January, August & Final Reports

REPORTS

Part 1 - Summary Details

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

CRDC Project Number: CTFT4C

January Report:	☐	Due 29-Jan-02
August Report:	☐	Due 02-Aug-02
Final Report:	☒	Due within 3 months of project completion

Project Title: Travel to Beltwide and Bremen Cotton Conferences and Overseas Research Institutes

Project Commencement Date: 07/01 **Project Completion Date:** 06/02

Research Program: Processing and Market

Part 2 – Contact Details

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Researcher 2 (Name & position of additional researcher or supervisor).
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Postal Address:
Ph: **Fx:** **E-mail:**

Signature of Research Provider Representative: _____

Part 3 – January & August Report Format

(Maximum four pages)

1. **What were your major project objectives for the past year? (Please list).**
2. **Which of these objectives have been achieved?**
3. **Which objectives were not achieved and why? (Please provide detail of any problems you have had during the year).**
4. **What are your specific project objectives for the coming financial year?**
5. **What aspects of your research project do you envisage having problems with in the coming year and why?**

   NOTE: This question is aimed at identifying areas in which CRDC may be able to implement assistance to help avoid potential problems. ***Needs to also ask how they plan to recify these problems

6. **To what extent have your research results to date been disseminated to other researchers growers or the industry?**
7. **(a) How will your research results be useful to other researchers /growers /industry in the next year?**

   (b) How do you intend to communicate these results or findings?

8. **Were there major highlights in your work over the last six months? Please give a brief outline.**
9. **Are changes to the Intellectual Property register required?**

You may also submit a separate confidential report of information, which should be included in the report but which you reasonably consider is confidential information.

Part 4 – Project Variations for January Report

Detail and justify any variations to the original project proposal that you anticipate for the coming financial year (July to June).
(Eg Variations to outcomes or objectives, project time-line, budgets, or personnel).

Part 3 – Final Report Format

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

1. **Outline the background to the project.**

   Report and feedback on project progress from peers and relevant industry groups. Critical feedback from industry experts and set up collaboration with other R&D institutes and instrument manufacturers.

2. **List the project objectives and the extent to which these have been achieved.**

   1. Attended and presented CRDC/Cognis sponsored work on 'Lubricants in Ginning' at Beltwide Cotton Quality Measurements Conference in Atlanta GA (January 8th-12th 2002) and visited research colleagues at USDA SRRC, KES Analysis and Cotton Technology International.
   2. Attended and presented CRDC sponsored Polarised Light Microscopy work at ITMF Working Group Meetings prior to Bremen International Cotton Conference (March 11th-14th 2002).

3. **How has your research addressed the Corporations three outputs: Sustainability, profitability and international competitiveness, and/or people and community?**

   See individual projects.

4. **Detail the methodology and justify the methodology used.**

5. **Detail results including the statistical analysis of results.**

6. **Discuss the results, and include an analysis of research outcomes compared with objectives.**

   See Visit Reports attached.

7. **Provide an assessment of the likely impact of the results and conclusions of the research project for the cotton industry. Where possible include a statement of the costs and potential benefits to the Australian cotton industry and future research needs.**

   See Visit Reports attached.

8. **Describe the project technology (eg. commercially significant developments, patents applied for or granted licenses etc).**

   See individual projects.

9. **Provide a technical summary of any other information developed as part of the research project. Include discoveries in methodology, equipment design, etc.**

10. **Detail a plan for the activities or other steps that may be taken;**

(a) to further develop or to exploit the project technology.

See project objectives.

(b) for the future presentation and dissemination of the project outcomes.

Continued correspondence and presentations required to ITMF Fibre Quality Working Group Committees to enable ratification of the Polarised Light Method to industry and exposure to instrument manufacturers.

11. List the publications arising from the research project.

See ITMF Working Group discussions for 2002 published on CD – available from ITMF Office.

'Lubricants for Improved Ginning and Spinning of Cotton' published in the 2002 Beltwide Cotton Conferences Proceedings.

12. Are changes to the Intellectual Property register required?

Part 4 – Final Report Plain English Summary

Provide a half to one page Plain English Summary of your research that is not commercial in confidence, and that can be published on the World Wide Web.

2002 Beltwide Cotton Conferences

The Beltwide Cotton Conferences were held between January 8th and 12th 2002 in Atlanta, Georgia.

