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Scouting for Soybean Seedling Diseases

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Abstract

Seedling diseases are one reason to use seed treatment. Each planting season, different weather patterns result in different seedling disease problems. This planting season has been smooth in general and seedlings have emerged in many soybean fields. So far, disease risk is lighter than last year. We did, however, observe some light occurrence of seedling disease from production fields around the central Iowa. Damping-off was also found in our research plots. It is now time to check your soybean fields to determine if there are any seedling disease problems.

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Scouting for Soybean Seedling Diseases

By X.B. Yang and SS. Navi, Department of Plant Pathology

Seedling diseases are one reason to use seed treatment. Each planting season, different weather patterns result in different seedling disease problems. This planting season has been smooth in general and seedlings have emerged in many soybean fields. So far, disease risk is lighter than last year. We did, however, observe some light occurrence of seedling disease from production fields around the central Iowa. Damping-off was also found in our research plots. It is now time to check your soybean fields to determine if there are any seedling disease problems.

With weather conditions better than last planting season, we should see less disease problems, especially in fields treated with fungicides. If you find significant seedling diseases in a field planted with treated soybean seeds, you should reconsider the seed treatment you used. Knowing what disease causes the problem is critical to correcting the problem in the next planting.

This year, seedling diseases caused by three fungi are likely to be found, *Pythium*, *Rhizoctonia*, and *Phytophthora*. For fields that planted early in cool soil, *Pythium* damping-off is the most likely to be found, as we did last week. In most of years, this is the first disease found in a growing season because the fungus prefers cold soil temperatures. Dead seedlings may be visible on the ground with infected plants killed before the first true leaf stage. Plants often have a rotted appearance. Leaves of infected seedlings are initially gray-green and then turn brown. A few days later, the plants die. Diseased plants are easily pulled from the soil because of rotted roots.

The symptoms of *Phytophthora* is similar to *Pythium* and can be mistaken for *Pythium* damping-off. *Phytophthora* is more likely to infect soybean plants in later planted soybean because the fungus prefers warm soil temperatures and high soil moisture.

Another disease that may be found in later plant soybean this year is *Rhizoctonia* damping-off. Caused by *Rhizoctonia* fungus, this disease likes soil temperatures warmer than that for *Pythium*. Soybean seedling disease caused by *Rhizoctonia* exhibit symptoms different from those caused by *Phytophthora*. Unlike *Phytophthora* damping-off, stem discoloration by *Rhizoctonia* is usually limited to the cortical layer of the main root and hypocotyl. Infected stems remain firm and dry. Typical symptoms are localized brown-to-reddish brown lesions on the hypocotyl. Root rot is visible on severely infected plants.

Seedling disease risk differs from field to field. River bottom fields are more likely to have *Pythium* and *Rhizoctonia*, sandy soil is more likely to have *Rhizoctonia*, and *Phytophthora* is more likely to occur in heavy soils. Within a field, some spots are more likely to have seedling disease than other areas. To quickly spot the disease problems, you can check areas or fields that are most likely to have disease problems. Seedling diseases usually occur first in low spots with higher soil moisture, in areas with poor drainage or in compacted areas.



Damping off of soybean seedling caused by *Pythium* (Photo credit: SS Navi)

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