



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?



Paul McIntosh (Landmark, Toowoomba) 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 have been devised to get you started

Northern region – Canola best bet IPM strategy

	Canola aphids	Rutherglen bug (RGB)
Summer / autumn	<p>Assess risk (virus)</p> <p>High risk where</p> <ul style="list-style-type: none"> • Summer rainfall creates a <i>Brassica</i> green bridge • Warm conditions favour early aphid build-up and timing of flights <p>If high risk:</p> <ul style="list-style-type: none"> • Use an insecticide seed treatment to manage virus spread (e.g. BWYV) by green peach aphid <p>Manage <i>Brassica</i> weeds and volunteers (ideally area wide) 3-4 weeks before sowing</p> <p>Sow early to promote early flowering in spring before aphids peak</p>	<p>Monitor crops for RGB and other pests during establishment (note: see “establishment pest best bet strategy”).</p> <p>High risk if</p> <ul style="list-style-type: none"> • Warm conditions in late summer/autumn • Weeds drying off in or near crop and RGB moving (walking) into seedling crops <p>If spraying:</p> <ul style="list-style-type: none"> • Border spray infested areas of crop and nearby host weeds • Monitor for re-invasion and the need for repeat application <p>Remove summer/autumn weeds (especially fleabane, wireweed and capeweed) in or near crops 3-4 weeks before sowing.</p>
Winter	<p>Monitor crops for aphid colonisation from late winter when daily temperatures start to rise.</p> <p>High risk where</p> <ul style="list-style-type: none"> • Mild winter • Green peach aphid present on vegetative plants • Forecast is for warm and dry conditions that favour aphid development • No beneficial activity and/or aphid parasitism 	<p>Increased risk where:</p> <ul style="list-style-type: none"> • Abundant weed hosts over winter allowing build up of local populations

