

Plant Pathology Factsheet

STEM CANKER OF SOYBEAN

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Stem canker disease, caused by the fungus *Diaporthe phaseolorum* var. *caulivora*, is usually first noticed during the latter half of the growing season when dead plants are seen scattered throughout a field (Figure 1), or in large areas (Figure 2).

Symptoms and Disease Development: Events leading to plant death include interveinal yellowing and browning of leaf tissue (Figure 3), followed by leaf death with the leaves frequently remaining attached to the plant (Figure 4). An examination of stems of affected plants will reveal dark brown to black cankers (1-3 inches in length) in areas where the leaves are attached (nodes). The cankers tend to be most abundant in lower to mid stems, generally at one or more of the first eight nodes.

In the early stages of canker development, cankers will be superficial and reddish-brown in color. Green stem tissue will usually be present both above and below individual stem cankers; this is a diagnostic symptom of the disease. As the disease progresses, cankers will enlarge, longitudinally, turn dark brown to black in color, become slightly sunken and eventually girdle stems completely (Figure 5). At this point, affected plants will die due to disruption of the free flow of nutrients and water in the plant. Plant death is also due to activity of a fungus-generated plant toxin. Invaded stem tissues can become brittle and cause plants to break easily at the canker.

Serious stem canker development in a field only occurs when plants are infected in the early stages of vegetative plant development. The most critical time is the V3 stage, the stage at which three nodes are present on the main stems of plants. When young plants are infected, some will die rather quickly. The bulk of infected plants, however, will survive and the infection becomes symptomless. Then, as plants enter the mid pod fill stages of plant development, cankers begin to form and the disease progresses until plants are killed.

Control: Control measures suggested at this time include: use of resistant varieties, planting high quality, disease free seed; crop rotation, and plow down of diseased crop residue after harvest. In addition, fungicide sprays with certain foliar fungicides, made prior to infection occurring at the V3 growth stage, often gives good disease control. Timing of application, however, is extremely critical.

Lastly, the use of multiple planting dates may allow a soybean crop to escape stem canker. This occurs because late planting shifts the susceptible period to a time when weather conditions are not favorable for infection of plants at the V3 growth stage.



Figure 1. Plants randomly killed by stem canker.



Figure 2. Large area killed by stem canker (resistant variety on right).



Figure 3. Early foliar symptoms of stem canker.



Figure 4. Plant killed by stem canker.



Figure 5. Stem canker.