

# Codling Moth - is it about reducing costs or increasing pack outs?





# Codling moth

– the ‘key pest’ of pome fruit

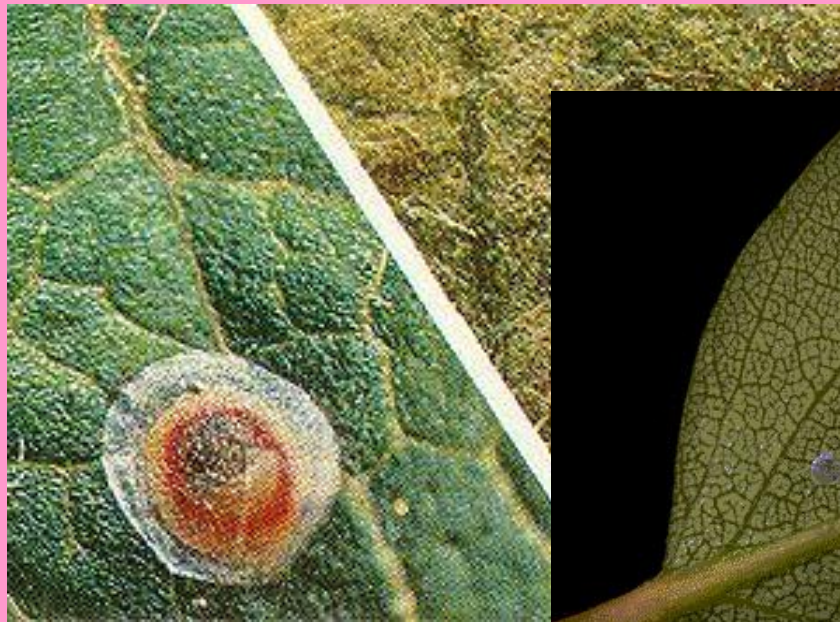
# Ecology Based Control Approach

- **Lifecycles and biology: Where is it now? What is it doing? How to best attack it?**
- **Control: Look for it's weakest link**
- **Interactions with other pests, IPM & resistance**
- **Products & Solutions should fit in context of other products**

