

Mites- is it about reducing costs or increasing pack outs?



Who are these guys?

European Red Mite



Two-spotted Mite



Rust Mites

Qld Experiences

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- **TSM** is the main problem in most apple orchards. *T. pyri* and Stethorus beetles and larvae are useful predators, but are seldom enough for control by themselves.

| Season | Where is it now? | What's it doing? | |
|--------|---|---------------------------|--|
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| Spring | <p>TSM moving up and off wood onto tree leaves & building up on weeds; vetch, clover, etc.</p> <p>ERM moving from wood to apple/stonefruit leaves</p> | <p>Waking up and dispersing</p> <p>ERM hatching</p> | |

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| Autumn | | Preparing for winter | |

Mites do not practice birth control!

TSM adults live for 3 – 5 weeks. They lay an average of 70 eggs at the rate of 3-14 eggs/day. So **1 female mite** can develop into **24 million mites** in 4 months !

Tell me more about IPM

- A strategy which encourages the reduction of pesticide use, by employing a variety of pest control options in harmonious combination.

Tell me more about IPM

- Hygiene for TSM
- Oil cover for ERM
- Predators
- Miticides

Predators ? What predators



Tell me more about Predators

- *T. pyri* mainly in wetter summer areas
- *T. pyri* prefer ERM
- *T. occidentalis* in dry areas
- *T. occidentalis* prefer TSM
- *P. persimilis* is hungry & fast but soft
- *Stethorus* robust and useful but unreliable

