Peanut Pest Management Update and Large-Plot Agronomy Results

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Peanut Team at NC State

• Entomology (Brandenburg, phased retirement)
• Plant Pathology (Shew, retired)
• Weed Science (Jordan)
• Nematology (Gorny)
• Agronomy (Jordan)
• Engineering (Roberson and Ward)
• Breeding and Genetics (Dunne and Andres)
• NC State Extension Agents
• NCDA&CS
Topics for Today

- Entomology
- Plant Pathology
- Nematodes
- Weed Science
- On-Farm Summary
- Peanut Risk Tool
- Herbicide Selector Tool
Entomology

- Removal of Lorsban from market
- Efficacy of in-furrow insecticides (consistency of imidacloprid?)
- Spider mites (Portal)
- Caterpillar and Worm Control (Expensive products versus Pyrethroids)
Managing Southern Corn Rootworm without Lorsban

• SCR Risk Index can help avoid high risk fields (but there are financial implications of not planting these “good peanut fields”)

• Generally need 20% scarring to have measurable yield loss due to puncturing of pods (but hotspot fields and areas of fields do exist)

• Soil characteristics that affect survival of SCR larvae are variable across fields

• Consider planting higher risk fields early (finer-textured soils that are poorly drained as well as irrigated fields)

• Greatest concern is irrigated peanut (ample soil water promotes survival of larvae that feed on pods), even in sandy, low organic matter fields

• No evidence that multiple applications of insecticide that affect adults will reduce damage from SCR

• AgLogic, Thimet, and Lorsban are no longer registered for use in peanuts to control SCR – there are currently no chemical options to suppress SCR
<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil texture</td>
<td>Loamy sand</td>
<td>5</td>
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<tr>
<td></td>
<td>Fine sandy loam</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Loam</td>
<td>15</td>
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<tr>
<td>Drainage class</td>
<td>Well drained</td>
<td>5</td>
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<tr>
<td></td>
<td>Moderately well drained</td>
<td>10</td>
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<tr>
<td></td>
<td>Somewhat poorly drained</td>
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<td>Poorly drained</td>
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<tr>
<td>Damage history</td>
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</tr>
<tr>
<td></td>
<td>Low</td>
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<tr>
<td></td>
<td>Moderate</td>
<td>10</td>
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<tr>
<td></td>
<td>High</td>
<td>15</td>
</tr>
<tr>
<td>Planting date</td>
<td>Before May 1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>May 2 – May 15</td>
<td>10</td>
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<tr>
<td></td>
<td>After May 15</td>
<td>15</td>
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<tr>
<td>Cultivar resistance</td>
<td>Bailey II, Emery, GA 06G, Sullivan, Wynne, TUF 297, TUF 511</td>
<td>20</td>
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<tr>
<td>Irrigation</td>
<td>No irrigation</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Periodic irrigation or frequent rainfall</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Intensive Irrigation</td>
<td>45</td>
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</table>

Opposite of Risk for TSW
Make sure plant population is adequate and thrips control program is effective if planting early

Total score  
50 or less, low risk: 55-65, moderate risk: 70 or more, high risk
### Influence of Prevathon and Lorsban on peanut pod scarring caused by southern corn rootworm and peanut pod yield during 2017 and 2018.†

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rate</th>
<th>Growth stage‡</th>
<th>Experiments with pod scarring and yield recorded</th>
<th>Experiments with pod scarring only</th>
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<tr>
<td></td>
<td>lbs ai/acre</td>
<td></td>
<td>Pod scarring</td>
<td>Pod yield</td>
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<tr>
<td>Non-treated</td>
<td>-</td>
<td>-</td>
<td>20 a</td>
<td>4,570 a</td>
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<td>Prevathon</td>
<td>0.063</td>
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<td>Lorsban</td>
<td>2.0</td>
<td>R1-R2</td>
<td>10 b</td>
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<td>P &gt; F</td>
<td>-</td>
<td>-</td>
<td>0.0100</td>
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<td>CV(%)</td>
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<td>36.4</td>
<td>11.4</td>
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<tr>
<td>No. of experiments</td>
<td>-</td>
<td></td>
<td>15</td>
<td>15</td>
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</table>

†Means within a column followed by the same letter are not significantly different based on Fisher’s Protected LSD test.

‡Peanut growth stages defined by Boote, 1982.
Pod Scarring Following Pegging Applications of Prevathon and Lorsban

Percent scarring

Legend:
- Control
- Prevathon
- Lorsban

Chart showing the percent scarring for different applications of Prevathon and Lorsban, with bars representing each application and the average scarring.
Plant Pathology

• After new department head for DEPP is hired, two extension plant pathologists will be hired (likely in late 2022)
• Research on Variety Response to Fungicide Programs
• Research on Follow Sprays after Miravis plus Elatus
• Velum in-furrow
Fungicide Programs and Varieties

*Bailey II, Emery, Sullivan*

- Miravis program (NCSU)
- Advisory program (Provost Silver, Revytek, Lucento)
- Chlorothalonil plus tebuconazole
- 3-spray program
- Non-treated control
Leaf Spot Incidence (Percent of Leaves with Lesions) at Harvest
Data are pooled over three locations in 2021

LSD (0.05) = 10
Canopy Defoliation (Percent of Leaves Lost) at Harvest
Data are pooled over three locations in 2021

LSD (0.05) = 9
Peanut Yield (pounds per acre) with Fungicides and Varieties
Data are pooled over three locations in 2021

LSD (0.05) = 506
Summary

• Emery was more susceptible to leaf spot than Bailey II or Sullivan – Bailey II was less susceptible than Sullivan

• Miravis program (NCSU) and Advisory program (Provost Silver, Revytek, Lucento) did well

• Chlorothalonil plus tebuconazole did really well (possible issues with this program include flaring spider mites and Sclerotinia blight with this much chlorothalonil and the 14-day interval needs to be tight – but the cost is great)