Cotton Catchment Communities CRC

FINAL REPORT

Part 1 - Summary Details

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

Cotton CRC Project Number: **5.03.04**

Project Title: Opportunities for Linking Research, Decision Support and BMP

Project Commencement Date: 01/07/2008 **Project Completion Date:** 30/06/2011

CRC Program: The Adoption

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Background

The Australian cotton industry continues to face significant challenges relating to issues from drought and water supply; yield and profitability; fibre quality and export price; crop nutrition; sustainability and environmental performance. The industry is dedicated to helping growers set and achieve their 'Best Management Practice' goals so that they remain productive, profitable and environmentally responsible. To assist this process, the industry has committed significant resources into the 'Best Management Practice' system – myBMP. This on-line approach delivers the latest research, development and technology to help Australian cotton be more productive in the farming system with an improved environmental performance.

This project explicitly facilitated linkages between research and extension through *my*BMP. This has been fundamental for the ongoing success of the design and implementation of *my*BMP by ensuring that the latest research and development is integrated, information remains up-to-date. This project has also contributed to the development of the CottASSIST online decision tools suite by contributing to the design, development, validation and testing of the tools. The project has also contributed significant input into the developement and delivery of a number of important industry publications. Sandra Williams (nee Deutscher) an experienced cotton specialist has led this project in a part time capacity (5 d per fortnight).

Aim and Objectives

The aim of this project was to deliver the latest research and technology to improve farm practice to meet production, social and environmental targets. Project objectives are detailed in Table 1 below.

Table 1: List of objectives and milestones achieved during the course of the project.

Objective	Milestone	Performance	End Date
1. Improve the flow of research outcomes and its adoption by identifying linkages and synergies between research, extension and BMP initiatives.	Process identify that enable linkages between research, extension and BMP	Recognition and inclusion of this project and position in industry's BMP business plan	12/2008
	Project milestones reviewed in light of development of BMP business plan	Project milestones linked to development of BMP business plan.	12/2008
2. Facilitating the development of timely, relevant and consistent extension tools and information from research.	Form a small working group to decide extension priorities for this project	Working group meeting twice per year and actively recommending new initiatives.	06/2011
	Extension material developed and distributed to assist growers with complex cotton production decisions.	Deliver two strategic extension initiatives and two in season extension initiatives per year.	06/2011
3. Explicitly supporting the industry's implementation of its BMP program	Identify potential material to support BMP initiative implementation	Extension material or tools developed from project explicitly included as part of BMP program.	06/2011

This project was linked to another project with the aim of facilitating the development of timely, relevant and consistent extension tools and information from research by designing, developing and delivering timely, focussed and user friendly web tools titled 'Linking Research, Extension and BMP - Decision aid development'.

Methods

Taking on a part time role (5 days/fortnight), Sandra Williams (nee Deutscher) was uniquely positioned to undertake such an initiative with its underlying complexity. Sandra is an experimental scientist who has been working in cotton research for over 15 yrs and has extensive industry knowledge with skills in both research and extension.

During this project Sandra was absent from work (maternity leave) from October 08 until November 09. Kym Armytage filled this part time role during that time and was able to continue achieving some projects milestones.

The project objectives focussed on effectively delivering the latest research and technology to the industry. This has been achieved through 3 key areas;

1. **Improving the flow of research outcomes and its adoption by identifying linkages and synergies between research, extension and BMP initiatives.**

As a key member of the myBMP development team, Sandra facilitated the flow of research information to and from myBMP, as well as coordinating and maintaining the involvement of the research community. As an ongoing role she continues to co-ordinate the myBMP technical help function. This feature of myBMP is an on-line help system providing growers links to additional information to support issues. Additional queries that are generated by growers are sent to the appropriate member of the D & D team to be dealt with. Sandra's main role in this process is to ensure that these queries are effectively resolved.

