mechanical removal of weeds or crop pests, automated milking of cows.

7 What happens next?

Responses received in answer to this call of evidence will be analysed after the close date. They will be considered in the development of the Agri-Tech strategy that will be published in early 2013.

8 Annex A – Strategy scope



9 Annex B – Response form

The Department may, in accordance with the Code of Practice on Access to Government Information, make available, on public request, individual responses.

All comments are welcome but we particularly encourage submission of evidence from institutions, organisations and representative bodies with an interest in this topic.

The closing date for this call for evidence is Thursday 22 November 2012 by 14.00 hours.

Please return this completed form to:

Email: lsas@bis.gsi.gov.uk

Postal Address:

Andrew Kitney
Office for Life Sciences
Department for Business, Innovations and Skills
1 Victoria Street
London SW1H 0ET

Fax: 020 7215 2842

Please describe the organisation that you represent and outline your reasons for responding to this call for evidence

Please tick the box from the below list that best describes you.

	Business representative organisation/trade body
	Central government
	Charity or social enterprise
	Individual
	Large business (over 250 staff)
	Legal representative
	Local Government
	Medium business (50 to 250 staff)
	Micro business (up to 9 staff)
	Small business (10 to 49 staff)
	Trade union or staff association
	Other (please describe

Please write here your name/ the name of your organisation and contact details if you wish to. This would help us to contact you if we have further questions.

1. The aims and objectives of the Agri-Tech strategy are outlined above in the introduction to this call. Please give your views on:

a. The need for and potential benefits of having such a strategy.

b. The appropriateness of the objectives proposed.

c. Desired outcomes and indicators of success of the strategy, and the role for Government in enabling delivery of these.

d. Any potential drawbacks / unintended consequences associated with these outcomes and how these could be mitigated.

2. What in your view are the current strengths and weaknesses of the UK agricultural technology sector? Please provide evidence in support of your responses.

3. How do you think the ability of the agri-tech sector to bring growth to the UK economy could best be facilitated or supported by Government working with the industry? Please cite/suggest appropriate mechanisms and measures to attract new revenues to the agricultural technology sector, that are feasible, value for money and effective; while paying attention to UK, EU and global finance available for agricultural science.

4. What is the potential and what should be the role of technology in addressing the needs of UK farmers, and meeting the challenges of global food security and the increasing demand for non-food bio-renewable products and resources? This would include new technologies (such as nanotechnologies, robotics, remote sensing), modern biotechnology techniques (such as genomics analysis, cloning, GM) and engineering solutions. Please provide examples where technologies may be particularly transformative in their impact, and how research skills in these may be enhanced.

5. What do you think are the main barriers to the achievement of the proposed strategic objectives and how do you think they might be overcome?

Please let us know if you/your organisation would like to be considered to take part in future activities that may arise as a result of the implementation of this strategy

If so, please write here your name/ the name of your organisation and your contact details

Glossary

Genomics analysis
Genomic analysis involves looking for differences in the DNA that makes up the genes of different organisms. It enables the identification and selection through conventional breeding of genes that are associated with beneficial features of an organism e.g. disease resistance in crops or in an animal.

GM
GM normally involves the insertion of genes carrying a specific trait (eg pest resistance) from one organism into another. This introduction can be novel genes from the same species (cisgenics), or from another species (transgenics), individually or in small groups.

Cloning
The production of genetically identical organisms.

Remote sensing
The observation and analysis of agricultural land or livestock without the need for manual handling. For agricultural land this can be done from aircraft or satellite to assess and map features such as crop yield or diseases. Information from remote sensing can be used to increase farm management practices and animal welfare.

Nanotechnology
Nanotechnologies can be thought of as any technology which either incorporates or employs nanomaterials (e.g. carbon nanotubes) or involves processes performed at the nanometre scale. A nanometre is one billionth of a metre, around 80,000 times smaller than the diameter of a human hair.

Robotics
The engineering of machines to perform farming tasks automatically and autonomously e.g. GPS guided crop spraying, detection and mechanical removal of weeds or crop pests, automated milking of cows.

URN 12/1174