



FINAL REPORT

(due within 3 months on completion of project)

Part 1 - Summary Details

Cotton CRC Project Number: 2.05.04

Project Title: NCMA Schedule 1.4 On-ground incentive projects

Project Commencement Date: 1/01/07

Project Completion Date: 30/10/09

Cotton CRC Program: 2.5 Information resources

Part 2 – Contact Details

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Part 3 – Final Report Guide (due within 3 months on completion of project)

Background

The Namoi Catchment Management Authority (Namoi CMA) and the Cotton Catchment Communities (CRC) entered into a partnership in 2005 with the objective that the Cotton CRC would deliver on a range of Namoi CMA Management Targets. The projects undertaken within the partnership essentially fall into two main categories: the delivery of on-ground works in the cotton growing areas of the catchment and a range of allied activities dealing with facilitation, training, capacity building and education. Only Schedule 1.4: Implementation of natural resource management on-ground incentive projects in the Namoi Catchment is reported on here.

Objectives

- To foster improved NRM outcomes for the Namoi Catchment in line with the Namoi Catchment Management Authority (Namoi CMA) Catchment Action Plan.
- To provide financial incentives to enable land managers in Namoi cotton growing communities to undertake improved management of natural resources, particularly in vegetation, riparian and in-stream management and reducing deep drainage to minimise the risk of salinity and soil degradation.
- To support the implementation of the cotton industry's BMP program, in particular the Land and Water Management Module.
- To implement best practice NRM in cotton growing districts in the Namoi.

Methods

The Namoi CMA provided funds to the Cotton CRC for the delivery of on-ground incentives for native vegetation, riparian & salinity management projects that meet the project outcomes and contribute to meeting the project objectives. The Catchment Officer (Schedule 1.1 of the CMA-CRC Umbrella Agreement) was the lead manager of the on-ground project, however, technical expertise was provided by the irrigation Officer (Schedule 1.5) and the BMP Officer (Schedule 1.2) also encouraged growers undertaking the BMP program to access funds.

Results

Overall, the Cotton CRC, Namoi CMA and cotton growers contributed in excess of \$2 million to achieve significant NRM on-ground outcomes in line with the Namoi CMA Catchment Action Plan. As the table below shows, the contributions from cotton growers account for over half of this.

Organisation	Contribution (in kind + cash)
Namoi CMA	\$871,645
Cotton CRC	\$109,292
Cotton growers	\$1,037,720

TOTAL	\$2,018,657
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Twenty one growers obtained financial incentives to manage natural resources on their farms and the NRM outcomes achieved for the Namoi Catchment exceeded all of the targets set, as the table below shows.

Managemt Target	Management Milestone	Contracted Milestone target	Milestone target achieved*
B1	Native vegetation conserved	365ha	440ha
MTB1	Native vegetation enhanced	33ha	540 ha
MTW1	In stream structures installed	6 structures	12 structures
RE3	Riparian areas revegetated	10km (1 Side)	15.6km (1 side)
RE4	Riparian areas conserved	40km (1 side)	65.4km (1 side)
MTL1	Irrigated land farmed sustainably	2520ha	5103ha

* 4 projects are yet to be complete. The reason for the delay is personal injury, contractor delays and seasonal timing. The 4 projects are on-track for completion in 2009.

It was a requirement that growers obtaining incentive funds had to be actively participating in the Cotton BMP program. Of the twenty one growers, sixteen actively participated in the Australian Cotton BMP program Land and Water Management Module with the Cotton BMP Officer. Of those not actively participating, four had previously participated in the Cotton BMP program and only two had never participated in the program. The Cotton BMP program has been undergoing a substantial review during the period the financial incentives were available which discouraged some growers participating in the BMP program at that time.

Twenty nine projects agreements were signed with twenty one growers and five community organisations. Of these only one project did not achieve its target. One grower was attempting to establish perennial pasture to manage his cropping land sustainably however due to flooding and the invasion of barnyard grass this had not been achieved in the time allowed for the project. The grower is still working towards establishing his pasture, in his words 'working with nature and not against her'. Only 30% of the projects were completed on time and all of the others required an extension of time. On speaking to growers they all underestimated the commitment they made to these projects particularly in terms of time as mostly they tried to complete the works by themselves. The problems or barriers that affected the timeliness or project quality were the weather and the subsequent lack of water, access to labour and contractor delays. All, except one previously mentioned, of the growers reported their project was successful and they wouldn't have done anything differently and the projects only had positive benefits. Some of the positive benefits reported included:

"More ground cover"

"I have identified leakages from storages and have made management changes to this storage. I expect future water savings and to be able to invest money in right places to save water."

"Easier stock management, I don't lose my stock across the river."

"It should help to improve the water quality in the river. The benefit will be to see the river red gums come back and have a nice healthy section of the river."

