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Soybean root rot in 2003

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Soybean root rot in 2003

Abstract

Phone calls and samples of soybean root rot infection have been spurred by the recent extensive rainfall. Wet soil conditions are ideal for some soilborne fungi to infect soybean roots. In many soybean fields, plant leaves are turning yellow, an indication of iron chlorosis, which is often associated with fungal root rot. In fields where plants experienced hail injury, root rot problems can be pronounced. In this article, I discuss fungal root rot diseases.

Keywords

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Disciplines

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INTEGRATED CROP MANAGEMENT

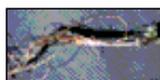
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Root rot may follow hail injury.

[Enlarge](#) [1]



Fungal root rot.

[Enlarge](#) [2]

Scouting

Soybean plants with root rot are noticeable in fields with uneven growth. Infected plants may look yellow, stunted, and wilted. Severely infected plants have poor root systems and poor nodulation with reddish brown or dark brown lesions on taproots. The plants may be scattered throughout the field or be found in large patches; they often occur in fields or areas with poor drainage where symptoms of iron chlorosis also are pronounced. In areas where soybean plants were injured by hail (even minor injury), fungal root rot is more likely to be a problem.

Symptoms of root rot

In Iowa, two types of root rot are common. One is caused by *Rhizoctonia* and the other by *Fusarium*. *Rhizoctonia* root rot is caused by *Rhizoctonia solani* and readily identified by its typical reddish brown lesions on basal stems. For *Rhizoctonia* root rot, damping-off may have occurred at the seedling stage; therefore, seedlings dying from root rot sometimes are evident in the field. *Fusarium* root rot is caused by several *Fusarium* species. Symptoms of root rot by some *Fusarium* species are dark discoloration, although a few *Fusarium* species can cause reddish brown discoloration on soybean roots.

Rhizoctonia root rot and *Fusarium* root rot are early-to-midseason soybean fungal diseases.

However, both fungi can cause seedling damping-off, especially *Rhizoctonia*. The fungi continue to attack soybean, causing root rot when soybean is in advanced growth stages. Usually, plants can grow out of root rot problems and symptoms disappear when the season progresses into late July and August. With severe infection, which is rare, plants wilt and die in patches. However, if root rot occurs after hail injury, plants are less likely to recover and many plants may die.

Management options

There are no resistant varieties available for *Rhizoctonia* root rot and *Fusarium* root rot. Management of root rot caused by *Rhizoctonia* and *Fusarium* relies on cultivation. Cultivation mounds soil around the base of soybean plants, which promotes new root growth. Use of seed treatment for control of seedling damping-off also should improve root health.

If severe fungal root rot occurs, take good field notes and document areas where the problems are and consider a seed treatment for the next soybean crop.

Besides iron chlorosis and hail injury, other common stresses, such herbicides, can compound root rot problems. Elimination of stress factors is important to reduce root rot problems.

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Links:

[1] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/rootrot/hail-injury-2.html>

[2] <http://www.ent.iastate.edu/imagegal/plantpath/soybean/rootrot/fungal-root-rot.html>

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