



Final Report

Capacity & Community | Cotton Research & Development Corporation

Part 1 - Summary Details

CRDC Project Number: **DAQ 114**

Project Title: **Cotton Industry Development Officer – Border Rivers**

Project Commencement Date: 01/07/04 **Project Completion Date:** 30/06/05

Research Program: Capacity & Community

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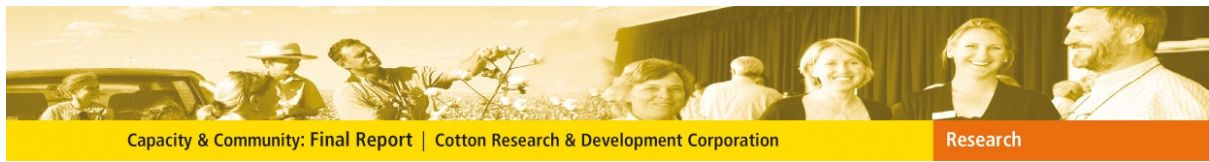
Part 3.3 – Final Reports (due 3 months after completion of project)

Background

The Macintyre Valley has a reputation of being one of the most innovative and forward thinking cotton growing valleys in Australia. With over 80 growers and more than 80000 ha of developed irrigation, the valley has a strong commitment to the continuous improvement of cotton production in a sustainable environment. The Macintyre valley has played a leading role in the development and implementation of Integrated pest management on an area wide basis. Growers, consultants and servicing agribusiness in the area are continually looking for support to improve every aspect of their enterprise.

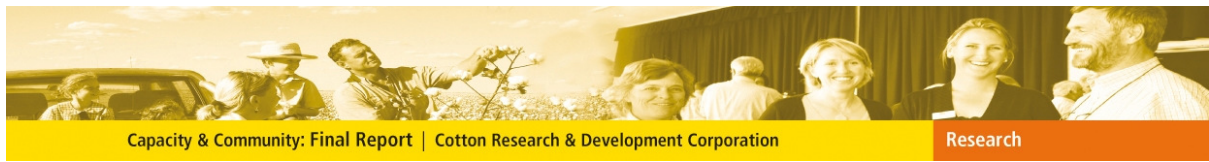
In the past, the adoption of new technologies, AWM, IPM, integrated disease and weed management and BMP have been identified as playing a large role in meeting the cotton industry's objectives of maintaining and promoting profitable practices. Furthermore, growers are becoming more aware of the need to manage the natural resources on their farm to ensure sustainability. Continual improvement in these areas will prove beneficial of the industry as a whole and the communities/areas in which cotton is grown. Industry stakeholders often look toward the industry development officer to help co-ordinate, organise and provide technical support for these issues, assisting with a number of activities including grower meetings, publications, field days and farm walks.

Many growers also carry out on-farm trials and demonstrations to help them fine tune management. An extension officer within the cotton growing areas may act to promote these practices through collaboration with researchers and growers. For example, an extension officer can take a role as an intermediary, enabling on farm trials and demonstration work to continue on a coordinated basis, as well as ensuring the latest research is incorporated into these trials.

