

Problem: Early Blight and Septoria Leaf Spot - *Alternaria solani* , *Septoria lycopersici*



Plant Host: Tomato

Description: Two of the most common diseases of tomato are **early blight** and **Septoria leaf spot**. Both diseases may occur anytime during the growing season, but they generally become more severe after blossom-set. Both diseases result in the formation of leaf spots. These spots typically develop first on the older leaves nearest the ground. Under favorable conditions for disease development, these diseases can cause extensive defoliation, resulting in sunscalding of fruit and reduction in the numbers of fruit produced.

Early blight and Septoria leaf spot are fairly easy to distinguish from one another in the field. Early blight results in the formation of irregular, brown leaf lesions or spots that range in size up to ½ inch diameter. The most important diagnostic feature of early blight is the formation of dark, concentric rings within the lesion, giving the spots a target-like appearance. Often, several lesions coalesce, causing the leaf to turn yellow, dry up, and fall off the plant. Defoliation weakens the plant and exposes the fruit to sunscald injury. Although early blight primarily is a foliage disease, lesions may develop on both stems and fruit. Fruit lesions are tan to brown, leathery and typically originate at the stem end of the fruit.

Symptoms of Septoria leaf spot first appear as small, water-soaked spots on the lower leaves. The leaf spots generally are smaller and more numerous than those resulting from early blight. Eventually the center portion of the Septoria lesion turns light tan or gray while the margin remains dark. Small black fruiting structures (pycnidia) of the fungus, readily visible with a 10X hand lens, are formed in the center portion of the lesion. Septoria leafspot is generally more common in Kansas gardens than early blight.

Both fungi overwinter in plant debris, on seed, or on weeds such as nightshade and horsenettle. Spores of these fungi may be splashed or blown to tomato leaves. Disease development is favored by relatively warm temperatures, abundant rainfall and high relative humidity.

Recommendations: Mulching, caging, or staking keeps plants off the ground, making them less vulnerable. Better air circulation allows foliage to dry quicker than in plants allowed to sprawl. Mulching also helps prevent water from splashing and carrying disease spores to the plant. Cages and stakes should be cleaned if they supported diseased plants the previous year and the cages were stored inside away from the weather. Wash cages with a dilute bleach and water solution (1 part bleach to 10 parts water) before use. Cages stored outside are “sanitized” by weathering.

In some years, tomatoes will develop these diseases even when these recommendations are followed. In such cases, rotation is a good strategy. Rotation is a good idea even if you have not had problems in the past, but many gardens are too small to make it practical. If you have room, rotate the location of the tomatoes each year to an area that has not had tomatoes or related crops (peppers, potatoes, eggplant) for several years.

If rotation is not feasible, fungicides are often helpful. Be sure to cover both upper and lower leaf surfaces, and reapply fungicide if rainfall removes it. Plants usually become susceptible when the tomato fruit is about the size of a walnut. Chlorothalonil or a copper fungicide are good choices for fruiting plants because each has a 0-day waiting period, meaning that fruit can be harvested once the spray is dry. Chlorothalonil can be found in numerous products including Fertilome Broad-Spectrum Landscape & Garden Fungicide, Ortho Garden Disease Control, GardenTech Daconil and others. Copper fungicides may be sold under the trade name of Copper Fungicide.

If the above products don't seem to be effective, try mancozeb (Mancozeb Flowable). Note that there is a five-day waiting period between application and when the fruit can be harvested. You may wish to pick some tomatoes when starting to turn color just before you spray if you use Mancozeb as they will ripen inside.

Be sure to start protecting plants when the disease is first seen. It is virtually impossible to stop this disease on heavily infected plants. Also, gardens that have had severe leaf spot disease problems in past years may not respond to fungicide treatments.

References:

1. [Leaf and Fruit Diseases of Tomato](#). K-State Research and Extension, Publication L-721.

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