2. **Facilitating the development of timely, relevant and consistent extension tools and information from research.**

This objective has been achieved through the collaborative development of extension tools known as the CottASSIST suite of online decision tools. Project activities included:

- Facilitating and liaising with cotton researchers and industry members to develop and document decision tool specifications.
- Working alongside the CottASSIST web developer, design, test, and provide feedback on decision tool development.
- Validating the tools with users in the field.
- Providing effective industry training. This involved working closely with development and delivery staff.
- Promoting the CottASSIST tools. This again involved working with the Cotton CRC development and delivery staff and respective organisational and industry communication specialists.

3. **Explicitly supporting the industry's implementation of its BMP program.**

As a member of the D & D team, Sandra specialises in knowledge delivery methods and assisted with the development of numerous extension materials that explicitly supports *my*BMP. A current example of this includes updating the Cotton Pest and Beneficial Guide.

Outcomes

1. **Improving the flow of research outcomes and its adoption by identifying linkages and synergies between research, extension and BMP initiatives.**

Sandra's role as a research co-ordinator for *my*BMP, has required significant effort in undertaking three main roles of researcher enagagement, facilitating and coordinating the development of some modules of myBMP.

Researcher Engagement
The first step in developing specific *my*BMP modules was the formation of several small focus groups which consisted of researchers and extension specialists who worked together to review and develop the myBMP modules. This process was also specifically aimed to re-engage research and extension staff to demonstrate the value of *my*BMP, as an additional mechanism in assisting in the adoption of their research and extension.

Specifically Sandra assisted the establishment of both the Energy and Input Efficiency and IPM focus groups. As the Energy and Input Efficiency module was a new area of *my*BMP, it required a significant amount of work by the focus group to draft the new standards and associated practices that a grower could consider implementing. In both groups Sandra's role was to help facilitate the group meetings and refine the final practices that were recommended as 'best practice'. In addition a significant amount of time was consumed identifying the resources needed to support the new module.

To further ensure that researchers were involved in the development of myBMP Sandra took the initiative to invite appropriate researchers along to a *my*BMP audit training w'shop. This proved to be very innovative as the researchers provided valuable feedback which has helped shape the new *my*BMP audit system.

myBMP development
In collaboration with the core *my*BMP team, Sandra lead the development of the technical help function (Figure 1.). In developing this function, Sandra played a major role in the design specifications, testing and documentation about the function. Sandra was also required to train the D & D team in them being able to use the function.

In collaboration with catchment extension and research staff, Sandra spent considerable time reviewing the *my*BMP Natural Assets module. This task primarily aimed to identify any resource gaps to help define extension material required.

Sandra has an ongoing role as the research co-ordinator to continually update the resource library within *my*BMP. As new research information becomes available (i.e. fact sheets, manuals, papers, web tools), Sandra's identifies the relevant resources and inform the core *my*BMP team to ensure that the new information is made available through *my*BMP. For example, Sandra recently has made sure that the relevant chapters within the Australian Cotton Production Manual can be accessed through myBMP.

Communication and support
Since the release of *my*BMP in August 2010, Sandra has been available to support the D&D team with *my*BMP technical help enquiries. However as *my*BMP is a new system with only a small number of users, the technical help function has not yet been fully utilised.

Sandra has demonstrated *my*BMP on numerous occasions to a variety of researchers and people throughout the industry. The main events aimed to promote myBMP that Sandra participated in were the Cotton Conference and the Moree Cotton Trade Show.

In collaboration with Peter Verwey, Sandra has assisted in conducting 4 *my*BMP training workshop within the Namoi Valley (September 2010 and June 2011). During the workshops it has been Sandra's role to explain and demonstrate the use of the technical help function.

Sandra has also written promotional material such as a 'spotlight' article (written in collaboration with Melanie Jenson) to promote the technical help function within *my*BMP.

