



AVRDC - The World Vegetable Center

Fact Sheet

Tomato Diseases

Southern Blight

Sclerotium rolfsii

Found in warm climates worldwide



Symptoms

Young infected plants wilt suddenly and permanently. On older plants, symptoms first appear as a dark brown lesion on the stem near the soil surface. The lesion girdles the stem, causing leaf yellowing and wilting. White mats of fungal growth are produced on the stem and nearby in the soil on any organic debris. Wilting in infected plants may be more evident when soils begin to dry out.

After a few days, mustard seed-sized (0.5 mm diameter), round, tan to dark brown overwintering structures known as sclerotia appear on the white fungal

growth. The abundant sclerotia that form on the outside of the stem tissue are a good diagnostic feature. They are round, soft, and smaller in diameter, and lighter in color than those caused by another fungus, *Sclerotinia sclerotiorum*, which also causes a disease in tomato. The sclerotia of the latter are found inside tomato stem tissue.

Conditions for Disease Development

The fungus affects many crops, including tomato, other solanaceous crops (potato, pepper, and eggplant),

How to Identify Southern Blight



Plants wilt in the field, sometimes suddenly (left photo). A close inspection at the base of the stem reveals brown lesions covered with a white fungal mat and mustard-size sclerotia (center and right photos).

legumes, and cucurbits. The pathogen persists on crop residues and as dormant sclerotia.

The fungus infects plants either directly or through wounds caused by nematodes or insects. Fruits, leaves or branches that touch the soil also may be infected by the germinating sclerotia.

The fungus is spread into a field by infested soil or cultivating tools, infected transplants, running water, and as sclerotia mixed with seeds. High temperatures (above 30 °C) and high soil moisture favor disease development while low soil moisture favors survival of the sclerotia. The germination of sclerotia is most abundant at the soil surface and drops off with depth in the soil.

Control

Crop rotation has a strong influence on survival of the fungus. Grow tomato after non-host crops such as maize, sorghum, small grains, or cotton. Allow ample time for breakdown of green manure before planting the tomato crop.

Bury crop debris to a depth of 24 cm. Eradicate weeds, avoid dense planting, and choose fields that are well drained, rich in humus, and not too acidic. Plastic mulch may shield the branches and fruit from sclerotia.

Disease levels have been reduced by application of ammonium nitrate either before planting or as three sidedressings at monthly intervals while the crop is growing. Efforts are being made to develop solarization and biological control practices.

Soil fungicides offer some protection. Consult with your local extension agent to determine the fungicides that may be available in your region.

For more information on the production of tomato and other vegetables, go to <www.avrdc.org>.