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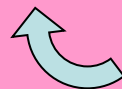
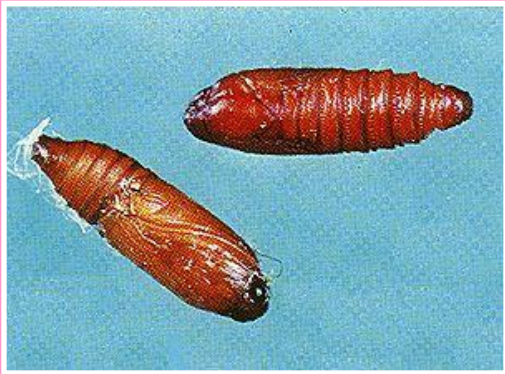
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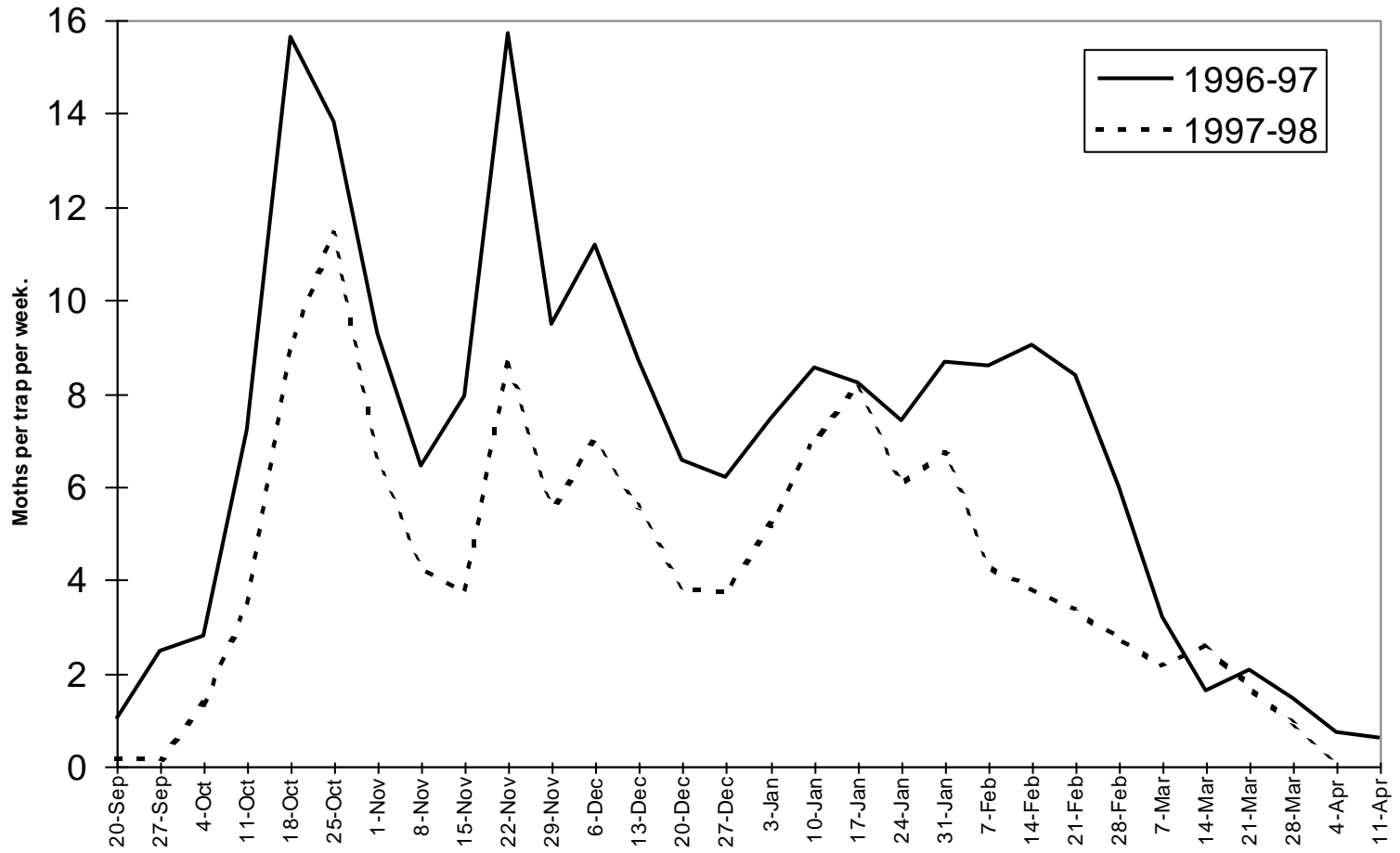


Season	Where is it now?	What is it doing?	Comments
Winter	Asleep in cocoon	Transforming from a pupae to a moth	Bark, props & large prunings. Not in grass or windbreaks
Early Spring	On bark or leaves	Emerging, flying, looking for mates	Weak flier (usually) Trap now Use MD now
Early Spring	Orchard skyline	Mating	Temp, time & wind

Season	Where is it now?	What is it doing?	Comments
Spring	On leaves & fruitlets	Laying eggs	Flat, hard to see. Use insecticide now
Spring	On leaves & fruitlets	Hatching and crawling	Use insecticide now
Spring	Fruit	Entering fruit	Use insecticide now

Season	Where is it now?	What is it doing?	Comments
Late Spring - Early Summer	Fruit	Emerging from fruit	Drops with or without fruit
	From ground to bark	Finding next pupation site	Crawls to site
Summer		2 <sup>nd</sup> & 3 <sup>rd</sup> Generation	Use insecticide now
Autumn		Pupates for the winter	

### Granite Belt codling moth trap catches. (average of 351 traps)



# Hygiene

- Orchard props
- Wooden bins/packing sheds
- Tree age/bark type

# Mating Disruption

- Block size
- Uniformity of trees
- Initial moth population
- Border situation
- Earliness of application
- Correct rates
- Correct height

# Mating Disruption + Insecticides

- Use both to 'crash' a population
- Border spraying good practice
- Minor pests may flare
- Skip MD every few years?
- MD 'wasteful' on Gala apples?

