Researchers Discover Genes for Frost Tolerance in Wheat

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The genes responsible for the wide range of freezing temperatures that can be tolerated by different wheat varieties have been identified by a team of U.S. and European scientists, led by a plant scientist at the University of California, Davis.

The study results suggest that the genes that regulate frost-tolerance are activated at milder temperatures (53-59 degrees F) in frost-tolerant wheat varieties than in frost-susceptible varieties.

The findings, reported in the March issue of the journal Plant Molecular Biology, are important for better understanding winter injury, a major economic risk factor in producing wheat.

"It has been difficult for wheat breeders to develop more winter-hardy varieties because frost tolerance in wheat is a complex trait that is regulated by many genes," said Professor Jorge Dubcovsky, a wheat breeder and geneticist.

"The identification of these genes will enable breeders to develop hardier, more productive wheat varieties, which is of vital importance in light of growing pressures to increase global food production," he said.

As the world's leading exporter of wheat, the United States annually produces more than 50 million metric tons of wheat, which is used to make a broad spectrum of food products ranging from breads to pastas.

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Source: University of California, Davis