

COTTON EXTENSION PROJECTS

– FOCUS TEAM

(To be submitted by Team Leader)

Part 1 - Team

Insects

Part 2 – Contact Details

Team Leader: David Kelly

Organisation: DPI Queensland

Postal Address: Locked Mail Bag 6, Emerald, QLD, 4720

Ph: 0749837411 **Fax:** 0749837459 **E-mail:** david.g.Kelly@dpi.qld.gov.au

Signature of Team Leader: _____

Part 3 – Annual Report

(Maximum 4 pages)

Part 3.1 - Inputs

1. List all staff on the Team.

Sandra Deutscher (CSIRO)

Greg Kauter (CSD)

Mark Hickman, David Kelly, Austin McLennan (DPI Queensland)

Bruce Pyke (CRDC)

Chris Hogendyk (ACGRA representative)

2. List any collaborations that have been formed as a result of Team activities, including name of contact person and organisation, and the advantage/s of the collaboration. (These could include researchers, growers and other organisations.)

Facilitation of the update of IPM Guidelines:

Lewis Wilson, Martin Dillon. (CSIRO), Robert Mensah (NSW Agriculture)

Fruiting Factor experiments and extension:

Dallas Gibb (NSW Agriculture), Lewis Wilson (CSIRO)

IPM Training Video and Update of Pest & Beneficial Guide

Gus Shaw

Cotton LOGIC for PALM® Training:

Cotton LOGIC development team (CSIRO)

Extension Material for Whitefly:

Richard Sequeira, Paul Grundy, Bernie Franzmann (DPI Queensland)

Paul De Barro, Lewis Wilson (CSIRO)

Peter Ellsworth, Tim Dennehy (University of Arizona)

Robin Gunning, Susan Young, Emma Cottage (NSW Agriculture)

David Parlato (Crop management consultant, Emerald)

Experiments assessing the ability for Bollgard II to recover from early season insect damage

Lewis Wilson, Tom Lei, Ian Rochester (CSIRO)

The following people have collaborated with the IPM short course, which addresses all IPM issues:

Lewis Wilson, Tom Lei, Warwick Stiller, Sarah Mansfield, (CSIRO)

Julie O'Halloran, Robert Mensah, Ziaul Hoque, Annie Spora, (NSW Agriculture)

Anne Sullivan, David Kelly, Paul Grundy, Carrie Hauxwell, Dave Murray, Brad Scholz, Melina Miles, Ingrid Christiansen, Bill Dalton, Mark Hickman (DPI Queensland)

Brendan Griffiths (Crop management consultant, Goondiwindi)

Jonathon Holloway (Bayer Crop Science)

Gathering together information on Jassid and initiating demonstration experiments:

Lewis Wilson, Tom Lei (CSIRO)

Cotton insect sampling methods calibration project:

Martin Dillon, Sarah Mansfield, Trudy Staines (CSIRO), Carla McKinnon (CRC Scholarship Student).

Part 3.2 – Focus Team Activities

1. Outputs

(These could be grouped against Bennett's Hierarchy or the key methods – trials, information delivery, groups, education, comparative analyses, publications.)

| <i>Objectives</i> | <i>Achievements</i> |
|---|--|
| Facilitate Update of IPM Guidelines and Cotton Pest and Beneficial Guide: | Sandra Deutscher (CSIRO) is coordinating the process of revising the IPM guidelines (Aim to have it complete by August). This is an ongoing project. Cotton Pest and Beneficial Guide made into web based tool: First version completed. (Waiting on some more feedback.) |
| Promotion of crop damage thresholds | Template for Cotton tales article on early season fruit loss and the importance of measuring fruit retention/ fruiting factor as a decision making tool completed and utilised by a number of team members. Method for fruiting factor included in the pest management guide. |
| Create IPM Training Video | Mark Hickman (DPI Queensland) is communicating with Gus Shaw as to the development of the IPM Training Video. Work has commenced on the planning of the script and filming should commence this season. This is an ongoing project. |
| Training for extension team in Cotton LOGIC for PALM®. | Demonstration of capabilities of Cotton LOGIC for PALM® completed at 2002 extension workshop. Extension officers encouraged to equip themselves with appropriate hardware. This is an ongoing project. |
| Develop Extension Material for Silverleaf Whitefly Management: | CRC publications 'Silverleaf whitefly in Australian Cotton' and 'Management of silverleaf whitefly in Australian Cotton' completed and distributed to all areas. Publication was available at time Peter Ellsworth did his tour around districts in mid |