# IPM options

- Virus
- *Trichogramma* Wasps
- Bt
- Mating Disruption major 'soft' option
- Some insecticides part of IPM



# Insecticides

- When to start
- Traps & Day degrees



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- Traps & Day degrees
- How often to apply
- 7, 10, 14, 21 days



# Insecticides

- When to start
- Traps & Day degrees
- How often to apply
- 7, 10, 14, 21 days
- Application
- Tops & insides



# Insecticide Choices

- **Don't work anymore**
- **Carbaryl, Endosulfan, Lannate, Supracide, Folimat, Maldison**
- **Average control**
- **Insegar, Folidol, Avatar, Success/Entrust, Talstar, Lebaycid, Gusathion, Mimic, Insegar**
- **Good control**
- **Calypso**

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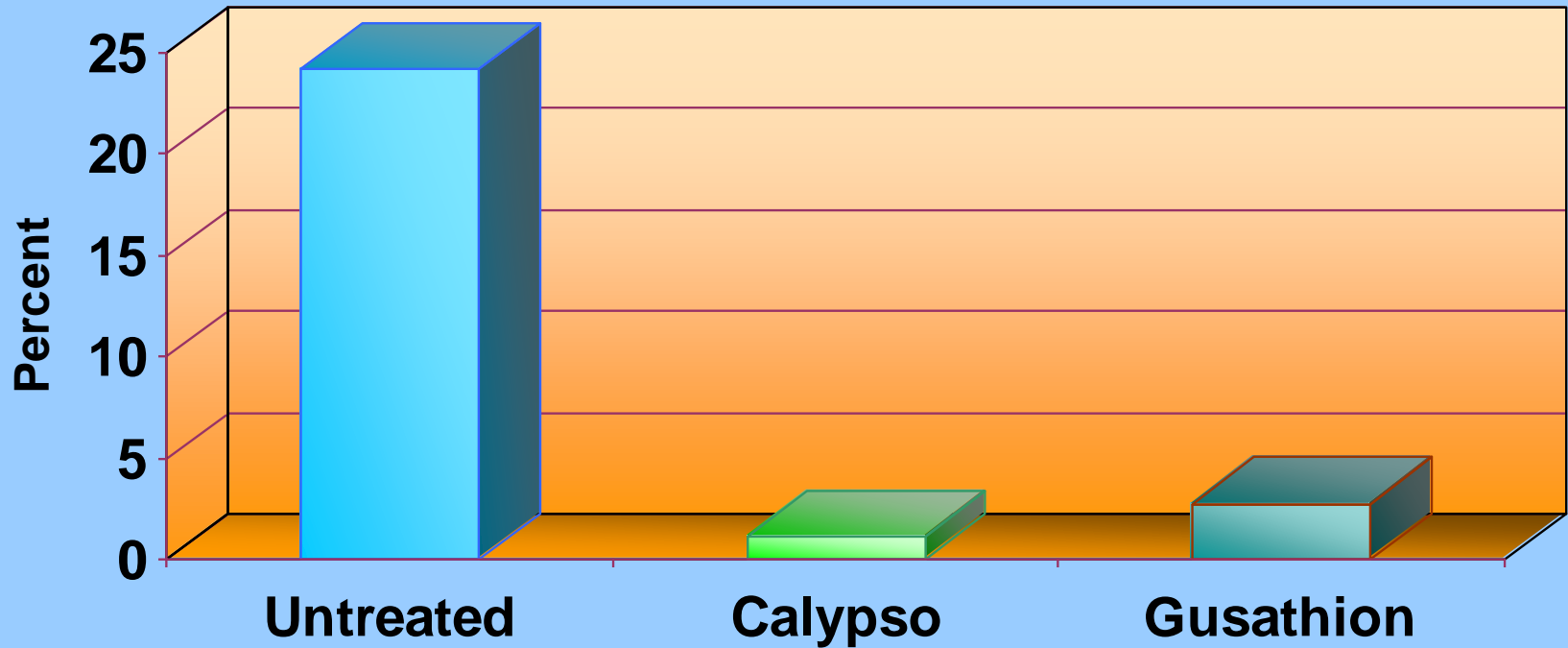
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- Calypso, Altacor, Delegate, Samurai

