Cotton Catchment Communities CRC

SCIENTIFIC EXCHANGE
Final Report

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Part 1 - Summary Details

Cotton Catchment Communities CRC Project Number: 5.10.10.56

Project Title: K Broughton - World Cotton Research Conference 5, Mumbai, India

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Research Program: **World Cotton Research Conference-5**

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Part 3 - Travel Report

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 attended the World Cotton Research Conference-5 in Mumbai and the technical tour to Nagpur. The conference allowed me to meet a variety of people involved in the cotton industry, and provided great exposure to the cotton industry both for Australian production, and at an international level.

I presented some of my research at the WCRC-5, which was a wonderful opportunity to present at an international conference. Travelling to India was a fantastic experience both professionally and personally. The cultural experience of travelling around India was amazing.

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

   I attended the World Cotton Research Conference-5 (WCRC-5) held in Mumbai, India 7-11 November 2011, where I presented some preliminary results from my glasshouse experiment, conducted at the University of Western Sydney, Richmond, Australia earlier this year. I gained feedback on my presentation, and met other scientists working on the impacts of climate change on cotton production.

   Kater Hake from the USA and Peter Ton from the Netherlands both gave very interesting talks on the impacts of climate change on various aspects of cotton production.

   The conference also allowed me the opportunity to meet international scientists working in other areas of cotton research. I attended a number of very interesting and informative seminars. I also went on the technical tour to Nagpur, Central India, after the conference and visited the following sites:

   - ***Morarjee Textiles Ltd.***

   Morarjee is a textile mill, specialising in premium and high value niche fabrics. Morarjee has two fabric manufacturing units in Nagpur, producing yarn dyed shirting fabric and a printing division for voile, satin and poplin. However, most of the cotton processed at this site is imported Pima cotton from Egypt and the USA due to its superior quality. We observed the production process beginning with the unloading of bags of cotton from trucks, through to the spinning of the yarn, the dying processes and the manufacture of woven and printed fabrics.

Figure: During our visit to Morarjee Textiles we saw the unloading of bags of cotton from the truck, the machines used to spin the cotton and the cutting and packing of the fabrics.

- ***Central Institute for Cotton Research (CICR), Panjari Farm and Interaction with Local Cotton Farmers***

The Central Institute for Cotton Research (CICR) was established at Nagpur in 1976. The institute employs 80 scientists, and over 200 technical, administrative and supporting staff. The institute is internationally recognised for research on cotton improvement, development of production technologies and crop protection strategies. CICR has a large germplasm collection and wild species are being used to develop varieties resistant to insect pests, diseases and abiotic stress.

We toured the facilities at CICR, and then spoke to local cotton farmers. Bt cotton has had a positive impact on yields and on the economic performance of cotton growers in Maharashtra.

Figure: The wild species garden at CICR and discussion with the Indian farmers

- ***Pench National Park***

The Pench National Park and Tiger Reserve is located about 70km from the city of Nagpur. Due to the poor condition of the roads, it took about 3 hrs by bus to travel there from Nagpur. By the time we arrived, it was around 6pm and dark, so we did not see any tigers on our "Safari Tour". Pench Tiger reserve and the surrounding area is the original setting of "The Jungle Book" by Rudyard Kipling. The closest wildlife we came to were rabbits living in the courtyard.

Figure: Mural of "The Jungle Book" and the "wildlife" in the courtyard at the Pench National Park

- ***Ankur Seed Production Farm***

Ankur Seeds Private Limited was established in 1976 at Nagpur, and began research and development in 1978. The research and development unit aims to produce high yielding economical hybrids and varieties to suit the farmer's needs. In addition to cotton, they also supply seed for rice, sunflower, and a wide range of vegetables. On the tour, we saw a various types of cotton growing, and impressive displays of other vegetables including eggplant, chilli and okra.

Figure: At Ankur seed company we saw many different cotton plants, including the red leaf cotton and the long boll cotton, research on growing other vegetables (eggplant). The Indian people are very hospitable and we were always greeted enthusiastically.

- ***Cotton Stalk Particle Board Unit***

CIRCOT have shown that cotton stalk can be used as a raw material for preparing particle boards, pulp and paper. We saw the cotton stalks being processed and placed in the hot press to make the particle board. The particle board has been used for the walls and desks in the main office buildings.

Figure: The hot press used in the manufacture of particle board from cotton stalks.

- ***Bajaj Steel Double Roller Gin Manufacturing Unit***

Bajaj Steel is an engineering company specialising in the manufacture of cotton ginning and pressing machinery. Bajaj double roller gins apparently give the highest lint turn out and better seed quality. Bajaj Steel distribute to countries all over the world. We were shown equipment that was to be shipped to Toowoomba.

Figure: This is a part produced by Bajaj Steel and will be shipped to Toowoomba

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

This travel provided a valuable opportunity to meet international scientists researching a variety of issues relating to cotton production, as well as wholesalers and retailers. Following my presentation, I received some advice regarding the direction of my research for my PhD, which I will take into consideration. Recommendations are that I should review research conducted by Kimball regarding cotton response to increased CO_2, and FACE experiments.

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

Many of the techniques used in Indian cotton production are very different to Australian cotton production, and at this stage I don't feel that there is any direct relevance to the Australian Cotton Industry.

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

Knowledge gained during this trip will be presented at the next programme meeting at ACRI, and through discussions with other scientists.
I have conference proceedings (a book of abstracts and CD) that are available to other researchers at ACRI.

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

I attended the World Cotton Research Conference-5 (WCRC-5) held in Mumbai, India 7-11 November. I then travelled to Nagpur for the technical tour, 12-13 November 2011.
Travelling to India for the WCRC-5 was a wonderful experience. Attending the conference provided me with a valuable opportunity to present some of my results at an international conference, and to meet and network with international scientists. It also provided an amazing opportunity to visit a country which is an important contributor to global cotton production.

The technical tour to Nagpur (12-13 November 2011) allowed me to interact with local cotton farmers, visit the Central Institute for Cotton Research (CICR), *Ankur* seed company and other cotton processing sites including *Morarjee* textile mill, the Cotton Stalk Particle Board Unit, and *Bajaj* Steel Double Roller Gin Manufacturing Unit. This gave us an insight into the Indian cotton industry.

The trip was also a fantastic opportunity for me to experience some aspects of Indian culture.