

Technology Strategy Board

Driving Innovation



Sustainable Agriculture and Food

Innovation Platform



Sustainable Agriculture and Food Innovation Platform

The Sustainable Agriculture and Food Innovation Platform aims to stimulate the development and adoption of new technologies to help improve the productivity of the UK food and farming industries, while decreasing their impact on the environment.

This initiative addresses the challenges to global food security and environmental sustainability posed by the predicted growth in the global population, climate change and depletion of the earth's natural resources. Developing solutions to these major societal challenges presents at the same time a market opportunity for UK businesses throughout the food supply chain.

The innovation platform was launched in October 2009 by the Technology Strategy Board, in partnership with the Department for the Environment, Food and Rural Affairs (Defra), and the Biotechnology and Biological Sciences Research Council (BBSRC).

Over the next five years, we will invest up to £90m in projects to develop new technologies. Investments will be made jointly with industry and other funders in projects to develop innovative solutions to these challenges.

What is an innovation platform?

Global society faces many challenges. Through the application of technology and innovation we can help to meet these challenges and at the same time open up new opportunities for business.

Innovation platforms focus on specific societal challenges where the UK Government is taking action through policy, regulation, procurement or fiscal measures to tackle the problem.

They bring together key players from industry, academia and government to identify barriers to meeting the challenge, map possible routes to overcoming the barriers, and align activities to support innovative solutions.

Innovation platforms aim to deliver a step change in the ability of UK businesses to provide solutions for the global marketplace, boost UK economic performance, and provide higher-quality public services.

Why sustainable agriculture and food?

The ability of the global agricultural industry to produce sufficient food to meet anticipated future demand faces major challenges, with global population growth, climate change and resource depletion the most significant.

The global population is expected to grow from 6.7 billion today to 8.3 billion in 20 years' time, with the UK population forecast to grow from 61 million to 70 million over the same period, according to the UN Department of Economic and Social Affairs (<http://esa.un.org/unpp>).

In his address to the United Nations conference on food security in June 2008, UN Secretary General Ban Ki-moon

articulated the challenge facing world agriculture: 'The world needs to produce more food. Food production needs to rise by 50% by the year 2030 to meet rising demand [figure 1]. We have an historic opportunity to revitalise agriculture – especially in countries where productivity gains have been low in recent years.'

Global food production has kept pace with population growth to date. However, the scale of this challenge will be exacerbated in the future owing to increasingly unpredictable weather events and the changing patterns of disease in crops and livestock caused by anticipated climatic changes. This, combined with a greater competition for limited natural resources, particularly energy, land and fresh water, creates the scenario described by Professor John Beddington, the UK Government's chief scientific adviser, as the 'perfect storm' (figure 2).

As part of the global food supply chain, the UK will be affected by climate change both within and beyond the European Union. Food shortages and rising food prices can quickly lead to social unrest as happened around the world during the food price spikes of 2007/08; consequently food security is high on the agenda of many governments, including that of the UK.

Figure 1: predicted global food requirements up until 2050

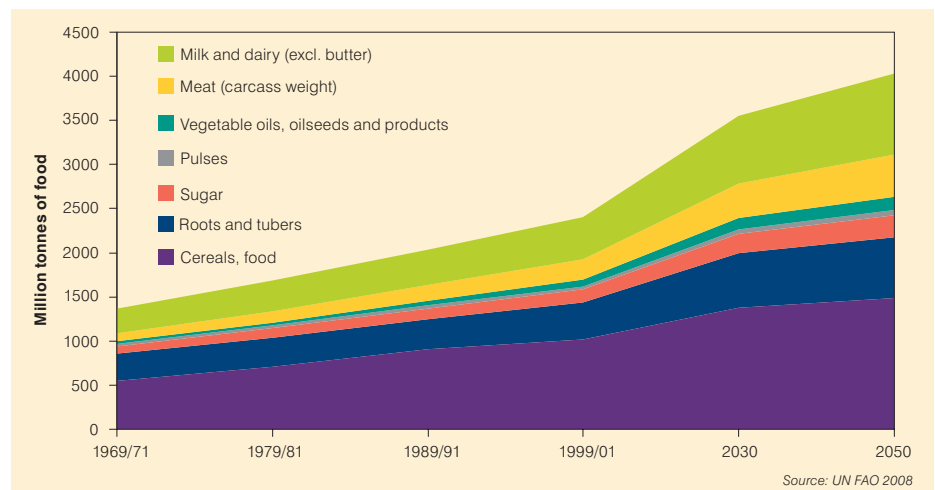
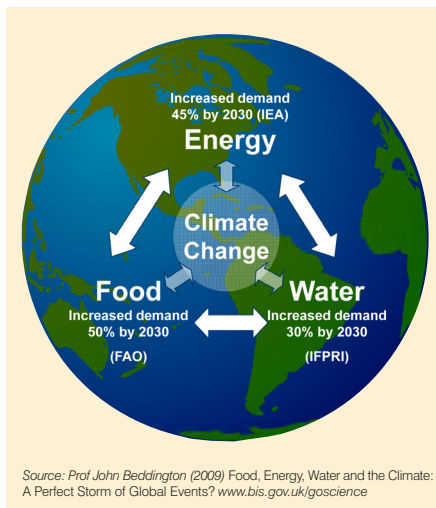




