



# FINAL REPORT

## *Part 1 - Summary Details*

**Cotton CRC Project Number: 1.04.11.04**

## **Project Title: BMP Border Rivers**

**Project Commencement Date: 1.6.2008 Project Completion Date: 31.5.2012**

**Cotton CRC Program: 1.4 Resilient Farming**

## *Part 2 – Contact Details*

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### ***Part 3 – Final Report Guide (due at 31<sup>st</sup> May 2012)***

#### ***Background***

BMP Border Rivers was a collaboration between the projects High Yielding Wheat in Cotton Farming Systems, and PhD Brendan Griffiths, and the private consultancy Griffiths Agriculture to extend research pertaining to the development of a system of achieving high yielding wheat in cotton farming systems in the Border Rivers region of Northern NSW, and Southern Queensland.

#### ***Objectives***

To investigate / compare our current farming systems with respect to southern management systems for irrigated cereals, with specific reference to the northern farming systems associated with a cotton / cereal rotation.

Many questions have been raised regarding management and farming systems associated with intensive rotation with cotton and cereal rotations, with respect to such issues as;

- Canopy management.
- Appropriate row configuration.
- Beds vs hills.
- Is zero/ minimum till possible, and what benefit is there with stubble retention?
- How can we practically get into cereal cotton rotations and fulfil such obligations as pupal destruction?

#### ***Methods***

The methods utilised throughout the course of this project have been clearly outlined in the reporting process in Centric. Working closely with PhD Brendan Griffiths and High Yielding Grains in Cotton Farming systems, scientifically rigorous experiments were designed to both investigate and demonstrate methods being employed in the development of a system achieving high yielding wheat, in a cotton system. The other components of the extension effort included the development of a field demonstration site, planted in each year of the project to demonstrate the applied methods of the research being generated through the High Yielding Grains in Cotton Farming Systems Project. Two field walks were then conducted at this site attracting key industry personnel interested in the development of a high yielding wheat cropping system specific to the northern cropping region of NSW, and Southern Queensland.

#### ***Results***

Please see attached document "Irrigated Wheat - Best Practice Guidelines in Cotton Farming Systems".

### *Conclusion*

There have been several key take home messages that have been found by this project. The first would be that the Southern systems that have previously been developed for the production of high yielding irrigated wheat are not relevant to those in the northern region of NSW and Southern Queensland. This was largely as a result of the obvious climatic differences, principally the milder start to the growing season, and a shorter end to the season. There are several other take home messages clearly outlined in the attached publication "Irrigated Wheat - Best Practice Guidelines in Cotton Farming Systems".

### *Extension Opportunities*

As a result of this project there will be many opportunities to further the extension work delivered throughout the course of this project. See the attached publication "Irrigated wheat - Best practice guidelines in Cotton Farming Systems". There has been an entire cropping program devised throughout the course of this project pertinent to the achievement of high yielding wheats in the northern cropping environment of NSW, and that of Southern Queensland.

### *Publications*

Please refer to uploads on Centric for following documents.

#### Presentations (conference, field days, workshops etc)

Wheat Systems 2010 N Water Trial.doc  
PresentationGriffithsBrendanwheatGNDI.ppt  
Wheat Systems 2010 Row Spacing Trial.doc  
Cotton CRC review 2010 BBG.ppt  
HYGICFS Project Meeting Sept 2010.ppt  
Table 2 ModdusInWheatInterimData.xls  
table 1 WheatSystemsYieldMeans2011.xls

#### Non-peered reviewed articles

review of mechanisms BBG301209#2.doc  
Irrigated Wheat Literature Review BBG020609.doc  
Draft Agnote BBG240310.doc  
Enhanced P Protocol 20101.doc  
abstract crc reviewBBG151010.doc  
HYIGCFS 2011 PLAN Var RequestNOV 2010.doc  
Protocol 2 WP032B3-2011AU - TXP WHEAT ROOT ENHANCEMENT FIELD.doc  
Protocol 4 WheatSystems2011NTrial.doc  
Protocol 1 WP032D3-2011AU - MODDUS WHEAT WSC FIELD.doc  
Protocol 5 WP032E3-2011AU - MODDUS WHEAT WSC+ROOT EN GHOUSE\_\_.doc  
Protocol 3 WheatSystems2011RowSpacingTrial.doc

#### ***Part 4 – Final Report Executive Summary***

BMP Border Rivers was a collaboration between the projects High Yielding Wheat in Cotton Farming Systems, and PhD Brendan Griffiths, and the private consultancy Griffiths Agriculture to extend research pertaining to the development of a system of achieving high yielding wheat in cotton farming systems in the Border Rivers region of Northern NSW, and Southern Queensland.

Originally designed to implement practices from Southern irrigated farming systems, the project team very early in the project realised that these practices would not be directly applicable to a northern farming system, principally as a result of the interaction between crop physiology, and the obvious climatic differences, being a milder start to the season, and a hotter, shorter finish to the growing season. As such the project team set about developing a system that would be directly applicable to the northern irrigated cropping system, and environment, with very good success.

Yields achieved at the start of the project, using methods developed in the southern high yielding grains projects, were rarely in excess of 6 t/ha. There were also associated issues with respects to crop physiology and grain quality. By the end of the project, experimental yields in excess of 9t/ha were able to be achieved, using improved methods of managing crop canopy, and other agronomic methods to manipulate various components of crop physiology, with the view of maximising yields, and minimising lodging and the associated grain quality problems.

Throughout the course of the project a field demonstration site, displaying the research and methods discovered in the High Yielding Grains in Cotton Farming Systems and in PhD Brendan Griffiths projects, was set up in each year of the project. There were two field walks conducted at this site in each year of the project attracting relevant interested industry personnel interested in the development of best practice guidelines for the consistent achievement of high yielding wheats in a cotton farming system.

A publication titled "Irrigated Wheat- Best Practice Guidelines in Cotton Farming Systems" was generated as part of the project outlining a system that will more

consistently allow producers in the northern growing region of NSW, and Southern Queensland, the ability to achieve high yielding, high quality wheats in an irrigated cotton farming system.