

The Defra Crop Genetic Improvement Networks

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- New varieties are products for which there is a market. This drives a market for genetic improvement research within a private and international breeding industry. So why should Defra fund research to support breeding? Defra commissioned the ADAS/BioHybrids study to examine the role and rationale behind public sector investment in crop genetic improvement. The report (<http://www.defra.gov.uk/science>) (under code ST0158) summarises the state of the breeding industry in the UK and sets out a rationale for public funding.
- Crop breeding has been very successful at achieving crop genetic improvement in line with public policy over the past 50 years. Genomics promises a powerful tool for crop improvement that could revolutionise breeding practice. It is clear that genetic improvement and breeding can continue to contribute to public policy as focus on sustainable development in the arable sector increases, particularly in increasing resource productivity and reducing the environmental impact of production.
- Although the breeding of arable crops is undertaken by global breeding companies, much of the breeding remains local to the UK.
- The public sector invests approximately £43M on research relevant to plant and crop genetics improvement. Of this, £16M is on named crop species and £5M is applied target led research. The Defra applied research expenditure is characterised by a project based structure focused on specific pre-competitive outputs. Industry investment in collaboration with the research base is unstable and does not exploit LINK widely. Thus, the connection between the strong UK research base and breeders is unclear and this may be compromising delivery of outcomes for policy and industry from research.
- Given the large public resources in genomics and related generic areas, Defra has proposed that its research resources could be deployed to support longer term outcome facing projects that draw public resources together to bear on the improvement of named crops. These 'Crop Genetic Improvement Networks' bring together the relevant researcher resources within strategic alliances with industry.
- The model for a Network comprises the following components:
 1. *A Core Project – to provide a critical capacity in relation the genetic improvement of a specific crop or crop type drawing together and focusing resources throughout the life of the Network*
 2. *Satellite time-bound projects, funded by Defra or BBSRC, focused on specific aspects and traits.*
 3. *Sustainable Arable LINK projects (building on the Core Project) to provide a route and link to industry (preferable working collectively). Defra investment in the Networks as a whole will be related to the LINK or other similar industrial component.*
- The longer-term vision is that these Networks will help the harnessing research organisations' own strategic resources and that the relevant teams will be strong enough to give research members the critical mass and capacity to compete with more basic research for response mode funding or for EU funding. In this way, the strategic applied research resource is used to proactively influence the deployment of all relevant research resources, from the basic through to the applied.
- It is intended that a range of Networks shall be running by April 2003. Dr Donal Murphy-Bokern, Dr Kate Perry and Dr Bruno Viegas are the points of contact at Defra.