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Scouting for soybean seedling diseases in 2003

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Scouting for soybean seedling diseases in 2003

Abstract

In Iowa, every planting season has different seedling diseases. In the last two planting seasons, there were fewer spring rains compared with this year, and seedling diseases were not a problem. Because of the frequent spring rains this year, we have less early-planted soybean and more fields planted in mid-May or later. Reports and samples of seedling diseases also are later this year.

Keywords

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INTEGRATED CROP MANAGEMENT

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In Iowa, every planting season has different seedling diseases. In the last two planting seasons, there were fewer spring rains compared with this year, and seedling diseases were not a problem. Because of the frequent spring rains this year, we have less early-planted soybean and more fields planted in mid-May or later. Reports and samples of seedling diseases also are later this year. On May 19, Mark Carlton, Iowa State University field specialist in crops (southern Iowa), reported observing diseased soybean seedlings infected by *Rhizoctonia* for the first time this year.

When soybean is planted later in spring, it is more likely to be infected by fungi that prefer warm soil temperatures, provided soil moisture is high. During field scouting for stand establishment, pay attention to seedling diseases that occur in warmer soils. If damping-off occurs, *Phytophthora* and *Rhizoctonia* are more likely to be the cause than *Pythium* and *Fusarium*. The former two fungi often occur in warmer soils (70-80°F), and the latter two attack soybean when soil temperatures are cooler (<60°F). Warm soil temperatures are not suitable for *Pythium* damping-off, a disease commonly found in early-planted soybean.

Keep in mind that although *Phytophthora* prefers warmer soil temperatures, it does not mean late planting this spring increases *Phytophthora* risk drastically. My comparison is mainly made among different pathogenic fungi for their relative importance within a planting season and to compare the previous two seasons that had less rain with this season.

Although warmer soils favor seedling diseases caused by *Rhizoctonia* and *Phytophthora*, soybean seedling disease caused by *Rhizoctonia* exhibits different symptoms from those 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. *Phytophthora* prefers heavy soil, whereas *Rhizoctonia* prefers light or sandy soil.

Symptoms of *Phytophthora*-infected plants may be visible on the ground, with infected plants killed. Leaves of infected seedlings are initially gray-green and then turn brown. A few days later, the plants may die. Diseased plants are easily pulled from the soil because of rotted roots. *Phytophthora* damping-off has similar symptoms to those of *Pythium* damping-off. However, *Pythium*-damping off is unlikely to be a problem this year. If soil is wet, *Phytophthora* damping-off may continue to develop on the soybean stem, resulting in chocolate brown discoloration from the soil line up, a unique symptom of this disease

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