

## **Australian Cotton Cooperative Research Centre IPM Short Course – ‘learning together’**

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### **Introduction**

Cotton integrated pest management (IPM) is a continuously evolving pest management philosophy. A high level of awareness has been created by the commercial success of a number of IPM programs in recent years and a general awareness of the wide range of tools being promoted within the concept of cotton IPM. There is a desire on the part of growers for clarity in the definition of IPM for Australian cotton and a positive environment for the acceptance and adoption of IPM strategies in the industry (Coutts, 1997).

The primary aim of the Australian Cotton Cooperative Research Centre, IPM Training Coordinator project is to assist in improving the level of adoption of IPM strategies within the Australian cotton industry. The implementation of appropriate management strategies for both conventional insecticides and transgenic plants is critical if the industry is to survive in the long term. The project seeks to train a large proportion of growers over a relatively short period of time in a program that provides the opportunity to adopt IPM strategies for a sustainable future.

### **Proposed IPM Short Course**

The third year review of the CRC for Sustainable Cotton Production recommended investigating the development of a short course to improve technology transfer. An attitudinal study of growers and consultants conducted by the Cotton Extension Team and Rural Extension Centre recommended that a comprehensive education package that clarifies best practices for IPM be developed and directed at growers. The IPM Training Coordinator position was funded by CRDC and CRC to develop, in consultation with industry and researchers, a grower focused short course in IPM within the Education, transfer and adoption of technology program. The development of the IPM Short Course has been on going for approximately 12 months.

An important aim of the project is to involve industry researchers, extension staff and IPM practitioners in collaborative development of the IPM Short Course. The concept of ‘learning together’ reflects the contribution of knowledge and experience by course participants and a real world practical approach to gaining knowledge about IPM. Inherent in this approach is the flexibility and capacity to change as we learn from new technology and experience, enabling us to manage constantly evolving demands.

### **Industry Reference Group**

An industry reference group including growers (8), consultants (2), Industry Development Officers (2), CRDC (1) and CRC (3) representatives met in Goondiwindi in September, 1999 to facilitate the development of the aims and objectives of the IPM Short Course.

The industry reference group also met in May, 2000 to review project progress and advance the development of the Participants Manual and Workbook. The project team will utilise this group for an early 'pilot' of the course in order to obtain feedback for further development of the instructional aspects of the course.

### **Course Objectives**

The overall objective of the IPM Short Course is to challenge growers and consultants to develop a commitment to putting researched based IPM into practice. The course will promote an IPM systems approach through the review of real IPM (grower/consultant case studies) strategies. The case study approach will also create awareness of alternative pest management strategies in other areas of the industry.

The course will improve pre-season planning between growers and consultants and encourage understanding and respect for neighbours' pest management programs. Common course content for growers and consultants will foster a consistency in the IPM message. The course will also strengthen the understanding of industry strategies for resistance and transgenic cotton.

An important aspect of the course will be the shared experience of learning in small groups. Area-wide management groups are developing as an important foundation of effective IPM programs and improving participation skills will promote more effective groups. Group learning provides the opportunity for growers working together to identify and experiment with different practices adapted for local conditions and, ultimately, to build, step by step, strategies based on successful experience with confidence. It avoids the risk of failure and loss of confidence associated with attempts to adopt complex IPM systems in a single package.

It will be essential for the course support and link with the BMP guidelines for cotton pest management.

### **Desirable Outcomes**

It is hoped that the shared learning environment of the Short Course develops an interest and motivation in participants, to implement IPM. This will ultimately lead to changes in on farm management and real changes in management of insects. Increased confidence in IPM will be the result of improvements in grower and consultant understanding of current IPM practices.

Growers will benefit from a clear definition of IPM and knowledge of what has been achieved by others will encourage further innovation. The course structure will provide a forum for discussion, which should help to provide solutions to real problems and challenge industry thinking. Negative perceptions about IPM such as delayed maturity and low yields can be replaced by the positive considerations of maintaining profitability and yield while reducing reliance on chemicals

### **National Training Accreditation**

The IPM Short Course Learning Outcomes have been developed and mapped against the existing National Competency Standards for cotton production. The IPM Short Course will comply with the existing Rural Training Council Australia guidelines and successful completion of the course will lead to an accredited national qualification in Agriculture. All assessment for national recognition purposes must be undertaken by,

or auspiced through, a Registered Training Organisation. Negotiations have commenced with a Registered Training Organisation within New South Wales Agriculture, Murrumbidgee College of Agriculture, to authorise the assessment to be carried out by industry (CRC).

The Vocational Training & Education qualification Certificate IV in Assessment and Workplace Training is required to deliver Accredited Courses throughout Australia. It is envisaged that CRC Industry Development Officers will undertake this qualification to assist with course delivery.

