

**REPORTS**

**Part 1 - Summary Details**

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

**CRDC Project Number:** **DAN143C**

**Annual Report:**  Due 30-September

**Progress Report:**  Due 31-January

**Final Report:**  Due 30-September

(or within 3 months of completion of project)

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**Project Title:** Industry Development Officer - Warren

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**Project Commencement Date:** 1/7/1999      **Project Completion Date:** 30/6/2002

**Research Program:** 1 People and Knowledge

**Part 2 – Contact Details**

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**Researcher 2** (Name & position of additional researcher or supervisor).

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**Postal Address:**

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**Signature of Research Provider Representative:** \_\_\_\_\_

## ***Part 3.3 – Final Reports***

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

Industry Development Officer (IDO) of Warren is part of the Australian Cotton National Extension Team. As well as playing a role in national extension activity, the position works with local growers and consultants to develop extension programs focusing on local production issues. This position will facilitate increased technology adoption by local growers.

Large scale farm trials / demonstrations form a critical component of extension activities. The promotion of BMP to growers and the local community are also key components of this position. The position provides strong links between growers, consultants and researchers.

The position is pivotal in the promotion of IPM systems and assists adoption through the development of a number of IPM support groups in the Macquarie Valley. The further development of this concept, as area wide management groups, will be a key component of the project over the next three years.

The Macquarie IDO will play a key role in the National Cotton Extension Network, including focus team contributions.

### **2. Project objectives and the extent to which these have been achieved.**

- Coordinate the adoption of research into sound management practices in the Macquarie Valley cotton growing region – this included promotion of IPM, such as pupae busting, trap cropping and early season pest management as well as spray technology and disease risk management.
- Develop a framework of regional trials/demonstrations (in liason with researchers) as part of the adoption process – this included plant compensation trials, trap crop sites, variety trials, pupae busting comparisons, fruit retention trials, pest sampling work, spray application workshops and fertiliser trials.
- Facilitate better communication between farmers, advisors, and researchers from government and agribusiness – this included coordination of numerous AWM groups, field walks, field days and the local crop competition, distribution of Cotton Tales newsletters, attendance at meetings of MCGA, CCA and M2100.
- To help the Macquarie Cotton Growers Association direct and respond to gaps in the current research base as well as adapt existing technology to local needs – this included regular meetings with MCGA committee and research sub-committee, technical support to the Fusarium Wilt sub-committee including contribution to both the MCGA's Fusarium Wilt Protocols and Plant to Bale Protocols.
- To assist in the implementation of cotton industry BMP – in association the local Cotton Australia Grower Services Manager, local area wide management groups have been used as a vehicle for promotion and completion of BMP objectives.
- To assist in the development and implementation of IPM practices for the management of pests and diseases – this included carrying out plant compensation trials as part of the national cotton extension team program to validate early season pest management, pupae busting comparison studies, pheremone trap coordination, area wide management approaches to chemical selection and trap

cropping, development of disease risk management protocols for Fusarium and preparation of Black Root Rot Update through the Cotton CRC

- To promote decision support systems such as SOILpak, SPRAYpak, COTTONlogic and Ozcot – this included numerous spray application workshops and soil pit field days, assistance with cotton logic workshops and enquiries, promotion of IPM guidelines and other paks through Cotton Tales newsletters and at field days.

### **3. Detail the methodology and justify the methodology used.**

Key methods include:

- Cotton Tales – one page newsletters faxed through out the season containing trial results, meeting and field day details, day degree and IPM information
- Field Walks and AWM groups – small scale field walks to look at specific issues and demonstration/trial sites. In AWM groups to look at IPM issues and overall crop management, focusing on the needs of the small target group. Key role in facilitating these activities to ensure objectives are achieved.
- Annual Field Day – in association with MCGA and local consultants, organise major bus tour, guest speakers and sponsors. Focus on two or three key issues, invite researchers and include variety trials plus innovation management or trial work in the field components. Broad target audience and publicity.
- Cotton Trial Report Book – widely distributed publication including all trial work and seasonal information for the Macquarie Valley. Three completed so far with the 2001/2002 book to be combined with 2002/2003, to be distributed early 2004.
- Group and committee involvement – involvement with various other groups and at other field days, including as facilitator, provide opportunities to improve communication with a range of stakeholders, as well being a forum for promotion of issues such as IPM. This includes local development of the Insect Resistance Management Strategy (annually), Macquarie Fusarium Wilt Protocol (2000), Macquarie Plant to Bale Protocol (2002).
- Link with researchers and Cotton CRC, especially the Technology Resource Centre. Local access to publications and tools, including promotion, back up support and web based services. Also local coordinator of egg collections for resistance testing by Cotton CRC researchers.

