Importance of Fungicide Seed Treatments for Soybeans

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Types of Seed Treatments

- Fungicides
- Biological Control Agents
- Insecticides
- Registration pending
Which Pathogens Are Problems??

- **Soil**
  - *Pythium sp.*
  - *Phytophthora sojae*
  - *Rhizoctonia solani*

- **Seed and Soil**
  - *Phomopsis* (Pod & Stem Blight)

Photo courtesy of www.ohioline.osu.edu
Application of Fungicides

- Applied as liquids by seed dealers
- Applied as liquids by growers
- Hopper-box treatments by growers
When Do They Pay?

- Early planting date (May 1st)
- No-till management
- Expensive seed (GMO)

Photo courtesy of www.ohioline.osu.edu
Fungicide Products

- Apron XL + Maxim
- Allegiance + Rival
- Rival
- Vitavax formulations
## Fungicides and Pathogens Controlled

<table>
<thead>
<tr>
<th>Active Ingredient</th>
<th>Activity Against</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Pythium</em></td>
</tr>
<tr>
<td>mefenoxam</td>
<td>yes</td>
</tr>
<tr>
<td>metalaxyl</td>
<td>yes</td>
</tr>
<tr>
<td>fludioxynil</td>
<td>no</td>
</tr>
<tr>
<td>thiabendazole</td>
<td>no</td>
</tr>
</tbody>
</table>
Soil Temperature at 2”

Temperature (F)

(Rainy Day)

(Planted 5-1-00)

Time (hrs)

Pedersen- University of Illinois
## Efficacy of Rival Fungicide Seed Treatment, 1996-1998

Data from six experiments conducted by E.S. Oplinger at the Arlington Research Station

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield Bu/a</th>
<th>Early plant population X 1000</th>
<th>Plant survival %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td>53.9</td>
<td>124.2</td>
<td>84</td>
</tr>
<tr>
<td>Rival</td>
<td>57.9</td>
<td>141.8</td>
<td>77</td>
</tr>
<tr>
<td>Treatment</td>
<td>Population</td>
<td>Yield</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>164,200</td>
<td>42.2</td>
<td></td>
</tr>
<tr>
<td>Maxim + Apron XL</td>
<td>161,520</td>
<td>48.2</td>
<td></td>
</tr>
<tr>
<td>LSD (5%)</td>
<td>n.s.</td>
<td>4.4</td>
<td></td>
</tr>
</tbody>
</table>

Asgrow 2905RR
Planted May 8th, no-till at 180,000 seeds/acre
Plots were 8-rows x 1000 feet with 4 reps

Pedersen- University of Illinois
### Soybean Tests in 1997-1999

<table>
<thead>
<tr>
<th>Date</th>
<th>Treatment</th>
<th>Population</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 15-18 (4 trials)</td>
<td>Control</td>
<td>97,200</td>
<td>55.2</td>
</tr>
<tr>
<td></td>
<td>Maxim + ApronXL</td>
<td>155,280</td>
<td>64.3</td>
</tr>
<tr>
<td>May 1-4 (3 trials)</td>
<td>Control</td>
<td>133,520</td>
<td>58.3</td>
</tr>
<tr>
<td></td>
<td>Maxim + ApronXL</td>
<td>163,970</td>
<td>65.2</td>
</tr>
<tr>
<td>May 15-17 (11 trials)</td>
<td>Control</td>
<td>144,370</td>
<td>57.2</td>
</tr>
<tr>
<td></td>
<td>Maxim + Apron XL</td>
<td>148,640</td>
<td>57.9</td>
</tr>
<tr>
<td></td>
<td>LSD (5%)</td>
<td>14,270</td>
<td>4.1</td>
</tr>
</tbody>
</table>

All trials were no-till, but cultivars varied among trials.

Pedersen and Kirby- University of Illinois
Conclusions

- Early planting
- No-till
- Expensive seed
Problems

- Returning treated seed
- No carryover with beans
- Application slows planting
- Uniform coverage
Bean Leaf Beetle Control Using Cruiser Treated Seed

Pedersen- University of Illinois
Future of Seed Treatments

- Insecticides
  - Bean leaf beetle
  - Soybean aphid
- Insecticide and fungicides
  - Interactions
    - Efficacy?
    - Phytotoxicity?
    - Toxicity to *Rhizobium*?
  - Costs
Resources

- Pest Management in Wisconsin Field Crops 2002 (A3646)

- Soybean Plant Health Website
  - www.plantpath.wisc.edu/soyhealth