Seedcorn maggot management in green peas

December 12, 2018

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Seedcorn maggot (SCM) (*Delia platura*)

**Adult**

Nikita Vikrhev

**Larva**

Joe Ogrodnik

Snap bean infested

Photo: Univ. Minnesota

Snap bean damaged seedlings

Photo: J. Ogrodnick
SCM management in snap bean using a seed treatment
1) How much does seedcorn maggot damage green peas?

2) Would an insecticide seed treatment reduce seedcorn maggot infestations?

3) Does time of planting impact seedcorn maggot infestations?
OBJECTIVES

1) To evaluate the performance of insecticide seed treatments for managing seedcorn maggot damage in green peas

2) To compare seedcorn maggot infestation levels in green peas planted at various times in May
# METHODS - I

Treatments evaluated – 2018

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Ingredient</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No insecticide</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cruiser 5FS</td>
<td>thiamethoxam</td>
<td>0.84 g a.i./800 g of seed</td>
</tr>
<tr>
<td>SPE-120</td>
<td><em>Beauvaria bassiana</em></td>
<td>70,000 CFU/seed</td>
</tr>
<tr>
<td>Regard SC</td>
<td>spinosad</td>
<td>0.5 mg a.i./seed</td>
</tr>
</tbody>
</table>

Note: Captan + Allegiance (metalaxyl) also applied to seeds; Seeds treated in Alan Taylor’s lab
METHODS - I

Bone, fish and meat meal added & not add to treatments
METHODS - I

• Planting date: 2 May 2018

• Plots: 2 rows x 20 ft; treatments replicated 6 times

• Bone, fish & meat meal banded over rows for selected treatments

• On 17 May (15 dap), 25 plants were systematically sampled to assess number damaged/infested germinated seeds/seedlings by SCM

• Analyzed data as a two-way ANOVA with bone and meat meal and seed treatment as main factors
RESULTS - I

All maggots were feeding in the germinated seed; none were in the stem causing damage to the plant.

NO visible damage to seedlings above ground

“infested seedling”
RESULTS - I

Efficacy of bone and meat meal on SCM-infested seedlings (pooled across all seed treatments)

Bone and meat meal
$F_{1, 41} = 4.79; P = 0.0343; n = 6$

Infested seedlings (%)

No  |  Yes
---  |  ---
   b |   a

cv. ‘DA1470’
Geneva, NY  2018
RESULTS - I

Efficacy of seed treatment and bone and meat meal combinations on SCM-infested seedlings

Bone and meat meal x insecticide treatment interaction
\[ F_{7, 35} = 8.71; \ P < 0.0001; \ n = 6 \]

cv. ‘DA1470 ’
Geneva, NY  2018
SUMMARY

- Adding bone and meat meal at planting doubled the SCM infestation.
- Fewer SCM-infested seeds in Cruiser 5FS treatment followed by Regard and SPE-120.
- Overall, SCM was not causing damage to plants; only feeding on germinated seed.
OBJECTIVES

1) To evaluate the performance of insecticide seed treatments for managing seedcorn maggot damage in green peas

2) To compare seedcorn maggot infestation levels in green peas planted at various times in May
## METHODS - II

Treatments evaluated – 2018

<table>
<thead>
<tr>
<th>Planting date</th>
<th>Seed treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 May</td>
<td>Fungicide only</td>
</tr>
<tr>
<td></td>
<td>Cruiser 5FS</td>
</tr>
<tr>
<td>14 May</td>
<td>Fungicide only</td>
</tr>
<tr>
<td></td>
<td>Cruiser 5FS</td>
</tr>
<tr>
<td>24 May</td>
<td>Fungicide only</td>
</tr>
<tr>
<td></td>
<td>Cruiser 5FS</td>
</tr>
</tbody>
</table>

Note: Captan + Allegiance (metalaxyl) applied to seeds; Seeds treated in Alan Taylor’s lab
METHODS - II

• Plots: 2 rows x 20 ft; treatments replicated 6 times

• **NO** bone, fish & meat meal banded over rows

• On 17 May (15 dap), 30 May (16 dap) and 7 June (14 dap), 25 plants were systematically sampled to assess number damaged/ infested seeds/ seedling by SCM

• Analyzed data as a two-way ANOVA with planting date and seed treatment as main factors
RESULTS - II

Impact of planting date and Cruiser on SCM infestations

Planting date x treatment interaction
$F_{2, 15} = 9.95; P = 0.0018; n = 6$

Infested seeds (%)

- Fungicide only
- Cruiser 5FS

Planting date
- cv. ‘DA1470’

Geneva, NY 2018

Cornell AgriTech
New York State Agricultural Experiment Station
SCM infested the first planting on 2 May, but virtually none infested the other plantings on 14 and 24 May.

Fewer SCM in the Cruiser 5FS treatment compared with fungicide control.

Overall, SCM was not causing damage to plants; only feeding on germinated seed.
Acknowledgements

Riley Harding & Nault Lab (Cornell - Entomology)

Funding
• New York Vegetable Research Council/ Association

Alan Taylor
Masoume Amirkhani

Jim Ballerstein
(Cornell - Horticulture Section)