



## SOUTHERN BLIGHT OF TOMATO

Southern blight, caused by the fungus *Sclerotium rolfsii*, occurs worldwide but is most important in tropical and subtropical areas. This disease, which is also known as southern stem rot and Sclerotium stem rot, also occurs on hundreds of other species of plants, including many vegetable, ornamental, and field crops.

### SYMPTOMS

Symptoms usually appear on plant parts in, on, or near the soil. Plants of any age may be attacked, if environmental conditions are favorable. The most common symptom is a brown to black rot of the stem, which develops near the soil line. The lesion develops rapidly, completely girdling the



Figure 1. Southern blight of tomato, caused by *Sclerotium rolfsii*.



Figure 2. Mycelium and sclerotia of *Sclerotium rolfsii* on tomato stems.

stem and resulting in a sudden and permanent wilt of all aboveground parts (Figure 1). Young plants may fall over at the soil line. Under moist conditions, an abundance of white mycelium develops on the lesion and sometimes extends several inches up the stem of a mature plant. Tan to reddish brown, spherical sclerotia with an average diameter of 1-2 mm appear on the mycelia mat after a few days (Figures 2 and 3). The fungus infects fruit in contact with infested soil. At first the infection site is sunken and slightly yellow and has a ruptured epidermis. The lesion becomes water-soaked and soft and is often star-shaped. Once infected, fruit collapses in 3-4 days. White mycelium and developing sclerotia quickly fill the lesion cavity (Figure 3).

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## DISEASE CYCLES

*S. rolfsii* survives for years as sclerotia in soil and host debris. Sclerotia can be disseminated by the movement of soil or infested plant material. The fungus is also highly saprophytic and is capable of producing abundant mycelia on various host substrates. Infection takes place when mycelium contacts the host tissue. The pathogen is favored by moist conditions and high temperatures 86-95°F (30-35°C).



Figure 3. Tomato fruit infected by *Sclerotium rolfsii*.  
(Photo courtesy American Phytopathological Society)

## DISEASE MANAGEMENT

Control of southern blight is difficult when inoculum levels are high and environmental conditions are conducive to the disease. Crop rotations with non-susceptible crops, such as corn and small grains, reduce disease incidence by reducing inoculum levels. Deep turning the soil to bury host debris and fungal structures is also a useful measure. The fumigation of soil with broad spectrum chemicals reduces disease incidence, but this practice is limited by economical considerations. Effective fungicides in the transplanting solution control the pathogen. Certain fertilization regimes, such as the use of high calcium levels and ammonium-type fertilizers, have provided some control under low disease pressure.