Australian Government
Cotton Research and Development Corporation

TRAVEL & CONFERENCE REPORT

Part 1 - Summary Details

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CRDC Project Number: **CRDC 300**

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Part 3 – Travel Report

(Maximum two pages)

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

Geoff Naylor and Rene van der Sluijs travelled to the US in September 2007 primarily to attend the Fourth World Cotton Conference held in Lubbock, Texas.

2. What were the:

a) major findings and outcomes

b) other highlights

(a) WCRC-4

As there was a considerable contingent of Australian delegates to this conference, this report will focus on the past harvest sessions with a particular emphasis on fibre quality and ginning. Highlights were as follows

- Major factors influencing Industry needs are;
  - Consumer Demand
  - Spinning Technology
  - Competition with petroleum – based man – made fibres (i.e. polyester etc.)
  - Competition from other growth, such as corn, wheat, soy beans, oilseeds.
  - Shifts in Textile Industry
  - Biotechnology
  - WTO; protection of trade, subsidies.
- It was interesting that a couple of companies (Fibermax and Sygenta) made presentations on seeking a global brand to differentiate and add value to their particular cotton.
- Syngenta have a Best Management Practice program (Signia Fiber) in place, of which a number of progressive growers and gins are members, whose aim it is to deliver improved value to the customer and profits to the producer.
- In the US current subsidies for corn for bio-ethanol are such that the average returns are $300 per acre for corn vs. $90 for cotton. As a result the acreage for cotton this season was down by 25%.
- Three papers (Uster and two from USDA) illustrated an interest in predicting spinning performance. The approach of these papers was largely regression with little focus on understanding physical mechanisms. (There is an opportunity for Australia to lead and add value in this area.)
- Cotton Inc are actively working in consumer product development and reported a portfolio of new technologies for enhancing denim (eg improved durable press, super water repellent, colour fastness, increased wicking.)
- The paper on Cottonscan was well received.
- A couple of papers highlighted the need for a better commercial measurement of fibre length distribution
- A paper from CIRAD described a very complex process that they have developed for calibrating their FMT. They noted that this was indeed a challenge.
- Gary Gamble at USDA observed that yarn strength can be reduced by 10-15% under some conditions if the cotton is stored in the bale for two years. (This paper focussed on the underlying chemistry.)
- Work is being conducted in the US to modify lint cleaners. The USDA presented a paper on Sawless Lint Cleaning using a spiked cylinder, similar to beaters installed in cotton blowrooms. Operational in Greece and it is claimed that turnout, waste, length, length uniformity, neps and SFI are improved.
- In 2006 91K bales of US Upland cotton was roller ginned which added a premium of 6 – 12 Usc/lb.

(b) Visit to Eric Hequet's Laboratory at ITC, Texas Tech University

This discussion focussed on our ongoing collaborations.

- The recent round trial for the Cottonscan was very successful. The experience at ITC is that the instrument is easy to use (i.e. operator friendly) and reliable. It was highlighted that an increase in speed of operation would be very valuable for routine measurements.
- Two research papers were identified as a result of the recent Cottonscan work.
- A recent CSIRO breakthrough in understanding and measuring fibre cross sections was discussed. Again this was an extremely valuable discussion/collaboration and is expected to lead to a significant scientific publication.

(c) James Knowlton, USDA AMS Knoxville Classing Head Office

- While at the conference, James Knowlton visited the Cottonscan in operation at Texas Tech University. He expressed considerable interest in the instrument and would be happy to evaluate the next faster model! He noted that CSITC are very interested in maturity measurement and suggested that it would be timely to give a presentation at one of their meetings (eg Bremen 2008).

- James gave us an extensive tour of his facility. He oversees the testing of all 17 million bales of the US Upland crop and 764 thousand of the US Pima crop using 292 HVI's in 12 field offices. They have very impressive QC systems to maintain consistent and reliable data.

- The USDA purchases 40 to 50 new HVI instruments per year and keeps them operational for 7 years. The instruments are then traded for new instruments from Uster.

- James is actively working with the Chinese on their implementation of objective fibre classing. By 2010 the Chinese will have installed 375 HVI instruments in 90 locations to test the entire Chinese crop. (They are purchasing 65-70 instruments per year – This is keeping Uster very busy!)

- We discussed with James the work that the Australian cotton industry, under the auspices of the CCAA, is conducting in the measurement of fibre properties highlighting the check test, round trials and BMP programs.

- A useful discussion of colour in relation to the state of the agreement between Aust. HIV's on this parameter identified two potential key issues namely (a) there may be a need for new lamps and tiles to bring older HVI units up to standard and (b) calibration tiles need to be carefully cleaned once a year – the preference being to return them to Uster/USDA for this and (b) different tiles/calibrations are needed to harmonise HVI 900's and HVI 1000's.

(d) Uster Technologies

- A tour of their facility was fascinating. It would appear that a lot of the manufacturing of parts is now outsourced.

