

## BBSRC and Food Security



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BBSRC

# Biotechnology and Biological Sciences Research Council

The leading UK public funder of non-clinical bioscience research that:

- ★ underpins directly or indirectly key economic sectors such as:
  - food and drink, agriculture, biopharmaceuticals, industrial biotechnology
  
- ★ has wide impact on social well being, informing policy development in crucial areas such as:
  - food security, sustainable agriculture and land use, healthcare, renewable energy

# Biotechnology and Biological Sciences Research Council



BBSRC invests in bioscience on behalf of the nation. In 2009/10 we allocated around £450M to:

- Fund innovative **bioscience research**
- **Train** bioscientists
- Support **knowledge exchange** and encourage **economic and social impact**
- **Engage** with the public

Stakeholders include the scientific community, industry, government, the public and international partners

## Strategic Plan 2010-2015

**World-class bioscience**

**Three major research priorities**

**Three crucial underpinning themes**

## Three major research priorities



**Food Security**



**Bioenergy and Industrial  
Biotechnology**



**Basic bioscience  
underpinning health**

## Three crucial underpinning themes



**KE, innovation and skills**



**Exploiting new ways of  
working**



**Partnerships**



**Global Food Security** is a multi-agency programme bringing together the research interests of the Research Councils, Executive Agencies and Government Departments



# Programme Themes



- **Theme 1 – Economic Resilience**  
Including global trade, food market economics, economic impact of food safety issues, competitiveness of farming and food
- **Theme 2 – Resource Efficiency\***  
Including water, energy, nutrients, pesticides and other inputs, improving efficiency and reducing waste throughout the supply chain
- **Theme 3 – Sustainable Production\***  
Including soils, farming systems, food production from crops and animals (including fish), food processing and manufacture
- **Theme 4 – Sustainable, Healthy, Safe Diets**  
Including food safety throughout the supply chain, nutrition, accessibility and consumer behaviour

# Knowledge exchange, innovation and skills



Ensuring that our world-class science and skilled people have maximum impact

Boosting the UK economy, connecting to policy and improving quality of life.

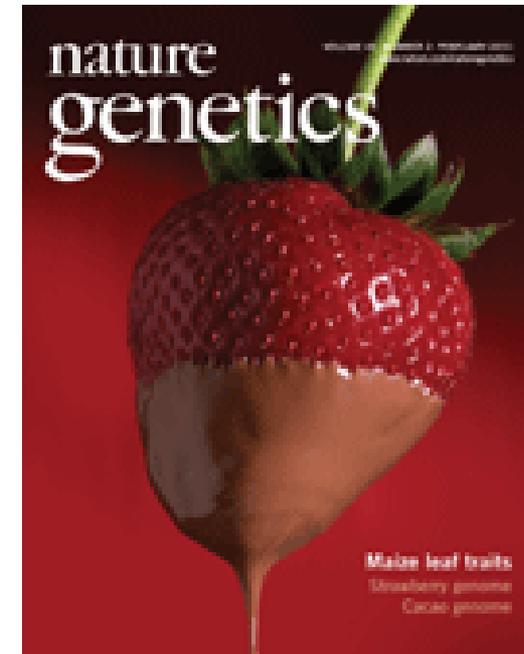
- Skills and capabilities
- KE and translation
- Promoting innovation
- Culture change

# From the research base to the user

- Fundamental research
  - Addressing basic bioscience questions
- Precompetitive research
  - Research Technology Clubs
    - User engagement in developing strategic direction for research programmes
  - Collaborative research projects, IPA and LINK
    - Increasing opportunities for users to have influence over the research
- Precommercial research – in collaboration with TSB
  - Innovation platforms
    - User-led research
- Skills and knowledge exchange
  - Developing researchers
  - Opportunities for people ‘movement’

# Sequencing the Strawberry Genome

- Published by an international consortium in December 2010
- UK Partner – East Malling: **Part of BBSRC Crop Science Initiative**
- Identify genes relating to disease resistance
- Also likely to impact on other related species such as apples, peaches, pears and raspberries



## Salad Leaf IPA

- “Elucidating QTL for baby salad leaf processability using a genomic approach”
- A **BBSRC IPA** supported research into the genetic regulation of age-related changes in leaves at University of Southampton in partnership with Vitacress to improve quality and shelf life of baby leaf salad products. The project identified QTLs for processability traits in contrasting environmental conditions



Gail Taylor, University of Southampton



University  
of Southampton



**IPA**  
industrial  
partnership  
awards

# Parsnip breeding - KTP

- **BBSRC funded Knowledge Transfer Partnership** supported an associate working with Elsons Seeds and supported by Warwick Crop Centre.
- The KTP project enabled the development of a marker assisted breeding programme in parsnip using existing knowledge in the carrot.
- Facilitated the integration of marker technology within the traditional breeding business.
- Strengthened business/academic relationship:

“This project provided us with an excellent opportunity to improve the understanding of breeder’s needs and how we can transfer academic knowledge to further their goals.”

Graham Teakle – Warwick Crop Centre



# Beneforté Broccoli

- New variety of broccoli recently launched on to the market – contains 2-3 times the levels of the phyto-nutrient Glucoraphanin.
- Glucoraphanin is converted into sulforaphane in the body which boosts levels of anti-oxidant enzymes.
- Evidence indicates that a diet rich in glucoraphanin can have beneficial effects such as reducing chronic inflammation, stopping uncontrolled cell division associated with early stages of cancer
- **BBSRC funded science** at the JIC and IFR has enabled the development of this new crop.



“This is a fantastic achievement and testament to the quality of research we have in this country and its ability to drive growth. This excellent work has led to the development of a highly commercial food product that will be both grown and sold in the UK, giving a real boost to agriculture, our personal health and the economy.” David Willets



