New Seed Treatments that may Revolutionize Insect Control in Snap Beans

Brian A. Nault\textsuperscript{1} and Alan G. Taylor\textsuperscript{2}

Departments of Entomology\textsuperscript{1} and Horticultural Sciences\textsuperscript{2}
Cornell University
New York State Agricultural Experiment Station
Geneva, NY 14456
Seedcorn Maggot, *Delia platura*
Snap Bean Damaged by Seedcorn Maggot

![Image of damaged snap bean plant with seedcorn maggot]
Snap Bean Damage by Seedcorn Maggot
Snap Bean Damage by Seedcorn Maggot

No damage

Damage
Seasonal Activity of Seedcorn Maggot in Geneva, NY in 2001

1st generation

Time beyond which SCM rarely causes a problem
Insecticides Labeled for Seedcorn Maggot Control in Snap Bean in New York

- **Commercial Seed Treatment**
  - Lorsban 50SL (chlorpyrifos)
  - Gaucho 480 (imidaclorpid – SCM removed in 2003)
  - Cruiser 5FS (thiamethoxam)

- **Soil Treatments**
  - Lorsban 4E or Lorsban 15G (Section 24[c]) – in review

- **Hopper-Box Treatment** (used effectively in DE)
  - Diazinon 50WP: 1/2 oz per bu. of seed; need to add graphite for bridging problems
## Experimental Seed Treatments Evaluated for Seedcorn Maggot Control in Snap Bean

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Active Ingredient</th>
<th>Class</th>
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<tbody>
<tr>
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<td>Spinosyn</td>
</tr>
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<td>Entrust</td>
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</tr>
<tr>
<td>Icon</td>
<td>fipronil</td>
<td>Phenylpyrazole</td>
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# Rates of Seed Treatments Examined

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<tr>
<th>Treatment</th>
<th>Chemical</th>
<th>Rate (g/ 100 kg of seed)</th>
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<tr>
<td>Lorsban 50SL</td>
<td>chloropyrifos</td>
<td>62.5</td>
</tr>
<tr>
<td>Gaucho 480</td>
<td>imidacloprid</td>
<td>60</td>
</tr>
<tr>
<td>Cruiser 5FS</td>
<td>thiamethoxam</td>
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*Note: The 50 g a.i./ 100 kg of seed rate is equal to 1.28 fl oz/100 lbs of seed*
Snap Bean Seedling Damage by Seedcorn Maggot in Ontario Co., NY in 2003 (n= 6)

- Lorsban 4E
- Icon
- Entrust
- SpinTor 2C
- Gaucho 480
- Poncho 600
- Cruiser 5FS
- Lorsban 50SL
- Untreated

Mean % Damaged Seedlings
Snap Bean Seedling Damage by Seedcorn Maggot in Niagara Co., NY in 2003 (n=2 to 4)

Mean % Damaged Seedlings

- Lorsban 4E: bcd
- Icon: d
- Entrust: cd
- SpinTor 2C: bcd
- Gaucho 480: a
- Poncho 600: bcd
- Cruiser 5FS: cd
- Lorsban 50SL: cd
- Untreated: ab
Potato leafhopper, *Empoasca fabae*

Nymph

Adult
Potato Leafhopper Injury

Stunting, leaf curling and "hopperburn"
Insecticides Labeled for Potato Leafhopper Control in Snap Bean in NY

- **Commercial Seed Treatment**
  - Cruiser 5FS (thiamethoxam)

- **Foliar-Applied Insecticides**
  - Dimethoate 4EC (dimethoate)
  - Orthene 97 (acephate)
  - Sevin XLR (carbaryl)
  - Lannate LV (methomyl)
  - Asana XL (esfenvalerate)
  - Warrior T (lambda-cyhalothrin)
  - Capture 2EC (bifentrin)
  - Mustang Max (Z-cypermethrin)

- **Soil-Applied Treatments**
  - Thimet 15G (phorate)
  - Di-Syston 15G (disulfoton)
Action Thresholds for Potato Leafhopper in Snap Bean

• **Sweep net**: 5 hoppers per sweep during pre-bloom stage

• **Visual inspection**:  
  a) 1 nymph per leaf in NY and WI  
  b) 1 nymph per 10 leaves in DE
Problems Encountered using Foliar Sprays

• Must scout fields for PLH
• Adequate spray coverage difficult when plants small
• Timing of sprays is critical and can be complicated by wet field conditions
• Too busy with other farming practices
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**Note:** Cruiser 5FS @ 1.28 fl oz/100 lbs of seed is equivalent to 50 g a.i./ 100 kg of seed
Evaluation of Seed Treatments for PLH Control

Planted on June 4, 2002 in Geneva, NY

- Untreated
- Gaucho 480
- Cruiser 5FS

Mean number of PLH nymphs/20 leaves

Days after planting

Threshold
Evaluation of Seed Treatments for PLH Control

Planted on June 8, 2002 in Elba, NY

- **Untreated**
- **Gaucho 480**
- **Cruiser 5FS**

Days after planting

Mean number of PLH nymphs/20 leaves

Threshold: 20

Bloom: Day 25
Evaluation of Seed Treatments for PLH Control

Planted on July 15, 2002 in Elba, NY

Mean number of PLH nymphs/20 leaves vs. Days after planting

- Untreated
- Gaucho 480
- Cruiser 5FS

Threshold

Bloom
Evaluation of Seed Treatments for PLH Control

Planted on May 23, 2003 in Geneva, NY

Date: 2003-05-23
Location: Geneva, NY
Crop: [Specify crop]

Seed Treatments Evaluated:
- Untreated
- Gaucho 480
- Cruiser 5FS
- Poncho 600
- Warrior T

Graph shows the mean number of nymphs/leaf over time (days after planting) with different treatments. Threshold indicated at lower levels for effective control.
Potato Leafhopper Control

Cruiser 5FS

Untreated
Evaluation of Seed Treatments for PLH Control

Planted on June 3, 2003 in Niagara Co., NY

- Untreated
- Gaucho 480
- Cruiser 5FS
- Poncho 600
- Warrior T

Mean number of nymphs/leaf

Threshold

Warrior T

Time (days after planting)
Soybean Aphid – *Aphis glycines*
Soybean Aphid Control

Untreated Control

Cruiser 5FS @ 75 g/100 kg seed
### Current Strategy used to Manage Major Insect Pests of Snap Bean in New York

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<th>Pests Targeted</th>
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<td>Cruiser with or without Lorsban @ planting</td>
<td>Seedcorn maggot + Potato leafhopper + Soybean aphid</td>
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<tr>
<td>+ Pyrethroid spray @ bloom</td>
<td>European corn borer + Potato Leafhopper</td>
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**Notes:**
1. Lorsban should be included in fields containing high organic matter (e.g., animal or green manure).
2. Cruiser should provide protection against PLH for 50-60 days after planting.