### **The Audience**

The Short Course is primarily for growers and farm staff (decision-makers) and will present consistent course content and information for all participants. There is a broad range of other potential course participants including; consultants and corporate agronomists, agricultural chemical distributor representatives, agricultural chemical manufacturer representatives and chemical spray contractors and applicators

Area-wide grower groups may provide an ideal forum for the delivery of the course and help to create a support network for IPM growers.

### **Proposed Structure**

The IPM Short Course program will consist of a comprehensive reference manual, course workbook and a series of workshops. The IPM Manual will provide participants with a starting point for discussion of each aspect of IPM and will be a significant resource for growers after completion of the course. The course workbook will be an activity and response based learning guide that will be used for the assessment of the course participants. Workshops and field days will utilise the manual, workbook and form the basis of the group learning activities.

#### ***Participants Manual***

Research (including mapping existing industry publications) and writing of the draft IPM Training Manual has proceeded throughout 2000. The Draft Manual currently consists of 11 chapters in 3 broad sections (Where Are We?, Where do we want to go? and How do we get there?). Draft IPM Training Manual chapters are under researcher and editorial review with respective researchers of the Australian Cotton CRC. The proposed contents and learning outcomes for each chapter are outlined below.

#### **Draft IPM Participants Manual - Contents**

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|------------------|---|
| <b>Chapter1.</b> | Understanding IPM - What IPM is all about<br>Define the elements and understand the importance of Integrated Pest Management (IPM)                                  |
| <b>Chapter2.</b> | Resistance and IPM - Resistance Management<br>Describe the development, impact and management of insecticide resistance   |
| <b>Chapter3.</b> | Options and Planning - IPM is about Planning<br>Plan and implement short and long term insect and mite control strategies   |
| <b>Chapter4.</b> | Communication and Record Keeping for Planning and Assessment<br>Describe the importance of communication in IPM and establish and maintain a record keeping system. |
| <b>Chapter5.</b> | Know your Pest<br>Identify and understand the life-cycle of the major pests of cotton   |

- Chapter6.** Know your Predator  
Identify and understand the life-cycle of the major predators and parasites of cotton pests
- Chapter7.** Know your Plant  
Describe and monitor the development of the cotton plant
- Chapter8.** Crop Management and IPM  
List and describe impact of cultural aspects of cotton production on pest management
- Chapter9.** Pesticide Selection and IPM  
Determine chemicals and biological agents for pest control
- Chapter10.** The Decision Process - IPM is about Decisions  
Implement an IPM decision making process
- Chapter11.** Implementing IPM  
Implement an integrated pest management program

### ***Participants Workbook***

It is proposed that the assessment for the course is based on a workbook that contains exercises that when completed will satisfy the learning outcome for each section of the course. An important learning component of the workbook will be grower case studies of various aspects of IPM.

The development of the Participants Workbook is being undertaken in collaboration with (NSW Agriculture) staff at Murrumbidgee College of Agriculture, Yanco, NSW.

### ***Learning Workshops***

Cotton production is a yearlong activity and it is envisaged that the course program will be sympathetic with the production cycle. An 'extended program' over approximately 6 months will include workshops, in-crop seasons and a review of progress towards nominated goals. This structure will give participants the opportunity to meet and discuss pest management options at length throughout the course program.

The course will move through 3 phases (Figure 1); pre-season, in-season and post-season. The workshop prior to the commencement of the season will develop the fundamentals of IPM and review research and practical experience of IPM. At least 2 in-crop meetings will aim to put the theory into practice. Finally a review meeting after picking will act as a debrief session looking at how participants managed and what they learnt and applying that to their plans for the future.

**Figure 1.** Proposed IPM Short Course learning structure.

<b>Structure</b>	<b>Duration</b>	<b>Broad Content</b>	<b>Broad Objective</b>
Winter Workshop	2 ½ day	Define IPM and establish an understanding of its importance and knowledge of components	Understanding how components of IPM can utilised in Australian cotton production
Summer Field day (1)	½ day	Early squaring practical - plant growth, pests, predators and crop management	Knowledge of the role of effective monitoring and confidence in early season IPM practices
Summer Field day (2)	½ day	Post flowering practical - plant growth, pests, predators and crop management	Knowledge of the role of effective monitoring and confidence in late season IPM practices
Autumn Review Meeting	1 day	Post season evaluation of individual IPM programs	Evaluate the implementation of changes in pest management

**Course Development**

The IPM Short course will under go further development throughout 2000 with a series of pilot workshops and field days. It is expected that the course program will be offered in each cotton growing area. Full delivery of the course through training groups should commence in April 2001.

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**References**

Coutts, G. (1997) Attitudes to Integrated Pest management in the Cotton Industry. Cooperative Research Centre for Sustainable Cotton Production. Narrabri.