- *Typhlodromus pyri*



- *Typhlodromus occidentalis*



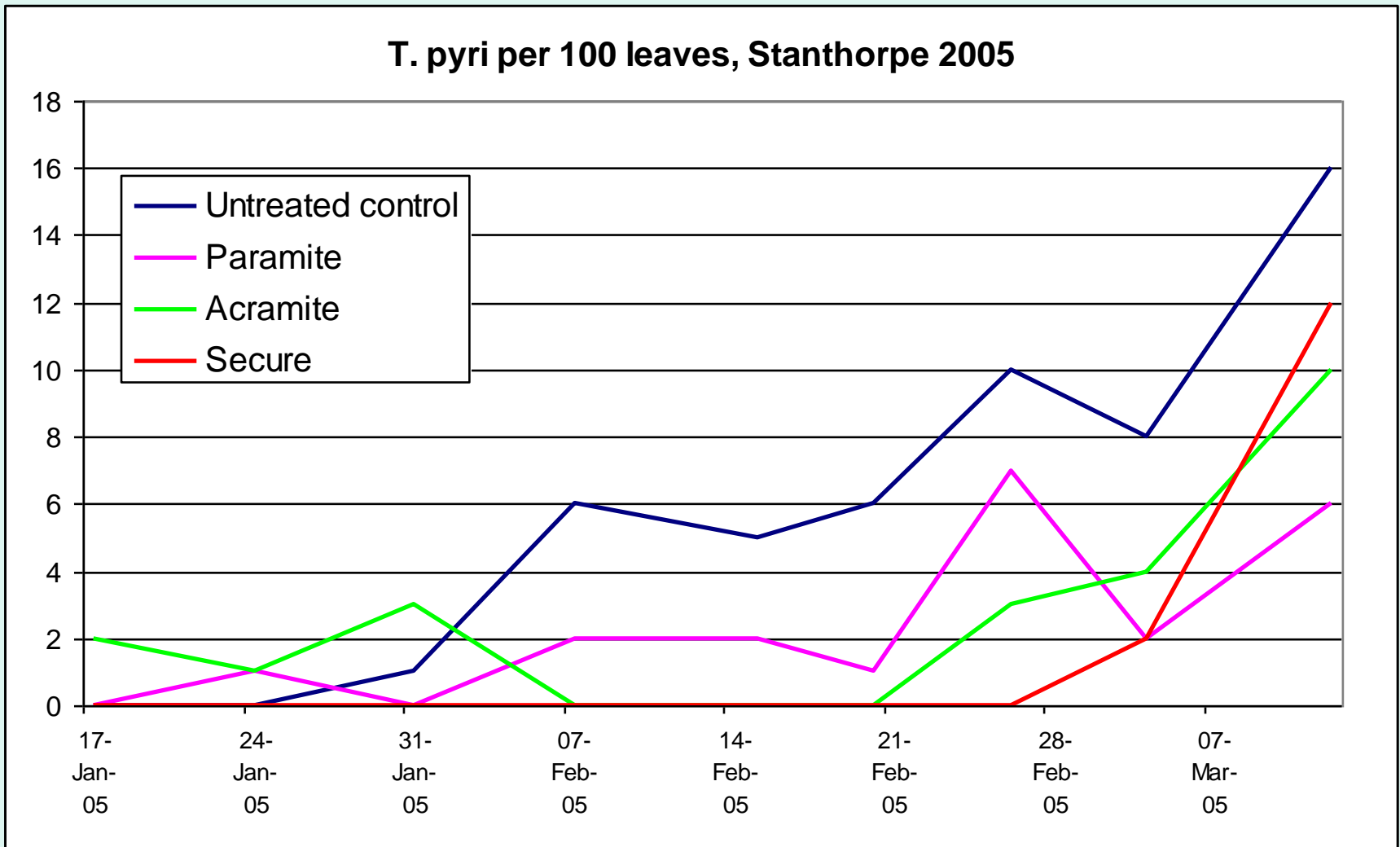
- *Phytoseiulus persimilis*



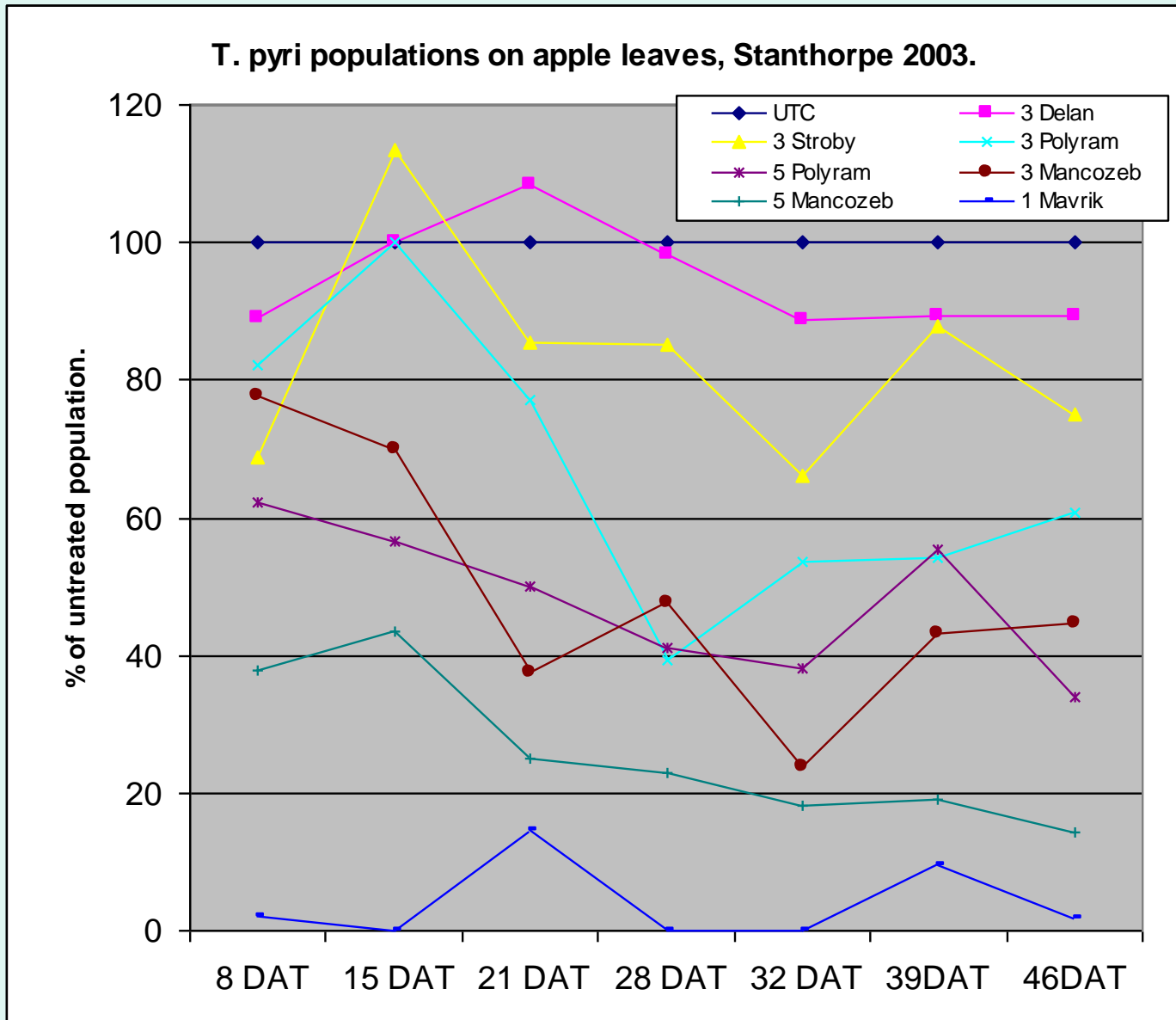
- *Stethorus spp.*



Miticides Affect Predators



Fungicides Affect Predators



Enough of the soft approach! Lets poison something . . .

- What I really meant to say was lets talk more about the “I” in IPM.
- Integrate miticides not non-miticides

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| Spring | TSM moving up and off wood onto tree leaves & building up on weeds; vetch, clover, etc. | Waking up and dispersing | TSM pop. starts low Use Vertimec in spring |
| | ERM moving from wood to apple/stonefruit leaves | ERM hatching | ERM pop. can start high if no oil or poor cover Use Vertimec in spring |

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| Summer | TSM mainly on back of leaves ERM on both sides | Many generations of breeding | Spray now with knockdowns |
| Autumn | | Preparing for winter | Dropping temps or decline of food source |

Mite Control

- Must be Cost Effective!
- Miticides can be expensive – because they have shorter sales lives than other pesticides.
- Before IPM growers used up to 6 **miticides** a year
- Growers now usually use only 0, 1 or 2 a year, but price is important.

Recognise these miticides?

- Acaban
- Apollo
- Calibre
- Kelthane
- Plictran
- Pyranica
- Sanmite
- Torque
- Tedion

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- Malathion
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- **Omite**
- **Secure**
- **Acramite**
- **Paramite**

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- **Vertimec**
 - **Omite**
 - **Secure**
 - **Acramite**
 - **Paramite**
- It's a shorter list.
 - Some will move to the other list before you retire.
 - How we behave will determine the longevity of these miticides.

Rotate

- Don't apply the same miticide more than once in the same season. Omite is the exception.

