

Mapping techniques to improve wheat varieties

NEW TEST results show the innovative Triticarte wheat breeding service can be effectively used for molecular mapping which is expected to rapidly improve Australian wheat.

And with this comes industry productivity and global competitiveness.

Using Triticarte data, researchers from the NSW Department of Primary Industries were able to construct molecular linkage maps of bread wheat and barley.

They were also able to link the Triticarte data with several key wheat characteristics.

These characteristics include the polyphenol oxidase enzymes involved in browning of ascoles, pasta and other products, the glutenin loci involved in wheat dough strength and extensibility, and the resistance to *Sepseria tritici* blotch.

In addition, a close link has been identified with aluminium tolerance in barley as part of a research project conducted through the NSW Agricultural Genomics Centre at Wagga.

Co-director Prof Bill Rathwell said the test results showed that Triticartes whole genome profiling technology would result in speedier release of improved wheat varieties in the immediate future.

"This development is very important for Australian growers to compete on international markets because it will help the industry to move wheat from a bulk commodity status into more profitable, specialist value-added streams," said Professor Rathwell.

"I believe the Triticarte molecular mapping technology is now fast evolving and that it will become a significant practical tool in the nation's wheat breeding

programs."

Triticarte is a joint-venture spin-off, formed in 2003, from the on-third Federal Government-funded Value Added Wheat Cooperative Research Centre and Diversity Arrays Technology Pty Limited (DAAT PL).

The partners have developed the technology for wheat and barley over the past four years.

The research program was jointly funded by VAWCRC and the Grains Research and Development Corporation (GRDC).

The project is also receiving substantial industry support.

Active long term partners include Arnotts Biscuits and Allied Mills.

The former has contributed nearly \$3 million to the VAWCRC and is already using improved wheats from the research programs in its biscuits products.

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