

Gene to reduce wheat yield losses

February 19 2009

A new gene that provides resistance to a fungal disease responsible for millions of hectares of lost wheat yield has been discovered by scientists from the US and Israel.

"This is the first step to achieving more durable resistance to a devastating disease in wheat," said Dr Cristobal Uauy, co-author of the report, recently appointed to the John Innes Centre in Norwich.

Resistance to stripe rust has previously been achieved using genes that are specific to single races of the disease. Unfortunately, each of these genes has had limited durability in the field because the pathogen has mutated to overcome them.

In the paper to be published in *Science Express* tomorrow, the international team of scientists report finding a novel type of gene in wild wheat that is absent in modern pasta and bread wheat varieties.

"This gene makes wheat more resistant to all stripe rust fungus races tested so far," said Dr Uauy.

The gene confers resistance at relatively high temperatures, and a focus of Dr Cristobal Uauy's research at JIC will be to test how effective it is in UK-adapted varieties.

Bread wheat provides about 20 per cent of the calories eaten by humankind and is the UK's biggest crop export.

Dr Uauy has recently been appointed at JIC. He will lead a research collaboration with the National Institute of Agricultural Botany (NIAB) designed to deliver practical benefits to agriculture. Research results will be made available to breeders, so they can be deployed into modern varieties for farmers.

Dr Uauy will use the latest genomic techniques to find genes in wheat that directly affect yield and nutritional content.

Yield is a complex trait influenced by many environmental and genetic factors. It was thought that the genetic component determining yield was made up of many different genes each exerting a small influence, but recent work led by the John Innes Centre has challenged this view. Several stretches of the genome, known as quantitative trait loci (QTLs) have been identified that exert large effects on yield, in different environments. Dr Uauy will lead the effort to find the precise genetic basis for their effect on yield.

Source: Norwich BioScience Institutes

Citation: Gene to reduce wheat yield losses (2009, February 19) retrieved 25 April 2024 from <https://phys.org/news/2009-02-gene-wheat-yield-losses.html>

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