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Soybean seed treatments in 1999

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Soybean seed treatments in 1999

Abstract
In the last 2 years, the incidence of soybean seedling diseases has been relatively high in some areas of Iowa. There are growers who are considering seed treatments to prevent stand reduction from soybean seedling diseases. Growers who replant due to damping-off are more likely to use seed treatments. The problematic fungi causing the seedling diseases vary, and they are often dependent on the planting date. In some fields, early planting is associated with damping-off by cool-temperature fungi. Disease risk may increase because soybeans are planted in soils that are cold and wet.

Keywords
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Disciplines
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In the last 2 years, the incidence of soybean seedling diseases has been relatively high in some areas of Iowa. There are growers who are considering seed treatments to prevent stand reduction from soybean seedling diseases. Growers who replant due to damping-off are more likely to use seed treatments.

The problematic fungi causing the seedling diseases vary, and they are often dependent on the planting date. In some fields, early planting is associated with damping-off by cool-temperature fungi. Disease risk may increase because soybeans are planted in soils that are cold and wet. Cool (<60°F) and wet soils are conducive to fungal seed rot or the death of seedlings caused by *Pythium* and *Fusarium*. A study at Iowa State University showed that most problematic *Pythium* species in Iowa prefer cool soil temperatures (<60°F) for infection.

For late-planted soybeans in warmer soils, damping-off caused by *Phytophthora* and *Rhizoctonia* is prevalent because these two fungi are the most active when soil temperatures are between 70° and 80°F. Stand reduction in warm soils in late spring is a good indication of damping-off caused by these two fungi. Last year, we experienced wet soil conditions in late May and early June. Consequently, the major damping-off problems reported were caused by *Phytophthora*.

Various chemicals are effective in controlling different fungi. If you know the damaging fungi in your field, you can use the proper chemicals to prevent damping-off. Table 1 lists some chemicals and their control efficacies for major pathogens causing four soybean seedling diseases. Generally, Apron is effective for control of *Pythium* and *Phytophthora*, and other chemicals such as Rival or Vitavax are effective for control of *Rhizoctonia*. A combination of Apron and Rival is effective in controlling *Pythium*, *Phytophthora*, and *Rhizoctonia*.

This year Novartis has a new product on the market—ApronMaxx. This product has broad-spectrum activity as a seed treatment chemical and is effective against fungi such as...
Pythium, Phytophthora, Rhizoctonia, Fusarium, and Phomopsis. ISU Plant Pathology tested this seed treatment in the past season and there was a trend of increasing yield. The fungicide also is very effective in reducing white mold activity when used to treat seeds infected by the white mold pathogen.

On-farm seed treatments are most commonly used by growers who want to use treated seed to reduce the risk of seedling diseases. Good seed coverage is critical and the quality of on-farm treatment varies with the equipment used. Simple equipment for on-farm seed treatment is available at affordable prices. This equipment can be mounted directly and conveniently on a wagon or a truck box to dispense fungicides onto seeds during planting, an improvement compared with planter-box treatments. Some chemical representatives may have on-farm equipment that can treat large quantities of seed.

### Table 1. Relative efficacy of seed treatments for control of four soybean seedling diseases.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Phytophthora</th>
<th>Pythium</th>
<th>Rhizoctonia</th>
<th>Fusarium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrosol FL + Apron</td>
<td>E</td>
<td>E</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Agrosol T</td>
<td>N</td>
<td>N</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Agrosol T + Apron</td>
<td>E</td>
<td>E</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>Apron</td>
<td>E</td>
<td>E</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Captan + Apron</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>F</td>
</tr>
<tr>
<td>Rival</td>
<td>P</td>
<td>P</td>
<td>G</td>
<td>F</td>
</tr>
<tr>
<td>Rival + Apron</td>
<td>E</td>
<td>E</td>
<td>G</td>
<td>F</td>
</tr>
<tr>
<td>Vitavax 200</td>
<td>N</td>
<td>P</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>Vitavax 200 + Apron</td>
<td>E</td>
<td>E</td>
<td>F</td>
<td>P</td>
</tr>
</tbody>
</table>

E, excellent; G, good; F, fair; P, poor; N, no activity. Modified from a publication of The Ohio State University.

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