

## Controlling Tomato Leaf Spot Diseases

Nothing is better than a home-grown, garden tomato, but growing tomatoes does have its pitfalls, including disease problems. Tomatoes are subject to many diseases, both leaf spots and wilts.

Tomatoes are attacked by both fungi and bacterial diseases that affect the leaves, petioles and stems, and cause blemishes on the fruits. Foliage diseases weaken infected plants by killing the leaves, which are the plant's factories for carbohydrate and energy production. Loss of foliage due to disease, causes the tomato plant to be less productive or vigorous. If foliage diseases are not controlled, they can lead to death of the plant.

If too many leaves are killed then tomato production and quality will be affected. Severe foliage loss can lead to sunscald on developing tomatoes, which are suddenly exposed to more intense sunlight.

Common diseases of tomato include septoria leaf spot, early blight, bacterial speck and bacterial spot.

All of these diseases overwinter in the vegetable garden on infected plant debris. The spores are spread during the growing season by wind, water and human activity.

- ◆ Septoria leaf spot begins as tiny black dots on the leaves, enlarging to small circular spots with a dark margin and gray center. Infected leaves turn yellow and die. Elongated lesions develop on stems and petioles.
- ◆ Early blight appears as irregular, dark brown areas on the leaves with concentric, black rings developing in a target-like pattern as the spots enlarge. Dark brown, sunken lesions form on stems and petioles. These symptoms appear about 10 days after infection. Early blight occurs in midsummer during warm, humid periods and can spread very rapidly.
- ◆ Bacterial speck and spot are both spread by infected plant debris during periods of humid, wet weather. Bacterial speck appears as tiny, pinhead sized, raised black specks on tomato leaves and fruits.
- ◆ Bacterial spot is very similar to bacterial speck, but the leaf and fruit spots are slightly larger. On tomato fruits, bacterial spot results in slightly raised, brown, scabby lesions.

One of the most common methods of tomato leaf infection is through rain splashing on bare soil. All of the diseases mentioned above overwinter on infected plant debris in the soil. During a rainstorm, water droplets hit the soil surface, splashing water and soil up onto the lowest tomato leaves. Prevent rain splash in your garden by covering the soil with mulch. Mulch plants with clean straw, black plastic, newspapers, wood chips, or any other coarse organic material. Mulch also helps suppresses weed growth, moderates soil temperature extremes and helps retain soil moisture.

Suppression of leaf spot diseases, once plants have been infected, can be accomplished through sanitation and the application of fungicides. Remove and discard heavily infected plants. Early blight infection can be slowed by removing diseased leaves as they appear.

Also, keep tomato leaves as dry as possible, by applying water to the base of plants, instead of through an overhead sprinkler, since water on the leaf surface promotes germination of fungal

spores and leaf infection.

Fungicides work by keeping healthy leaves from becoming infected, they are not curative. This means that infected foliage will remain diseased and may die. Fungicides must be applied on a regular basis to provide continued protection for the healthy leaves. Fungicides that contain copper, chlorothalonil or maneb are readily available at most garden centers. Read the fungicide label carefully to determine the post harvest interval, or find the number of days you must wait after the final fungicide application before fruits can be harvested.

For additional disease management, remove debris from tomato and pepper plants in the fall after harvest is completed or till debris into the soil.