

Press Release

1 July 2010

Innovative crop protection R&D may help farmers cope with new EU regulations

Over thirty innovative projects put forward by business led consortia from across agriculture and the crop protection industry are to receive support of over £13.5m from the Government to carry out applied research and development.

The investment, from the Technology Strategy Board, the Department for Environment, Food and Rural Affairs (Defra) and the Biotechnology and Biological Sciences Research Council (BBSRC), has been awarded to thirty two consortia in a recently concluded competition entitled 'New Approaches to Crop Protection'.

The projects will develop new technologies to help farmers and growers adapt to the specific challenges posed by recent changes to EU pesticide regulations that threaten the withdrawal of a number of key crop protection products, as well as supporting the broader aims of the Technology Strategy Board's recently established Sustainable Agriculture and Food Innovation Platform (SAF IP).

Taking into account contributions from the British companies undertaking the research and development, the total value of the R&D is in excess of £25m. The thirty two consortia will bring together over 100 British companies, research establishments and other organisations from across the UK.

Jim Paice MP, Agriculture and Food Minister said:

“Crop protection is an important issue for UK farmers and growers so I’m pleased that this is the first area to be targeted by the Platform. This competition, to which Defra has contributed £3.5m, will give vital support to farmers following changes to the EU pesticide regulations.”

Explaining why the Technology Strategy Board decided to invest in this area, Chief Executive Iain Gray said:

“This competition is the first initiative from the Sustainable Agriculture and Food Innovation Platform. The platform aims to bring government, business and researchers together to stimulate the development of new technologies that will increase food productivity, while decreasing the environmental impact of the food and farming industries. The farming industry has welcomed the work that we are doing to support them and sees this competition as a positive way forward. “

The competition, which attracted additional funding from the Scottish Government and the Agriculture & Horticulture Development Board, is the first of a number of planned investments co-ordinated by the Sustainable Agriculture & Food Innovation Platform. It will invest up to £90m over the next five years in projects and initiatives across the Agri-Food sector, focusing on areas such as crop productivity, sustainable livestock production and the reduction of food-chain waste and greenhouse gas emissions from the sector.

Ends

Editor's notes

1. Case study examples of successful projects:

Project title: Automating weed mapping in arable fields for precision farming

Partners: Masstock Arable UK Ltd (lead), Knight Farm Machinery Ltd, Patchwork Technology Ltd, Syngenta Crop Protection UK, University of Reading

Project outline: The project will develop a GPS-linked computer-controlled digital camera system mounted on farm machinery (tractor, sprayer or combine) to map and geo-reference key weeds such as black-grass, which occur in patches in arable crops. The project will develop an innovative machine vision system using digital cameras, linked to leading-edge image analysis software, designed not only to identify reliably the weeds present but also to estimate their densities – prerequisites for precision farming. Key benefits of the system would be to reduce the cost of weed control to the farmer, lower herbicide inputs to the environment and allow early detection of herbicide resistance.

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Project title: CROPSENSE: Networked mimic sensors for crop enhancement and disease control

Partners: Syngenta Ltd (lead), Velcourt Farms, AET - Gwent Group, Uniscan, Burkard, DMCii, University of Manchester, Rothamsted Research

Project outline: The project will enable growers to produce more food with fewer inputs, through an integrated farm management strategy. This optimises the Crop Protection (CP) using a network of in-field biosensors which then interact to form a UK, and international, infrastructure. This will be combined with the dual-action disease control and crop enhancement offered by a subset of CP chemistries. Initial adoption will be for Sclerotinia in UK Oil Seed Rape (OSR) integrated with Syngenta's dual-mode Amistar chemistry. UK technology companies will manufacture the sensor nodes which then link, alongside satellite crop-usage data, into a GIS web portal accessible as a commercial service to; farmers, agronomists, government and other agri-food stakeholders.

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Project title: New biofumigation-based approaches to sustainable control of soil-borne pathogens

Partners: Berry Gardens Growers Ltd (lead), Eden Research PLC, BerryWorld, Sainsbury's, Tozer Seeds Ltd (Plant Solutions), K&S Fumigation Services Ltd, CPM (Retail) Ltd, Natural Resources Institute, East Malling Research

Project outline: This project will develop novel biofumigant products for control of soilborne diseases, particularly Verticillium wilt in strawberry, but with potential application to a much wider range of crops including raspberry, potato and cotton. Firstly, novel patented microencapsulation technology will be adapted to develop a slow-release formulation of the biocidal terpenoid compounds in lavender and delivery systems appropriate for use by growers. Secondly, the possibility of producing a novel, pelletised formulation of lavender waste will be investigated as an alternative for organic growers. These and the brassica seed meal product will be evaluated in the laboratory and in several field sites for their efficacy against Verticillium wilt in strawberry, alone and in combination. The project will provide optimised strategies for using these new products in practice under different levels of pathogen inoculum and various soil moisture conditions.