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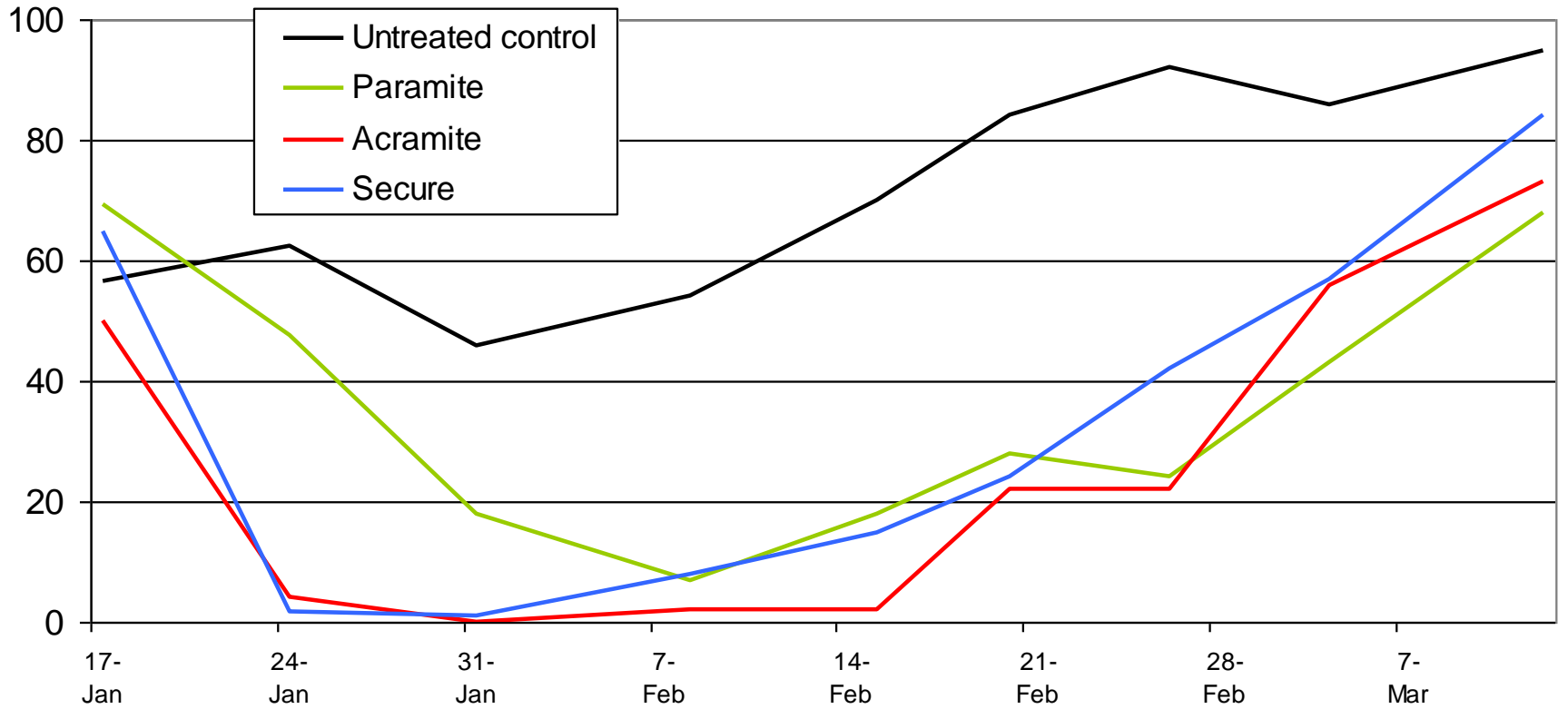
Paramite acts differently to other miticides

- It doesn't kill adult mites, it causes adults to lay sterile eggs.
- It can kill eggs, and the residue kills nymphs as they hatch out of eggs.
- It does kill nymphs when they are sprayed.