- A useful discussion on the state of the CTFT AFIS instrument agreed that the performance to date had been disappointing. Uster are actively striving to problem solve and help.
- Five senior Uster engineers appeared very interested in the details and performance of the Cottonscan instrument. (Anja Schleth had seen the instrument at the conference.) The CEO was however coy about releasing much commercial/marketing information, but did say that our working with Eric Hequet, Devron Thibodeaux and James Knowlton was the right approach to progressing the technology. He also suggested CSITC as a potential useful interaction.

(e) Dr Devron Thibodeaux, USDA Clemson Fiber Quality Laboratory

- This laboratory has a very similar focus to the Cotton group at CTFT with the range of standard fibre quality instrumentation and similar cotton spinning facilities.
- This visit largely focussed on their experience with the recent Cottonscan trial which was indeed very positive.
- Devron (and this lab in general) have a long standing interest in linking fibre quality to spinning performance and have a considerable library of results from controlled spinning trials. This ongoing collaboration is thus a very useful link into this data set to cost effectively evaluate the applicability/usefulness/contribution of Cottonscan fibre fineness data to this important task.
- Other discussions included the measurement of short fibre content in the length distribution and its importance in spinning.

(f) Dan Munk, University of California and Steve Burris and Mark Dutra, Paul Reinhart Inc.

- Visited the San Joachim Valley which stretches nearly 600 km from north to south and is one of the most productive agricultural regions in the US. A number of crops are produced in the valley such as fruits (apples, apricots, cherries, citrus, figs, raisin table grapes, kiwifruit and nuts (almonds, pistachios and walnuts), vegetables (asparagus, cucumbers, onions, tomatoes and melons), field crops (alfalfa hay, beans, cotton, oats, potatoes and wheat) and livestock. the premium growth area in the US and was fascinated by its size and variety of growths in the area. The quality of cotton produced in the SJV is considered as premium cotton and is thus sold at a premium and has traditionally been the main competitor of Australian cotton. However due to increasing costs of water for irrigation, the reduction of subsidies, world price of cotton and price of other crops the amount of cotton planted in the SJV has decreased significantly of the years but still produces 85 to 90 % of the U.S. Pima cotton crop
- Attended the West Side Research and Extension Center Cotton Field Day hosted by the University of California which was attended by 150 growers who were given a research update on various projects such as Fusarium and defoliation. It was good to hear constant reference made to practices used in Australia.

3. Detail the persons and institutions visited, giving full title, position details, location, duration of visit and purpose of visit to these people/places. (NB:- Please provide full names of institutions, not just acronyms.)

As well as attending the WCRC-4 the following visits were made:

(a) Dr Eric Hequet, Deputy Director, The International Fiber Center, Texas Tech University, Lubbock, Texas. This visit by both Geoff Naylor and Rene van der Sluijs was to discuss our common interests, view their facilities which include cotton

mill facilities similar to those at CTFT, and in particular to discuss progress on our collaborative projects.

(b) Dr James Knowlton, Senior Engineer, USDA AMS Head Classing Office, Memphis Tennessee. This visit by both Geoff Naylor and Rene van der Sluijs was to obtain a greater understanding of the technical requirements of the US classing systems and to discuss progress and issues related to the international CSITC initiative to work towards standardisation of classing systems internationally.

(c) Dr Hossein Ghorashi, Director, Uster Instruments, Knoxville, Tennessee. This visit by both Geoff Naylor and Rene van der Sluijs was to view the Uster facilities, to discuss progress and technical issues related to the USTER AFIS instrument installed at CTFT and to discuss marketing opportunities for the new fibre quality instruments under development at CTFT.Brief discussions also held to discuss the Australian participation in CSITC and the role of CTFT in the work currently undertaken by CCAA which is funded by the industry.

(d) Dr Devron Thibodeaux, Research Leader, USDA Clemson Fiber Quality Laboratory, Clemson, South Carolina. This visit by Geoff Naylor was to discuss our ongoing collaboration on the evaluation of the Cottonscan instrument.

(e) Dan Munk, Farm Advisor University of California. This visit by Rene van der Sluijs to view San Joachim Valley and renew acquaintance.

(f) Steve Burris, Cotton Classer and Mark Dutra, Vice President, Paul Reinhart Inc.to view San Joachim Valley and discuss Premium cotton.

4. a) Are there any potential areas worth following up as a result of the travel?
b) Any relevance or possible impact on the Australian Cotton Industry?

As well as the various opportunities identified above, a conversation with a representative from Cotton Inc identified a potential opportunity. Cotton Inc are actively marketing in Asia their "EFS" software for managing the bale lay-down in the spinning mill in order to deliver uniform yarn quality over time. This software uses the fibre quality information available for each bale of US cotton. This apparently works well if the laydown is 100% US cotton but they have found that many mills wish to use a component of Aussie cotton and to date this is impossible. If the Australian industry standardised the format of available fibre quality data this may present a marketing opportunity.

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

As well as this report, much of the knowledge gained will feed directly into active projects at CTFT which will disseminate information through the normal project channels.