



## Integrated pest management

*Sustainable control of orchard pests with reduced reliance on insecticides*

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# IPM Technologies

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- Entomologists
- Support growers to adopt IPM
- IPM research and training
- Independent advice
- Experience in a wide range of crops













IPM TECHNOLOGIES PTY LTD

# Integrated Pest Management

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What options do we have to control pests?

Three control measures:

1. Biological
2. Cultural
3. Chemical

- IPM = all three control measures used together in a compatible way
- Decisions are made based on monitoring
- Chemicals are used only as a support tool



# Why use IPM?

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## **Adoption usually driven by crisis:**

- Pesticides stop working (resistance)
- Pesticides withdrawn
- Residues in produce
- Worker and environmental safety
  
- Induced pests (pest-flare)











# Why use IPM?

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- Better pest control – higher yield and quality
- Fewer insecticide applications
- Improve market access (e.g. export)
- Delay development of insecticide resistance

# Biological control agents

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- Predators and parasites of pests
- Pathogens of pests

## Two complementary strategies:

1. Preserve, attract and encourage naturally-occurring beneficials
2. Release commercially-produced beneficials as required



## Examples of key predators and parasitoids in pome fruit

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- Hoverflies
- Lacewings
- Ladybirds
- Predatory mites
- Predatory thrips
- Predatory bugs
- Wasp parasitoids of many pests





BUGS  
FOR  
BUGS

# Cultural controls

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➤ Very powerful tools, but often overlooked

## Tree crop examples

- Interrow management
- Canopy management
- Ant control
- Weed control
- Variety selection
- Humidity/dust management



# Pesticides in IPM

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- Use only as a support tool
- Consider impacts on beneficials, not just efficacy against target pest
- Need to know “is it safe?” to beneficials



# Pesticides and beneficials

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- Most old chemistry – toxic
- New selective chemistry – hard to tell
- Need to consider which beneficial species you want to protect
- Consider residual toxicity
- Consider effects of fungicides and thinners

# 'Soft' caterpillar sprays for pome fruit

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- How safe are these products to key beneficials in pome fruit?




# 'Soft' caterpillar sprays for pome fruit

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- How safe are these products to key beneficials in pome fruit?

Softest

Most disruptive

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- |                 |            |                    |
|-----------------|------------|--------------------|
| ➤ Altacor       | ➤ Avatar   | ➤ Calypso          |
| ➤ Cydex (virus) | ➤ Delegate | ➤ Cormoran (?)     |
| ➤ Dipel (Bt)    |            | ➤ Voliam Targo (?) |
| ➤ Insegar       |            |                    |
| ➤ Prodigy       |            |                    |



# Monitoring

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- Basis of management decisions
- Check for pests and beneficials
- Monitor regularly
- Observe trends rather than relying on spot checks and thresholds

# IPM in any crop

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| Pests | Beneficials (1) | Cultural controls (2) | Chemicals (3) |
|-------|-----------------|-----------------------|---------------|
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# Grower experiences

- MONTAGUE FRESH
- PLUNKETT ORCHARDS