### **4. Detail and discuss the results including the statistical analysis of results.**

- Up to 11 Area Wide Management Groups have been active in the valley over the course of the project. Some groups are now self driven while others require ongoing support and assistance.
- Annual field day well attended by around 100 people
- Crop judging bus trips with growers are well supported with 30-40 participants each year. Crop competition participation peaked in 2000-2001 with 15 fields entered.
- 53 Cotton Tales newsletters produced over the course of the project.
- Numerous field walks conducted through out the project including trap cropping, pupae busting and spray application.
- Increased adoption of BMP by Macquarie cotton growers

**5. Provide a conclusion as to research outcomes compared with objectives. What are the “take home messages”?**

Flexibility in approach is necessary with extension. Adapting to the changing needs of cotton growers and production systems, and tailoring the extension effort to suit them, is vital. Over the course of this project groups have been used extensively to facilitate information transfer and learning between farmers, neighbours, industry support staff and researchers. This has proved an effective framework for dissemination of a range of information and skill building. Groups also allow information to be timely and locally focused and encourage two way communication. They are especially useful when including practical field work, as the range of different adult learning styles can be catered to.

Cotton Tales newsletters continue to be a popular and effective way to communicate with growers. Limiting them to a readable one page, including relevant local information and dates, and “up to the minute” timing contribute to their value.

**6. Detail how your research has addressed the Corporation’s three Outputs - Economic, Environmental and Social?**

All three key outputs are addressed by the project. Environmental; was addressed by the extension of research outcomes in soil and water management. Economics was addressed by the improved adoption of IPM strategies for insect, weed and disease management, including comparative analysis work with AWM groups.

Social outcomes were addressed through working with Cotton Australia, local Land care groups (Macquarie 2100), local schools and non cotton producers in promoting the industries BMP program as well as the core industry’s focus on sustainable management.

**7. Provide a summary of the project ensuring the following areas are addressed:**

- a) **technical advances achieved (eg commercially significant developments, patents applied for or granted licenses, etc.)** – improvements in pupae busting techniques, spray application efficiency, irrigation techniques and farm design, integrated pest management, weed management, disease management and farm hygiene.
- b) **other information developed from research (eg discoveries in methodology, equipment design, etc.)** – value of area wide management groups, newsletters, focus groups, and benchmarking and comparative analysis studies.
- c) **are changes to the Intellectual Property register required?** No

**8. Detail a plan for the activities or other steps that may be taken:**

- (a) **to further develop or to exploit the project technology** – continue support of AWM groups to build on progress already made; conduct further compensation trials in terms fruit retention, to build on tipping out/defoliation trials;
- (b) **for the future presentation and dissemination of the project outcomes** – complete and distribute Cotton Trial Reports Book for the 2001/02 season, in conjunction with the 2002/03 book; include relevant information in a timely Cotton Tales Newsletters; report on trial results at grower meetings and field days.

(c) for future research – the Cotton IDO, Macquarie position will be continued to support the ongoing adoption of the most economically, environmentally and socially beneficial cotton farming practices in the Macquarie Valley

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

- *Macquarie Cotton Trial Report Book* 1998/1999
- *Macquarie Cotton Trial Report Book* 1999/2000
- *Macquarie Cotton Trial Report Book* 2000/2001
- A combined Cotton Trial Report Book covering 2001/2002 and 2002/2003 will be completed early 2004.
- *Cotton Tales* newsletters have been distributed in every season, and posted on the Cotton CRC website:
  - 13 - 1999/2000
  - 17 - 2000/01
  - 23 - 2001/02
- *Black Root Rot Update* CRC information sheet, March 2001, KIRRILY Rourke and David Nehl
- *Has Your Pupae Busting Been Effective?* Cotton CRC information sheet, June 2002, KIRRILY Rourke.

**10. 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 or the Australian community.**

Increased area planted to cotton in the Macquarie Valley, up to 57,000 hectares in 2001/2002.

Increased yields as a result of adoption of new technologies and varieties; up to 7.95 ba/ha average for the valley for 2001/2002.

Decrease in pesticide use, especially broad spectrum pesticides; increased use of soft chemistry and alternate/integrated approaches to pest management being adopted; evidenced in the changing IRMS and comparative analysis and benchmarking studies.

#### ***Part 4 – Final Report Executive Summary***

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The Cotton Industry Development Officer in the Macquarie Valley has played a pivotal role in facilitating change. Disseminating research outcomes and refining concepts for local application have been key approaches. Use of groups, field work and ‘farmer-friendly’ newsletters and publications have driven the communication process. Involvement in local groups and committees and the national extension team, as well as being a link with researchers and industry, have been vital roles for this position.

Key outcomes have included an increase in the adoption of integrated pest management and disease risk management principals. Other improvements have been seen in spray application technology, pupae busting, water use efficiency and weed control and the adoption of new cotton varieties, including transgenics. Best management practices has seen benefits in terms of safer chemical storage and handling and storm water management.

These changes will continue to contribute the core goals of reducing the pesticide load and impact on the environment, increasing sustainability and improving the impact of the cotton

industry on local and national communities. They also contribute to cotton growers' ongoing economic viability and therefore a future for the industry and the communities it supports.