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Soybean root rot

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Abstract

Soybean root rot problems are showing up due to the excessive rainfall in early summer. ISU field crop specialists in different regions are reporting the occurrence of Rhizoctonia root rot and Phytophthora root rot. Unfavorable soil conditions can slow soybean root development and are ideal for some soilborne fungi. In last week's ICM issue, we addressed Phytophthora and in this article we discuss other root rot diseases.

Keywords

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INTEGRATED CROP MANAGEMENT

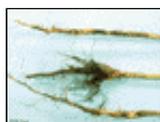
Soybean root rot

Soybean root rot problems are showing up due to the excessive rainfall in early summer. ISU field crop specialists in different regions are reporting the occurrence of *Rhizoctonia* root rot and *Phytophthora* root rot. Unfavorable soil conditions can slow soybean root development and are ideal for some soilborne fungi. In last week's ICM issue, we addressed *Phytophthora* and in this article we discuss other root rot diseases.

Rhizoctonia root rot is caused by *Rhizoctonia solani* and is readily identified by its typical reddish brown lesions on basal stems. *Fusarium* root rot is caused by different *Fusarium* species. *Rhizoctonia* root rot and *Fusarium* root rot are early-to-midseason soybean fungal diseases common in Iowa. Both fungi can cause seedling damping-off. The fungi continue to attack soybean, causing root rot when soybean is in advanced growth stages.



[1] **Reddish-brown lesion of *Rhizoctonia* root rot.**



[2] ***Fusarium* root rot.**

Soybean plants with root rot are noticeable in fields with uneven growth. Infected plants may appear yellow, stunted, and wilted. The plants may be scattered or found in large patches; they often occur in fields or areas with poor drainage. The infected plants may have poor root systems and poor nodulation with reddish brown or dark brown lesions on taproots. Typical symptoms of *Rhizoctonia* root rot are reddish brown lesions on stems along the soil line. Symptoms of *Fusarium* root rot are dark discolorations, although some *Fusarium* species also can cause reddish brown discoloration on soybean roots.

Usually, plants can grow out of root rot problems and symptoms disappear as the season progresses into late July and August. Under severe infection, which is rare, infected plants wilt and die in patches. Root rot damage caused by *Rhizoctonia* and *Fusarium* can be reduced by cultivation. Cultivation mounds soil around the base of soybean plants, which promotes new growth of roots.

However, if the growth conditions are not good for quick recovery, root rot problems may occur after midsummer. Note fields with severe root rot and consider using seed treatment when growing the next soybean crop. There are no resistant varieties available to

Rhizoctonia root rot and *Fusarium* root rot.

Keep in mind that factors other than fungi could be causing the root problems or interacting with root rot fungi. Stresses such as iron chlorosis, herbicide injury, potassium deficiency, and even minor hail injury can weaken plants, making them more susceptible to pathogenic soilborne fungi. If root rot is associated with other stresses, elimination of the stress factors is important to root health. If iron chlorosis is the primary cause of root rot, consider using varieties tolerant to iron chlorosis.

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