

Plant Pathology Fact Sheet

Southern Blight of Soybeans

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Southern blight is a minor disease of soybeans in the United States. Although the disease can occur in plants anytime from emergence through pod fill, it most commonly occurs in isolated plants in the latter stages of reproductive development. Occasionally, southern blight develops when plants are in the early to mid-vegetative stages. When this occurs, the disease may spread rapidly down rows, resulting in serious stand losses in patches. However, even in the worst case scenario, it would be extremely rare for southern blight to cause measurable yield losses in a commercial soybean field.

SYMPTOMS AND SIGNS

Plants affected by this disease wilt suddenly and die. Leaves of affected plants turn brown, dry up, and usually remain attached to the plant. Examination of diseased plants will reveal a light brown girdling lesion at just above or just below the soil line. The most characteristic sign of this disease is the white fungal mat of mycelium which fans out over and about the lesion area. Fungal mats may also be present on plant debris and on the soil surface in the vicinity of an affected plant. However, hot, humid weather favors the development of this fungal growth and it may



FIGURE 1.

not form, or may disappear altogether during dry weather. Affected plants usually develop numerous tan to brown fungal structures (sclerotia) which appear embedded in the fungal growth (FIGURE 1). Sclerotia, which are about the size of a mustard seed, are the means by which the fungus survives from season to season. Sclerotia are not especially long-lived and rarely survive more than 3 to 4 years in the absence of a host crop.

CAUSE AND DISEASE DEVELOPMENT

Southern blight is caused by a soil-borne fungus, *Sclerotium rolfsii*. The conditions that favor this disease include high moisture levels, both in the soil and under the plant canopy, and relatively high temperatures.

Drought conditions frequently precede severe disease outbreaks by predisposing plants to infection. The disease tends to be most prevalent in sandy or sandy loam soils, or soils with high levels of undecomposed organic matter.

DISEASE MANAGEMENT

In most situations, it is unnecessary to implement specific measures to control southern blight in soybean. However, where necessary, certain production practices may help to limit the impact of the disease. There are no resistant varieties.

Crop rotation

When high populations of the southern blight fungus exist in a field, the only practical management option is to rotate the field to a non-host or least-favored host crop, such as corn, milo, or pasture grasses, for a period of 3 to 4 years. The fungus can infect over 500 greatly diversified plant species. Thus, selection of a rotational crop should be done with great care. Where southern blight is a concern, but has not caused serious losses, rotating to a non-host, such as corn, for 2 years should be adequate for disease control in subsequent soybean crops.

Sanitation

If practical, burying infected soybean stubble, by deep plowing the first year out of soybeans, followed by less tillage in subsequent off-soybean years, will help reduce levels of the fungus in soil. If deep tillage is not an option, any tillage operation that encourages decomposition of infested soybean stubble and may help to reduce populations of the fungus in soil.

Cultural practices

Disease incidence may also be moderated by application of calcium and nitrogen fertilizers.

ADDITIONAL RESOURCE

Disease management advice can be found in the following University of Kentucky publication available at County Extension offices, as well as on the Internet.

- Kentucky Plant Disease Management Guide for Soybeans, PPA-10b (1995)
<http://www.ca.uky.edu/agc/pubs/ppa/ppa10b/ppa10b.pdf>

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Photo: Clemson-USDA CES, Bugwood.org