

Safflower

Charcoal Rot

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Identification and Life Cycle

Charcoal rot is caused by the fungus *Macrophomina phaseolina*. The disease can be damaging when soil temperatures exceed 90° F and plants are drought stressed. Microsclerotia can survive in the residue for several years. Charcoal rot has a wide host range, including corn, sunflower, and canola.

Plant Response and Damage

Symptoms of *Macrophomina phaseolina* usually begin to appear after flowering. The first symptoms are a general wilting of the plant during the mid-day heat followed by a recovery in the evenings as temperatures decline. Eventually the wilt becomes permanent and the plant dies. Since charcoal rot restricts the flow of water and nutrients to the head, reduced seed size and light test weight usually occur. The stalks of infected plants eventually take on a gray discoloration at the base. Internally the pith decays leaving only the water conducting vascular bundles. This gives the internal stem a shredded appearance. Later, the vascular bundles may become covered with small, black flecks or sclerotia of the fungus. The disease can be economically important in the High Plains during hot, dry seasons.

Management Approaches

Biological Control

No biological control strategies have been developed for charcoal rot.

Cultural Control

Practice a four-year or longer crop rotation between susceptible crops; wheat rotations provide some disease reduction. Select varieties that do not flower and head during the

hottest part of summer. Conserve soil moisture by reducing plant populations, practicing minimum tillage, and controlling weeds. Provide irrigation, if possible, during the hottest and driest times of the year to reduce plant stress.

Chemical Control

No fungicides are registered for charcoal rot management.

Categories: Safflower, Disease, Charcoal Rot

Date: 3/3/2005