Overview

Stem Canker is a disease of soybean in the United States and Canada where infections occur primarily on the lower portion of the stem. Multiple fungi in the genus *Diaporthe* cause the disease. However, identifying and managing stem canker is similar regardless of which fungus is involved.

There are similarities between symptoms of stem canker and other late season diseases, such as white mold or Phytophthora stem rot. Field symptoms of stem canker also look like early crop maturity. Because of these similarities, stem canker can be easily misdiagnosed. Growers and scouts should become familiar with and be able to distinguish among these late season diseases and conditions.
Scouting

See Scouting for Soybean Stem Diseases (Crop Protection Network CPN 1002) in our resource section.

Fields with a notable incidence of stem canker may be detected at any time from flowering to well into pod set and development. This usually is sometime from late July onward. In South Dakota, stem canker fields are typically reported in mid- to late August. At this time canker expansion and plant death may be rapid.

From a distance, fields with stem canker may be mistaken for other diseases such as white mold or Phytophthora stem and root rot.

If you are unsure about the diagnosis, seek assistance from an Extension educator, agronomist, or your state university Plant Diagnostic Clinic.

Symptoms

Early symptoms of stem canker include slightly sunken, reddish-brown lesions usually at the base of lower leaf or branch nodes. They are usually seen during reproductive growth, long after infections have occurred during early vegetative growth.

Eventually the expanding canker may girdle the main stem, causing the plant to wilt and die. A diagnostic symptom of stem canker is green stem tissue present both above and below individual stem cankers. Brown discoloration may also develop inside the stem.

Toxins may be transported to foliar tissue, causing an intervienal necrosis very similar to foliar symptoms of Brown stem rot or Sudden death syndrome.

Lesions may occur at the soil line, making it possible to confuse this disease with Phytophthora stem and root rot. Stem canker, however, does not cause root rot, and the lesions lengthen down the stem. Lesions caused by the Phytophthora fungus begin on the roots and elongate up the stem.

Management

Factors that favor the development of stem canker are:
• Field history: fields that have experienced stem canker are at high risk for outbreaks when planted again to soybean because of the pathogen’s ability to survive for long periods in soil and residue. You can reduce disease development by planting fields with a history of stem canker last.
• Tillage: infected soybean residue left in no-till or conservation tillage fields supports the survival of the stem canker fungus.
• Fields high in soil organic matter or with high fertility are at increased risk for disease. Maintain adequate fertility to reduce disease impact.
• Susceptible soybean variety planted

The best way to manage stem canker is to plant resistant soybean varieties, although resistance may not be available for early season varieties. Consult your seed dealer for current information about varieties with stem canker resistance.

Rotating crops to a non host is recommended to reduce the amount of inoculum available to infect the next soybean crop. Rotate soybeans with a non host such as corn, wheat, and sorghum for at least two years after a severe disease infestation. If stem canker is severe, avoid rotating the field with alfalfa, which is also a host.

• Plant high-quality, certified seed that is disease-free and has a high germination rate
• Plant in a warm, fertile, well-prepared seedbed to promote vigorous seedling growth
• Maintain good soil fertility based on soil tests.
• Harvest as soon as the crop is mature. When harvest is delayed under wet conditions, seeds may be infected throughout the plant
• Bury infected crop residue after harvest, where soil erosion is not a problem. Do not use seeds from an infected crop

Resources

Stem Canker
Crop Protection Network CPN-1006, 2015

Stem Canker
Minnesota Crop Diseases
https://extension.umn.edu/pest-management/stem-canker-soybean
This website is funded by the soybean checkoff

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