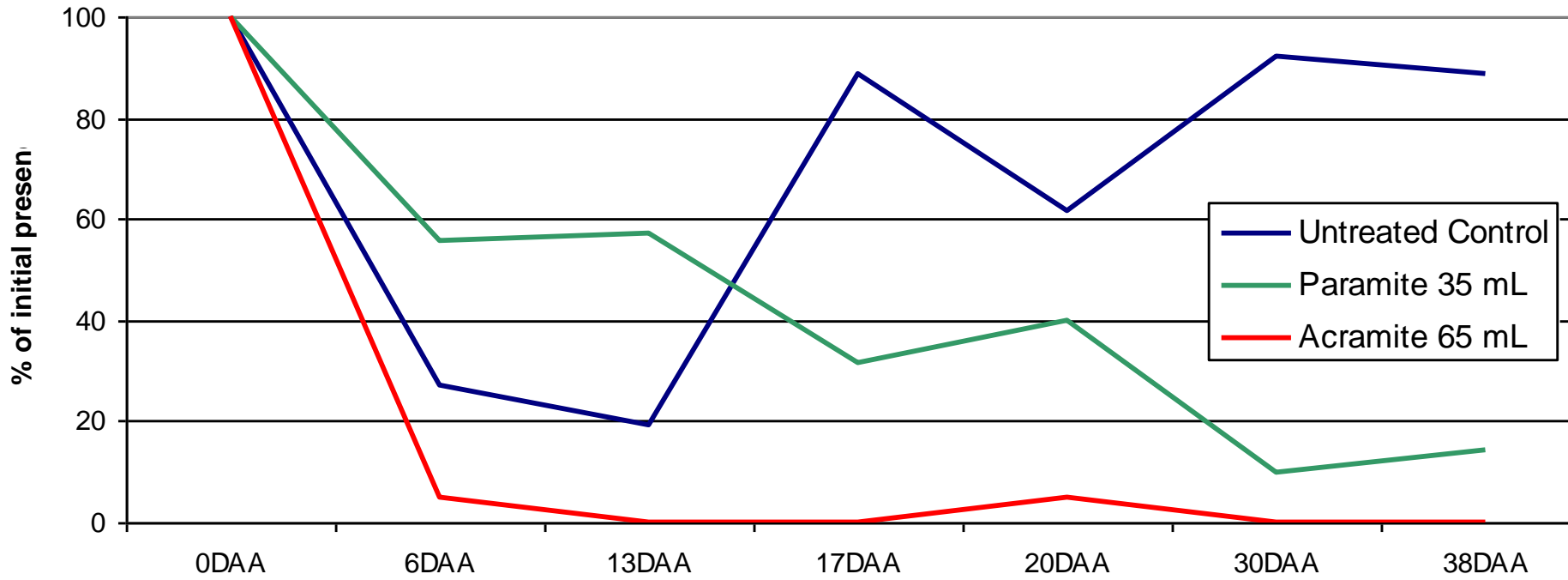
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- Adults present at spraying die of old age. Takes 3-5 weeks, depending on weather.
- Need to act 2-3 weeks earlier than other miticides.
- Need to know what you are doing!!

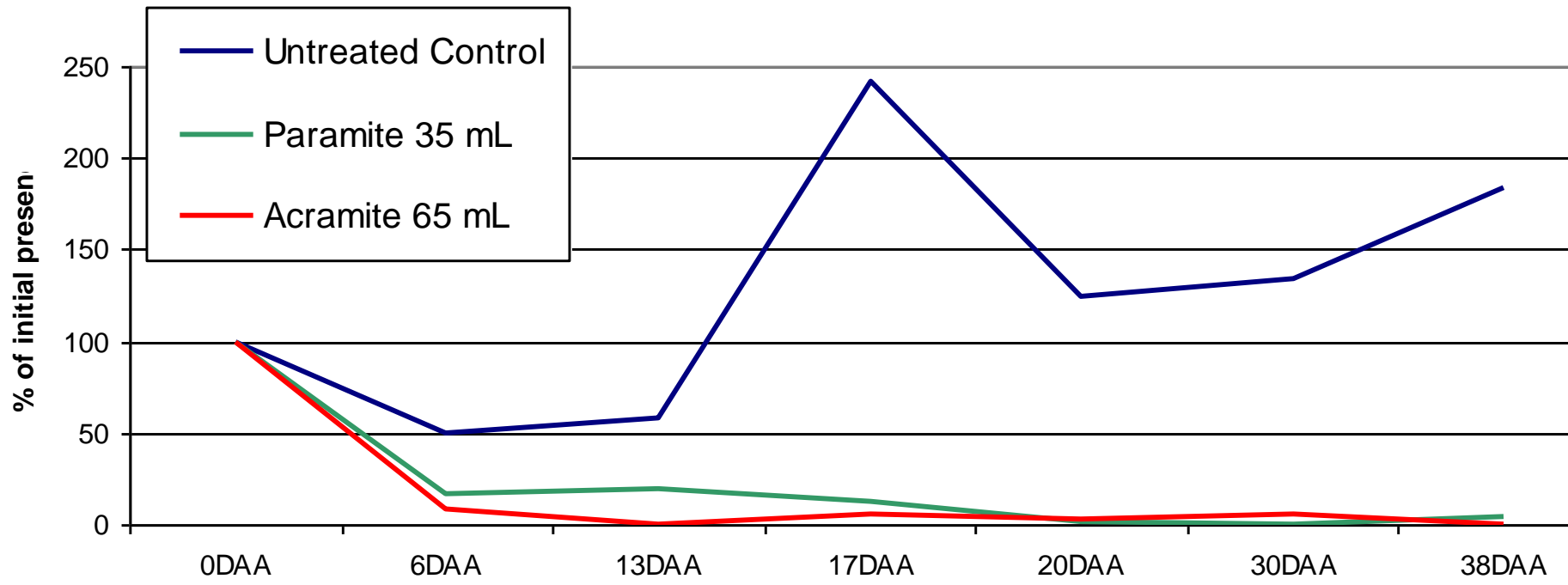
Hand-Sprayed Trial Percent apple leaves with TSM, Stanthorpe, 2005



