



## 2. How to use these guidelines

The IPM guidelines focus on the core objectives that make up an IPM system. These objectives are the subject of the following sections of the guidelines. It is also important to know when different operations should occur or be considered. To help we have developed Table 1 '*Putting IPM into practice*', which summarises the major activities for each phase of the crop cycle and the 'off-season'. This can be used to quickly review the operation or issues for that phase of the year, and more detail can then be sought if needed in the following sections.



**Figure 1.**

IPM is a year round approach to pest management which includes 'off-season' operations and planning as well as crop management during the growing season.

**Table 1.** Putting IPM into practice

Phases	Post harvest	Pre-planting	Planting to 1 flower per metre	1 flower per metre to 1 open boll per metre	1 open boll per metre to harvest
Objectives					
1. Growing a healthy crop	Consider the best rotation crop for the situation. Test soil nutrient status to determine fertiliser requirements for cotton crop. Consider potential disease risks.	Seed bed preparation. Field and cotton variety selection. Plan irrigation and crop management strategies.	Consider planting window. Consider at-planting seed treatment, insecticides and other control options which do not disrupt beneficial insect activity. Water management	Monitor crop for <ul style="list-style-type: none"> <li>• Water management</li> <li>• Nutrient status</li> <li>• Growth control</li> <li>• Pest control</li> </ul>	Make final irrigation decisions. Defoliate when crop is mature (monitor NACB). Keep on top of pests by using appropriate control options.
2. Keeping track of insects and damage	Sample cotton stubble for <i>Helicoverpa armigera</i> pupae after harvest.	Assess risk of wireworms, early thrips, mirids, mites and black field earwigs and decide on seed treatments, granular insecticides or in-furrow insecticide sprays.	Sample for pests, beneficials and parasitism rates in cotton as well as spring trap crops. Monitor early season damage. Track pest trends. Use pest thresholds and the predator / beneficial to pest ratio.	Sample for pests, beneficials and parasitism rates. Track pest trends and incorporate parasitism into spray decisions. Monitor fruit load. Use pest thresholds and the predator / beneficial to pest ratio.	Sample for pests, beneficials and parasitism rates in cotton as well as last generation trap crop. Monitor fruit load. Use pest thresholds and the predator / beneficial to pest ratio. Cease pest control at 30-40% bolls open.
3. Beneficial insects – use them don't abuse them	Plant lucerne (strips or block) in autumn. Consider becoming involved in an IPM or AWM group. Discuss spray management plan with neighbours and consultant.	If planning to release <i>Trichogramma</i> during the season, plan to sow other crops e.g. sorghum. Consider growing a diverse habitat to encourage beneficials.	Sample for beneficials and parasitism rates. If chemical control of a pest is required, refer to the beneficial impact table. Keep track of the BDI and predator / beneficial to pest ratio.	Sample beneficials. Consider releasing <i>Trichogramma</i> into sorghum. Keep track of the BDI and predator / beneficial to pest ratio. Food sprays may be considered. Manage lucerne appropriately.	Sample for beneficials. Encourage beneficials to reduce late season resistant pests through food sprays and consider low impact insecticide options.
4. Prevent the development of resistance	Pupae bust to control overwintering <i>Helicoverpa</i> and mites as soon as possible after harvest. Plant spring trap crop. Attend annual resistance management meeting. Reduce the availability of aphid and whitefly hosts over the winter.	Consider Bollgard II® refuge options. Consider choice of at-planting insecticides or seed treatments and implications for later aphid sprays.	Use pest and damage thresholds. Follow the IRMS strategy for the region. Encourage beneficials to help reduce resistant pests. Follow Bollgard II® resistance management plan.	Use pest and damage thresholds. Follow the IRMS strategy for the region. Encourage beneficials to help reduce resistant pests. Follow Bollgard II® resistance management plan.	Use pest and damage thresholds. Follow the IRMS strategy for the region. Encourage beneficials to help reduce resistant pests. Follow Bollgard II® resistance management plan.
5. Manage crop and weed hosts	Keep farm weed free over winter. Control cotton re-growth.	Carefully consider summer rotation crops (type and location). Keep farm weed free.	Keep farm weed free.	Keep farm weed free.	Consider winter rotation crops (type, location and the potential to host pests or diseases). Keep farm weed free.
6. Using trap crops effectively	Plant spring trap crop. Consider flowering date to time planting.	Consider summer trap crop. Cultivate all chickpea trap crops by the 30th September.	Consider last generation trap crop.	Monitor <i>Helicoverpa</i> populations in summer trap crop, control if necessary.	Destroy <i>Helicoverpa</i> eggs and larvae in last generation trap crop using biological sprays. Pupae bust last generation trap crop.
7. Support IPM through communication and training	Consider becoming involved in an IPM or AWM group. Attend regional training and information seminars. Consider doing the IPM short course.	Communicate with neighbours and applicators to discuss spray management plans. Attend training courses i.e. Cotton-LOGIC.	Meet regularly with your neighbours and consultant to discuss IPM strategies and attend local field days.	Meet regularly with your neighbours and consultant to discuss IPM strategies and attend local field days.	Meet regularly with your neighbours and consultant to discuss IPM strategies and attend local field days.