

Septoria Leaf Spot of Tomato

Bulletin #5088

Introduction

Septoria leaf spot is one of the most common foliar diseases of tomato in Maine. It can be highly destructive given the proper conditions and has been known to cause complete crop failure. Although the causal fungus will not directly infect the fruit, losses are the result of defoliation which can lead to the failure of fruit maturation and sunscald of exposed fruit.

Environmental Conditions

The disease is usually first seen in early to mid-August when the foliage has become sufficiently dense to restrict air movement within the canopy. After canopy closure the humidity remains high and any free water on leaf surfaces tends to dry more slowly. Infection can occur when the relative humidity has been at 100% for more than 48 hours. These conditions are cumulative, however, and can be spread over several days. The optimal temperature range for *Septoria* is between 68 and 77°F. The disease usually starts on the lowest leaves where the humidity tends to be the highest and where the fungal spores are most likely to land.

Symptoms

Septoria can infect all above-ground parts of the plant other than the fruit but infections are most obvious and extensive on the foliage. The infections are characterized by small (1/8"), circular lesions with dark borders and grayish centers. Close inspection reveals tiny black or brownish dots within the lesions. These are the spore producing structures (pycnidia) of the fungus. The leaves eventually wither and die. The disease progresses up the stem and total defoliation of the plant may finally occur.

Survival

Septoria survives the winter on infected plant debris including tomato and related plants. The fungus may also be transmitted by infected seed and spores can be present around growing facilities such as greenhouses, cold frames, flats, etc.. Where spores have survived the winter, initial infections may begin early in the year. Otherwise, the fungus will not sporulate below 59°F which delays the onset of infections. The spores are splashed by rain, blown by the wind, or carried by insects and other animals (including man) and once the initial infections have started the fungus can produce new spores which rapidly increases the rate at which the disease spreads.

Control

1. Use disease-free seed or if the seed is suspect use a hot water treatment (122°F for 25 min.). This practice may reduce seed viability.
2. Remove and destroy crop refuse at the end of the season. Where this is not practical, plow the refuse into the soil at the end of the season which will promote rapid breakdown by soil micro-organisms.
3. Practice rotation (3 years) to non-susceptible crops. The most effective rotations will also try to exclude susceptible weeds.
4. Promote good air circulation by spacing plants properly.
5. Hand-picking infected leaves will reduce the number of spores available for new infections.
6. Stay out of growing areas when the foliage is wet.
7. Water early in the day and, if possible, avoid wetting the foliage.
8. Stake plants.
9. Be sure plants have adequate nutrition.
10. The table on the back lists available fungicides.

Fungicides for Early Blight and Septoria Leaf Spot

Fugicide	Typical Application Interval	Examples of Trade Names
azoxystrobin	7 to 14 days	Quadris
chlorothalonil	7 to 14 days	Daconil, Bravo, Echo, Fungonil, and others
copper products	7 to 14 days	Bordeaux Mixture, Kocide, Tenn-Cop, Liqui-cop, Basicop, and others
mancozeb and maneb	7 to 14 days	Dithane, Penncozeb, Manex, Mancozeb, Maneb
ziram	7 to 14 days	Ziram

***Table by Ned Tisserat, Kansas State University and adapted for Maine**

**When Using Pesticides
ALWAYS FOLLOW
LABEL DIRECTIONS!**

**Bruce A. Watt
Extension Plant Pathologist
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**Where trade names are used, no discrim-
ination is intended and no endorsement by
Cooperative Extension is implied.**