Cotton Quality Measurements Conference not well attended - no more than 40 people on first morning session (Jan 11th) and fewer there after. However, papers were interesting and covered wide variety of areas with focus on fineness and maturity (7 out of 32 papers), colour and trash (5/32), agreement of test methods inc. 'GinWizard' and 'Fiberlab' with other test methods (5/32) and stickiness (5/32).

Mike Watson the chair of the Cotton Quality Measurements Conference from Cotton Inc. introduced the second day (Jan 12th) with the following facts that he said represented a challenge to the industry in the US (read world). The points were:

* The US dollar is overvalued.
* The world price for cotton is at historic lows at 30centsUSperlb (US growers require 65centsUSperlb for profit).
* The US Government subsidised US cotton growers at >30centsUSperlb.
* The US textile industry lost 40K jobs last summer.
* Prices for apparel have never been cheaper and retail is in doldrums.
* The US exported more cotton in 2001 than it spun - for the first time! In 1997 the US exported 7.5M bales and spun 11.7M. Conversely, in 2001 it spun only 7.8M and exported 9.8M bales.
* Bulk (56%) US grades < 41 (SLM) contrasts with 80% of Australia crop > 31 (MID).

Following Beltwide Conference travelled to the USDA SRRC in New Orleans where over two days (Jan 14th & 15th) spoke with:

* Dr. Devron Thibodeaux about the maturity reference round-robin and the development of longitudinal maturity test using polarised light (following Dr. Bugao Xu's paper at Beltwide).
* Dr. Judith Bradow about plant mapping and her use of remote sensing devices to screen crop health and mark fields from which fibre samples could be taken for quality analysis.
* Wilton Goynes (microscopist) about AFM images obtained as part of polarised light study.
* Patti Bel-Berger about analysing white specks using version 2 and 4 pixel size for white speck of BX's program (cf. to version 4 used at CTFT). PBB said NCEA samples (99 & 00) would be ready very soon and that consistent data came from the back of the jersey knit fabric.
* John Price about spinning for industry at the SRRC and about the US spinning industry in general.

Following visit to SRRC drove straight to Prattville AL to visit Continental Eagle

and contact there Mr Dennis Steele, R&D Director. The interest at CE was whether as gin machinery manufacturers they were interested in lint cleaner settings and orientations that might affect nep levels. CE weren't too interested themselves but expressed interest in any results we found using their machinery. The focus in US ginning appears to be on cleaning cotton whereas the focus here in Australia is reducing fibre damage in cotton that is already reasonably clean.

Following visit to CE flew to NY to visit KES Analysis, manufacturers of NIR equipment. Notable about the KES NIR spectrophotometer is the large amount of information collected using a diode array instrument. Beam size is large (~11 cm diameter) so large amount of sample analysed. Makes instrument potentially suitable for gin situation and moisture and micronaire testing.

Returned Australia via Manchester UK and visit to Allan Heap of Cotton Technology Incorporated. There, discussion was about polarised light method being developed at CTFT and some of the issues surrounding such as what aspect of fibre maturity does it measure. The visit was also to ask about the Bremen International Cotton Conference and the ITMF meetings that precede it. AH was encouraging re: our use of polarised light and our move into cotton quality research.

This part of the report covers the trip to attend the International Textile Manufacturers Federation (ITMF) International Committee on Cotton Testing Methods meetings held March 12th and 13th in Bremen, Germany and the 26th International Cotton Conference Bremen held from March 13th to 16th also in Bremen.

ITMF International Committee Meetings on Cotton Testing Methods

The ITMF International Committee on Cotton Testing Methods Meetings are held every two years in Bremen before the International Cotton Conference. The Committee is divided into five working groups; maturity and fineness, stickiness, dust/trash, fibre length and HVI. Participation on the Committee and at the meetings is by invitation from the ITMF Director General who in turn takes recommendations from the Chairs of each working group. Working Group Meetings are held in succession with all Committee members sitting in on and contributing to the discussions that stem from a series of presentations given by each Working Group.