"There will be over the long term"

"Better understanding of when to time watering is it's not too early or late which should lead to water savings"

All of the growers participating in the program thought that the processes were good and managed well and appreciated the extension allowed in the time to complete the projects. A couple of growers would have liked more technical information on water use efficiency and pasture management or a recommendation of who to contact.

Outcomes

Significant NRM on-ground outcomes have been achieved in the Namoi Catchment as shown above. The achievements in some of management targets are briefly elaborated on here.

Irrigated land farmed sustainably esp. for Salinity and Water Use Efficiency

Nine growers obtained incentive funds through the CMA-CRC partnership to improve 5103ha of irrigated land through water use efficiency (WUE) practices. Mitchell Carter at AIMS Consulting Pty Ltd who managed most of these projects (as well as CMA funded WUE projects) has reported his general recommendations about the WUE achieved for his projects:

- The farms involved in the project for 2 years that grew cotton only in both years increased their WUE by 0.16bales/ML.
- Accurate irrigation scheduling contributed to minimising the number of irrigations required and maximise the crop WUE (bales / ML).
- One storage was found with a seepage of 4.5mm per day (the average being 1.41mm/day) and the grower has implemented management changes to minimise the use of this storage to minimise water losses.
- In field evaporation can be reduced by 10% using techniques such as stubble retention, minimum till and semi-permanent beds. This would leave an average extra of 218ML available in the soil on each farm. This equals an extra 250 bales across the farms involved with a gross return of \$120,000.

Native vegetation

Two growers obtained incentive funding through the CMA-CRC partnership to conserve 440ha of native vegetation and enhance 540ha of native vegetation. An independent evaluation of the Namoi CMA Cotton CRC partnership found native vegetation conservation and improvement was achieved at a substantially lower price relative to direct investments by Namoi CMA. This was considered to be a reflection of the established networks of the Cotton CRC and ability to leverage funds and relationships from the cotton growers to implement better practices. For

example, 540ha of native vegetation was enhanced on Auscott, Narrabri. This is a large project which involves the:

- Implementation of an “Integrated Weed Management Plan” plan for grassland floodway and riparian (Galathera Creek) corridors on Auscott, Narrabri.
- Riparian revegetation along 2.5kms of Galathera Creek to create and vegetate billabongs along the creek.
- Engineering works to create a ‘chain of 4 interconnected lagoons’ along Galathera Creek for bird nesting and breeding habitat.
- Feral pig control with the Narrabri RLPB
- Bird Monitoring

This project will be an excellent demonstration site of conservation on a productive cotton farm.

Namoi Aquatic Habitat Initiative - Namoi Demonstration Reach

The *Namoi Demonstration Reach* is a collaborative effort to restore 100km of the Namoi River from Boggabri to Narrabri and bring fish back to the Namoi River.

Prior to the involvement of the Catchment Officer, no growers were participating in the *Namoi Demonstration Reach*. Five cotton growers have now obtained on-ground incentives through the Cotton CRC / Namoi CMA partnership to:

- Manage 26kms of riparian vegetation along the Namoi River and Maules Creek by supplying off-stream watering, fencing along the river to restrict stock access and removing willows.
- Plant over 3500 trees to establish 10.5km of native riparian vegetation.
- Introduce woody debris into 8 degraded river bends.

In addition to agreements with growers to undertake NRM activities on their farms, the following activities were also funded:

- Wee Waa High School obtained a \$1000 grant to undertake tree planting.
- Four fishing clubs obtained a \$1000 grant to release native fish into the Namoi River.
- Fish Offtakes Project - a trial to design, construct and test pump offtake screens to physically reduce the number of fish being drawn into pumps.
- DAFF Groundwater systems workshops
- Nitrogen Use Efficiency workshop in Wee Waa

As well, the following publications were funded and produced:

- *Common Plants of Grazing Pastures on the Lower Namoi Floodplain*. 2009. Cotton Catchment Communities CRC.
- Bird Routes of the Western Namoi Floodplains (Bird Route signs and brochures)
- *Cotton Communities and Natural Landscapes Calendar: Celebrating successful partnerships with the cotton industry*. 2009. Cotton Catchment Communities CRC.

The publication *Common Plants of Grazing Pastures on the Lower Namoi Floodplain* is the first publication of its kind for the Lower Namoi. Demand has been very high by landholders and professional staff in the region and of 1000 copies printed (available March 2009) only approximately 150 remain.

The following projects need to be added to the Intellectual Property register:

- *Common Plants of Grazing Pastures on the Lower Namoi Floodplain*. 2009. Cotton Catchment Communities CRC.
- Fish Offtakes Project – Intellectual Property arising from the project is shared with Industry and Investment NSW.

