

Wheat genome project gains funding boost from CIRC

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Research into the wheat genome by scientists at the University of Bristol is one of six projects to be awarded funding by the £7million Crop Improvement Research Club (CIRC), the Biotechnology and Biological Sciences Research Council (BBSRC) announced today at Cereals 2011, the leading technical event for the arable industry.

The 2-year project, Development and validation of a flexible genotyping platform for wheat, led by [Professor Keith Edwards](#) of Bristol's [School of Biological Sciences](#), aims to develop tools and technologies that make it easier to do targeted breeding to create new varieties of wheat. In particular, this could be used to improve yield and pest and disease resistance, including in commercial lines.

Developing new strategies to enable UK wheat breeders to breed for yield and pest and disease resistance by marker-assisted selection (MAS) underpins the UK's strategy to generate improved wheat varieties. MAS is currently used by academic laboratories, genotyping service providers and breeding companies to track the inheritance of a host of desirable traits such as disease resistance, drought tolerance and yield.

Until recently, most wheat laboratories used microsatellite markers in their MAS projects. However, for wheat, a new type of marker called Single Nucleotide Polymorphisms (SNPs) are now becoming available. SNPs are easy to use and can be automated with relative ease but the task of identifying useful SNPs polymorphisms in wheat is problematic due to its complex and large genome.

Professor Edwards said: "Our CIRC-funded project aims to utilise the wealth of wheat genome sequencing data now available – thanks in part to previous BBSRC funding – to identify useful SNP markers. Together with our academic partner, the John Innes Institute, we will work closely with the genotyping company KBioscience, to both validate SNPs as a marker system in wheat and transfer the SNP markers, as working assays, to UK wheat breeders."



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[CIRC](#) is a five-year partnership between [BBSRC](#), the Scottish Government and 14 companies representing plant breeders, farmers and food processors, aimed at supporting innovative research to improve the quality and yield of oilseed rape, barley and wheat, the key crops for human and animal consumption. With the world facing the significant challenge of feeding a global population set to reach 9 billion by 2050, the improvement of these key crops will be central to mitigating against a future food security crisis.

Professor Douglas Kell, Chief Executive, BBSRC said: “The Crop Improvement Research Club has created a tremendous opportunity for excellent research to contribute to future food security. The research funded by the club is of relevance to the development of commercial varieties of oilseed rape, barley and wheat, and as such will ensure the high quality research has an impact on the sustainability of food production in the near future.”

Dr Simon Hook, representing HGCA and chair of the CIRC steering group said: "These six projects, selected from an initial 46, are very exciting; expertise within the academic community is absolutely vital to future food security in the UK and beyond. We hope that the support for this work from the plant breeder, food grower and processor community will enable these excellent researchers to generate new knowledge and enhance the fundamental science of oilseed rape, barley and wheat leading to increased productivity and quality. With this knowledge we can work together to develop improved varieties that contribute to more sustainable food production.”

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University of Bristol, Senate House, Tyndall Avenue, Bristol BS8 1TH, UK. Tel: +44 (0)117 928 9000