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Project title: Strategies for quantifying and controlling Free Living Nematode populations and consequent damage by tobacco rattle virus to improve potato yield and quality

Partners: Cygnet Potato Breeders Ltd (lead), McCain Foods (GB) Ltd, PepsiCo International, DuPont, The Cooperative Farms, Eden Research, Mylnfield Research Services Ltd, SCRI, SAC, Plant Health Care UK Ltd, Tozer Seeds Ltd, Dawnfresh Seafoods Ltd

Project outline: Free Living Nematodes (FLN) are emerging as a major problem for UK potato growers, exacerbated in the short term by removal of approved nematicides and in the long-term by expected population increases due to climate change. FLN cause direct damage by feeding on potato roots reducing yields and quality, and indirectly by transmitting Tobacco Rattle Virus (TRV). A molecular diagnostic capable of distinguishing between the three main groups of FLN of interest will be developed, validated and deployed. Field trials will assess direct FLN feeding damage on a selection of commercial potato varieties as well as study effects on tuber quality, transmission of virus and evaluate new control strategies. In parallel, molecular markers will be developed to facilitate the breeding of new potato varieties with resistance to TRV. This project will be supported by AHDB Potato Council because of its importance to the sustainability of the GB potato industry.

Contact details: Matthew Smallwood, matt@harleys.co.uk, 01577 862929

Project title: Molecular Improvement of Disease Resistance in Barley (MIDRIB)

Partners: Limagrain UK Ltd, NIAB, UCL, SCRI

Project outline: MIDRIB describes the development and application of novel molecular breeding technology for breeding new varieties. The primary aim is to develop new competitive varieties for the UK, with increased polygenic disease resistance, which will allow reductions in pesticide applications. The deployment of molecular breeding will allow more rapid progress than current breeding methods. The approach will develop the use of high density molecular SNP markers. The project will concentrate upon identifying the genetic control of polygenic traits, such as durable disease resistance. MIDRIB is planned for 5 years. By the end of the 5th year new varieties developed using the technology will be in advanced trials.

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Project title: Inducing novel broad spectrum disease resistance in wheat

Partners: RAGT Seeds Ltd (lead), University of Sheffield

Project outline: This project will apply a novel high throughput screening methodology, combined with conventional breeding, to develop new wheat varieties in which broad spectrum tolerance and resistance to fungal pathogens and enhanced nutrient-use efficiency are simultaneously induced and selected via a novel mechanism. The aim of this project is to combine recent advances in (1) fundamental plant biology, (2) high-throughput mass-spectrometry and (3) modern plant breeding techniques, in an innovative way to produce new varieties of wheat that are less dependent on pesticides and chemical inputs for optimal yields. The varieties will be selected with enhanced, and durable, broad spectrum resistance or tolerance to disease. Field trials of candidate new varieties will be used to select the best variety for commercial development.

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2. A list of the projects to be funded can be downloaded from: [NACP – project list](#).
3. 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 Department for Business, Innovation and Skills (BIS). For more information please visit www.innovateuk.org.
4. The **Biotechnology and Biological Sciences Research Council (BBSRC)** is the UK funding agency for research in the life sciences. Sponsored by Government, BBSRC annually invests around £470 million in a wide range of research that makes a significant contribution to the quality of life for UK citizens and supports a number of important industrial stakeholders including the agriculture, food, chemical, healthcare and pharmaceutical sectors. BBSRC carries out its mission by funding internationally competitive research, providing training in the biosciences, fostering opportunities for knowledge transfer and innovation and promoting interaction with the public and other stakeholders on issues of scientific interest in universities, centres and institutes. For more information see: <http://www.bbsrc.ac.uk>

5. Companies and other organisations seeking further information about the Technology Strategy Board's research and development funding competitions should visit the competitions page of the Technology Strategy Board website – www.innovateuk.org, email competitions@tsb.gov.uk or phone the Competitions Helpline on 0300 321 4357.

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