



## SCIENTIFIC EXCHANGE Final Report

### *Part 1 - Summary Details*

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**Cotton Catchment Communities CRC Project Number: 5.10.10.50**

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**Project Title: World Cotton Conference and Scientific Exchange Program –  
Dr Daniel Tan**

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**Project Commencement Date: 6 November 2011**

**Project Completion Date: 16 November 2011**

**Research Program: The Farm**

### *Part 2 – Contact Details*

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**Signature of Research Provider Representative:** \_\_\_\_\_

### ***Part 3 - Travel Report***

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The points below are to be used as a guideline when completing your final report.

#### **1. What were the:**

##### **a) Major findings, outcomes and highlights.**

I had the pleasure of presenting my research on the effect of cool conditions on cotton seedlings funded by the BION fund (Syngenta/CSD) at the World Cotton Research Conference during 7-11 November 2011 in Mumbai, India. I was also a co-author in three other papers presented by my students and recent graduates, Katie Broughton, Drs Warren Conaty and Nicola Cottee. The main highlight of the conference was the technical tour to Nagpur (see photos in Appendix). The visit to the Morarjee Textile factory was most interesting as this factory imported most of its high quality cotton to produce premium shirting fabric. The visit to the germplasm collection at the Central Institute for Cotton Research (CICR) was another highlight. I was surprised that *Gossypium hirsutum* hybrids, as well as other cotton species such *G. arboreum* and *G. herbaceum* are widely grown in India. The adoption of Bt hybrid cotton (Bollgard II) was also widespread in India with strong promotion by private seed companies such as Ankur Seeds and Mahyco.

#### **2. Detail the persons and institutions visited, giving full title, position details, location, duration of visit and purpose of visit to these people/places.**

While on this exchange, I met and spoke with a number of other international researchers including; Prof Derek Russell of University of Greenwich, UK, Terry Townsend, Executive Director of the International Cotton Advisory Committee (ICAC), Drs Kater Hake and Edward Barnes of Cotton Incorporated, USA, Dr Dean Ethridge, Managing Director of the International Textile Center, Texas Tech University, Dr Roy Cantrell of Monsanto, Peter Ton of Ton Consultancy, Dr Du Xiongming of the Chinese Academy of Agricultural Sciences (Henan, China), Dr Ashwin Kashikar of Ankur Seeds Pvt. Ltd. and Drs K. R. Kranthi and Blaise DeSouza at the Central Institute for Cotton Research (CICR) at Nagpur, India.

- Discussions with Prof Derek Russell (University of Greenwich) on the establishment of an International Cotton Research Centre. A resolution was drafted by representatives from twelve countries including Australia (represented by Rohan Boehm of CRDC and I) was put forward to the WCRC-5 delegates.

- Discussions with Terry Townsend and Suresh Kotak of ICAC on international and climatic issues regarding cotton production worldwide.
- Discussions with Drs Kater Hake and Edward Barnes (Cotton Incorporated) and Peter Ton (Ton Consultancy) on climate change research and lifecycle analysis of cotton.
- Discussions with Dr Roy Cantrell (Monsanto) on future developments in transgenic cotton traits.
- Discussions with Dr Ashwin Kashikar (Ankur Seeds Pvt Ltd) on the applications on my research on plant growth regulators (PGR) coatings on the hybrid cotton seed industry in India.
- Discussions with Drs K.R. Kranthi and Dr Blaise DeSouza (CICR, India). Dr Blaise DeSouza invited me to convene a session, SSS11.8 – Cotton production practices impacts soil quality for the European Geosciences Union (EGU) 2012 meeting to be held in Vienna, Austria in April 2012. I am now convening this session (<http://meetingorganizer.copernicus.org/EGU2012/sessionprogramme/SSS>).

**3. a) Are there any potential areas worth following up as a result of the travel?**

I shall be following up with Dr Blaise DeSouza of CICR to convene the session (SSS11.8 – Cotton production practices impacts soil quality) at the EGU 2012 meeting. I have already invited other Australian (including Drs Lily Pereg and Michael Braunack) to present papers as well as American (Dr Derrick Oosterhuis) and other international speakers for this meeting. I have also uploaded my abstract with Dr Nilantha Hulugalle as a co-author entitled, “Carbon contributions from roots in cotton based rotations” for this international meeting. I shall also be exploring future international collaborations with Drs Kranthi and DeSouza of CICR.

Discussions with Kater Hake and Edward Barnes have informed me of current research on climate change and lifecycle analysis on cotton. This information will be useful in my supervision of PhD student, Katie Broughton on her cotton climate change project, and George Quigley on his lifecycle of cotton-corn rotations summer scholarship project.

**b) Any relevance or possible impact on the Australian Cotton Industry?**

Leadership and presentation of Australian cotton research at an international forum such as EGU2012 will provide the Australian Cotton Industry with good international exposure.

I have also provided Brendan Griffiths at the University of New England with information from WCRC5 conference so that he can have up to date information for teaching future students in the Cotton Course.

I have also forwarded the latest review on climate change effects on cotton from Peter Ton (<http://www.intracen.org/Cotton-and-Climate-Change-Impacts-and-options-to-mit>) to CSIRO cotton researchers, Drs Michael Bange and Greg Constable, and the cotton lifecycle analysis (<http://cottontoday.cottoninc.com/sustainability-about/LCI-LCA-Cotton-Fiber-Fabric/>) from Dr Edward Barnes to NSW DPI researcher, Dr Nilantha Hulugalle.

**4. How do you intend to share the knowledge you have gained with other people in the cotton industry?**

The outcomes of this scientific exchange will be distributed through Katie Broughton's climate change on cotton project, and George Quigley's lifecycle of cotton-corn rotations summer scholarship project. The knowledge gained from this research will be distributed to the cotton industry through presentations at conferences, field days, media publications and scientific journals.

**5. Executive summary. Provide a one paragraph summary of the scientific exchange, suitable for posting on the Cotton CRC web site.**

Dr Daniel Tan of the University of Sydney attended the World Cotton Research Conference 5 (WCRC5) during 7-11 November, 2011 in Mumbai, India sponsored by the Cotton CRC Scientific Exchange program. He presented recent work on the effect of cool conditions on cotton seedlings funded by the BION fund (Syngenta/Cotton Seed Distributors) at this conference. Daniel was invited by Dr DeSouza of the Central Institute for Cotton Research (CICR), India to convene a session SSS11.8 – cotton production practices impacts soil quality at the European Geosciences Union (EGU2012) meeting to be held in Vienna, Austria in April 2012.

## Appendix

### Photographs from the technical tour to Nagpur, India



Figure 1. Well in Nagpur, India for irrigating cotton



Figure 2. *G. herbaceum* cotton for surgical purposes at Ankur Seeds.





Figure 3. Spinning mill at Morarjee Textiles Ltd., Butibori, Nagpur.



Figure 4. Finished shirting fabric at Morarjee Textiles Ltd, Butibori, Nagpur



Figure 5. Particle board manufacturing from cotton stalks at GTC, Amravati Road, Nagpur.



Figure 6. Roller gin manufacturing unit at Bajaj Steel, Nagpur.