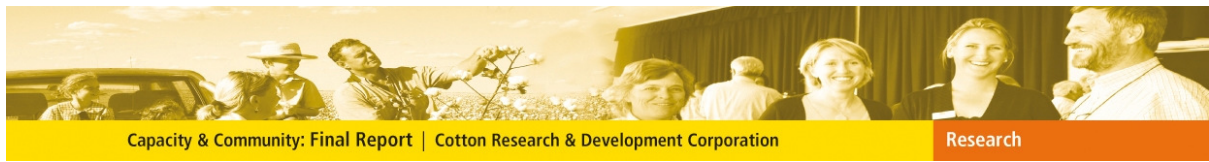


Objectives

Objectives	Outputs	Outcomes	Measurable Impacts
Assist in the co-ordination of the Macintyre Valley Trial IRMS	<ul style="list-style-type: none"> - Organised and facilitated meetings of the Trial IRMS troubleshooting committee - Kept growers and consultants informed with meetings, field days, media publications and Cotton Tales - Assisted researchers and consultants with data collection and co-ordination 	<ul style="list-style-type: none"> - Increased confidence in IPM and AWM - Increased community perception of the cotton industry and pesticide use 	<ul style="list-style-type: none"> - Reduced use of pesticides - Increased gross margin using an IPM approach - Reduced pesticide resistance
Improve Water Use efficiency across the Macintyre Valley	<ul style="list-style-type: none"> - Liased closely with members of the RWUEI team to increase my knowledge of WUE to better equip myself to deal with enquiries (including irrigation training) - Continue to develop a strong partnership with the the WUE officer, Emma Carrigan 	<ul style="list-style-type: none"> - Increased knowledge of the factors that influence water use efficiency - Increased knowledge of the monitoring and scheduling tools available for irrigation management, including equipment and decision support software 	<ul style="list-style-type: none"> - Increased water use efficiency across the valley in bales/meg
Continue the establishment and implementation of AWM in the Macintyre Valley	<ul style="list-style-type: none"> - Continued as the executive officer for the five groups - Assisted with the direction of the groups and the co-ordination and facilitation of meetings including resources and guest speakers whilst leaving ownership of the groups with the growers - two successful AWM meetings were very well attended. Each meeting had 4 guest speaker covering a range of 	<ul style="list-style-type: none"> - Increased confidence in AWM - Increased communication between growers 	<ul style="list-style-type: none"> - Reduced pesticide use



	production topics		
Establish a sound working rapport with the local CCA and CGA	<ul style="list-style-type: none"> - Attended meetings and become an active part of the groups by assisting in any way I can - provided an extension report at each CGA and CCA meeting 	<ul style="list-style-type: none"> - Increase awareness of the role of the IDO - Establish a relationship with groups that will enable them to be called on for advice, support or assistance 	
Pest management	<ul style="list-style-type: none"> - Organise field days, trials, farm walks and seminars on an as-needed basis about insect pests. Topics included beneficial identification farm walks, biopesticides and transgenic varieties Kept growers informed of IPM through Border Rivers Cotton Tales 	<ul style="list-style-type: none"> - Increased awareness and attitude to IPM and tools available 	<ul style="list-style-type: none"> - Reduced pesticide use - Increased public perception
Disease management	<ul style="list-style-type: none"> - Promoted Come Clean – Go Clean - An active contact for disease inquiries including samples of plants that need testing for pathogens - Assisted Wayne O’Neill with his seasonal disease survey - Assisted David Nehl with the long-term Boggabilla disease trials 	<ul style="list-style-type: none"> -Increased awareness of major diseases -Increased farm hygiene 	<ul style="list-style-type: none"> - Reduced incidence of disease
Farming systems	<ul style="list-style-type: none"> - Carried out a Potassium and Phosphorus fertiliser trial - Carried out a Foliar fertiliser trial - Soil and nutrition information seminar - Updates in Cotton Tales - compiled a soils database for the valley which was delivered at the Farming Systems forum 	<ul style="list-style-type: none"> -Increased awareness of soil and nutritional issue in cotton areas -Increased knowledge of fertiliser requirements for cotton production -Increased knowledge of soil health issue for cotton areas 	<ul style="list-style-type: none"> -Changes in fertiliser application from a pre-emptive approach to an as-needed basis to reduce loss to the environment and maximise benefits for the fertiliser applied

