

Sunflower XIV

Phomopsis Brown Stem Canker

Howard F. Schwartz and David H. Gent

Identification and Life Cycle

Phomopsis stem canker is caused by the fungus *Phomopsis helianthi*. The disease causes significant yield losses in Eastern Europe. The disease cycle begins with ascospore production and release from perithecia (fungal overwintering structures) in cool, wet weather. The ascospores infect plants through older leaves, but infections later become systemic and grow into the water conducting tissues, and finally through the stem cortex. The disease is most severe during periods of extended high temperature and high humidity. Spores are spread among plants by splashing rain and irrigation water and wind. The pathogen survives between sunflower crops in infested crop debris.

Plant Response and Damage

Phomopsis brown stem canker symptoms are present on leaves and stems. Leaf lesions initially appear as brown, irregularly shaped spots with a yellow chlorotic margin at the edges of leaves. Leaf veins and petioles darken into brown to black cankers that later become ashy gray around the diseased petiole base. Individual lesions eventually coalesce and cause death of the entire leaf.

Stalk lesions generally appear after flowering and are initially light brown and about 0.4 inches in width. These lesions darken, develop a wet appearance, and increase in length (often reaching 6 to 8 inches) and width. Several internodes may become discolored as the fungus progresses into the interior of the stalk, consumes pith tissue, and causes hollowing of the stem. Stalks are eventually girdled, whereupon plants wilt and lodge. At this point, stem lesions again become light brown with or without a dark brown border. Fungal fruiting structures (pycnidia) are apparent on diseased tissue, appearing as tiny, black bumps. Phomopsis brown stem reduces seed yield, size, and oil content, but generally only causes economic damage in Texas and Ohio.

Management Approaches

Biological Control

No biological control strategies have been developed for Phomopsis brown stem canker.

Cultural Control

Practice a three-year or longer rotation between sunflower crops. Thoroughly incorporate crop debris after harvest to reduce pathogen survival. Most sunflower hybrids are susceptible to Phomopsis stem canker, but resistance is reported in some European hybrids.

Chemical Control

Fungicides are not necessary for Phomopsis stem canker management.

Categories: Sunflower, Disease, Phomopsis Brown Stem Canker

Date: 3/10/2005