



CASE STUDY

Increasing Australian wheat marketability in China

Name: Australia-China Joint Research Centre for Wheat Improvement

Location: Murdoch University, Perth WA



Ears of wheat: Grain production is one of Australia's biggest industries. Photo courtesy of CSIRO Science Image.

Australian and Chinese researchers are working closely together to increase the suitability – and ultimately the amount – of Australian wheat being sold to China.

Wheat is already one of Australia's major crops. We export around \$6 billion of wheat every year. China imports around \$391 million of wheat from Australia and \$1.14 billion worldwide, so there is potential for even more growth in the Chinese market.

China is one of the world's largest food importers in the world. The Australia-China Joint Research Centre for Wheat Improvement (the Wheat JRC), supported by the Australia-China Science and Research Fund (ACSRF) is working to increase Australian wheat marketability in China by improving the amount of grain protein content (GPC) for producing Australian and Chinese domestic food products. On the global market, a high GPC in wheat attracts a premium price.

The Wheat JRC has contributed to finalising a high quality wheat genome sequence that is currently attracting considerable attention.

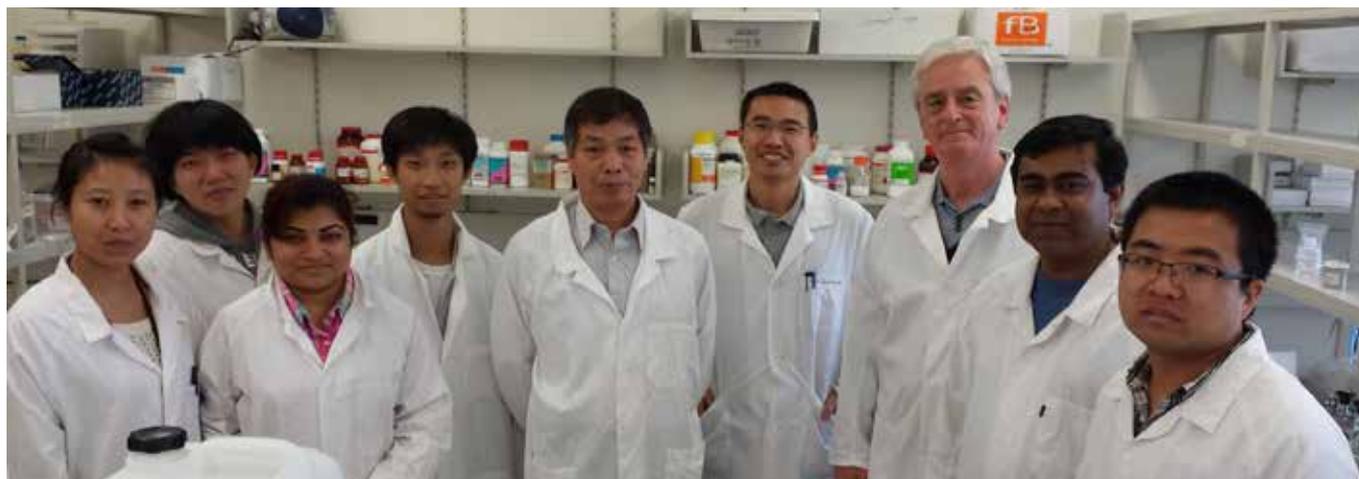
It employs over 20 Australian researchers and has ambitious plans to broaden the commercialisation, funding and research.

This is a great example of bilateral collaboration. It has support from the Australian and Chinese governments, research institutions and industry. The links with China are built on a foundation of over 20 years of interaction in wheat grain research.

Project Partners:

Lead Australian Partner: Murdoch University, Perth WA

Lead Chinese Partner: Chinese Academy of Agricultural Sciences.



Researchers from the Australian and Chinese teams; including Australian Project Manager, Professor Rudi Appels (3rd from right).

Snapshot

Who: Australia-China Joint Research Centre for Wheat Improvement (the Wheat JRC)

What's changed: In the absence of the ACSRF, Australia's research collaboration with China would be limited to activities initiated by individual researchers. This approach would be less focused and unlikely to generate any significant recognition in China of Australia's research capabilities. In contrast, the research undertaken to date by the Wheat JRC has made Australia a significant international player within the International Wheat Genome Sequencing Consortium (IWGSC) and developing "Wheat genomics for the 21st century". The Wheat JRC provides a focus for new developments in determining the genes that control quality attributes of the grain and new advances in agronomic performance in the field. In both Australia and China the Wheat JRC is a game changer in lifting research achievements to a high level. These significant enhancements to such a major commodity of Australian agriculture would not have been possible without the support of the ACSRF.

The ACSRF was central to achieving a high quality contribution to the IWGSC through the assembly of the chromosome 7A genome sequence and linking this genome sequence to agronomically important traits. The collaboration between the Australian research team and their colleagues in China was, and continues to be, critical as advances in wheat genome architecture and gene space are developed through breeding in order to deal with continued pressures from changing environments and new disease incursions. The engagement of PhD students from China in the research was a highlight for all involved in the program.

Success: A unique discovery of the Wheat JRC is the complete complement of proteins that contribute to allergies associated with wheat proteins.

Without the support of the ACSRF, most of the contributions to new knowledge about the wheat genome and wheat proteins would not have occurred within Australia and would not have been as significant in China.

The research undertaken by the Wheat JRC is attracting considerable attention. The Wheat JRC has ample funds to continue its work. Murdoch University is providing sufficient funding for around ten full time PhD scholarships as well as some \$800,000 in

cash support. The Grains Research and Development Corporation (GRDC) is also providing over \$5 million in funding. As a result of this flow of funds the number of people engaged in the Australian research group has grown significantly and is now over 20.

How we've helped: In 2011 the Wheat JRC was successful in its application to receive funding of \$833,000 under the ACSRF. This funding was the catalyst for leveraging additional funding from the industry and research sectors, including \$4.1 million of Australian funding, \$0.5 million Chinese funding and a \$2.5 million in-kind contribution as a result.

For more information:

For more information on the ACSRF – please visit www.science.gov.au/acsrp



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