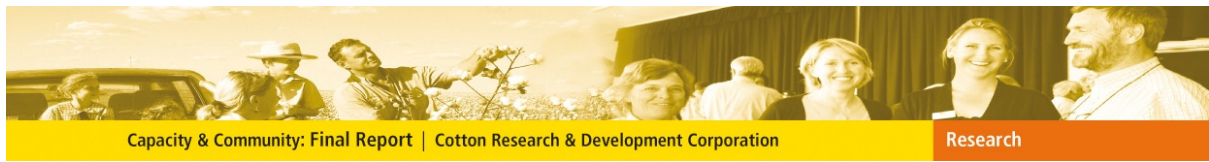


<p>Best Management Practices</p>	<p>-Liaised with local Cotton Australia Grower Service Manager and assist in the implementation of BMP as needed</p> <p>- Continued the promotion of BMP, IPM, AWM, good farm hygiene and improved WUE</p>	<p>-Increased adoption and confidence in BMP</p>	<p>-Reduced pesticide use</p> <p>-Reduce incidence of disease spread</p> <p>-Improved WUE</p>
<p>Environmental Management</p>	<p>As well as the work with the Environment Extension team</p> <p>I Developed an active working relationship with the EEO Veronica Chapman to address the NRM issues of our valley.</p> <p>Continue to work with Cotton and Grains Spray drift awareness group to reduce the incidence of spray drift across the area</p> <p>Worked with the Callandoon/Toobeah area wide management group to develop a Subcatchment plan and complete their land and water module of BMP. This included providing technical support for the module and organising meetings etc.</p>	<p>-Increased knowledge of correct nozzles and spray configuration when using shielded sprays</p> <p>- increased awareness of natural resource issues related to the Subcatchment. An action plan and funding to progress these issues.</p> <p>- Awareness of water quality parameters and influence of irrigation, pesticides and farming practises on water quality</p>	<p>- Reduced impact of spray drift</p> <p>- Increased river health</p>

Methodology

There are a number of extension techniques, which were used to meet the outcomes of this project. They include

- **Trials and demonstrations** including on farm research and broad scale farm trial with researchers
- **Group work** including AWM and regional reference groups as well as taking opportunities to deliver information at CGA and CCA meetings
- **Information delivery** including field days and farm walks, media coverage, cotton tales newsletters



- **Education** including assisting in the running of formal education course such as the IPM short Course and Water Wise as well as organising and facilitating information workshops such as insect sampling methods and climate forecasting programs.

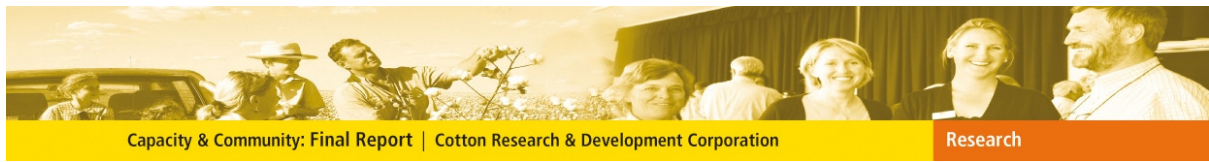
These techniques were planned, executed and evaluated using The Logic Model. This model enables the careful and accurate mapping of the input, outputs, outcome and impacts of each activity

