

## Southern Blight

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(Revised 7-09; 8-11)

Southern blight, caused by the fungus *Sclerotium rolfsii*, shows up when certain soil and weather conditions are just right: 86-95 degrees F, high soil moisture, an abundance of organic debris in the soil, an acidic soil in the pH range of 3-6 and a well aerated soil. As wet soils begin to dry, however, the fungus may continue growth and attack plants just below the soil line.

While considered a field problem, we have witnessed it attacking container crops, discussed at the end.

**Malus (apple & crabapple)**, althea, dogwood, azalea, grape, Russian olive, hydrangea, forsythia, phlox, peach and arborvitae are commonly attacked plants. Southern blight has been reported on over 200 species, including many flowering annuals, ajuga, aucuba, barberry, *Buddleia* spp, quince, hawthorn, hosta, *elaegnus*, daylily, black walnut, Jap. privet, *Liriope muscari*, mulberry, *Poncirus trifoliata*, *Rosa* spp., *Vinca minor*, yucca, okra, tomato, and tobacco.

Infection occurs near the soil line, and death results from girdling at the stem base or root collar. Infection usually occurs directly by the penetration of young, uninjured bark, but injuries to the bark facilitate the entry of the pathogen. The pathogen rapidly kills cortex and secondary bark a few centimeters above and below the soil line. The dried, dead leaves usually hang on the tree after it dies.

When scattered plants wilt and die quickly, look for a web of white mycelium (strands of white fungus) on the soil at the base of a dying plant. The mycelium may progress up the trunk 3-7 inches.

Within a few days it disappears and during periods of high humidity, masses of sclerotia develop. The sclerotia are whitish at first and tan to reddish-brown at maturity. They are found at the base of the tree and on roots up to 5 inches into the soil.

The sclerotia serves at the propagation unit, comparable to seed. About the size and color of mustard seed, sclerotia are very tough and able to survive adverse conditions.

Sclerotia are the principal means of overwintering and long term survival of the inoculum. They germinate better in light, well-aerated soil than in heavy, poorly aerated soil.

Susceptible plants, less than 3 years of age are much more likely to be attacked than older plants, due to the protection offered by thicker, corky bark on the older plants.

The distribution of diseased plants in the field rarely shows a particular pattern. The incidence of southern blight in the nursery is directly proportional to the number of sclerotia in the soil. The greatest number of infections occur when the sclerotia are adjacent to the trunk. Infection decreases with distance from the trunk and sclerotia more than 1 inch away rarely cause infection.

Symptoms usually show up in early June. Twenty percent of the crop can be lost before the problem can be identified and a fungicide applied. **Southern blight can be prevented** with a timely application of Terraclor or ProStar [available as liquid and WDG (water dispersible granule)]. We once recommended applying Terraclor in mid-May. It is effective for about 6-8 weeks.

One grower experienced losses in Aug. 2001, following a May application. Another had infection occur in PNP viburnums with a fabric floor with no treatment Aug, 2011. ProStar will provide systemic, preventative and curative activity and should be more effective than Terraclor, which can only offer preventative activity. We now recommend that **ProStar be applied during the first or second week of June.** (June 1 and July 1 applications should offer maximum protection for high value crops. The label suggests a 28 day interval.)

Since the fungus is in the top 1-2 inches of soil, we suggest applying a coarse, wet spray by directing 1 to 4 spray nozzles to the lower stem and entire root system. One 8008 spray tip on each side of the row will do an effective job. Let it run down both sides of the stems. Very little pressure is required, perhaps 20 psi. Drive slow.

**ProStar** – 1.5 fl oz/50 gallon. (3 fl oz/50 gallon if the field has a history of problems with Sclerotium rolfsii.)

**ProStar WDG** (water dispersible granule) -- 3-6 oz/100 gals  
<http://www.cdms.net/LDat/ld8QE000.pdf>

**Terraclor 75%WP** – 8 oz (by weight) in 50 gallons of water.

**Terraclor 23% EC (liquid)** – 16 fluid ounces in 50 gallons of water.

All 3 products have a 12 hour restricted entry interval. Both carry a Caution statement on their labels, the least hazardous of the three: **DANGER/ Warning/ Caution.**

Southern blight was bad for some growers in '87, '88, '90, '96, '99, and 2001. A few producers had major losses in 2011. Removing dead plants and the soil around each plant is of no value. Spraying ProStar or Terraclor after the plants have died is useless; it will not kill the sclerotia.

## **Cultural Practices that will help reduce the severity of and the chances of getting Southern Blight include:**

- Record which blocks have had southern blight and avoid planting susceptible crops there.
- Soil test and lime for the intended crop.
- Avoid planting susceptible crops in fields with an abundance of organic debris.
- Avoid planting a sorghum-sudan hybrid and Crimson clover where susceptible crops will be grown, especially *Malus*.
- After a southern blight attack, plow as deep as possible to bury the sclerotia as deep as possible to reduce their numbers on the soil surface.
- Practice good weed control in the susceptible crops because *Sclerotium* grows profusely in a humid atmosphere.
- Plant resistant varieties or cultivars, if and when they exist.
- Fumigate blocks to be planted in the susceptible crops, especially *Malus*.

Two local producers feel they avoid southern blight by budding crabapple varieties onto crabapple seedling rootstock. Additional information is available on rootstocks, but there is not a preferred choice.

## **Container Issues**

While considered a field problem, we have witnessed Southern Blight attacking woody ornamental crops in containers on more than one occasion. The sclerotia must be present in order to have an infection of *Sclerotium rolfsii*.

So, the container, media or the liner had to come in contact with soil containing the sclerotia. I have witnessed new nested and tied containers lying in mud. Other conceivable avenues to explain infection in containers might be previously used containers and media stored on soil.

Storing bark on a concrete pad is highly recommended to avoid becoming contaminated with weed seed and several possible soil borne pathogens. If the designated front end loader is borrowed it should be pressure washed to remove soil from the bucket and tires before being returned to the pad. Driving muddy tires across the concrete pad can introduce pathogens and seed.

Comm/Dis/Southern Blight-Alan W.

Pesticide labels do change. Fines were imposed in 2010 and 2011 for using a previously labeled product when the user did not realize the ornamental use or the nursery use had been transferred to another product.

### **Precautionary Statement**

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

### **Disclaimer**

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used.

The label always takes precedence over the recommendations found in this publication.

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