



Australian Government
**Cotton Research and
Development Corporation**

Annual, Progress and Final Reports

REPORTS

Part 1 - Summary Details

Please use your TAB key to complete Parts 1 & 2.

CRDC Project Number: **CRC80T**
Annual Report: Due end of September
Progress Report: Due end of January
Final Report: Due 30 September
(or within 3 months of completion of project)

Project Title: **Michael Bange attendance at Beltwide Cotton Conference
2006 and Texas A&M University (College Station)**

Project Commencement Date: 2/1/2006 **Project Completion Date:** 14/1/2006
Research Program: 1 People and Knowledge

Part 2 - Contact Details

Administrator: Ms Jo Cain (Administration Manager)
Organisation: CSIRO Plant Industry
Postal Address: Cotton Research Unit Locked Bag 59 Narrabri NSW 2390
Ph: 02 67991500 **Fax:** 02 67931186 **E-mail:** Jo.Cain@csiro.au

Principal Researcher: Dr Michael Bange (Principal Research Scientist)
Organisation: CSIRO Plant Industry
Postal Address: Cotton Research Unit Locked Bag 59 Narrabri NSW 2390
Ph: 02 67991500 **Fax:** 02 67931186 **E-mail:** Michael.Bange@csiro.au

Supervisor: Dr Greg Constable (Program Leader)
Organisation: CSIRO Plant Industry
Postal Address: Cotton Research Unit Locked Bag 59 Narrabri NSW 2390
Ph: 02 67991500 **Fax:** 02 67931186 **E-mail:** Greg.Constable@csiro.au

Researcher 2 (Name & position of additional researcher or supervisor).

Organisation:

Postal Address:

Ph:

Fax:

E-mail:

Signature of Research Provider Representative: _____

TRAVEL REPORTS

1. A brief description of the purpose of the travel.

I would like to make an application to attend the Beltwide Cotton Conference, San Antonio, Texas USA, 3-6 January 2005. This conference is coordinated by the National Cotton Council (US).

This forum is recognised as the main conference for cotton research. The conference consists of four days of individual reports, panel discussions, hands-on workshops and seminars about the latest research developments and their practical applications in cotton production and processing. The conference fosters dialogue among cotton producers, processors, scientists, extension personnel and agribusiness representatives.

I have never attended a Beltwide cotton conference and would relish the opportunity to attend and present at a cotton focussed research conference to be brought up to date on developments on cotton physiology and agronomy (especially in the areas of fibre quality). In addition I would also like to identify new opportunities for cotton decision support development. Despite having been on a sabbatical to the US recently I have not attended a cotton research conference since August 2002 (not presented at one since 2000). In fact I have not attended or presented at a research conference of any type since early 2003.

During my sabbatical in Texas last year I also started a number of potential joint initiatives with Texas A&M. Attending this conference in San Antonio and travelling to College station (only 2hrs away) means that I can aim to build on these initiatives with researchers from Texas and start to facilitate some new ones that were discussed. One especially is the joint supervision of Nicola Cottee (CRDC funded Sydney University Student) with Dr Tom Cothren (located College station). The project was submitted and approved with the idea of her conducting similar research on cotton physiology here and in Texas with Dr Cothren. I would like to ensure that appropriate resources are in place for Nicola's stay in the US (most likely next year 2006).

Other initiatives that have been instigated and I would like to develop further are:

- Joint supervision of PhD student in Texas on the development of DSS tools for WUE.
- Planning a potential visit by up to four Texas extension specialists (hosted by the cotton industry)
- Planning a sabbatical for Dr Giovanni Piccinni to work with James Neilson and others on cotton water relations
- Planning a sabbatical for Dr Dan Munk to work with Dirk Richards on irrigation decision support and information dissemination.
- Developing linkages with Texas A&M's cropping systems initiative as part of the new Cotton CRC. There are opportunities to host exchanges for scientists and extension personnel.

I would be seeking assistance in order to pay for airline fares, meals, and conference registration

2. What were the:

a) major findings and outcomes

- Attended a workshop prior to the conference 'Optimising irrigation management in cotton production systems'.

