

Sunflower XIV

Phoma Black Stem

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Identification and Life Cycle

Phoma black stem is caused by the soilborne fungus *Phoma macdonaldii*. Infection occurs throughout the season, but generally is not noticed until stem lesions become apparent late in the summer. Wet weather during flowering favors severe infections. Primary inoculum originates from overwintering fungal structures (perithecia, pycnidia, and mycelia) in crop debris, which are spread to healthy plants by splashing rain and irrigation water, and windblown ascospores and conidia produced during wet weather. Stem weevils can also serve as vectors of *P. macdonaldii* spores. The pathogen survives between seasons in infested seed and in crop debris.

Plant Response and Damage

Phoma black stem symptoms can develop on stems, leaves, heads, and the base of stalks. Symptoms first appear after flowering. Disease symptoms initially appear at the bases of leaf petioles and spread along stems. Stem lesions are large (up to several inches long), and black, and often coalesce into large, blackened areas. Dark, irregularly shaped lesions occur on leaves and flowers, and can kill flowers if infected early. Stems are weakened by large lesions and often lodge. Minute, dark flecks of the fungus (pycnidia) are apparent in mature lesions. Infected plants prematurely die, producing small heads with little seed and low oil content. Diseased plants often appear in circular areas within the field, but scattered plants can also be infected and die. Yield losses from Phoma black stem are variable.

Management Approaches

Biological Control

No biological control strategies have been developed for Phoma black stem.

Cultural Control

Practice a four-year or longer crop rotation to nonhosts such as small grains. Stem weevil control will reduce insect transmission of the pathogen. No varieties are completely resistant to Phoma black stem, but some hybrids are more tolerant than others.

Chemical Control

No fungicides are registered for Phoma black stem control.

Categories: Sunflower, Disease, Phoma Black Stem

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