STEM CANKER

Soybean Diseases







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, including White mold, Phytophthora stem and root rot, Sudden death syndrome and Brown stem rot. Field symptoms of stem canker can 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 through pod fill. In the north central producing region for instance, this is usually sometime from mid-July to as late as the end of August in the Dakotas. 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, Phytophthora stem and root rot, sudden death syndrome, and brown stem rot.

If you are unsure about the diagnosis, seek assistance from an Extension educator, agronomist, or your state university plant disease clinic. Soybean growers in the north central region can find their labs at Plant Diagnostic Clinic. Growers outside the north central region can find clinic contact information through the National Plant Disease Network.

Symptoms

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

Eventually, the expanding canker may encircle (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. The brown discoloration may be confused with similar symptoms from Brown stem rot disease.

Toxins may be transported to the leaves, causing an interveinal necrosis very similar to 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 at the soil line and move 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 on the surface of 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 varieties planted

The best way to manage stem canker is to plant resistant soybean varieties, although resistance may not be available for early maturity group 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 non-host crops 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
- Where soil erosion is not a problem, bury infected crop residue after harvest.
- Growers growing non-GMO varieties should not use seeds from an infected crop

Distribution

Stem Canker, Crop Protection Network CPN-1006, 2015

Scouting for Soybean Stem Diseases, Crop Protection Network CPN 1002, 2015

Stem Canker on Soybean, Minnesota Crop Diseases

Resources

Stem Canker
Crop Protection Network CPN-1006, 2015
https://cropprotectionnetwork.org/publications/an-overview-of-stem-canker

Stem Canker
Minnesota Crop Diseases
https://extension.umn.edu/pest-management/stem-canker-soybean

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