



Laboratory and Field Evaluation of a New Insecticide: Assail

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Introduction

Assail

- acetamiprid (Aventis Crop Science)
- Chloronicotinyl class of chemistry
- Currently in registration process, expected in spring of 2002

Field and laboratory tests against orchard pests

- Codling moth, leafroller, and lacanobia fruitworm

Laboratory bioassays are used to screen potential candidates for field trials

Field trials to compare efficacy against registered alternatives

Methods (large-plot field trials)

Assail compared to Guthion (2000) or Imidan (2001)

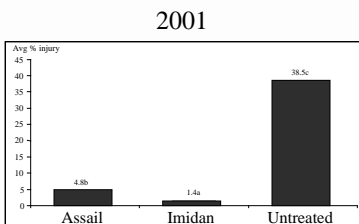
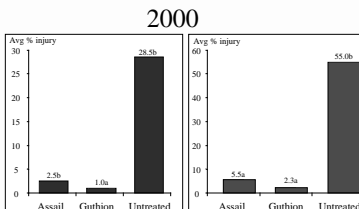
- Two trials in 2000 and two in 2001

Experimental design

- Treatments applied by airblast sprayer
- 2 applications/generation at 100-200 gpa
- 1/3 acre plots replicated 3 times

Codling moth injury ratings at end of each generation

Large-Plot Airblast Application



Assail consistently provides statistically equivalent control as Guthion or Imidan in a 4-spray program

General suppression of CM close to 90% under very high pressure.

Single-Tree Handgun Applications

Methods (small-plot field trials)

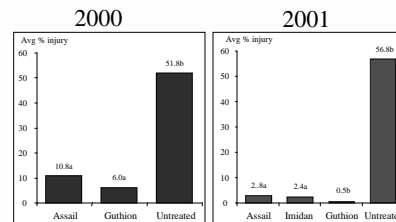
Assail compared to Guthion (2000) and Imidan (2001) in a 4-spray program

- One trial in 2000 and 2001

Experimental design

- Treatments applied by handgun sprayer
- 2 applications/generation at 300-400 gal/acre
- Single tree plots replicated 5 times

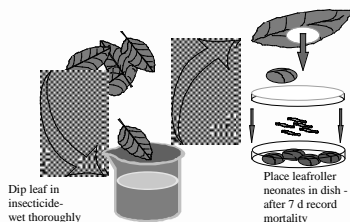
Codling moth injury ratings at end of each generation



Assail remains effective under very high pressure situations

Avg injury levels higher in Assail treatments than Guthion

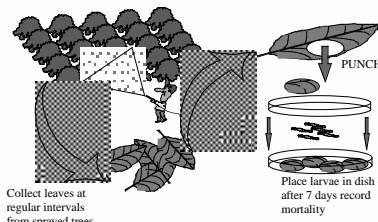
Leaf-dip Dose Response Bioassays



Insect	LC ₅₀	Field rate	Ratio (LC ₅₀ :field rate)
Pandemis leafroller	410 ppm	45 ppm	9.1
Obliquebanded leafroller	107 ppm	45 ppm	2.4
Lacanobia fruitworm	71 ppm	45 ppm	1.6

Ratios of LC₅₀: field rate are high for leafroller and lacanobia suggesting Assail would NOT be a good candidate for controlling these pests

Field-aged Residue Bioassays



Insect	Avg corrected % mortality- 7 d				
	1 DAT	4 DAT	7 DAT	14 DAT	21 DAT
Pandemis leafroller	85	40	39*	39*	5*
Obliquebanded leafroller	84	59	72	52	10*
Lacanobia fruitworm	17*	---	---	---	---

* Not significantly different than the untreated control.

No activity against lacanobia fruitworm and relatively short residual activity against leafroller

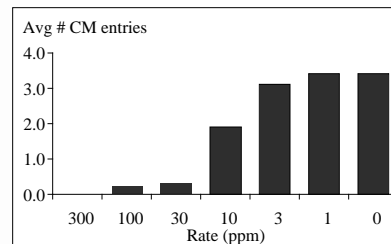
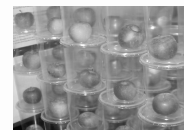
Apple-dip Bioassays

Same design as leaf-dip

Dip apples in serial dilutions of Assail

Place apples in arena with 10 CM eggs

Count # entries at 10 days



Over 90% reduction in larval survival at 30 ppm
 Field rate of Assail equivalent to 45 ppm