

Anthracnose of Soybean

Travis Faske and Terry Kirkpatrick
Plant Pathologist

Anthracnose occurs worldwide and reduces plant stand, seed quality, and yield by 16-26 % in the U.S. Anthracnose is also an important disease in Arkansas with pod infections contributing to a greater impact on yield loss than stem or petiole infections.

Soybeans are susceptible at all stages of development. Pre- and post-emergence damping-off occurs when infected seeds are planted. On emerging seedlings, dark brown, sunken lesions develop on the cotyledons. These lesions can extend along the stem when conditions favor disease development causing one or both cotyledons to become water soaked, wither, and abscise from the stem. Under severe disease development, numerous small lesions may kill young plants.

Foliar symptoms often occur at early reproductive growth stages with irregular shaped brown lesions that develop on stems, petioles, and pods. Premature defoliation may occur throughout the canopy on maturing plants when anthracnose lesions girdle the leaf petiole, resulting in a shepherd's crook symptom (Fig. 1). Early season infection of pods or pedicles can result in fewer and smaller seed or no seed development.

At advanced stages of disease development, near soybean maturity (R7-R8), black fungal fruiting bodies called acervuli that produce minute black spines (setae) are abundant and randomly distributed on infected tissue. Setae are diagnostic of anthracnose and may be seen with a good hand lens or a dissecting microscope (Fig. 2). In contrast, the fungal fruiting bodies of another common pathogen on pods and stems, *Diaporthe phaseolorum*, which causes pod and stem blight, do not contain setae and are often arranged in rows.



Figure 1. Shepherd's crook caused by anthracnose canker on a petiole (Photo by C. Coker)

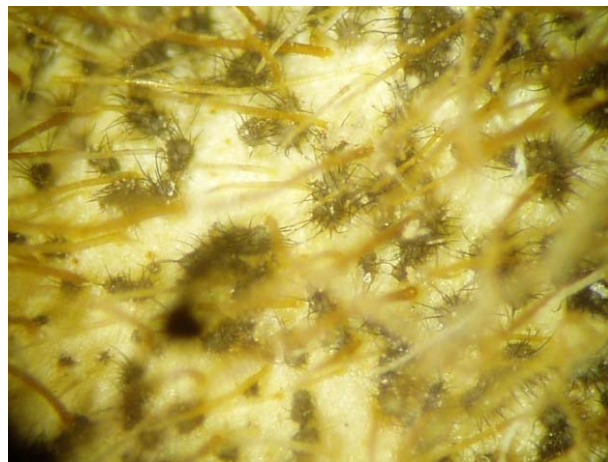


Figure 2. Acervuli of *Colletotrichum truncatum* on soybean pod. (Photo by A. Greer)

Anthracnose is caused by *Colletotrichum truncatum* and several related species, which overseason as mycelium on crop residue or in infected seed. Infected seed may result in damping-off or seedlings may become infected and colonized by the fungus without symptom development until early reproductive stages. Warm, wet weather favors stem and pod infection whereas dry weather suppresses disease severity.

Management of anthracnose includes the use of high quality, disease-free seed and tillage or rotation practices that reduce soybean residue. Applying a fungicide between beginning pod development (R3) and initial seed formation (R5) can be effective at suppressing anthracnose. Fungicide seed treatments are also effective at minimizing the effects of anthracnose on seedlings.