Symptoms

Both diseases produce similar symptoms and are often misdiagnosed. Bacterial spot leaf symptoms begin as small circular to irregular greasy spots most visible on the underside of the leaflets. As these water-soaked regions enlarge, colors change from dark green to purplish-gray, accompanied by a distinctive black center. Affected tissue becomes thin and may crack. The infected regions may be surrounded by a white to yellowish halo. In wet weather, infected leaves appear scorched. Large lesions result in defoliation. Fruit lesions begin as dark raised spots that become brown and sunken in the mature fruit. The associated skin rolls back giving the spots a scabby appearance. The spots rarely exceed one-fourth inch in diameter and are usually about one-eighth inch (Figure 1). Fruit lesions are superficial and rarely develop into extensive soft rot.

Control

Neither disease is control by fungicides. To reduce the possibility of bacterial spot when planting tomatoes from seed, remove infected plants from the garden before they flower. Treat plants with copper sulfate, mancozeb, or a similar fungicide when the first signs of bacterial spot are observed. Infection is most likely when young plants are in contact with a large number of bacteria, so spray seedlings when they first touch the soil. Do not plant tomatoes in a field with a history of bacterial spot or bacterial speck. Crop rotation is effective in reducing bacterial speck, but less effective against bacterial spot.
Symptoms of bacterial speck occur on all plant parts above the ground. Immature tissue is most susceptible. Symptoms on leaves are indistinct. Leaf spots are dark, round and lack haloes. On fruit, the disease initially appears as a black stippling, eventually causing lesions one-thirty-second inch to one-sixteenth inch in diameter with distinct margins (Figure 2). These small spots are superficial, do not rupture the skin, do not develop into soft rot, and are sometimes surrounded by an area that is slow to ripen. When fruits are infected early, the spots may cause pit-like distortions because the lesioned tissue grows slower than unaffected tissue. Mature fruits are resistant as a result of their high acidity.

Control

Control methods for both diseases are identical. There are no tomato cultivars completely resistant to spot. Some lines hold up to speck better than others: Quick Pick, Floramerica and Early Girl are the best for North Dakota. Resistance lies in the wild lines of tomatoes which will be used in future breeding of North Dakota tomato releases. These lines should be available in three to four years.

Growers should buy tomato transplants from a reliable source or plant only treated seed (hot water, 122 F for 25 minutes; or sodium hypochlorite, 1.3 percent for 1 minute). Hot water controls bacteria both on and in seeds but reduces germination. Sodium hypochlorite affects only seed surface bacteria. Some growers control the disease by planting seed from their own disease-free fruits.

The location of tomatoes within the garden should be rotated from year to year. Irrigation should be controlled to minimize the length of time the foliage remains wet. Avoid working plants when they are wet.

Streptomycin sprays may be used until transplanting time. Copper-containing fungicides can help alleviate losses.

Follow recommendations given in PP-659 Disease Management in Home-Grown Tomatoes (1992) and PP469 Plant Disease Management in the Home Garden (1995). Also, maneb or chlorothalonil fungicide sprays help protect against fungus leafspot diseases that can occur in wet weather.

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Information for Prospective Students

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