The agenda for the Working Groups and the ITMF International Committee as a whole is to help in the industrial application of new test methods or, as the Chair of the ITMF International Committee, Anton Schenek, put it, is to provide a bridge between the R&D and the industrial application of the test method. However outcomes from the meetings, in terms of formally ratifying new test methods, are limited. The Committee (and the ITMF) has no authority and relatively little influence to promote methods to the wider classing and spinning industry. The Committee asks that new methods be subject to inter-laboratory trials consisting of at least three laboratories, however, there appear to be no clear rules, or acceptance of rules, on how these trials should be run and the statistics interpreted. Despite

this apparent impotency about 60 of the main players in the field of cotton fibre quality testing from government research institutions, universities, industry organisations, cotton merchant companies, large European spinning mills, textile machinery manufacturers and textile instrument manufacturers, including Zellweger Uster, Premier, Lintronics and Schaffner Technologies, participated at this round of meetings. The large number of important people in this field brought together for the meetings and the Bremen Cotton Conference in fact made the meetings very useful both from a technical and networking point of view. A list of the participants at this year's meetings is appended to this report and a record of the presentations and discussions will be available on CD later this year.

Chairpersons of ITMF Working Groups

Maturity (and Fineness)[1]

Chair: Dr. Devron Thibodeaux (USDA SRRC – New Orleans LA USA)
Vice-Chair: Dr. Eric Hequet (ITC – Lubbock TX USA)

Stickiness

Chair: Mr Mike Watson (Cotton Inc. – Raleigh NC USA)
Vice-Chair: Dr. Gary Gamble (USDA ARS – Clemson SC USA)

Dust and Trash

Chair: Mr Norbet Stuhlfauth (Schoeller Textile – Dueren Germany)
Vice-Chair: Mr David McCallister (USDA ARS – Clemson SC USA)

Length and (Short Fibre Content)[1]

Chair: Dr. Thomas Schneider (Faserinstitut – Bremen Germany)
Vice-Chair: Dr. Axel Drieling (Faserinstitut – Bremen Germany)

HVI

Chair: Dr. Lawrence Hunter (CSIR – Port Elizabeth South Africa)
Vice-Chair: Mrs Mona Qaud (Rieter AG – Winterthur Switzerland)

1. Working Group names changed at this meeting to include fineness and short fibre content

26th International Cotton Conference Bremen

The Cotton Conference is held over two days in the 600 years old Bremen Town Hall (or Ratshaus) following the ITMF Meetings. Speakers are invited by the organising committee to speak on a range of areas associated with cotton testing and processing. This year's conference included reports from modern textile mills on their experiences with cotton and production practices, commercials from the big textile machinery and instrument manufacturers, reports on fibre quality surveys and technical papers on test methods. However, the value of the Conference is not so much its content but the attendees it attracts. The Conference attracts many of the senior decision makers in the cotton industry from R&D managers of large textile machinery manufacturers to directors of cotton merchant companies. From the fibre testing perspective, the major instrument manufacturers are present along with the fibre and textile scientists who develop and test the instruments to the main users of the instruments, i.e., the USDA, classers and mills. The Conference is not overly

scientific because the audience includes many people with industry experience but without scientific training. The presentations are relevant and the topics cover the range of processing and testing operations from the gin through to spun yarn. A copy of this year's Proceedings is located in the library or can be borrowed from SG's office.

Issues to emerge from the ITMF Meetings and the Conference for the Australian Cotton Industry include:

- Fibre fineness and maturity are properties central to predicting accurately the processing ability of cotton, and they remain important for the world cotton industry to measure properly. Aside from the CSIRO/CRDC developments there were no new approaches to measuring these properties.
- Neps measurement. There has been no study that measures the agreement between nep measurement devices and as such there is a great deal of discrepancy between AFIS instruments, the RapidTester and Lintronic's instruments.
- Pepper trash. The USDA is proposing a measurement of pepper trash and other trash contaminants in cotton as part of the overall grade. This will impact upon ginning practice around the mechanised cotton world and particularly in Australia.
- Short fibre index. To improve accuracy and repeatability of the short fibre index (SFI) measured by HVI lines the USDA is proposing to normalise SFI according to fibre length and to make the average number an average of a module rather than on a per bale basis. It needs to be determined whether the normalised relationship determined by the USDA holds for Australian cottons and conditions.
- Stickiness is generally not a big problem in Australian cotton although it has presented (insect exudate) itself in the northern growing areas this year. Around the world stickiness is a big problem. One problem in determining the effects of sticky cotton in the mill is whether the stickiness is derived from insect or plant exudate. Plant exudate can be managed by storing the bales until the bale microflora has consumed the sugars causing the stickiness. Insect exudates do not disappear in this way.

Part 5 – January Supervisor Report (Scholarships Only)

The Scholarship Recipient's Supervisor is to provide a brief statement on the Recipient's progress and achievements during the relevant year and whether the Recipient is fulfilling the requirements of the postgraduate or undergraduate course in which the Recipient is enrolled.