	<b>Altacor</b>	<b>Delegate</b>	<b>Samurai</b>	<b>Calypso</b>
Group	<b>28</b>	<b>5</b>	<b>4A</b>	<b>4A</b>
Codling Moth	✓	✓	✓	✓
LBAM	✓	✓	Suppression	
Woolly Aphid			✓	Suppression
Mealy Bug			✓	
O F M	✓	✓	✓ (SF)	✓ (SF)
Heliothis	✓	✓		
Dimpling Bug				✓

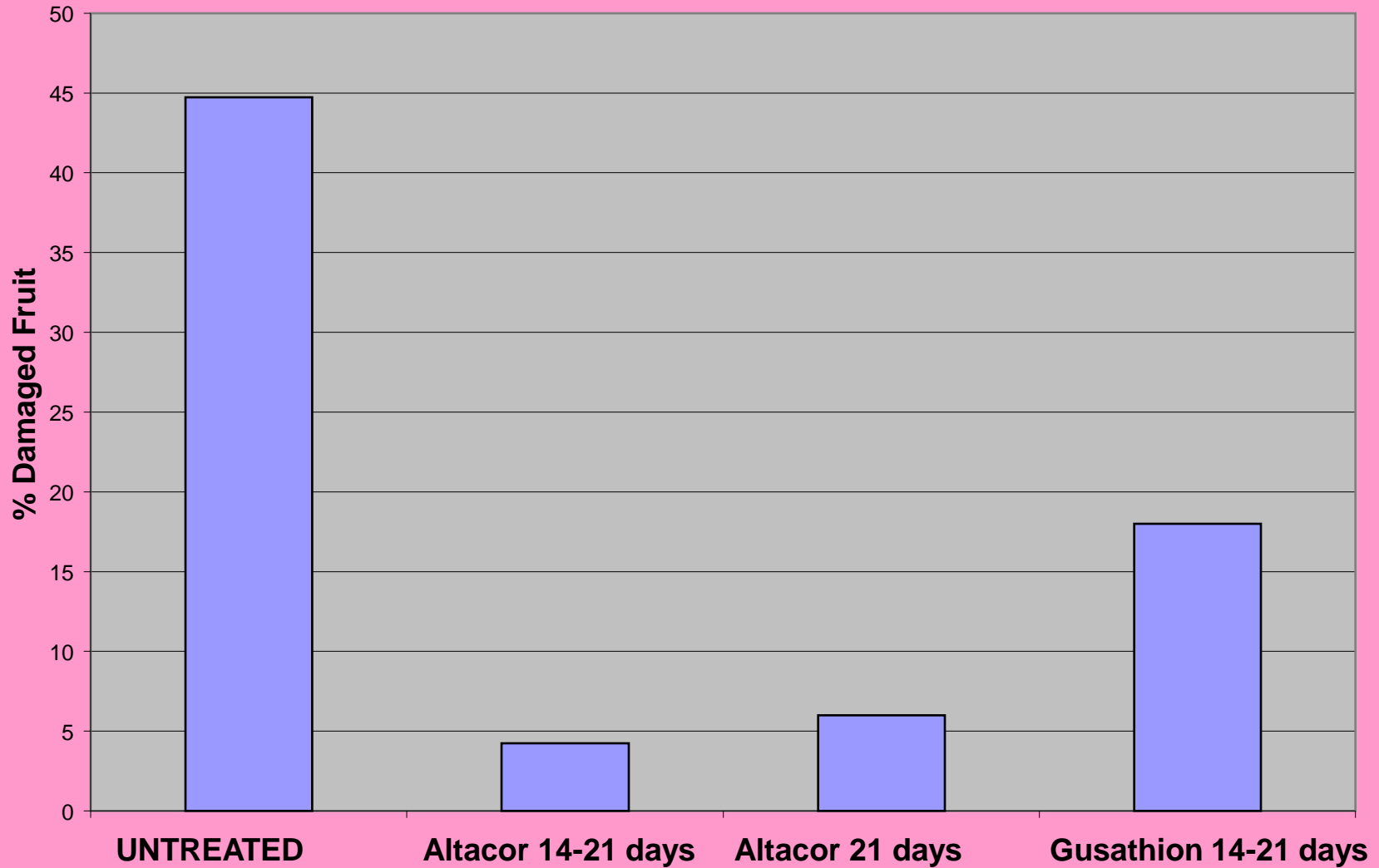


# Codling moth damaged apples, Stanthorpe 1997-98



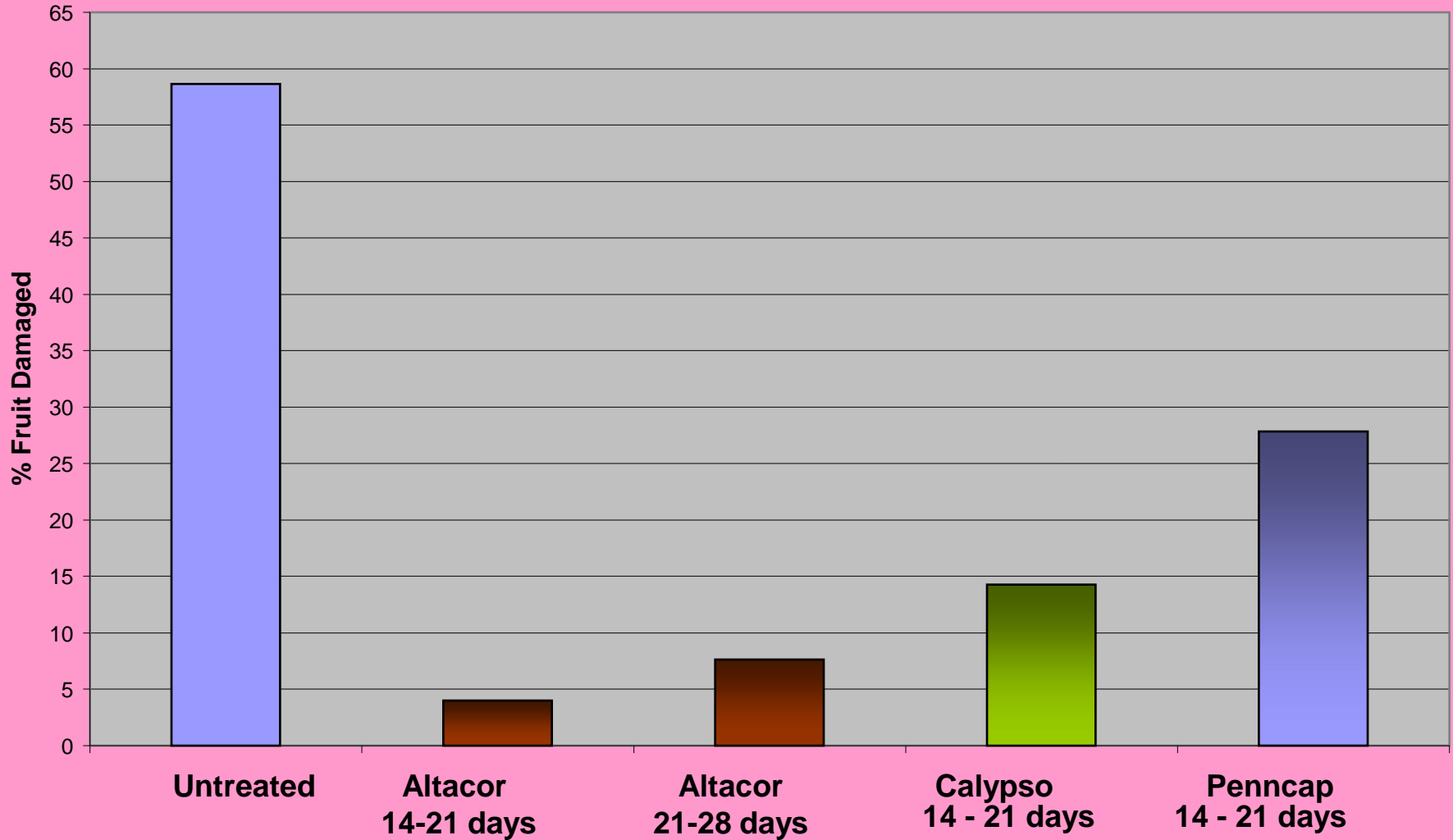
# ALTACOR

**% Apples Damaged by Codling Moth  
Stanthorpe 2004-05**



# ALTACOR

**% Apples Damaged by Codling Moth  
ORANGE**



# DELEGATE

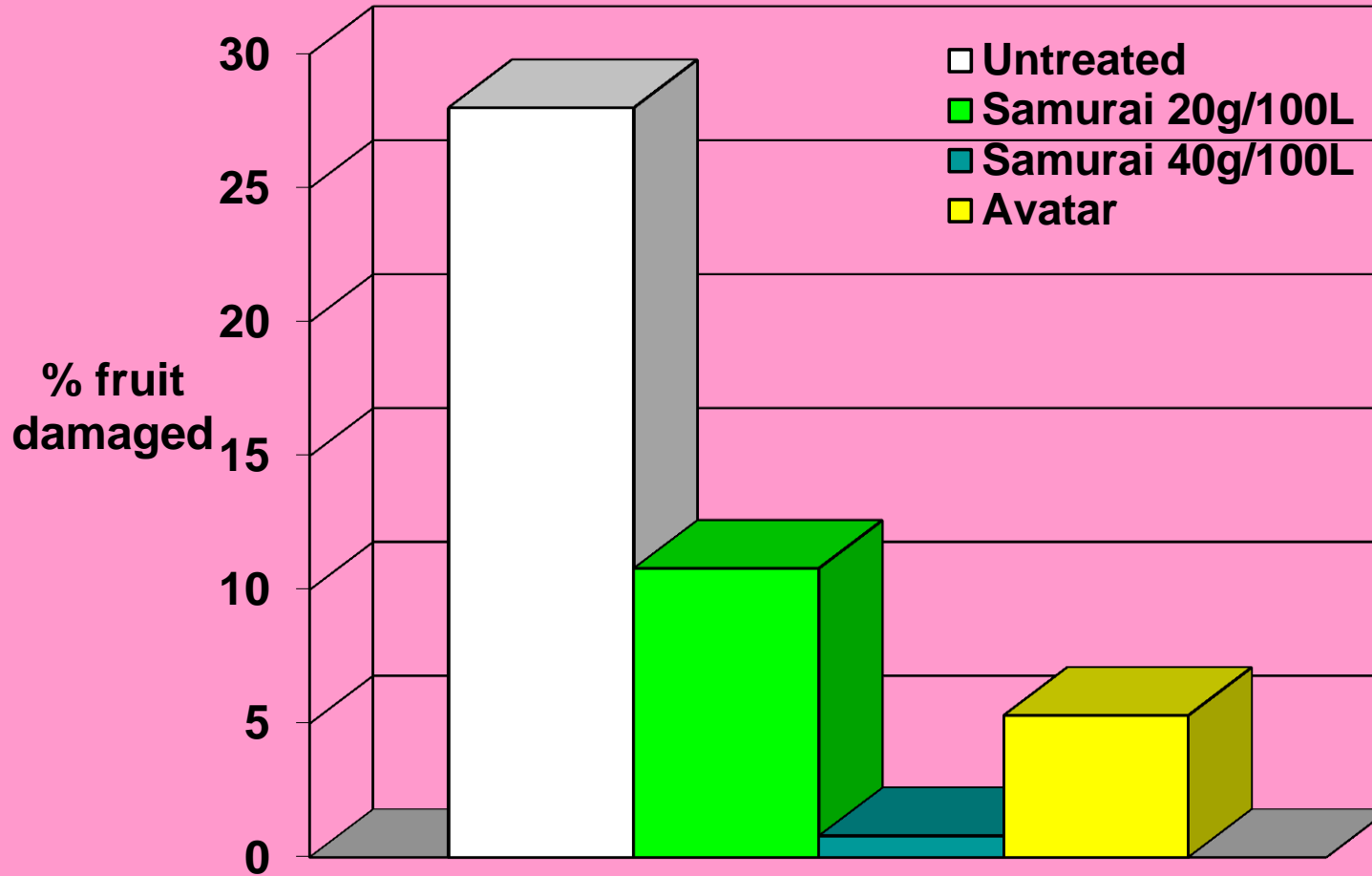
2006-07 Stanthorpe