| | |
|---|--|
| | <p>December.</p> <p>Peter Ellsworth visit to Australia coordinated and an evaluation conducted on its impact with in the CQ industry. Report submitted to CRDC board.</p> <p>Extension team members have submitted whitefly samples to Robin Gunning for species identification.</p> <p>Document of SLW management in CQ over the past 2 seasons, which can be applied to all other cotton growing areas, is currently being prepared. It was presented at the Cotton CRC review, CCA Annual Production Seminar and will appear in Australian Cotton Grower Magazine</p> |
| <p>Allow extension team to become more familiar with Bollgard II.</p> <p>Provide assessment of the comparative ability for Bollgard II to recover from early season insect damage</p> | <p>A trial protocol for damage experiment in Bollgard II completed and distributed to extension team.</p> <p>Experiments conducted in most regions. Results from all experiments have been forwarded to Lewis Wilson (CSIRO) in a consistent format. Lewis Wilson and David Kelly are currently collating results.</p> |
| <p>Calibration of cotton insect sampling methods.</p> | <p>Sandra Deutscher (CSIRO) is co-supervising this together with Martin Dillon, Sarah Mansfield, Trudy Staines and Carla McKinnon (CRC Scholarship Student).</p> |
| | |

2. Outcomes

(These should include measured outcomes, highlights, identified changes or progress towards identifying outcomes. Details of any evaluations can be attached separately.)

| <i>Objectives</i> | <i>Achievements</i> |
|--|--|
| <p>Facilitate Update of IPM Guidelines and Cotton Pest and Beneficial Guide.</p> | <p>Awareness and use of IPM guidelines indicated through IPM Focus group reports and Cotton Extension Team Benchmarking survey. This project is ongoing.</p> |
| <p>Promotion of crop damage thresholds</p> | <p>Awareness and use of crop damage thresholds indicated through IPM Focus group reports and Cotton Extension Team Benchmarking survey. This project is ongoing.</p> |

| | |
|---|--|
| Create IPM Training Video | This project has not progressed to the stage of measurable outcomes. It is ongoing. |
| Training for extension team in Cotton LOGIC for PALM®. | Most extension officers equipped with PALM® hardware and software since the last workshop. This is an ongoing project. |
| Develop Extension Material for Silverleaf Whitefly Management: | <p>Area wide silverleaf whitefly management strategy successfully developed and adopted in Central Queensland.</p> <p>Resulted in significant reduction of the abundance of the pest in cotton and wider community.</p> <p>Local evaluation has shown extension project directly attributable to the adoption of the management strategy and the management strategy directly attributable to the decline in pest populations.</p> |
| <p>Allow extension team to become more familiar with Bollgard II.</p> <p>Provide assessment of the comparative ability for Bollgard II to recover from early season insect damage</p> | <p>Most extension officers had opportunity to closely monitor Bollgard II crop, increasing awareness of associated management issues.</p> <p>Data is still being collated and analysed, hence no outcomes from experimental results. This is ongoing.</p> |
| Calibration of cotton insect sampling methods. | Some key outcomes will be generated from this in the next season. This project is ongoing |

3. Were any objectives not met and why? (Please provide detail of any problems you have had during the year and how you plan to address these problems.)

Where indicated above, some projects are ongoing or outcomes have not been achieved due to time commitments of those involved.

4. Detail any impacts or measures of success (eg Triple Bottom Line indicators)

CRDC document 'Triple Bottom Line Highlights' indicates the following successes pertaining to insect management, especially the adoption of IPM and AWM:

- Reduction in endosulfan use in past 4 years
- Reduction in cotton-related complaints to the NSW Environmental protection Agency in past 4 years.
- Reduction in overall insecticide use across the industry in the past 4 years

5. Logic or Evaluation Methods and Results

Please provide a summary of any evaluations you have completed, or started, in order to show how outputs have led to the outcomes and impacts.

