



## IRRIGATION RESEARCH & EXTENSION COMMITTEE

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FOR IRRIGATION CROPPERS

**Australian Grain Technologies.  
Breeding wheat for irrigated  
environments**

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## Background to AGT

Australian Grain Technologies is an incorporated joint venture between the Grains Research and Development Corporation, the University of Adelaide, and the South Australian Research and Development Institute.

The change drivers that resulted in the creation of AGT by its stakeholders included

- Declining traditional funding base including ongoing withdrawal of State Government and University funding and flat investment by GRDC for almost 10 years
- An ageing antiquated plant and infrastructure base and a reduced ability to respond and adopt advances in plant breeding technology
- Threat from multi-national life science companies of takeover and/or control of IP
- Uncertainty over the long term security and therefore ability to deliver improved varieties to the Australian grains industry.

The creation of AGT has resulted in

- A consolidation and commitment by the stakeholders to providing ongoing wheat breeding to Australian growers
- A mechanism for wheat breeding to be self sufficient in the longer term if required
- A mechanism to provide protection of IP from multi-national buy-out/takeover
- A consolidation of wheat breeding expertise into a single large outcome focused, research driven group that can capitalise on economies of scale and national risk management strategies.

The joint venture has subsumed three previous successful public sector bread wheat breeding programs including programs formerly based at the Waite Institute (Aroona, Frame and Yitpi important varieties), Roseworthy College (Halberd, Spear, Machete and Kukri important varieties) and VIDA, Horsham Victoria (Meering and Chara important varieties). In addition AGT has created a new program based in Esperance, Western Australia and we are in the final stages of negotiations of a merger between AGT and Sunprime Seeds Pty Ltd which will bring the former Sydney University program based at Narrabri (Sunvale, Sunco, Sunstate, Ventura important varieties) and the hybrid wheat breeding program based at Tamworth (Hybrid Mercury and H45 important varieties) into the new entity.

AGT also runs GRDC's largest investment in triticale breeding (National Triticale Breeding Program) and a durum wheat breeding program.

## Opportunities in the Murrumbidgee/Lachlan Irrigation Areas

AGT has a national focus in its wheat breeding and while its predecessors have had a long history of success in South Australia and Victoria, and Sunprime Seeds (and its predecessor Sydney University) have had a long history of success in northern NSW and Queensland, the intention is to significantly expand our operations in southern NSW and Western Australia. In 2005 AGT has nine selection/breeding sites in southern NSW (Narrandera, Parkes, Young, Griffith dryland, Griffith irrigated, Wagga dryland, Wagga irrigated, Gerogery, and Temora) and will be re-assessing this portfolio of selection environments after harvest.

AGT has included two irrigated sites (Griffith and near Wagga) in southern NSW and also undertakes selection on irrigated land at Narrabri in northern NSW and Gatton in southern Queensland. The focus in southern NSW (2004 and 2005 only) has been on longer season types of similar maturity/flowering time to Chara. Chara germplasm types may suit the cooler environments of Victoria and south east NSW but, based on results from Maarten Stapper's work, this type of germplasm may not be ideal for the MIA.

In this presentation we will draw attention to and discuss different types of germplasm that appear to perform well in very high yield potential warm environments and will discuss opportunity to build on this information. The challenge is to develop very high yield potential cereal varieties that fit within the changing farming systems of the Murrumbidgee and Lachlan Irrigation areas. To do this breeders will need clear direction on the important characteristics required including crop types (bread wheat, durum wheat, triticale, barley), plant type (height, straw strength and growth characteristics), maturity/flowering time, disease resistance (rusts, septoria, yellow leaf spot, root diseases), and quality grades (feed, biscuit, ASW, APW, AH, APH, durum etc).

The aim of this presentation will be to describe the background and national operations of AGT and to assess/discuss opportunities for developing very high yielding cereal varieties for irrigated farming systems in the Murrumbidgee and Lachlan Irrigation areas.