Evaluation of Experimental Insecticides for Worm Control in Dark Tobacco

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2007 Experimental Worm Control
MSU West Farm – Murray, KY

• ‘Narrowleaf Madole’ dark tobacco transplanted June 5
  – 40” row spacing, 32” plant spacing (4900 plants/A)
  – Admire Pro (0.5 oz/1000 plants) applied tray drench 24 hr prior
• All foliar insecticide applications broadcast at 15 gal/A
• RCBD with 4 replications, plots 4 rows, 40 ft. long
  – 60 plants/plot
• Data collected:
  – Crop injury (no tobacco injury seen from any treatment)
  – Worm damage (budworm/hornworm): # damaged plants/plot
  – Fire-cured tobacco yield by stalk position (lug, second, leaf, total)
  – Quality grade index
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MSU West Farm – Murray, KY

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate/A</th>
<th>No. of Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated Check</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Experimental</td>
<td>6 oz/A</td>
<td>4</td>
</tr>
<tr>
<td>Experimental</td>
<td>9 oz/A</td>
<td>4</td>
</tr>
<tr>
<td>Experimental</td>
<td>12 oz/A</td>
<td>4</td>
</tr>
<tr>
<td>Local Standard: Orthene 97, Tracer, Tracer, Dipel DF</td>
<td>0.77 lb/A (Orthene 97) 2 oz/A (Tracer) 1 lb/A (Dipel DF)</td>
<td>4</td>
</tr>
</tbody>
</table>

Application dates were: App. 1-July 3; App. 2-July 27; App. 3-August 9; App. 4-August 19
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Plot Evaluation

LSD_{0.05} = 1.50  
Rating 1 (July 18)  
Rating 2 (August 6)  
Rating 3 (August 30)

# Worm Damaged Plants/Plot

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rating 1</th>
<th>Rating 2</th>
<th>Rating 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td>5.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Experimental (6 oz/A)</td>
<td>5.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Experimental (9 oz/A)</td>
<td>3.50</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Experimental (12 oz/A)</td>
<td>3.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Local Standard (Orth, Trac (2), Dipel)</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>
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MSU West Farm – Murray, KY
Late-Season Plot Evaluation: September 19 (preharvest)

LSD_{0.05} =

- Worm Damaged plants/plot: 2.03
- Hornworms/plot: 0.86

# /Plot

- Untreated
- Experimental (6 oz/A)
- Experimental (9 oz/A)
- Experimental (12 oz/A)
- Local Standard (Orth, Trac (2), Dipel)
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Dark-Fired Tobacco Yield

Total Yield (lbs/A):
- Untreated: 3339
- Experimental (6 oz/A): 3548
- Experimental (9 oz/A): 3374
- Experimental (12 oz/A): 3790
- Local Standard (Orth, Trac 2, Dipel): 3436

LSD$_{0.05}$ =
- 172
- 235
- 499
- 489 (total)

Dark-Fired Yield (lbs/A):
- Untreated: 2036
- Experimental (6 oz/A): 2404
- Experimental (9 oz/A): 2078
- Experimental (12 oz/A): 2467
- Local Standard (Orth, Trac 2, Dipel): 2204
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Quality Grade Index and Gross Revenue/A*

*Quality Grade Index and Gross Revenue based on 2004 grade and price support for Type 23 Western Dark-Fired Tobacco

LSD\(_{0.05}\) = 587

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Quality Grade Index</th>
<th>Gross Revenue ($/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td>68.5</td>
<td>6542</td>
</tr>
<tr>
<td>Experimental (6 oz/A)</td>
<td>68.6</td>
<td>6411</td>
</tr>
<tr>
<td>Experimental (9 oz/A)</td>
<td>68.3</td>
<td>6659</td>
</tr>
<tr>
<td>Experimental (12 oz/A)</td>
<td>65.6</td>
<td>6715</td>
</tr>
<tr>
<td>Local Standard (Orth, Trac (2), Dipel)</td>
<td>68.3</td>
<td>6752</td>
</tr>
</tbody>
</table>

Gross Revenue ($/A) 8.9 (grade index)
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MSU West Farm – Murray, KY

• Trial Summary:
  – Novaluron at 9 and 12 oz/A performed as well as the local standard of Orthene/Tracer/Dipel for Lepidoptera worm control through the growing season and was all Novaluron rates (6, 9, or 12 oz/A) were more effective that the local standard and the late-season preharvest evaluation.

  – No statistical differences in yield or gross revenue from any treatment, but tobacco that received 4 applications of Novaluron at 12 oz/A had the highest numerical yield and gross revenue/A.