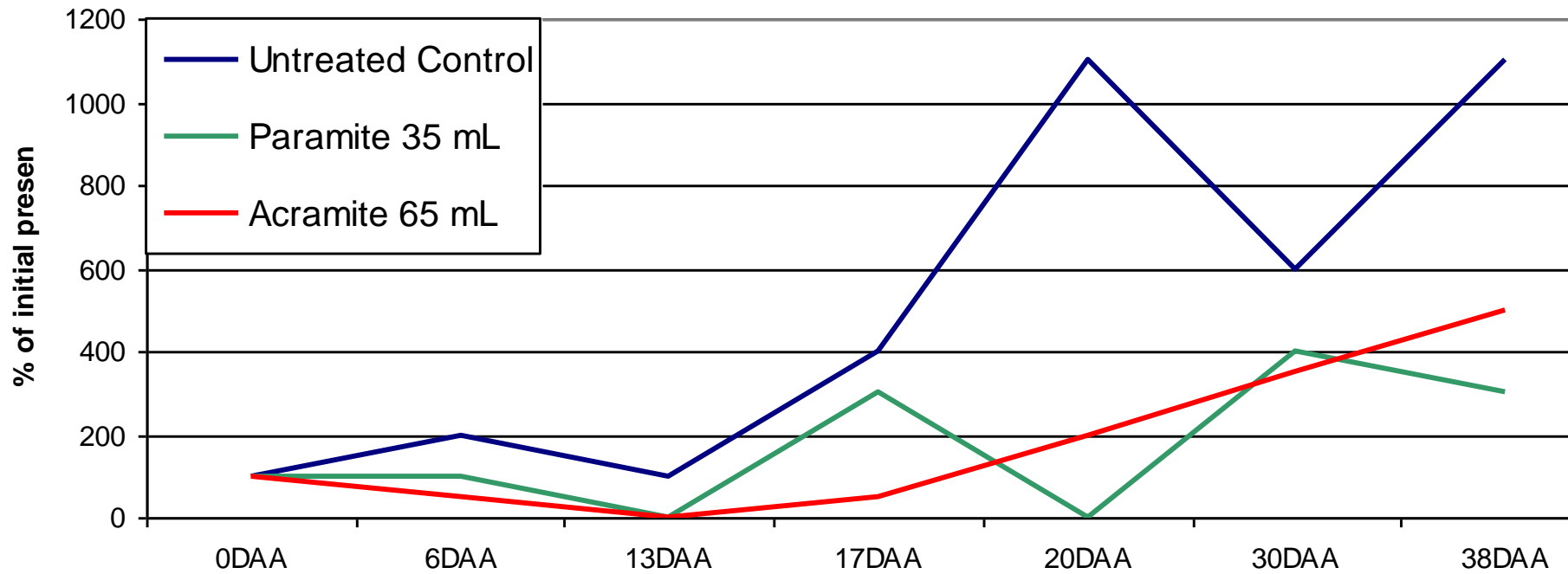
TSM adults on apple leaves, Stanthorpe 2004-05



TSM nymphs on apple leaves, Stanthorpe 2004-05



T. pyri predatory mites on apple leaves, Stanthorpe 2004-05



Good Mite Control

- Winter oil for ERM (and TSM)
- Predators + miticides
- Softer options for CM may promote predators.
- Some insecticides/fungicides softer.
- Timing: when to start, how often to apply.
- Choice of miticide.
- Rotation
- Coverage: tops and insides

Do correct rotations and
look after your predators

