



The world needs to feed 9bn people nutritiously, safely and sustainably by 2050. Multidisciplinary research is needed to address the complex difficulties of securing the global food supply.

BBSRC is leading the Research Councils' food security programme, working in partnership with relevant Government departments.

For more information about the Research Councils' food security programme, see www.foodsecurity.ac.uk

Food security consultation and research roadmap

BBSRC's 2009 consultation on future research for food security received over 120 responses from academia, industry, Government, NGOs and others.

We are using the responses to produce a roadmap for future research. This will help inform the cross-Government Food Research and Innovation Strategy.

For more information about the food security consultation and roadmap, see www.bbsrc.ac.uk/consultations



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Science for crop production



The Biotechnology and Biological Sciences Research Council (BBSRC) invests around **£78M pa** in plant and crop science research.

Increased tolerance to stresses such as drought and extremes of temperature

Pesticides that overcome 'resistance'

Increased yield and reduced post-harvest losses

Reduced use (costs) of inputs (pesticides and fertilisers)

Enhanced product quality, including nutritional, processing and storage properties

Improved resistance to pesticides and disease

More efficient use of water and nutrients

Harnessing basic information

- A gene in the laboratory plant *Arabidopsis* sets final seed and organ size by controlling cell proliferation.

A technology, patented by researchers at the John Innes Centre in partnership with PBL Technologies, could see counterpart genes in crops being used by breeders to increase yields.

- Computer models show how factors interact to determine when and where crops are attacked by pests and disease.

They can identify the most appropriate and cost effective preventative measures and treatments, eliminating wasteful, ineffective interventions. Examples include the development, by Rothamsted Research, of mechanistic models to study leaf wetness duration in oilseed rape crops and the development of epidemics of light leaf spot and stem canker.

For more information about harnessing basic information see www.bbsrc.ac.uk/science/impact

International partnerships

BBSRC-supported scientists contributed to a pan-European analysis of the genetic make-up and grain composition of 150 varieties of wheat. The data will enable breeders to select high yielding plants with additional desirable traits such as good milling quality, or high levels of dietary fibre, minerals and other compounds associated with health protection.

For more information on international partnerships see www.bbsrc.ac.uk/international

Crop Improvement Club

BBSRC is working with a consortium of companies to establish a research and technology club to jointly identify and fund high calibre research that addresses generic challenges faced across the sector.

For more information about the Crop Improvement research and technology club, see www.bbsrc.ac.uk/cropclub

Working with industry

- Through an Industry Interchange Programme partnership with Advanta Seeds, scientists at the University of Bristol are developing ways of applying their state of the art genotyping tools for the production of improved commercial wheat varieties.

- University of Sheffield researchers are collaborating with Syngenta to identify cheap, soil inactivated herbicides suitable for no-till agriculture and develop appropriate compounds that overcome herbicide resistance. This work is supported through an Industrial Partnership Award.

- Researchers at Rothamsted Research, working with Endura Spa and Australian scientists have developed formulations that restore pesticide efficacy against resistant pest insects.

For more information about how BBSRC assists collaboration with industry see www.bbsrc.ac.uk/business/collaborative_research

Industrial CASE studentships fund early career scientists to undertake projects chosen by an industrial partner.

- A project between Bayer Crop Science and the University of Cambridge is investigating specific mechanisms involved in plant stress tolerance.

- A project between Plant Impact Plc and Lancaster University is working to develop a growth enhancer by exploiting plant signalling mechanisms.

- A project between Symbio and Royal Holloway, University of London is aiming to improve yield and quality in leafy vegetables and tomatoes through manipulation of soil mycorrhizae.

For more information about Industrial CASE Studentships, see www.bbsrc.ac.uk/industrialcase

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