100 fruit harvested



# Samurai

G. Del, South Australia, 2006-07



# Getting Good Codling Control

- **Base strategy on last year's population (trap)**
- **Start at correct time (trap and temp.)**
- **Target the 1<sup>st</sup> generation hard**
- **Choose and rotate chemicals**
- **Fit your CM insecticide into bigger picture.**

# 1. What should influence your CM and LBAM choice ?

Your MAIN pest

Your other pest profile

Affects on predators

Withholding periods

Re-entry periods

1. What should NOT influence your choice ?

Price



	<b>Altacor</b>	<b>Delegate</b>	<b>Samurai</b>	<b>Calypso</b>	<b>Penncap-M</b>	<b>Gusathion</b>
<b>Withholding period</b>	<b>14 Days</b>	<b>7 Days</b>	<b>21 Days</b>	<b>21 Days</b>	<b>14 Days</b>	<b>14 Days</b>
<b>Re-entry period</b>	<b>nil</b>	<b>When Dry</b>	<b>When Dry</b>	<b>When Dry</b>	<b>5 Days</b>	<b>5 Days</b>
<b>No. per season</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>No Limit</b>	
<b>Poison Schedule</b>	<b>-</b>	<b>S5</b>	<b>S6</b>	<b>S6</b>	<b>S7</b>	<b>S7</b>
<b>Mite Predators</b>	<b>Safe</b>	<b>Safe</b>	<b>Safe</b>	<b>Safe</b>	<b>Harsh</b>	
<b>WAA Predators</b>	<b>Safe</b>	<b>Safe Moderate Harsh</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Harsh</b>	

The logo for Future Orchards features the word "Future" in a red, rounded font, followed by a stylized apple icon. The apple is composed of a red outline and a green stem with a leaf. Below "Future" is the word "ORCHARDS" in a green, spaced-out, sans-serif font.

Future  
ORCHARDS

The logo for Orchard Services features the word "ORCHARD" in a blue, spaced-out, sans-serif font. The letters "O" and "C" are replaced by stylized green trees with red dots representing fruit. Below "ORCHARD" is the word "SERVICES" in a blue, spaced-out, sans-serif font.

ORCHARD  
SERVICES