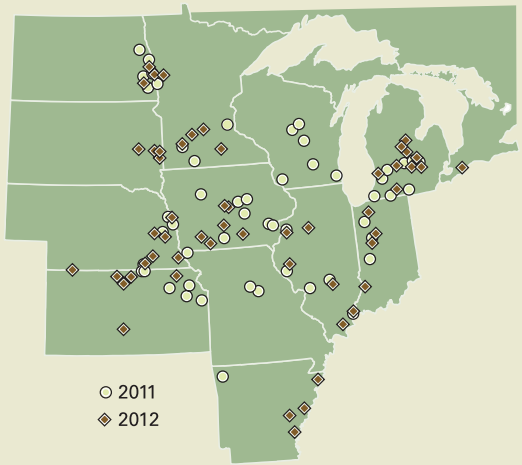
Description of *Pythium* root rot

Pythium root rot is primarily a seedling disease. Early planting dates increase the risk of disease. A seedling disease survey of the North Central Region of the United States and Canada in 2011 and 2012 recovered approximately 50 species of *Pythium* from diseased soybean seedlings. The species identified differed by latitude. Moreover, the diversity of species recovered was related to precipitation, soil type, and temperature. Survey data suggest *Pythium* has the potential to persist in soil environments and may become a long-term disease challenge.

Pythium species cause pre- and post-emergence damping off and, consequently, reduce stand. Infected seed appears rotted and soil sticks to it. Infected seedlings have water-soaked lesions on the hypocotyl or cotyledons that develop into a brown soft rot. Diseased plants are easily pulled from the soil because of rotted roots. Older plants become resistant to soft rot, but root rot retards plant growth and affected plants may be yellow, stunted, or wilted if infection is severe.



Scouting for *Pythium* root rot in soybean

Acknowledgments

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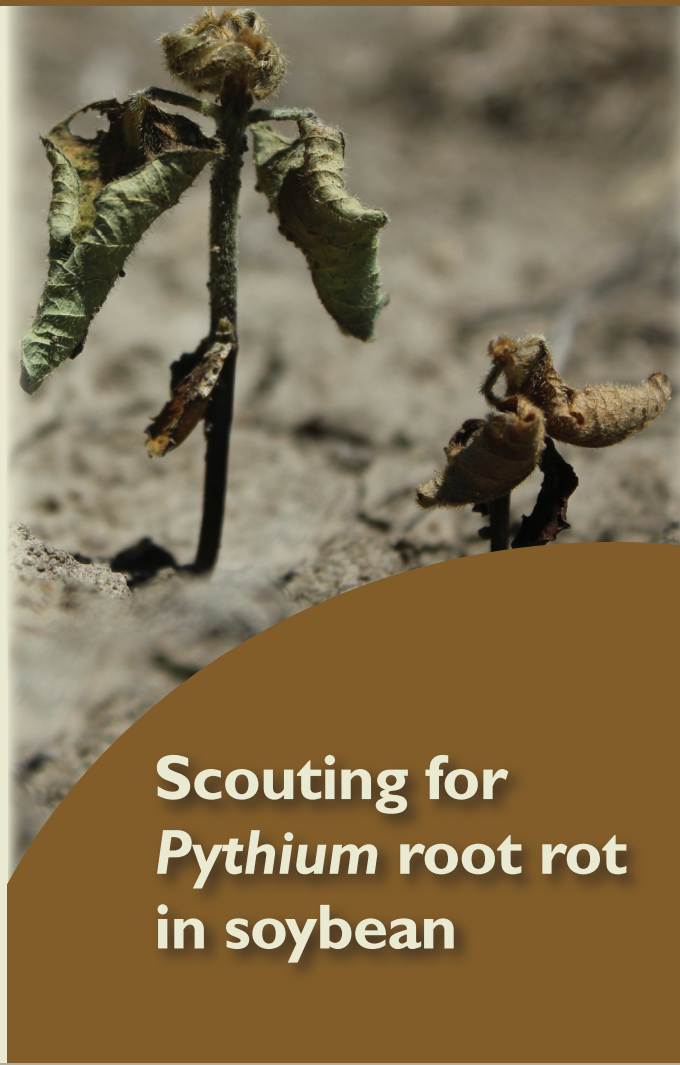
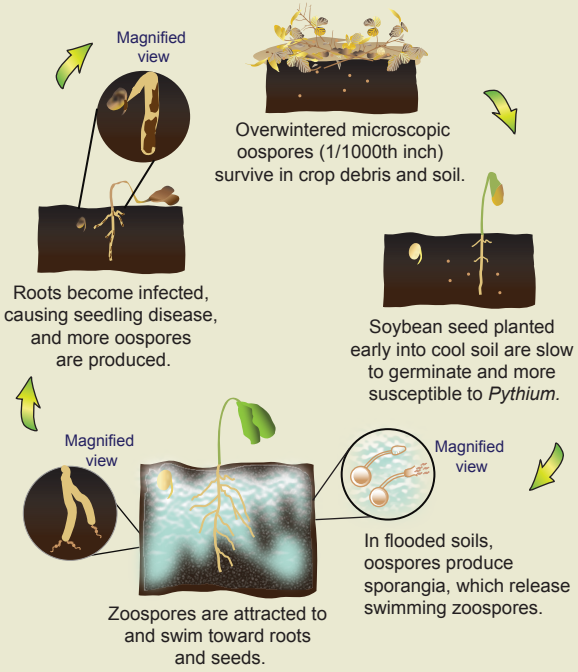


Scouting for *Pythium* root rot in soybean

Risk

Conditions favoring *Pythium* are early planting, cold soil temperatures, and saturated soils. Low-lying fields with poor drainage are at the highest risk of *Pythium* root rot and other soil-borne diseases. No-till soils increase the risk of *Pythium* infection due to increased soil moisture and decreased soil temperature.



***Pythium* disease cycle**

Scouting

Scouting for *Pythium* should be done from VE through V2, particularly in fields where soil temperatures have been cold (<60°F) and very wet. Diseased plants often occur singly or in small patches in low-lying areas of the field that are prone to flooding.

Stand counts may seem low, and there will be visible areas of rotted seedlings. Digging in areas where emergence is inconsistent may reveal rotted seedlings that never emerged.

Pythium-like symptoms in late-planted soybeans may actually be seedling blight caused by *Phytophthora sojae*.

Management

Planting in cold, wet soils should be avoided to reduce infection by *Pythium* species that infect at low temperatures.

Seed treatments may protect stand in high-risk situations, but no seed treatment is effective against all species of *Pythium*. Both mefenoxam/metalaxyl (Apron XL®, Allegiance®) and ethaboxam are effective against many *Pythium* species. Resistance to mefenoxam/metalaxyl has been documented. Strobilurins may have some activity against certain *Pythium* species.

No-till soils often have higher soil moisture and lower soil temperatures, factors that increase the risk of *Pythium* infection. If tillage is considered to improve drainage, use conservation tillage practices to maintain soil quality.