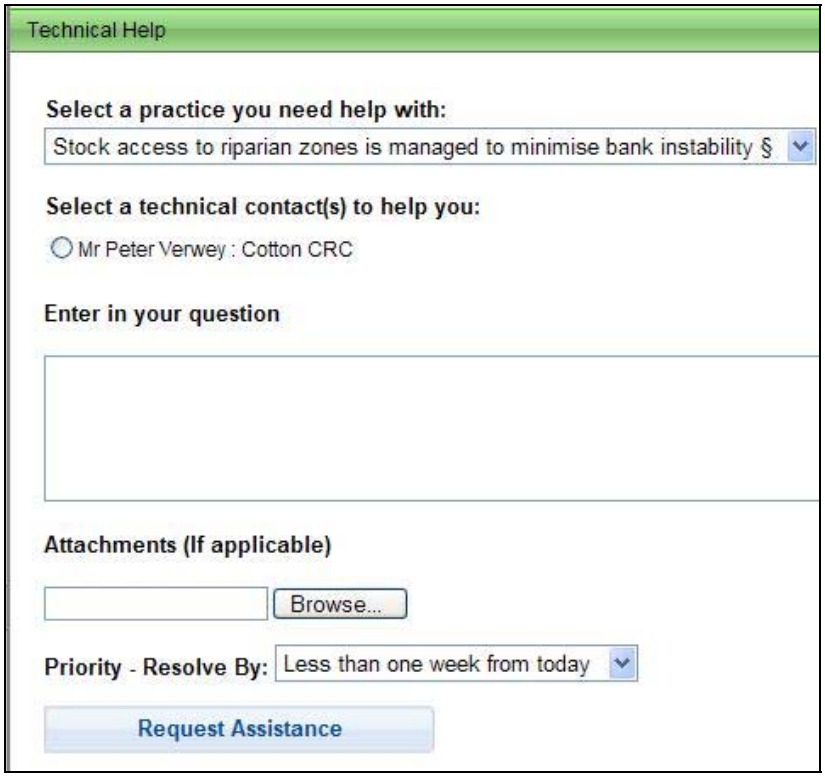

Figure 1. A screenshot of the *my*BMP technical help function.

2. Facilitating the development of timely, relevant and consistent extension tools and information from research.

This project has provided additional effort to develop, test, support, and promote of production based decision tools developed from research. These tools have been developed to assist growers and their advisors with complex decisions to ensure profitability and resource sustainability.

Decision Tool Development and Testing
Over the life of this project new CottASSIST tools were developed and existing ones upgraded. Sandra's main role in the development of new tools and major upgrades involves liaising with the researcher involved to help web developer Loretta Clancy with the design specifications and functionality. Sandra also carries out rigorous testing before any new tool or upgrade is released.

The new CottASSIST tools developed within this project were the Aphid and Mite Yield Loss Estimators, the Seasonal Climate Analysis tool and the Silverleaf Whitefly tool. Sandra also explicitly facilitated the development of the Aphid and Mite Yield Loss Estimators and the Silverleaf whitefly tool in collaboration with CSIRO researcher Lewis Wilson and QDEEDI researcher Richard Sequeira.

Major upgrades to CottASSIST within this project were the new Day Degree Report, a new Silo Station Selector screen and significant improvements to NutriLOGIC and the Last

Effective Flower Tool. This project provided the additional effort needed to help upgrade and test these tools such that they were meeting users need and were user-friendly.

Decision Tool Support and promotion
To ensure uptake of decision tools it is important to communicate to industry what tools are available and how they can be valuable in assisting production decisions. The following activities were undertaken during the course of this project to promote and communicate the value of the tools, they were:
- New CottASSIST user manual
- Promotional material for the Australian cotton conference in 2010.
- Promotional material for the cotton trade show in 2011.
- Articles for distribution by the Industry's Development and Delivery (D&D) team, CSIRO communications, CRDC 'Spotlight' magazine and CRC communications.
- Training and demonstrations at the hands-on research sessions Cotton Conference 2010, Darling Downs workshops Nov 2010 and cotton trade show 2011.
- New training material for workshops (e.g. a package including manual and information sheets detailing the science behind the web tools).
- Providing ongoing email notices to users of important CottASSIST issues. - Phone support

The following example is taken from an article distributed by the D&D team which focused on using the CottASSIST Last Effective Flower Tool (LEFT) to assist with making decisions on the timing of 'cutout'. Table 2. which can be used as a look-up table to find the average date of the last effective flower for various locations compared with an expected harvest date. This was produced in response to concerns relating to the impacts on delayed crops from cool weather and flooding during the 2010/2011 season.

