

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES



Southern Blight

Sclerotium rolfsii Sacc.

Southern blight, caused by the soilborne fungus *Sclerotium rolfsii*, is a serious disease of a wide range of plants grown in Louisiana, including vegetables, fruits, ornamental plants, field crops and turf. Losses can vary considerably depending on the environmental conditions, crop type and soil conditions. Disease development is favored by warm (75-95 degrees Fahrenheit) weather, wet conditions and acidic soils.

Sclerotium rolfsii can attack any parts of a plant that touch the soil, but it most commonly attacks a plant at or just below the soil line. For example, the fungus attacks cucurbit fruit or low hanging tomato fruit. The fungus produces white fungal strands (mycelia or hyphae) around infected plant parts and can be observed on the soil surrounding the plant.

Sclerotium rolfsii produces survival structures called sclerotia, which are small (0.04-0.08 inches), tan to brown spherical structures that resemble mustard seeds in size and color. The presence of sclerotia is the main diagnostic feature of Southern blight. Initial symptoms of Southern blight include discoloration of lower leaves and wilting. As the disease progresses plants collapse and die. Upon close examination of the crown of the plant necrotic cankers and stem girdling can be observed. Early symptoms on fruit are circular water-soaked spots followed by soft rot or decay.

Southern blight is extremely difficult to manage because the fungus has a wide host range (more than 500 plant species in 100 plant families), which limits the use of crop rotation. Sclerotia can survive in the soil for several years, and there are few, if any, commercially available resistant varieties. Integration of management strategies with a focus on prevention is the best approach to manage Southern blight.

Ornamental grasses, woody plants, wheat and corn are reported to be resistant to Southern blight and are among the better rotational crops for commercial growers. Homeowners have fewer options, since so many ornamental and vegetable plants are susceptible to this disease. Other cultural practices that can be implemented to prevent or reduce disease include:

- Soil solarization – Sclerotia near the surface of the soil can be killed when exposed to high temperatures for two to four weeks during the summer months. Cover and secure clear polyethylene plastic over moistened soil. Make sure to prepare the soil for planting before solarizing, since cultivation and the incorporation of amendments can bring buried sclerotia back to the upper soil layers.
- Deep plowing – Turning the soil before planting can reduce the amount of sclerotia in the upper soil layers and slow disease development. Soil depths of 3 inches are required to prevent sclerotia germination.
- Soil amendments – Liming the soil to raise the pH or using calcium nitrate or other nonacidifying types of fertilizer will slow the germination of sclerotia and fungal growth.
- Plastic mulch – Plastic mulches can help to reduce disease by forming a physical barrier between the plant or fruit and the pathogen. For small plots the same effect can be achieved by wrapping the lower 2-3 inches of the stem with aluminum foil from the soil line upward.
- Soil fumigation – For large-scale producers soil fumigation is the most practical means to kill *S. rolfsii* along with other soilborne pathogens. Soil fumigants also kill beneficial microorganisms in the soil, so fumigants should be combined with cultural practices that promote soil health. A current list of fumigants registered for commercial crops pro-

duced in Louisiana is provided in the Louisiana Plant Disease Management Guide (LSU AgCenter Pub. 1802).

- **Fungicides** – A limited number of fungicides are registered for control of Southern blight, depending on the crop. Fungicides generally are applied to soil just prior to planting or at trans-

planting. A current list of fungicides registered for commercial crops produced in Louisiana is provided in the Louisiana Plant Disease Management Guide (LSU AgCenter Pub. 1802). Fungicides for Southern blight control are not available for homeowners to purchase at retail centers.



Fig. 1. Localized area of wilted tomatoes due to Southern blight.



Fig. 2. Mycelia and sclerotia of *Sclerotium rolfsii* at the base of an infected tomato plant.



Figure 3. A row of wilted commercially produced dianthus due to Southern blight. Mycelia and sclerotia of *Sclerotium rolfsii* at the base of an infected dianthus plant.



Figure 4. Mycelia and sclerotia of *Sclerotium rolfsii* on the lower surfaces of a pumpkin and watermelon.

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Pub. 3052

(online only)

Rev. 07/15

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