



## Managing Orchard Pests with Avaunt

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### Introduction

#### Avaunt

- inodoxcarb (DuPont)
- Novel chemistry and mode of action
- New registration in 2001 for use on apple

#### Field and laboratory tests against orchard pests

- Codling moth, leafroller, and lacinobia fruitworm

#### Laboratory bioassays are used to screen potential candidates for field trials

#### Field trials to evaluate optimal timing and rates

- Compare Avaunt to other registered products

### Methods (large-plot field trials)

#### Lacinobia field trials

- Avaunt compared to Success and Intrepid
- Evaluated timings and rates of Avaunt

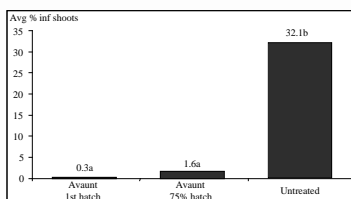
#### Experimental design

- Treatments applied by airblast sprayer
- 1 application/generation at 100 gpa
- 1/3 acre plots replicated 3 times

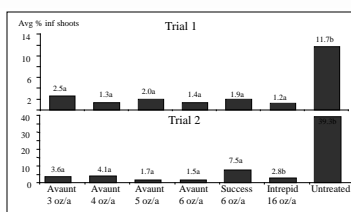
#### Evaluated amount of shoot feeding by surviving larvae

### Large-Plot Airblast Application

2000



2001



No difference noted in timing Avaunt between initial hatch and 75% hatch (hatch % from DD model)

No consistent rate effect noted with Avaunt

### Single-Tree Handgun Applications

#### Methods (small-plot field trials)

#### Codling moth trial

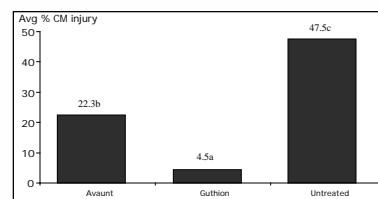
- Compared Avaunt to Guthion

#### Experimental design

- Treatments applied by handgun sprayer
- 3 applications of Avaunt and 2 applications of Guthion/generation at 300-400 gal/acre.
- Single tree plots replicated 5 times

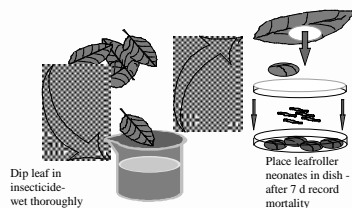
#### Codling moth injury ratings at end of each generation

2000



3 Avaunt treatments/generation resulted in a 50% reduction in codling moth injury

### Leaf-dip Dose Response Bioassays

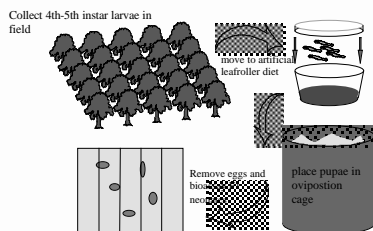


Insect	LC <sub>50</sub>	Field rate	Ratio (LC <sub>50</sub> :field rate)
Pandemis leafroller (PLR)	0.4 ppm	30 ppm	0.013
Obliquebanded leafroller (OBLR)	1.2 ppm	30 ppm	0.040
Lacinobia fruitworm	1.9 ppm	30 ppm	0.063

Avaunt appeared to be a viable candidate as a control for PLR and OBLR and lacinobia fruitworm

Assays against field populations indicated Avaunt may not be suitable for OBLR

### Resistance monitoring

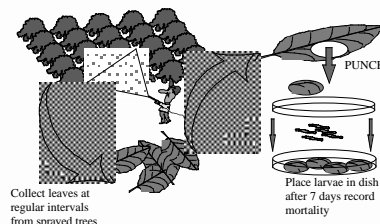


Insect	LC <sub>50</sub> Field pop.	LC <sub>50</sub> lab colony	Resistance ratio (LC <sub>50</sub> field:LC <sub>50</sub> lab)
PLR site 1	1.2 ppm	0.4 ppm	3.0
PLR site 2	0.3 ppm	0.4 ppm	0.8
OBLR site 1	5150 ppm	1.2 ppm	4291.7

Avaunt appears to be a suitable product for PLR

It is apparent that field failures may result when used for controlling OBLR

### Field-aged Residue Bioassays



Insect	Avg corrected % mortality- 7 d				
	1 DAT	4 DAT	7 DAT	14 DAT	21 DAT
Pandemis leafroller	98	96	91	97	92
Codling moth	52	50	50	48	50

Avaunt caused high level of mortality against PLR through 21 days after treatment

Avaunt caused about a 50% reduction in CM entries over the entire test period