Table 2. The average date of the last effective flower for various locations using LEFT. This was provided to the development and delivery team in response to questions relating to delays from cool weather and flooding impacts on crops in the 2010/2011 season.

Average target date of your last effective flower					
	Date when you want your crop to be finished (Date of last harvestable boll)				
	1st Mar	15th Mar	1st Apr	15th Apr	1st May
Town					
Jerilderie	30th Dec	11th Jan	22nd Jan	30th Jan	5th Feb
Griffith	31st Dec	12th Jan	24th Jan	31st Jan	7th Feb
Hillston	5th Jan	17th Jan	29th Jan	5th Feb	12th Feb
Warren	6th Jan	18th Jan	29th Jan	6th Feb	13th Feb
Bourke	13th Jan	25th Jan	6th Feb	15th Feb	22nd Feb
Walgett	11th Jan	22nd Jan	4th Feb	13th Feb	20th Feb
Wee Waa	8th Jan	20th Jan	2nd Feb	10th Feb	18th Feb
Gunnedah	4th Jan	16th Jan	29th Jan	6th Feb	14th Feb
Spring Ridge	31st Dec	12th Jan	24th Jan	1st Feb	9th Feb
Moree	8th Jan	20th Jan	2nd Feb	11th Feb	20th Feb
Mungindi	11th Jan	23rd Jan	5th Feb	14th Feb	22nd Feb
St George	12th Jan	24th Jan	6th Feb	15th Feb	23rd Feb
Goondiwindi	8th Jan	20th Jan	2nd Feb	11th Feb	19th Feb
Dalby	2nd Jan	14th Jan	28th Jan	6th Feb	15th Feb
Theodore	9th Jan	21st Jan	5th Feb	15th Feb	25th Feb

3. Explicitly supporting the industry's implementation of its BMP program.

This project supported activities that facilitated the update of, 'Pests and beneficials in Australian Cotton Landscapes' (Figure 2.). This guide is designed to assist consultants and growers correctly identify their pests and beneficials. Sandra collaborated with catchment extension and research staff to incorporate outcomes from biodiversity research which highlighted the role that native vegetation can play as an alternate habitat for beneficials. Ultimately the information in the guide supports responsible pest management decision making and best management practice. The new guide will be integrated into *my*BMP as a

resource to support both the IPM and Natural Assets modules. This publication is unique as it is a first to integrate outcomes of biodiversity research into a production focused guide.

Other activities that linked research with extension and myBMP outcomes were:

- Leading an awareness campaign with the aim to create industry awareness about 'neps in cotton'. Sandra collaborated with researchers to compile an information sheet for the D & D team and the CSD extension team to distribute across the industry.
- Supporting the D & D team on a number of occasions with sourcing and/or compiling research information for their newsletters (Nov 2009 Heat stress in Cotton, Jan 2010 Last irrigation).
- Collaborating with Loretta Clancy, and Duncan Weir to conduct CottASSIST web tool training in the Darling Downs which was part of a D & D team campaign focused on cotton nutrition and using NutriLOGIC for fertiliser management.
- Editing the Australian Cotton Production Manuals in both editions (2010-11 and 2011-12)
- Coordinating a scientific review of the IPM Guidelines for the 2011-12 Cotton Pest Management Guide. This involved Robert Mensah, Lewis Wilson and Melina Miles to update information in the guidelines.
- Sandra Williams participating as an active member of the Cotton CRC Development and Delivery (D&D) team, Sandra attends fortnightly teleconferences to keep up to date with national issues and provide communications support when required.

