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## Cherry Leaf Spot

### *Blumeriella jaapii*

**I. Introduction:** Cherry leaf spot is generally distributed throughout the U.S., Canada, and various parts of the world where humid conditions occur. In the eastern and Midwestern portions of the U.S., the disease most seriously affects the foliage of tart, sweet, and English Morello cherries. Tart cherries are generally more susceptible. In addition, various wild and cultivated hosts of the genus, *Prunus*, can also be affected by this disease, although a different species of the fungus affects plum.

**II. Symptoms:** This fungus primarily attacks the leaves, although it may also infect leaf stems, fruit, and fruit stems. In the spring, one to three weeks after petal fall, the disease first appears as small, purplish spots on the upper surface of the leaves. These spots eventually turn brown. Most spots are circular; however, when abundant, they often coalesce and form large, irregular dead patches (photo 2-70). After six to eight weeks, the spots cease to enlarge, separate from healthy tissue and drop out, leaving a "shot-holed" appearance. Frequently, there are areas around the spots which remain green, giving the leaf a mottled appearance. During wet periods, whitish, felt-like patches appear in the center of the spots on the underside of the leaves. These contain spores of the causal fungus. The spots tend to be somewhat larger on sweet cherry leaves than on tart cherry leaves. After leaves become infected, they turn yellow and fall off. The most conspicuous symptom of leaf spot, especially on tart cherries, is the yellowing of older, infected leaves before they drop. Entire trees can be defoliated by midsummer. This premature



defoliation weakens trees and makes them more susceptible to cold injury the following winter. Entire blocks may be killed in years when cold winters follow severe leaf spot infections. If early spring infections are severe, the fruit will fail to mature. Early and repeated defoliation can also result in small, weak fruit buds, death of fruiting spurs, reduction in fruit set and size, and reduced shoot growth. Trees may become stunted or killed if defoliation occurs through successive seasons.

**III. Disease Cycle:** There are two stages in the life cycle of this fungus, described as follows:

*Primary cycle:* The fungus overwinters in diseased leaves on the ground. In the spring, fruiting structures called apothecia develop on these leaves. Around bloom or shortly afterwards, ascospores are formed within these fruiting structures. During wet periods, ascospores are forcibly discharged from these leaves and are carried upward by wind and splashing rain to infect newly developing leaves. Sometimes the first sign of infection may be on suckers close to the ground. During this primary cycle, most spores are discharged from bloom to four to six weeks after petal fall. Infection early in the primary cycle is limited, for the new leaves are small and not as susceptible, and also because the stomata of these leaves are still immature. It is through these stomata that the fungus gains entry into the leaf. Another factor that limits infection are the low temperatures that usually occur in the early spring.

Once ascospores are ejected, they attach to the young leaves, germinate in a film of water, and penetrate through stomata on the underside of the leaf surface within a few hours. Small, purplish spots appear on the upper leaf surfaces in about 10 to 14 days after the first infections. The incubation period from the first infection to the appearance of spots varies with temperature and can occur in as little as five days. Temperatures of 60 to 68 F (16-20 C) are most favorable for disease development.

*Secondary cycle:* Eventually, the fungus produces conidia on the underside of the leaf. These conidia are responsible for the extensive spread of the disease. During wet periods, conidia appear as whitish-pink sticky masses of spores and are spread from leaf to leaf by water. If weather conditions for disease development are conducive, infection can become increasingly abundant as the season progresses. New infections can occur throughout the summer and fall due to the rapid increase and spread of the fungus during wet periods by means of repeated generations of conidia.

**IV. Monitoring:** In early spring, while trees are still dormant, monitor the orchard floor for the presence of leaf litter which is the source of primary inoculum. Observe 50 leaves on each sample tree for the presence of spots (photo 2-70) four to six weeks after petal fall. Spots may be only pinpoint in size. During wet, humid periods, examine the underside of leaves to determine if masses of whitish-pink conidia are beginning to form. Be familiar with leaf spot symptoms as this disease is sometimes confused with

other problems, such as virus diseases and spray injury. Record the occurrence of defoliation due to this disease.

**V. Management:** Fungicides are the primary means for managing cherry leaf spot. All commercially acceptable cultivars of cherry are susceptible to the disease. Start fungicide applications at petal fall, or after the first leaves have unfolded, and repeat applications every 7 to 10 days until harvest, and conclude with one or two postharvest applications, beginning 2 to 3 weeks after harvest. Spraying alternate sides of trees on a 7-day schedule, rather than spraying both sides on a 10-day schedule, will improve efficiency of fungicide use. The disease is more difficult to control on sour cherries because of their high susceptibility.

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**READ LABELS CAREFULLY AND USE CHEMICALS IN ACCORDANCE WITH LABEL CAUTIONS, WARNINGS, AND DIRECTIONS. REQUEST A MATERIAL SAFETY DATA SHEET (MSDS) FROM THE MANUFACTURER FOR EACH PRODUCT YOU USE.**

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