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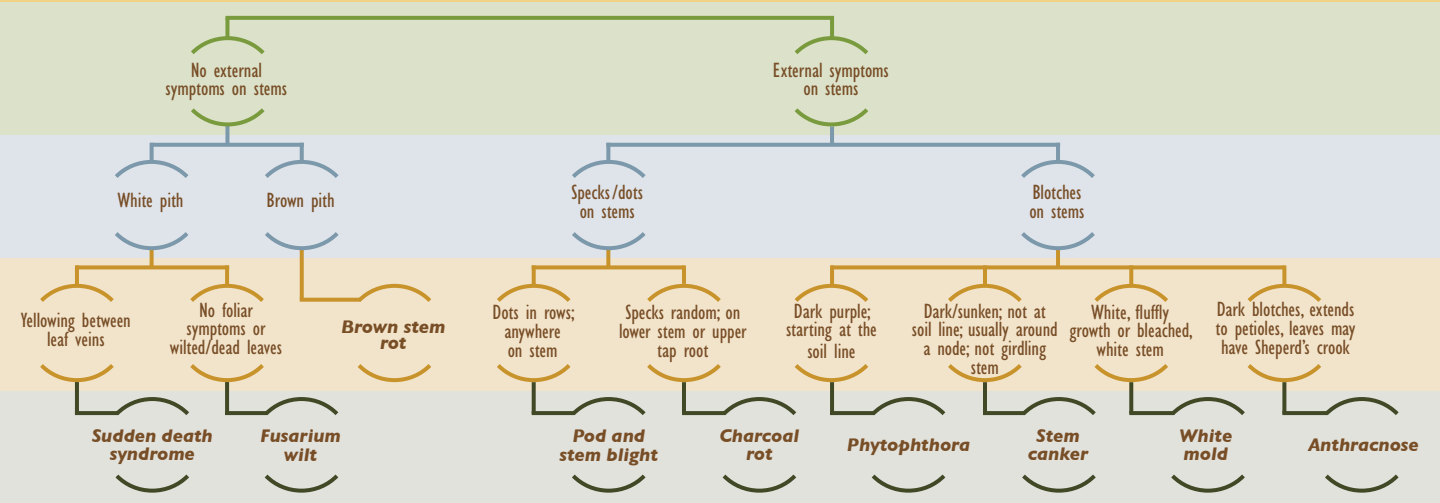
Scouting for Soybean Stem Diseases

The most effective management of soybean stem diseases starts with proper identification. Symptoms of soybean stem diseases typically appear in the mid to late reproductive stages of soybean.

Stem Disease Symptom Key



CPN 1002B

Anthracnose stem blight (fungus: *Colletotrichum truncatum*)
Stems and petioles with red to brown irregular shaped blotches in early soybean reproductive growth stages and black fungal bodies near soybean maturity. Leaf symptoms include reddish veins and rolling. Infected petioles cause leaves to twist down into a Shepherd's crook and can result in early defoliation.

Brown stem rot (fungus: *Phialophora gregata*)
Stems will have reddish-brown discoloration in the pith (center of stem), which may only be found at nodes. Although it appears healthy in most cases, the stem exterior of severely infected plants will look olive green and shiny. Leaf symptoms include interveinal chlorosis and necrosis of youngest leaves, symptoms may not occur on all plants. Root rot is typically not evident in plants with brown stem rot, unlike roots with sudden death syndrome.

Charcoal rot (fungus: *Macrophomina phaseolina*)
The lower stem and taproot appear light gray or silver and small, dark microsclerotia can be present. The interior of stems and taproot will be discolored with microsclerotia. Leaves yellow and die but remain attached to the plant.

Fusarium wilt (fungus: *Fusarium* spp.)
The inside of the stem and roots will have brown vascular tissue. Upper leaves wilt and lower canopy leaves drop early. Roots are stunted with purplish-brown to black discoloration. If plant roots are incubated, there will be no purple/blue spore masses, unlike roots with sudden death syndrome.

Phytophthora root and stem rot (oomycete: *Phytophthora sojae*)
A dark brown lesion beginning at the taproot and extending up several nodes on the stem can be observed. This lesion surrounds the entire stem. Brown internal stem discoloration can be observed on plants at any stage. Roots are discolored and leaves yellow and wilt but remain attached to the plant.

Pod and stem blight (fungus: *Diaporthe phaseolorum* var. *sojae*)
Black, raised specks (pycnidia) in linear rows can be seen on mature soybean stems. Pycnidia can also be seen on petioles and pods.

Stem canker (fungus: *Diaporthe caulivora*, *D. aspalathi*)
A dark, red-brown canker forms at a node and can extend over several nodes. Lesions often do not entirely surround the stem. Inside the stem, there is discoloration or browning near the lesion. Leaves will have interveinal chlorosis and necrosis and remain attached to the plant.

Sudden death syndrome (fungus: *Fusarium virguliforme*)
The stem interior shows brown or gray discoloration below the outer layer but pith is white (unlike brown stem rot). Leaves show interveinal chlorosis and necrosis and drop from the plant after they die. Root discoloration and rotting, along with internal browning of the taproot, can be observed.

Sclerotinia stem rot (white mold; fungus: *Sclerotinia sclerotiorum*)
White, cottony mold can be seen on the lower stem and black, hard sclerotia may be present. These sclerotia can also be embedded inside the stem. Leaves wilt and turn grayish green between veins but remain attached to the plant.

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Authors
Kiersten Wise, Purdue University; Carl Bradley, University of Illinois; Martin Chilvers, Michigan State University; Loren Giesler, University of Nebraska-Lincoln; Febina Mathew, South Dakota State University; Daren Mueller and Adam Sisson, Iowa State University; Damon Smith, University of Wisconsin; Albert Tenuta, Ontario Ministry of Agriculture

Reviewers
Emmanuel Byamukama, South Dakota State University; Anne Dorrance, The Ohio State University; Doug Jardine, Kansas State University; Dean Malvick, University of Minnesota; Samuel Markell, North Dakota State University; Laura Sweets, University of Missouri

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