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Seedling Diseases Update

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Seedling Diseases Update

Abstract

This spring's cool and wet weather, with accumulated degree days behind average, favors seedling diseases. Fungal pathogens have been reported to cause poor seedling stands in both corn and soybean fields. Infected soybean seedlings are rotted and can easily be pulled from the soil. Infected corn roots are discolored, soft or mushy. Mesocotyles also may have a brown discoloration. Infected corn seedlings often appear yellow or stunted.

Keywords

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Seedling Diseases Update

By XB Yang, Department of Plant Pathology

This spring's cool and wet weather, with accumulated degree days behind average, favors seedling diseases. Fungal pathogens have been reported to cause poor seedling stands in both corn and soybean fields .

Infected soybean seedlings are rotted and can easily be pulled from the soil. Infected corn roots are discolored, soft or mushy. Mesocotyles also may have a brown discoloration. Infected corn seedlings often appear yellow or stunted.

In cooler soils *Pythium* is considered the main cause of seedling blights; however, *Phytophthora* can infect seedlings in cooler soils as well. *Phytophthora* seedling blight has already been reported in soybean, even in cultivars that have the Rps1k resistance gene. *Phytophthora* actually prefer warmer temperatures, as do *Rhizoctonia*. These two seedling blights will likely become more prevalent as weather and soil temperatures warm in the next week or two.

Iron chlorosis is showing up in some early planted soybean fields which are at the V2-V3 stages. Plants with iron chlorosis usually first appear in low and wet areas of soybean fields. These fields often have high pH (greater than 7) and poor drainage. Symptoms are more pronounced when soil temperature is low and soil moisture is high.

Iron chlorosis symptoms include yellowing between veins of young leaves. Brown and necrotic spots may occur in leaf margins. In severe cases, soybeans turn yellow and can be killed. Plants with iron chlorosis are more prone to fungal root rot problems. If plants with iron chlorosis have root rot, their taproots have a dark brown or reddish brown discoloration. Resistant cultivars to iron chlorosis can improve yield. If you have high incidence this spring, consider using iron chlorosis resistant cultivars in the future.

Replanting soybeans may need to be considered for fields that have reduced stands from seedling blights. If seedling blight in soybean causes stand reduction so severe that replanting is needed, one should consider using a seed treatment to avoid damping off in replanted fields. This is especially important to seedling blight caused by *Phytophthora* or *Rhizoctonia* as soil temperatures warm. With warmer temperatures and more inoculum build-up, the risk of seedling blight in these fields is greater than early spring.

It is important to identify the cause of stand reduction before deciding to replant to determine if a seed treatment is needed. For help in identifying the cause of stand reduction, refer to [our last issue of ICM article](#). If you cannot determine the cause of the seedling blight, [send a sample to the ISU Plant and Insect Diagnostic Clinic](#), 327 Bessey Hall, Iowa State University, Ames, IA 50011.

If the seedling blight has not reduced stands enough to replant, it will still be beneficial to take disease notes for future use. Consider seed treatment to reduce the likelihood of a disease problem in future soybean crops. If

Phytophthora damping-off occurs on a Phytophthora-resistant cultivar, resistance in your cultivars has been defeated by the fungus. Consider using a cultivar with different resistance genes for your next soybean crop.

XB Yang is a professor of plant pathology with research and extension responsibilities in crop diseases. Yang can be reached at (515) 294-8826 or by emailing xbyang@iastate.edu.

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