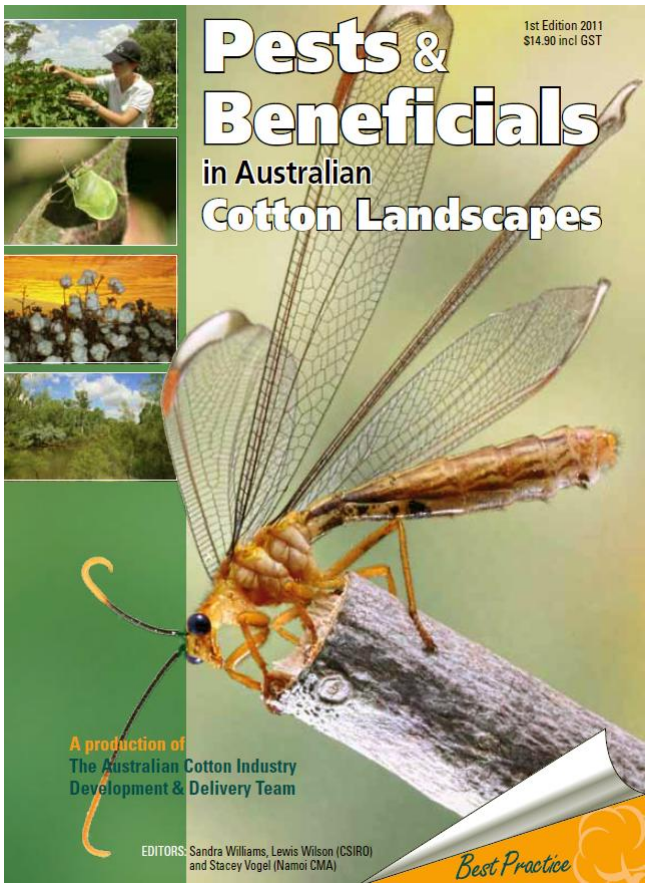

Figure 2. A screen shot of the cover of the new "Pests and Beneficials in Australian Cotton Landscapes". Resources provided by this project lead the effort to facilitate and deliver this initiative.

Final Report Executive Summary

Even though the cotton industry is relatively successful, it continually faces a range of critical issues from drought and water supply; yield and profitability; fibre quality and export price; nutrition; sustainability and catchment management. In an effort to help the industry remain successful, the industry has committed significant resources into the industry's Best Management Practice system – myBMP.

This project has facilitated linkages between research and extension through *my*BMP. This is fundamental for the ongoing success of *my*BMP ensuring that the latest research and development is integrated, information is up-to-date and tools and information are developed to improve the implementation of Best Management Practices.

Taking on a part time role (5 days/fortnight), Sandra Deutscher was uniquely positioned to undertake such an initiative with its underlying complexity.

The project objectives focused on effectively delivering the latest research and technology to the industry. This was achieved through 3 key areas;

1. Improving the flow of research outcomes and its adoption by identifying linkages and synergies between research, extension and BMP initiatives.
2. Facilitating the development of timely, relevant and consistent extension tools and information from research.
3. Explicitly supporting the industry's implementation of its BMP program.

Sandra's role as a research co-ordinator for *my*BMP, required significant effort involving the research community in its development. The first step was the formation of several small focus groups which consisted of researchers and extension specialists who worked together to review and develop the myBMP modules. Sandra's role was to help facilitate some of the group meetings and refine the final practices. In addition to this, Sandra also spent a significant amount of time identifying the resources needed to support some of the new modules i.e. Fibre and Energy and Input Efficiency Modules.

Supporting user friendly web tools to deliver the latest research and technology to the industry required significant effort in development and support. Sandra's main role involved liaising with the researcher involved to help web developer Loretta Clancy with the design specifications and functionality. E.g. Working with Dr. Richard Sequeira to develop the Silverleaf Whitefly Tool. Sandra also carried out rigorous testing before any new tool or upgrade was released. A large proportion of Sandra's time was dedicated to supporting and promoting the CottASSIST web tools. From keeping the user manual up-to-date and writing promotional articles to hands-on training, demonstrations and phone support.

During this project Sandra actively coordinated the update of, 'Pests and beneficials in Australian Cotton Landscapes'. Sandra collaborated with catchment extension and research staff to incorporate into the ute guide outcomes from biodiversity research. These outcomes will educate growers and consultants about the role that native vegetation can play as an alternate habitat for beneficials. The new guide is integrated into *my*BMP as a resource to support both the IPM and Natural Assets modules. This has been one of Sandra's major project highlights as this publication is unique as it is a first to integrate outcomes of biodiversity research in a production focused guide.