



3.7 Objective 7 - Supporting IPM through communication and training

3.7.1 Communicate with neighbours

Communication with neighbouring primary producers is essential to develop a successful IPM program. During the season when there is a possibility that crop spraying will occur, it will be important to discuss your intentions and options with your neighbours as a safety precaution and to help manage the crop as part of a large area not just as a block. It is just as important to communicate with non-cotton growing neighbours as well, and if possible encourage your neighbours to reciprocate a level of communication.



Attending field days can be a great way to learn about IPM, hear about the latest research findings and catch up with neighbours.



Growers discussing management plans for the season.

3.7.2 Pesticide application management plan

Growers should discuss their approach to crop management with their agronomist or consultant. Mutual agreement on the IPM approach between the grower and consultant, and awareness by the grower of the reasons underlying this approach and of the need to view pest management differently is essential for success. The grower and their consultant need to work as a team. A consultant cannot be expected to manage pests according to IPM principles if the grower expects unrealistic yields and levels of pest control. The grower and consultant should have a pre-season meeting to discuss issues such as yield and crop maturity expectations, thresholds for pests, crop and insect monitoring and spray management plans.

The grower should also discuss the spray management plan with the applicator as well as neighbours. An important issue to discuss with the spray applicator is the hygiene of spray equipment, including ground rigs and airplanes. Residues of broad spectrum insecticides in the tanks or sumps of spray equipment can contaminate selective products causing undesirable and unintended detrimental effects on beneficial insects. Growers should ensure that equipment is thoroughly cleaned out. More information on managing the risks associated with pesticide use can be found in the 'Australian Cotton Pest Management Practices' manual .

Issues such as when to spray insecticides, application requirements (swath width, water volume etc) and fields in sensitive locations should also be discussed.

Growers should consider discussing with their neighbour(s) the possibility of amalgamating as part of an IPM group or, alternatively, the growers should discuss the problems associated with the use of broad spectrum sprays such as organophosphates and pyrethroids early in the season and their impact on beneficial insects. For some insecticides, specific 'buffer' requirements apply and it is critical that growers and consultants discuss this issue and consult with neighbours.

3.7.3 Area Wide Management (AWM)

AWM primarily attempts to reduce pest pressure by co-ordinating the efforts of growers in an area, for example, to use trap crops planted in spring to capture *Helicoverpa armigera* moths into an area where the larvae developing from their eggs can be readily controlled. This prevents breeding and population increase, thereby reducing pest pressure later in the season. This is a form of pest population management.

AWM is also used to describe situations where growers share information and support each other to achieve common goals. For instance, a goal may be to delay the use of disruptive insecticides as late as possible in the season, so that the survival rate of beneficial insects is higher and can contribute to pest control.

AWM groups or IPM groups, as they are sometimes known, use an approach which acknowledges that pest and beneficial insects are mobile, and that the management regimes to control pests imposed on a given field are likely to alter the abundance of beneficial insects and levels of insecticide resistance in the surrounding locality, e.g. the effect of spray drift on beneficials in a neighbour's crop. By communicating and co-ordinating strategies, growers within an AWM group have better opportunities to implement IPM.

AWM for population management

AWM for population management of *H. armigera* has been evaluated on the Darling Downs. The strategy encouraged all farmers to work cooperatively and take a regional, rather than a paddock-by-paddock approach to pest management. With this approach, it was thought that the size of the local *H. armigera* population could be reduced, giving non-chemical tools such as virus and beneficials a greater chance of being effective.

This strategy was based on three main goals: (1) to reduce the survival of overwintering, insecticide resistant *H. armigera* pupae, (2) to reduce the early season buildup of *Helicoverpa* on a regional / district scale, and (3) to reduce the mid-season population pressure on *Helicoverpa* susceptible crops. The main tactics used to achieve these goals were use of spring trap crops, conservation of beneficial insects and cultivation of diapausing pupae. A critical component was to bring together farmers with a range of different enterprises, including cotton, wheat and other dryland crops. As *H. armigera* is a pest common to most of these crops it was vital to have all types of growers involved if AWM was to succeed.

The spring trap crops and pupae busting essentially targets 'bottlenecks' in the *Helicoverpa* population cycle. For instance spring trap crops aim to provide an attractive crop for *H. armigera* emerging from diapause at a time when there are often relatively few hosts (refer to objective 6 'Using trap crops effectively'). Similarly pupae busting attacks the diapausing pupae in the soil where they are vulnerable and where there is a fairly wide window of opportunity in which to act (refer to the *Helicoverpa* section in objective 4).

Success at manipulating *H. armigera* abundance is difficult to assess due to the confounding effects of seasons (e.g. drought), but certainly in the years following the implementation of AWM there has been reduced *H. armigera* pressure.

AWM or IPM Groups

These groups focus less on pest population management and more on communication and co-ordination to achieve agreed goals, which are usually linked to increasing the adoption of IPM. These may include conserving beneficials, delaying the use of disruptive insecticides, reducing the risk of drift between farms and the planting trap crops. A key element of groups that have worked well has been regular meetings before and during the season to share information, agree on goals, discuss strategies and build rapport.