This gave me the opportunity to participate in an American industry workshop addressing water use efficiency. I found that there was no new information or research presented that was not being covered by Australian research and extension efforts.

- Attendance at the 2006 Beltwide cotton conference.

A large emphasis in the agronomy area was on the release of round-up ready flex. Many agronomic and physiology studies were initiated in all the states to test the performance of flex under different agronomic regimes. The reason for this was that there was a belief that the varieties which contained round-up flex were released relatively early and did not have the performance of their conventional counterparts. In fact the recommendation from Monsanto was not to plant any more than 50% of roundup flex or mix the varieties on the farm. There was also considerable discussion on weed resistance to roundup and there were considerable talks on weed management. Many of the topics were already covered in our Weedpak.

In the physiology and agronomy area there was also a considerable emphasis on testing different practices on fibre quality. Many studies had incorporated economic analysis including assessment of fibre quality on textile performance using micro spinning technologies. Many of the studies mentioned were also being conducted in Australia.

Personally I was able to meet with a number of agronomists and physiologists and have discussed plans for collaboration, especially in the areas of fibre quality and for screening for tolerance for abiotic stress (namely temperature and water).

- Presentation of the paper 'Factors influencing crop maturity in Cotton'.

A copy of the paper is attached.

- Met with Professor Tom Cothren Texas A&M College Station

Dr Cothren is a joint supervisor of Nicola Cottee's PhD exploring means of identifying tolerance to abiotic stress among genotypes in cotton. I spent 1.5 days at College Station with Dr Cothren discussing and planning and Nicola's research program whilst she visits with A&M. Nicola will get the opportunity to repeat her field experiments conducted during the 2005/2006 season at Narrabri as well as participating in studies that will explore her techniques with other abiotic stresses as well as being exposed to other novel approaches employed by Dr Cothren's research group.

- Met with both Giovanni Piccinni and Daniel Munk

Both these researchers are interested in conducting a sabbatical with researchers in Australia. Whilst in Uvalde with Dr Piccinni we began preparing an application to seek funding from the US government to participate in a sabbatical next year. Dan Munk will arrive in Australia shortly.

- Travelled to Blacklands Research Station.

Whilst at Blacklands research station I gave a presentation on the development and delivery of decision support and simulation modelling in the Australian cotton industry. I also met with their new simulation modeller Armen Kemanian. He will be travelling to Australia in the near future and I encouraged him to visit Narrabri. There are significant opportunities for establishing collaboration in the area of cotton simulation modelling for in-field and whole farm management of natural resources.

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

Areas that I will be following up will be:

Assisting Nicloa Cottee PhD student attend Texas A&M at College Station to repeat her field studies on comparing thermotolerance of different cotton genotypes.

Assisting the establishment of a joint scientific exchange program between the Cotton CRC and Texas A&M (Texas water resources institute). The University agreed in principal that it would reciprocate the exchange program to Australia if the CRC committed to sending scientists to participate in projects in Texas. David Hamilton of QDPI has chosen to lead this initiative.

I met with researchers who were working on water relations in cotton. They were exploring laboratory means of generating water stress in cotton for genetic evaluation. I will follow-up on this idea with James Neilsen working in cotton water relations in PI at Narrabri.

With researchers in California and Arkansas I will be endeavouring to establish experiments exploring radiation use efficiency (growth per unit light intercepted) in cotton endeavouring to understand reasons why it is low compared with other crops.

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

One issue that I am exploring further is the potential use of a prototype picking head that vacuums the cotton off the plant rather than spindle picking. I am planning some small experiments in conjunction with CSIRO Textile and Fibre Technologies to explore the implications on fibre quality.

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

As part of the attendance at the cotton conference I will receive a copy of the proceedings. I will make this widely available to other researchers at ACRI.

I contributed to an Australian Cottongrower report on findings from the conference from an agronomic and crop physiology perspective.

I will prepare an Australian Cottongrower article on the paper that I presented at the Beltwide.