Conclusion

Overall, the Cotton CRC, Namoi CMA and cotton growers contributed in excess of \$2 million to achieve significant NRM on-ground outcomes in line with the Namoi CMA Catchment Action Plan. The NRM outcomes achieved for the Namoi Catchment exceeded all of the targets set. Twenty one growers obtained financial incentives to manage natural resources on their farms. Significant on-ground achievements include:

- Improving 5103ha of irrigated land through water use efficiency on 9 cotton farms in the Namoi Valley.
- Conserving 440ha of native vegetation and enhancing 540ha of native vegetation on 9 cotton farms in the Namoi Valley.
- Managing 26kms of riparian vegetation, planting over 3500 trees and introducing woody debris into 8 degraded river bends on 7 cotton farms along the *Namoi Demonstration Reach*.

Over 75% of growers involved in the program actively participated in the Australian Cotton BMP program Land and Water Management Module with the Cotton BMP Officer. The project also funded small community projects, two workshops, three publications and one trial. The project has generated Intellectual Property for the Cotton CRC, namely the publication titled *Common Plants of Grazing Pastures on the Lower Namoi Floodplain* and Intellectual Property arising from the Fish Offtakes Project is shared with Industry and Investment NSW.

The Namoi CMA-Cotton CRC partnership has been formally evaluated in the report titled: "Evaluation of the Namoi CMA and Cotton CRC partnership" prepared for the Namoi CMA, July 2009 by Roberts Evaluation Pty Ltd. The report states that the Namoi CMA-Cotton CRC partnership has improved the CMA's ability to engage with cotton growers and achieve NRM outcomes to an extent that could not have happened without the CRC as it has come from a source which is credible with growers. In this report, a cost effective analysis of achieving outcomes using the partnership showed that native vegetation conservation and enhancement was achieved at a substantially lower price relative to direct investments by the Namoi CMA (p26): "*This is a reflection of the established networks of the Cotton CRC and ability to leverage funds and relationships from the cotton growers to implement better practises.*"

Extension Opportunities

Many publications extend the success of the Namoi CMA – Cotton CRC partnership.

For example:

- Presentations to Cotton CRC Science Forums (2007&2008)
- Presentation at the Australian Cotton Conference (2008)
- *NRM Excellence in the Namoi Catchment. Recognising NRM excellence: Case studies from the Catchment.* Namoi CMA publication.
- *Cotton Communities and Natural Landscapes Calendar: Celebrating successful partnerships with the cotton industry.* 2009. Cotton Catchment Communities CRC.
- Cotton CRC 2009 Annual Report (in prep).
- Case Study - Mark Hamblin 'The Willows' in the New South Wales Celebrating 5 years of Achievements publication. P33

Publications

9. A. List the publications arising from the research project and/or a publication plan.

- *Cotton Communities and Natural Landscapes Calendar: Celebrating successful partnerships with the cotton industry.* 2009. Cotton Catchment Communities CRC.
- *Common Plants of Grazing Pastures on the Lower Namoi Floodplain.* 2009. Cotton Catchment Communities CRC.
- Bird Routes of the Western Namoi Floodplains (Bird Route signs and brochures)
- Fish Offtakes Project – a number of publications will be developed during the course of this project

B. Have you developed any online resources and what is the website address?

- *Cotton Communities and Natural Landscapes Calendar: Celebrating successful partnerships with the cotton industry.* 2009. Cotton Catchment Communities CRC.
(www.cottoncrc.org.au/content/Industry/Noticeboard/Calendar_2009.aspx)

Part 4 – Final Report Executive Summary

Overall, the Cotton CRC, Namoi CMA and cotton growers contributed in excess of \$2 million to achieve significant NRM on-ground outcomes in line with the Namoi CMA Catchment Action Plan. Twenty one growers participated in the program to manage natural resources on their farms and the NRM outcomes achieved for the Namoi Catchment exceeded all of the targets set, as the table below shows.

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- Improving 5103ha of irrigated land through water use efficiency on 9 cotton farms in the Namoi Valley.
- Conserving 440ha of native vegetation and enhancing 540ha of native vegetation on 9 cotton farms in the Namoi Valley.
- Managing 26kms of riparian vegetation, planting over 3500 trees and introducing woody debris into 8 degraded river bends on 7 cotton farms along the *Namoi Demonstration Reach*.

Over 75% of the growers involved in this program have actively participated in the Australian Cotton BMP program Land and Water Management Module with the Cotton BMP Officer. The project also funded small community projects, two workshops, three publications and one trial. The project has generated Intellectual Property for the Cotton CRC, namely the publication titled *Common Plants of Grazing Pastures on the Lower Namoi Floodplain* and Intellectual Property arising from the Fish Offtakes Project is shared with Industry and Investment NSW.