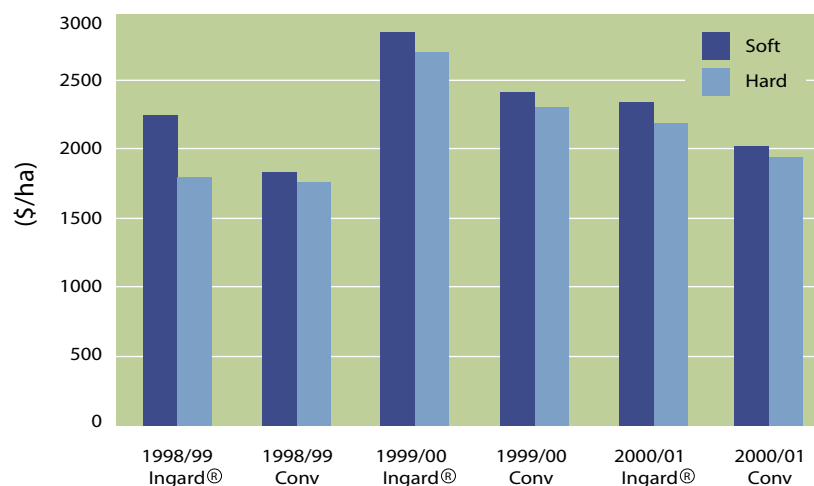
Area Wide Management (AWM) recognises that actions on one farm can affect another, therefore there are advantages in communication and coordination.



'Hands-on' group activities are an effective way to learn.

Figure 11.

Gross margins for the Boggabilla Area Wide Management Group over three seasons for a field managed with more selective insecticides (Soft) or more disruptive insecticides (Hard). Fields managed with a softer approach were consistently more profitable.



Getting an AWM group going (formation and operation)

When forming an AWM group there are some things that should be carefully thought through.

- Decide which area and who will be involved, i.e. growers, consultants, agronomists, contractors
- Set goals
- Identify specific activities for the group, i.e. avoid meeting for meetings sake
- Keep notes to use for revising and resetting goals and to keep non-attendees informed.

Activities for groups with minimal support can include:

- Using pheromone traps to generate information about *Helicoverpa* activity (species and time) in the local area. This information may help form a basis to determine the appropriate time for planting and destruction of trap crops.
- Seeking guest speakers
- Gather and discuss pest and beneficial pressure and management options.

Contributions that your cotton industry development officer (IDO) can make with out being the group co-ordinator:

- Introduce the group to new IPM options and techniques.
- Challenge the attitudes and perceptions of the group.
- Use their network in the cotton industry to gather information for the group.

Be aware of group development processes. Most groups go through the stages of forming, storming, norming and performing. *Forming* is the beginning stages when people are sorting out their place in the group and how things will run. *Storming* is the time when group members may experience conflict as individuals resist the influence of the group and oppose group direction and consensus. *Norming* occurs when group cohesiveness and commitment is achieved. The participants discover ways to work together to achieve goals and objectives. Finally, the *performing* stage is when a group develops proficiency in reaching the desired goals and is also more flexible about ways of working together. It is useful to realise that all groups go through these stages.

Initially some people will be drivers and innovators and others will take more time to work effectively together. It is important to ensure that each individual is given the opportunity to share their ideas and concerns. Every group is unique, and every group will develop a different set of goals and priorities.

Maintaining momentum

Maintaining momentum, interest and learning are major challenges for AWM groups. After groups have been operating for two to three seasons they can lose momentum if they have not continued to provide a stimulating learning environment. To help prevent this, regularly rotate the chairperson and secretary positions to keep all members involved and to ensure everyone has a sense of ownership. Groups should also embark on a process of continual improvement by revising and resetting goals.

Another way to maintain group momentum is to benchmark IPM strategies and outcomes. This will allow group members to see which strategies worked best for them and how they compared with the rest of the group. This is an effective way to identify the key factors contributing to success and areas for improvement.

When not everyone wants to be involved

AWM groups are voluntary and not all growers may want to be involved. However, as groups develop, the “non-participants” may see the benefits of the group in action and be encouraged to join.

If a neighbour does not want to participate initially, ensure that they are given the opportunity to receive meeting notices and information about meeting outcomes and group goals.

Conclusion

AWM groups are a tremendous way to support IPM by providing peer support, defining goals, communicating and enlisting expert input when needed. The progress made by many AWM groups in reducing insecticide use and increasing profitability attests to their value.

3.7.4 Meetings and training

Meetings are held each winter in all major regions to review resistance levels, IPM principles, computerised decision support, Best Management Practice procedures, production issues and to evaluate the previous cotton crop. Growers and consultants are urged to participate in these meetings. This improves information exchange between industry, research and extension and facilitates improvements in IPM strategies.

Growers and consultants should also consider formal training in IPM principles and practice. Two options developed by the Australian Cotton CRC are the cotton production course offered by the University of New England along with several other universities, and / or the IPM short course for growers.

For more information on the Australian Cotton CRC training courses, visit the Australian Cotton CRC website or contact cotton production course co-ordinator, at the University of New England, or contact the IPM short course training co-ordinator, at the DPI&F, Queensland.



Demonstrating the beat sheet technique.