Figure 2: The 'perfect storm'



While the increasing global demand for food will create a market opportunity for UK businesses throughout the food supply chain, a steady decline in the area of land available for food production, combined with an increasing regulatory burden and the need to reduce greenhouse gas (GHG) emissions, pose considerable technical challenges to increasing productivity sustainably using existing techniques.

New technology-based solutions are needed to overcome these challenges. We recognise the opportunity this presents and aim to ensure that UK business is well placed to deliver solutions to these challenges.

The priorities

The aim of the innovation platform is to enable the UK agriculture industry to increase the productivity of crops and livestock while simultaneously decreasing its impact on the environment. The innovation platform will focus on four interlinked areas:

Crop productivity

Crop protection: Developing solutions to the threats posed to UK arable and horticulture output by the impact of climate change and the withdrawal of plant

protection products (including pesticides, herbicides and fungicides) under new EU legislation.

Crop nutrition and management:

Developing technologies and management systems that fully exploit the productive potential of modern crop varieties while minimising nutrient losses to the atmosphere and to water. The focus will be on the efficient use of plant nutrients through the manufacture and application of inorganic fertilisers and more effective recycling and use of organic nutrients from manure.

Sustainable livestock production

Developing solutions that sustainably increase the productivity of the livestock sector, reducing the industry's impact on the environment while meeting regulatory requirements in terms of animal health, welfare and food safety.

Waste reduction and management

Taking a supply-chain-wide approach to reducing waste, from innovative technologies for pre and post-farm-gate storage including farm-scale waste management solutions (for example, integrated crop and livestock systems), to food processing and packaging for the retail and food distribution industry.

Greenhouse gas reduction

The biggest sources of GHG emissions in agriculture are nitrous oxide (N_2O) from the microbial transformation of nitrogen fertilisers in soil (about 58% of agricultural GHG emissions across Europe) and methane (CH_4) from enteric fermentation in livestock (about 42%)¹. Our activities to increase productivity of crops and livestock will concurrently seek to address this. We will also support supply-chain-wide projects that help businesses develop new technologies and practices that contribute to field-to-fork reductions in GHG emissions.

¹ European Commission DG for Agriculture and Rural Development (2008) *Climate Change: The Challenges for Agriculture*

Current activity

In January 2010 we launched a collaborative R&D competition for funding entitled 'New approaches to crop protection'. In response to the forthcoming revision of the European Commission directive on plant protection products (91/414/EEC), we will invest up to £15m in projects to develop innovative solutions to help growers of arable, horticultural, forage and non-food crops respond to the dual challenges of increasing productivity while reducing the environmental impact of crop production.

The competition was extremely well subscribed, attracting applications from diverse consortia drawn from across the crop production and crop protection industries. From 100 expressions of interest received, we invited 68 to submit full applications. We will announce the projects that will receive funding during summer 2010.

We will fund activities in other priority areas during the course of the innovation platform.

Who are we working with?

Large societal challenges cannot be tackled by the Technology Strategy Board alone. We need to work with other key players to align our programmes for maximum effect.

Consequently the £90m investment in the innovation platform is provided by the Technology Strategy Board (£50m), Defra (£30m) and BBSRC (£10m), with additional contributions from the Agricultural and Horticultural Development Board and the Scottish Government.

Over the five-year life of the innovation platform, we will engage with businesses, regulatory bodies and research organisations across all areas of the agrifood industry. These will include representatives from the agricultural supply sector, primary producers, food processors, manufacturers, distributors and retailers. We will also engage with leading players in environmental sustainability and resource management.



Further information

Further information is available in the Sustainable Agriculture and Food Innovation Platform section of our website at www.innovateuk.org

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Who are we?

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the UK's Department for Business, Innovation and Skills (BIS).

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