Results

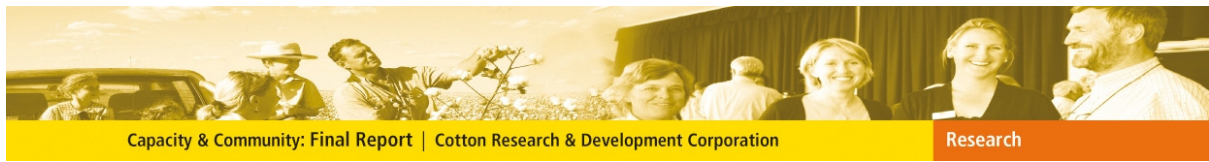
<i>Objectives</i>	<i>Achievements</i>
<i>Partnership with CGAs</i>	<ul style="list-style-type: none"> ▪ Attended Mungindi Cotton Growers and Water Users Association (MCGWUA) and the Macintyre Valley Growers Association (MVGA) and reported on activities, upcoming events and information releases, the IRMS trial for MVGA and anything relevant to the groups. • Member of the MVCGA social committee, responsible for organising the yearly field day and the Growers dinner. This enabled me to get to know many industry people quickly and build a social relationship with these people, assisting me in my job by building my network of contacts.
<i>Liase with CCA</i>	<ul style="list-style-type: none"> • Attended CCA meetings to continue building a strong relationship with consultants in the valley. This was important in regards to coordinating the extension activities in the valley and for the monitoring and sampling of the trial IRMS in the Macintyre Valley. • Member of the trial IRMS trouble shooting committee and have been responsible for liasing with growers and researchers and coordinating data and egg collections. • Kept in regular phone contact with the consultants in order to keep up to date with what is happening around the valley.
<i>Water Use Efficiency</i>	<ul style="list-style-type: none"> • Liased with WUE officer Emma Carrigan. Responded to enquiries about water use efficiency in the absence of a water use efficiency officer. • Helped organised a Hydrologic workshop growers from Mungindi and Goondiwindi. • Attend the IAA field day in Goondiwindi • Assisted Emma at the Lateral Move evaluation field day • Attended the Mungindi and Goondiwindi WUE field days
<i>Pest Management</i>	<ul style="list-style-type: none"> • Throughout the season collections of in excess of 10 000 leaves were sent to Robyn Gunning at CSIRO weekly to monitor the Whitefly population in the area. • Aphid collections from the Macintyre valley were coordinated through



	<p>myself and sent to Grant Herron for resistance monitoring.</p> <ul style="list-style-type: none"> • Larvae collections taken for the Microsatellite program. • During 2003/04, co-ordinated an egg-collecting program for resistance monitoring. Twice weekly samples were delivered to ACRI for resistance monitoring. Results were presented to growers at the Macintyre Valley Post Season Meeting. Effective communication with growers and consultants ensured the success of this program. • Assisted Martin Dillon's team undertake insect sampling for monitoring purposes and the long term Bakes Scheme Project. • A very successful Insect monitoring farm walk was held to discuss bollgard monitoring and beneficial identification. This meeting was well attend and well received. • Co-ordinated with Brian Duggin from ACRI and conducted a Mirid compensation trial in Bollgard II. This trial examined the crops potential to compensate for mirid damage at different times of the season and involved close monitoring. A report was presented to growers and consultants at the Mac valley research review. • Liased with Colin Tann and assisted with field work in the North Star area examining the influence of pigeon pea of Heliothis population. • Magnet
<p><i>Area Wide Management</i></p>	<ul style="list-style-type: none"> • Organised 2 very well attended area wide management meetings. It was established that these meetings were to discuss more than insect. Several guest speakers address pest management, fibre quality water use efficiency and biopesticides. These meeting provided an excellent opportunity to growers to exchange ideas in a comfortable relax environment.



