

Scientists to sequence DNA of British wheat varieties

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Scientists at the University of Liverpool have been awarded £1.7 million to decode the genome of wheat, in order to help farmers increase the yield of British wheat varieties.

Bread wheat, with an estimated world harvest of more than 550 million tonnes, is one of the most important food crops in the world and is worth more than £2 billion to the UK's agricultural industry. Wheat production world-wide, however, is now under threat from climate change and an increase in demand from a growing human population.

Wheat breeders have few genetic tools to help them in selecting key agricultural traits for breeding and do not always know the genes responsible for the trait they need. Scientists, in collaboration with the University of Bristol and the John Innes Centre, will analyse the genome of five varieties of wheat using new DNA sequencing technology to generate tools to help breeders select traits, such as high productivity, for their crop. The research will highlight natural genetic variation between wheat types to significantly speed up current breeding programmes.

Professor Neil Hall and Dr Anthony Hall, from the University's School of Biological Sciences, will lead the genome sequencing, which will take approximately a year to complete.

Professor Hall said: "New DNA sequencing technology can read 500 million separate letters of DNA in a single day - hundreds of times faster than the systems that were used to sequence the human genome. The

wheat genome is more than five times larger than the human genome and so this is one of the most ambitious DNA sequencing projects undertaken to date."

Dr Hall added: "Sequencing wheat varieties, along with new developments in our understanding of how genes work together, will allow us to identify variation in gene networks involved in important agricultural traits such as disease resistance, drought tolerance and yield. The tools generated will allow us to apply our knowledge of natural variations in the genome to traditional crop breeding."

Source: University of Liverpool

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