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# Tomato Leaf Spots

Early blight, caused by the fungus *Alternaria*, and Septoria leaf spot, caused by the fungus *Septoria*, are two destructive tomato diseases which occur each year in the northeastern United States. Both fungi attack foliage, killing the leaves, weakening the plant and ultimately reducing fruit production.

Although these two diseases produce similar symptoms, they can be distinguished from one another if observed closely. It is very important to determine which disease, early blight or Septoria leaf spot, is present, because they require somewhat different management techniques. Neither fungus is easily managed with chemicals once the disease begins. Repeated applications must be made to protect the plants as new foliage develops. Both diseases reduce fruit weight and quality.

## **Early Blight (*Alternaria*)**

Early blight is most widespread and is most destructive late in the season during fruit ripening. However, seedlings and transplants can also be affected and will develop stem cankers at or above the soil line. If infected seedlings survive, their weakened stems often break as the stems grow and become heavier. In late season infections, spots develop on older leaves. The fungus then spreads upward to newer leaves. Defoliation of the plant greatly reduces the fruit harvest.

The characteristics of the leaf and fruit spots are important in identifying early blight. Usually you find one or two spots, ¼ - ½ inch in diameter, circular or irregular in outline and having concentric lines in a ring pattern within them. These spots often have a yellow halo surrounding them. Spots first appear on older, lower leaves, progressing upward to the new growth.

Stem cankers are dark, slightly sunken, and may also exhibit a concentric ring pattern of lines. Fruit spots at the stem end, ½ inch or more in diameter, are dark, leathery, and sunken and may have the ring pattern of lines. *Alternaria* can be carried on the seed, but overwinters in the field in crop debris as well.

## **Septoria Leaf Spot (*Septoria*)**

Septoria leaf spot is most evident after fruit set and affects older leaves first. It does not usually damage seedlings, transplants or fruit.

The first symptoms are numerous, small (1/16 to 1/8 inch), water-soaked spots on leaves. The spots are roughly circular with grey centers and dark margins and lack a yellow halo. Dark specks, which are fruiting structures of the fungus, develop near the center of the spots. Similar spots may occur on stems, blossoms, or fruit stems. Although fruit are very seldom infected, defoliation of the plants renders the fruit susceptible to sunscald. *Septoria* overwinters in crop debris.

(over for chart)

	<b>Early Blight</b> <i>Alternaria solani</i>	<b>Septoria Leaf Spot</b> <i>Septoria lycopersici</i>
<b>Favored environment</b>	High relative humidity Temperatures above 75°F	High rainfall Temperatures 60-80°F
<b>Symptoms</b>	One or two spots per leaf 1/4 to 1/2 inch diameter. Spots have yellow halo and concentric ring pattern of lines in tan centers. Fruit spots on stem end, 1/2 inch in diameter, dark, leathery, sunken, with line pattern. Stem cankers at or above soil line, dark and sunken.	Numerous spots per leaf 1/16-1/8" with dark margins. Spots lack yellow halo and have black specks in gray centers.  No fruit spots.
<b>Prevention and non-chemical control</b>	Select resistant varieties. Grow tomatoes in a different location in the garden each year. Remove the lower leaves after the first cluster of fruit has set. Turn under all plant debris in fall.	Same as for Early Blight. Apply overhead water in morning to allow foliage to dry by evening.  Use mulch to prevent soil from splashing up on leaves.
<b>Chemical control</b>	Purchase hot water and fungicide treated seed. Apply chlorothalonil, soon after transplant and at 10 to 14 day intervals.	Apply chlorothalonil, soon after transplant or at first cluster, and at 10 to 14 day intervals.

**Stop!** Read the label on every pesticide container each time before using the material. Pesticides must be applied only as directed on the label to be in compliance with the law. All pesticides listed in this publication are contingent upon continued registration. Contact the Division of Pesticide Control at (603) 271-3550 to check registration status. Dispose of empty containers safely, according to NH regulations.

*adapted from a fact sheet produced by the University of Massachusetts Cooperative Extension written by William C. Woodbridge, Gary W. Moorman, Robert J. Precheur and George Hochmuth, reviewed 10/00 by Dr. David Kopsell, UNH Cooperative Extension Vegetable Specialist*

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