<p><i>Farming Systems</i></p>	<ul style="list-style-type: none"> • Established the Macintyre Valley cotton soils database – a collation of over 600 individual soil tests to establish trend and similarities in the chemical fertility of cotton growing areas in the valley. A paper was presented at the Farming Systems Forum in Narrabri. • Published information snippets relating to planting conditions, trap crops, phosphorus nutrition, petiole nitrate testing, defoliation and soil structure in CottonTales. • Collaborated with Ian Rochester to conduct a phosphorus and potassium fertiliser trial. To establish the influence of P and K on sodic soils. • Assisted in the organisation of the Fibre quality road show on a local and national level. Liaised with Rene Van de Sluis to help organise the Roadshow in each valley.
<p><i>Best Management Practices</i></p>	<p>I have participated in the implementation of BMP through:</p> <ul style="list-style-type: none"> • Assisting Cotton Australia Regional Officer Mike Beeston run the Land and Water module pilot program with one of the AWM groups. • The promotion of IPM and AWM. • Practicing and promoting good farm hygiene to minimise the spread of Fusarium and other diseases. • Working with the WUE officer to promote better irrigation efficiency. • Attending the BMP Land and Water module training program • Assisted to establish a Land and Water pilot group with one of the existing area wide management groups
<p><i>Disease</i></p>	<ul style="list-style-type: none"> • Collaborated with local industry in promoting and ensuring the continued adoption of the “Come clean Go clean” strategy. • Assisted Wayne O’Neal undertake his disease surveys by organising properties to visit and undertaking surveys with him. • Assisted Dave Nehl set up and sample disease trials in the Boggabilla area. • Promoted and distributed DISEASEpak to growers and consultants at meetings
<p><i>Weeds</i></p>	<ul style="list-style-type: none"> • Promoted and distributed WEEDpak to growers and consultants at meetings. • Produced Cotton Tale articles about weed management including winter weed removal, weeds as an insect host and volunteer cotton control
<p><i>Effective spray application</i></p>	<ul style="list-style-type: none"> • Promoted and distributed SPRAYpak at meetings, workshops and field days. • I am a member of the Cotton and Grains spray drift awareness group. This group aims to work across industries to minimise the adverse affect of spray drift.
<p><i>Natural Resource Management</i></p>	<ul style="list-style-type: none"> • Chaired the environment focus team • Develop a working relationship with Veronica Chapman to address natural resource management issue in the Macintyre Valley • Attended the Natural Resource Management planning forum in Narrabri and



	<p>presented a paper on the achievements and objectives of the environment focus team. Used feedback from this meeting to fine tune the focus team's plan.</p>
<p><i>Communication and information strategies</i></p>	<ul style="list-style-type: none"> • 15 Cotton Tales newsletters written and distributed. • Research and trials were compiled, printed and bound as a proceeding for the Macintyre Valley research review • Valley reports for the cotton grower magazine were produced every two months and a Cotton Growers Yearbook report was prepared for the season. • Ongoing liaison with growers and consultants in regards to the Macintyre Valley trial IRMS occurred throughout the season. • Involved in a number of education activities including a farm tour with children on the “pushing the Boundaries” program. • I attended a property visit for school teachers in January to teach them about the cotton industry, where I gave a presentation about IPM and AWM. • The End of season meeting in Goondiwindi attracted approximately 55 people plus researchers. 11 presentations were given covering a range of topics. Evaluation undertaken and attached. • Attended the International Cotton institute at Rhodes College in Memphis as part the Inaugural Cotton Scholarship. This award raised the profile of my position and drew positive attention to the team.

Other activities included

- Organised the inaugural “Mungindi Cotton Information Day”. This well attended field day visited 3 farms and to discuss a range of production issues. Feedback was collected from an informal survey. Full Report attached.
- Organised the Macintyre Valley cotton research Review. This meeting discussed the research and extension that was carried out in the valley in the previous season with short grower friendly reports on each topic. This meeting also provided the opportunity to collect research and extension priorities for the coming season.
- Judged the Central Highlands Crop Competition
- Attended 2 CSD and 1 Deltapine Farm Walk

One of the highlights of my year was the completion of the International cotton institute Field to Fabric Course at Rhodes College in Memphis. As a part of the Cotton Industry Scholarship, this 9 week course covered all aspects of the global cotton industry but focused on post-farm-gate marketing and processing. This was an invaluable experience that gave me exposure to all aspects of the industry and allowed me to appreciate the impact that production has on processing the raw fibre. The knowledge and resources attained from the course will allow me to better inform growers of the impact of production of fibre quality and the impact of fibre quality on spinnability. Through this course I have a better appreciation of production and processing chain as a whole and thank DPI&F and CRDC for their support.



Conclusions

This is a continuing project that meets objectives through the development of strong relationship and partnerships with growers and industry. National and regional priorities established and met through a range of extension activities contributing to a common goal. For this reason it is often difficult to quantify the impact such a project has. Regular feedback and evaluation of activities continues to ensure that the information communicated is relevant and informative and delivered in the format growers and industry desire. Ultimately this project has contributed to improved insect, weed and disease management, optimisation of soil health and nutrition and more effective natural resource management leading to sustainable and economically viable cotton production in the Macintyre Valley.

