



An introduction to Integrated Pest Management





Drivers for IPM

Internationally IPM is being legislated and adopted

The European Union (2009) legislated for sustainable use of pesticides

Canada and the US have legislated for IPM adoption goals

Drivers

securing food production

robust and reliable production systems

community concerns – environmental and human health





IPM: Reducing our reliance on insecticides

Why do we need to find ways to reduce our reliance on insecticides?

- Insecticide resistance
- Pest and secondary pest outbreaks
- Off target impacts (natural enemies, human, environment)
- Consumer demand



What is IPM?

A sustainable approach to managing pests

| What tactics can be integrated? | |
|---------------------------------|---|
| Prevention | Reduce the likelihood of pest outbreaks (cultural, biological) |
| Avoidance | Minimise chance of susceptible crop being attacked (cultural) |
| Monitoring | Collect information to guide decisions |
| Suppression | Act to prevent crop loss (biological, cultural, chemical) |



Examples of the tactics in practice

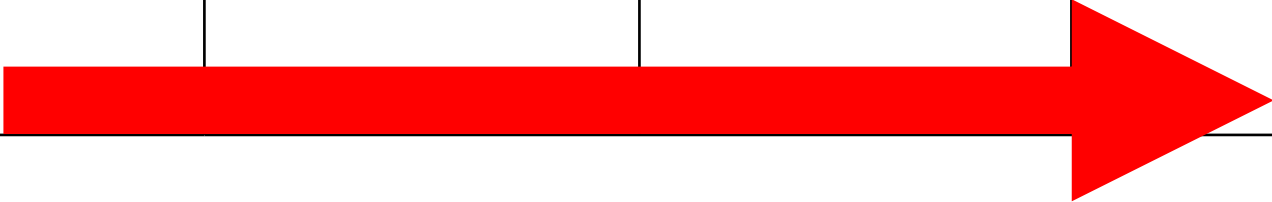


| | |
|--------------------|--|
| Prevention | Remove green bridge (hosts) Control in-field weeds prior to planting Plant disease free seed (virus) |
| Avoidance | Plant/harvest to minimise exposure Know pest risk and crop susceptibility Agronomy to optimise crop growth |
| Monitoring | Pest and beneficial identification Record to inform Prevention, Avoidance and Suppression decisions |
| Suppression | Biological control: conserve beneficials Chemical control: softest option first |



The IPM continuum

| No IPM | Low | Moderate | High |
|---|----------------------------------|---|--|
| No monitoring | Monitoring | Monitoring | Monitoring |
| Insecticide sole means of pest control. | Thresholds guide insecticide use | 1-2 options (PAM) Thresholds guide insecticide use | At least 3 options (PAM) Thresholds guide insecticide use |





IPM in Australia's grains industry

In its infancy

Pest management highly reliant on insecticides

Limited research on other aspects of pest management

A number of perceived barriers to IPM



Is IPM a viable approach for broadacre grains?

Decision Making
for Insect Management
in Grain Crops



David Watson (AgVise Agricultural Services, Ballarat) discusses IPM

What are some of the barriers to doing IPM?

Decision Making
for Insect Management
in Grain Crops





The aims of the workshop

- Introduce and discuss the principles of an IPM approach.
- To provide practical examples of how you can implement IPM.
- To get you thinking.



Covering the basics in the workshop

Risk assessment

Monitoring

Making a decision

Management and/or control decisions

Using familiar pests as examples





Best bet strategies

Southern region – ‘Best Bet’ IPM strategy for crop establishment pests

| | Earth mites & lucerne flea | Slugs | False wireworms & true wireworms |
|--|---|--|--|
| Pre-season (previous spring / summer) | <p><u>Assess risk</u></p> <p>High risk when:</p> <ul style="list-style-type: none"> History of high mite pressure Pasture going into crop Susceptible crop being planted (eg. canola, pasture, lucerne) Seasonal forecast is for dry or cool, wet conditions that slow crop growth. <p><u>If risk is high:</u></p> <ul style="list-style-type: none"> Ensure accurate identification of species Use Timerite (redlegged earth mites only) Heavily graze pastures in early-mid spring | <p><u>Assess risk</u></p> <p>High risk when</p> <ul style="list-style-type: none"> High stubble load Annual average rainfall > 450mm History of slug infestations Canola being planted Summer rainfall Heavy clay soils | <p><u>Assess risk</u></p> <p>High risk when:</p> <ul style="list-style-type: none"> History of wireworm pressure Soils high in organic matter High stubble and summer/autumn litter cover |
| Pre-sowing | <p>If high risk:</p> <ul style="list-style-type: none"> Use an insecticide seed dressing on susceptible crops Plan to monitor more frequently until crop establishment Use higher sowing rate to compensate for seedling loss Consider scheduling a post-emergent insecticide treatment | <p>If high risk:</p> <ul style="list-style-type: none"> Burn stubbles Cultivate worst areas Remove weeds in paddocks/along fence-lines, at least 8 weeks prior to sowing Deploy shelter traps prior to sowing | <p>Conduct direct visual search for adult beetles over summer and autumn</p> <p>Directly search (in soil) for beetle larvae 2 weeks prior to sowing</p> <p>If high risk:</p> <ul style="list-style-type: none"> Re-assess crop choice or timing of sowing |

