Decision Making
for Insect Management
in Grain Crops

An introduction to Integrated Pest Management

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The aims of the workshop

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

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Why IPM?
A way to reduce our reliance on insecticides

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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

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What are some of the barriers you face in implementing IPM?

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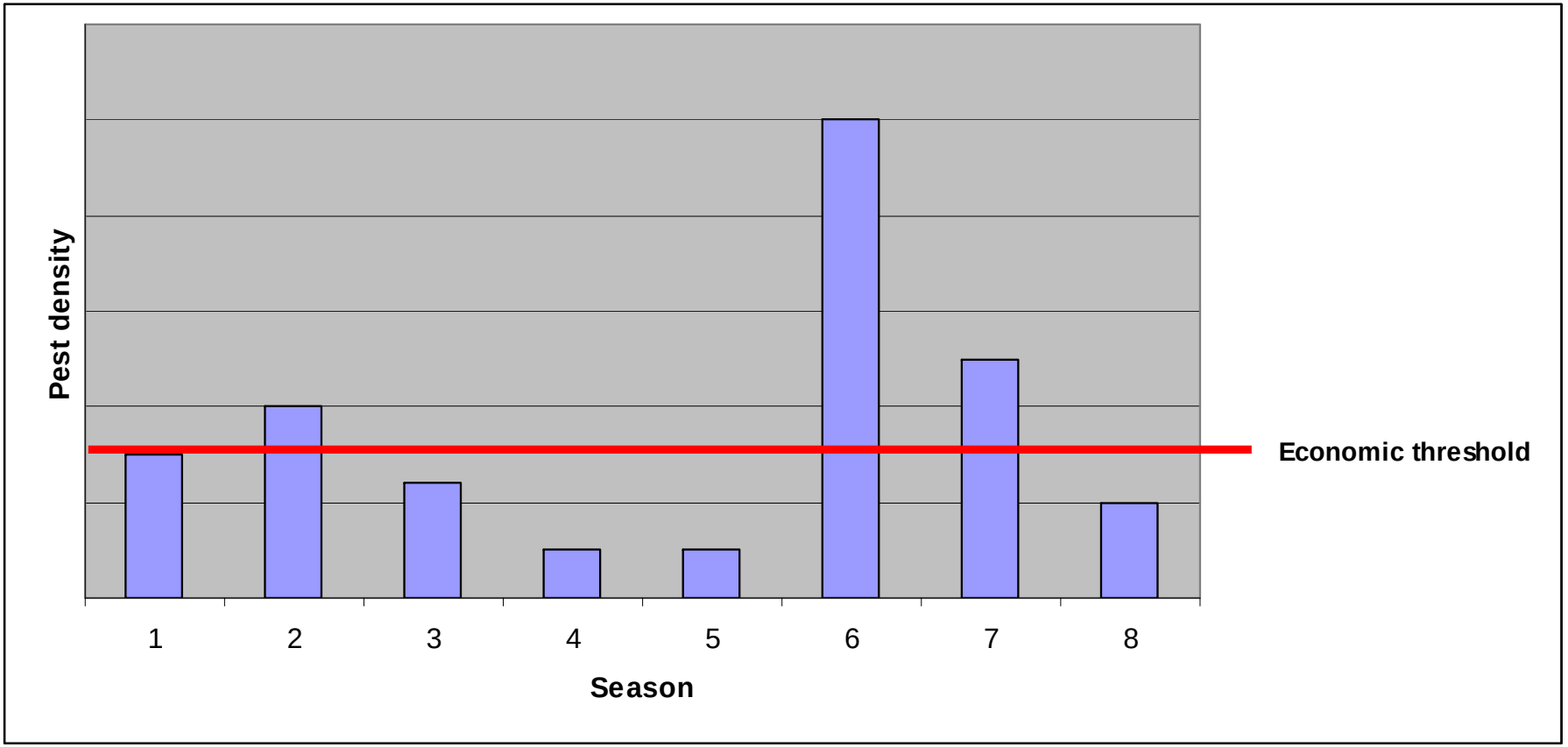
"I tried to go soft, but the pest pressure was so high that I had to spray or I would have lost everything. I won't be risking that again!"



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A framework for IPM – assessing and managing risk

	IPM in practice
Know the signals	Paddock histories and weather data inform predictions of pest pressure (**risk**)
	Pest trapping and forecasts of outbreaks inform decisions (**risk**).
Informed decisions	An appropriate monitoring schedule underpins informed decisions (**risk**)
	Economic thresholds guide control decisions
Know the pest	Pest ID is fundamental to correctly targeting management tactics
	A knowledge of pest biology and ecology provide an understanding of how the pest, crop and management tactics interact (**risk**).
	An area Wide Management approach within your region may be critical for some pest species.

A framework for IPM

	IPM in practice
Cultural control	Cultural practices can suppress and/or disrupt pest populations (stubble management, rotations) **risk**
	Resistant varieties reduce the susceptibility of the crop
Biological control (Natural regulation)	Beneficials make a valuable contribution to reducing pest abundance
	Biopestcides (NPVs, metarhyzium) have minimal off-target impacts.
Strategic pesticide choices	Use pesticides strategically and with beneficials / non-target insects in mind
	Diversify control options to manage the risk of resistance developing (**risk**)

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The IPM continuum

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



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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)	Assess risk High risk when: • 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. If risk is high: • Ensure accurate identification of species • Use Timerite (redlegged earth mites only) • Heavily graze pastures in early-mid spring	Assess risk High risk when • High stubble load • Annual average rainfall > 450mm • History of slug infestations • Canola being planted • Summer rainfall • Heavy clay soils	Assess risk High risk when: • History of wireworm pressure • Soils high in organic matter • High stubble and summer/autumn litter cover
Pre-sowing	If high risk: • 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	If high risk: • 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	Conduct direct visual search for adult beetles over summer and autumn Directly search (in soil) for beetle larvae 2 weeks prior to sowing If high risk: • Re-assess crop choice or timing of sowing

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