

Septoria Leaf Spot

Management of this Recurring Disease on Tomato

Mahfuz Rahman, WVU Extension Specialist, Plant Pathology – Agriculture & Natural Resources

What is Septoria Leaf Spot?

Septoria leaf spot is a disease of tomato plants that is caused by the fungal pathogen *Septoria lycopersicae*. Septoria has become a recurrent problem in West Virginia, especially when the early growing season remains damp and humid due to excessive rain and/or an overcast sky. Wet conditions support the formation of Septoria spores (conidia) inside the fruiting body (pycnidia). When combined with favorable temperatures (59° to 80.5°F with 77°F being optimal), these wet conditions also promote the spread of conidia and tissue infections. Because free moisture is necessary for spore germination and infection, free water droplets on leaves under high humidity (95 to 100%) for one to two days favor rapid disease development.

What does Septoria Leaf Spot look like?

Septoria can be most easily identified by numerous tiny leaf spots (up to 1/8 inch in diameter) that appear on the lowest tomato leaves (those in contact with the soil) then spread upward (Fig. 1a). The spots may become gray or tan in the center (Fig. 1b), with dark brown borders. As the spots mature, they may grow dark brown, pimple-like fruiting bodies called pycnidia inside of the spots (Fig. 1c). Presence of these pycnidia (which can be seen with a hand lens) differentiates Septoria from other leaf spots such as bacterial spots. Under favorable conditions for disease development, the entire leaf may eventually turn yellow (due to coalescing of multiple spots) and die, then fall from the plant. Unlike Early Blight, Septoria leaf spot doesn't usually affect stems or fruits; although if the plant loses too many leaves, the fruit can be susceptible to sunscald.



Figure 1. Septoria leaf spot on tomato: a) Leaf spots start on the lower leaves that touch the ground; b) typical Septoria spots with gray centers and dark margins; c) pimple-like structures called pycnidia (fruiting bodies) of the fungus inside the spots. (All photos courtesy of MM Rahman.)

What is the source of Septoria Leaf Spot infections?

The fungus that causes Septoria leaf spot overwinters on infected tomato debris or on weeds in the nightshade family. Although the list of weed species that can be alternative hosts is long, three major weeds, nightshade (*Solanum nigrum*), horsenettle (*Solanum carolinense*) and jimsonweed (*Datura stramonium*), are commonly to blame. In addition, infected seeds can also be a source of infection.

How can I manage Septoria Leaf Spot?

To keep the disease under control, an integrated approach (one that utilizes multiple control techniques) is best.

1. Remove infected plant debris and weeds at the end of the season to eliminate the source of infection for the next crop. Debris should be burned or buried 8 to 10" below ground rather than taking it to the compost pile. Tomato debris can also be destroyed by deep plowing immediately after harvest.
2. Since seeds have been implicated as a source, seeds should be acquired from disease-free seed-producing areas or reputable companies.
3. In most cases, infection initiates on lower leaves that, during a heavy rain or watering, have been splashed with soil particles harboring fungal spores. Remove lower leaves that touch the soil to prevent initial infection.
4. Plants should be well spaced so that leaves dry quickly, and they should be staked or caged to keep them upright. To further keep the foliage dry, use plastic or other mulch around the plant and irrigate with a drip tape instead of a sprinkler. An overhead plastic canopy can be useful as well.
5. For organically grown tomatoes, use copper hydroxide (such as Kocide® 101) or Serenade® on a 10-day schedule, starting pre-bloom or at first sight of spots.
6. For conventional tomatoes, use chlorothalonil (such as Daconil® 2787) or azoxystrobin (such as Quadris®, Amistar®, etc.) to treat the disease. Recent research has indicated that Quadris Top®, Revus Top® and Catamaran® are more effective than similar products. To keep the fungus from developing resistance, do not use azoxystrobin more than two consecutive sprays or a total of five sprays in a growing season.

May 2015

ANR-IPM-15-004

For more information contact: Mahfuz Rahman, WVU Extension Specialist – Plant Pathology, MM.Rahman@mail.wvu.edu; 304-293-8838. <http://anr.ext.wvu.edu/pests/plant-diagnostic-clinic>

Recommendations for the use of agricultural chemicals are included in this fact sheet as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services in this fact sheet does not imply endorsement by West Virginia University Extension Service nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county Cooperative Extension agent.

Programs and activities offered by the West Virginia University Extension Service are available to all persons without regard to race, color, sex, disability, religion, age, veteran status. Political beliefs, sexual orientation, national origin and marital or family status. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Dept. Of Agriculture, Director, Cooperative Extension Service, West Virginia University. The WVU Board of Governors is the governing body of WVU. The Higher Education Policy Commission in West Virginia is responsible for developing, establishing and overseeing the implementation of a public policy agenda for the state's four-year colleges and universities.