Outputs

This project addressed the three outputs by providing an Industry Development extension officer in the region to facilitate and support the transfer of new technology by conducting an extension program in partnership with growers, consultants, agribusiness and the community and contributing to the district adaptation and adoption of improved management practices.

The role which extension officers play contributes to more rapid adoption of technology and promotion IPM, BMP and AWM. Growers in the Macintyre Valley have expressed that they have benefited from their involvement in AWM groups. Growers have appreciated improved communication and learning, not only about the management of insect pests on an area wide basis, but also about other relevant topics to their farm operations such as water use, disease management, nutrition and benchmarking practices.

Project Summary

The new Border Rivers Industry Development Extension Officer project has been established and will be developed and delivered in accordance with the recommendations of the 2005 CRDC Extension and Education Review. Rebecca Smith has continued as the project extension officer.

Publications

- 16 Cotton Tales newsletters written and distributed.
- Research and trials were compiled, printed and bound as a proceeding for the Macintyre Valley research review
- Valley reports for the cotton grower magazine were produced every two months and a Cotton Growers Yearbook report was prepared for the season.
- An eight page Natural Resource Management article was prepared for the Australian Cotton Grower Magazine. This article highlighted that efforts the Australian Cotton Industry are making toward sustainable natural resource management.
- Cotton information sheet entitled “Agronomic Management of Pigeon Peas as a Refuge crop”



Part 4 – Final Report Executive Summary

This project provided for the employment of the Cotton Industry Development Extension Officer (IDO), Rebecca Smith, in the Border Rivers region. The focus has been on major industry problems, including water and insect pest management and insect pest resistance management, and local priorities negotiated with the growers association. Much of the work involved on-farm trials and/or demonstrations. The results of these trials/demonstrations have been disseminated to all growers in the region via small group meetings, field days and publications, particularly the Cotton Tales newsletters and the District Trial Books.

The Macintyre Valley has a reputation of being one of the most innovative and forward thinking cotton growing valleys in Australia. With over 80 growers and more than 80,000 ha of developed irrigation, the valley has a strong commitment to the continuous improvement of cotton production in a sustainable environment. The Macintyre valley has played a leading role in the development and implementation of Integrated Pest Management (IPM) on an area wide basis. Growers, consultants and servicing agribusiness in the area are continually looking for support to improve every aspect of their enterprise.

A strong partnership has been established with the in Macintyre Valley Cotton Growers Association and Mungindi Cotton growers and water users association, the CCA and Cotton Australia. Linkages have been established with the Border Rivers Catchment Management Association to share technical information resources and to provide input into regional catchment management plans.

AWM grower groups which are well established in the Macintyre Valley have contributed to the wider adoption of IPM strategies and achievement of the associated benefits to the industry, community and the environment.

Rebecca assisted in the co-ordination of the successful Macintyre Valley Trial IRMS, organised and facilitated meetings of the Trial IRMS troubleshooting committee, kept growers and consultants informed with meetings, field days, media publications and Cotton Tales and assisted researchers and consultants with data collection and co-ordination

Rebecca, as the Industry Development Extension Officer, is a member of the Cotton CRC industry extension team and maintains close ties with CRC, CRDC and departmental extension and research officers in Queensland and New South Wales.

This project has provided an IDO in the region to facilitate and support the transfer of new technology by conducting an extension program in partnership with growers, consultants, agribusiness and the community and contributing to the district adaptation and adoption of improved management practices. The role contributed to more rapid adoption of technology and promotion IPM, BMP and AWM. Growers in the Macintyre Valley have acknowledged that they have benefited from their involvement in AWM groups. Growers have appreciated improved communication and learning, not only about the management of insect pests on an area wide basis, but also about other relevant topics to their farm operations such as water use, disease management, nutrition and benchmarking practices.