The following evaluation tools or reports provide measurable data on changes in practice pertaining to insect management.

- Cotton Consultants Australia Market Survey Audit (annual)
- CRDC/ Boyce Australian Cotton Comparative Analysis 2001 and 2002.
- CRDC/CCA Performance of INGARD Cotton in Australia Series of Reports
- IPM Focus Group Study Reports, 1997 and 2003
- CRDC Triple Bottom Line Highlights Brochure 2003
- Australian Cotton CRC Extension Team Benchmark surveys
- Value of Dr Peter Ellsworths visit to Central Queensland. This is being expanded presently
- Evaluation of Australian Cotton CRC Decision support tools. Peter Van Beek, commissioned by CSIRO.
- Second Australian Cotton Industry Environmental Audit. GHD 2003.

Part 3.3 – Objectives for the next 12 months

Please indicate the Focus Team's objectives for the next 12 months.

Please provide details.

| <i>Objectives</i> | <i>Outputs</i> | <i>Outcomes</i> | <i>Measurable Impacts</i> |
|--|---|--|--|
| Identify perceptions within the industry of management issues associated with Bollgard II. (ALL) | Interviews in industry at start and end of 2003-04 season. Report collated and prepared for Australian Cotton Conference 2004 | More refined research and extension objectives in relation to Bollgard II. | Short Term: Changes or Improvement in Grower/Consultant confidence in growing BGII Long Term: Changes in insecticide use and grower income as a result of planting Bollgard II. |
| Promotion of Silverleaf whitefly management strategy to wider industry. (David Kelly) | Revise current extension material. Summarise CQ experience and Promote to other areas. Promote sending samples to Robin Gunning. During November/ December 2003, | Central Queensland continues to manage SLW appropriately. Susceptible regions able to react appropriately to SLW should populations become problematic. Increased number of samples to Robin | No sticky cotton resulting from whitefly produced in Australia. SLW populations maintained at low or manageable levels in all cotton growing districts |

| | | | |
|---|---|--|--|
| | reinforce in all regions the need to sample for developing populations of whitefly. | Gunning. | |
| Improve awareness of mechanisms behind insecticide resistance. (Mark Hickman) | Update of The facts behind resistance. Document to be prepared by Mark H and D Larsen. Will be incorporated strongly into IPM shortcourse and used for other extension tools such as newsletters. | Increased awareness of theory of insecticide resistance. | Change in awareness within the Australian Cotton Industry (CCA annual survey) |
| Increase awareness of relationship of insect thresholds and limited water. (Mark Hickman) | Article to address the argument of Limited water= low thresholds since there is no or little compensation. Could be followed up by newsletter articles. | Increased awareness of relationship of insect thresholds and limited water | Short term: Change of awareness from IPM course participants Long Term: Evidence that IPM course participants are using less insecticide/higher thresholds where water is limited |
| Promote IPM Guidelines & Pest & Beneficial Guide. (Sandra Deutscher and ALL) | Promote release of new documents (whatever the format ie. hardcopy or on the web or CD) through newsletters | Increased awareness and continued adoption of principles contained in these documents. | General awareness of principles contained in IPM Guidelines. |
| Create IPM Training Video (Mark Hickman) | Video completed. | Extra dimension of training for IPM shortcourse. | Improved awareness, in course participants of principles contained in IPM Guidelines. |
| Calibration of cotton insect sampling methods. (Sandra Deutscher) | Continued work on beneficial sampling technique calibration. | Well-defined sampling protocols and thresholds for sucking pests and beneficials. | Improved decision making in pest management |
| Assessment of direction of Area Wide management groups (Austin McLennan) | Evaluation carried out based on case studies from various groups and individuals? Evaluation framework | Well-defined future direction of Area-wide management groups on the Darling Downs. | Ongoing grower participation in Area Wide management Groups. |

| | | | |
|--|---|--|--|
| | to be transparent enough to allow replication in other areas. | | |
| | | | |

1. Do you expect any difficulties meeting any of the objectives listed above? (If so, can CRDC assist you in addressing these?)

Time is an ongoing issue for all people, both team members and collaborating researchers.