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how to recognize and control

CHERRY LEAF SPOT

COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY



(Fig. 2.) Infected cherry leaf that shows dark purple spots on the upper surface.

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CHERRY LEAF SPOT, caused by the fungus, *Coccomyces hiemalis*, is one of the most serious diseases of both sweet and sour cherries. It is annually a problem on Montmorency cherries in Michigan. In recent years, this fungus disease has increased on sweet cherries.

Economic Importance

Early defoliation caused by this disease, results in dwarfed, unevenly ripened fruit. The most serious effect occurs in the season following extensive early defoliation. (Fig. 1). The results can be (a) cold injury — death of limbs or trees, (b) small, weak fruit buds, (c) death of fruit spurs, (d) reduction of fruit set and size, and (e) reduced shoot growth.

How To Recognize Cherry Leaf Spot

The chief symptom of cherry leaf spot is found on the leaves. Symptoms can also be found on petioles (leaf stems), fruit, and fruit pedicels (stems).



Fig. 1. Cherry tree prematurely defoliated, a result of severe cherry leaf spot fungus infection.

Small, purple spots appear on the upper surface of the leaves about 10 to 14 days after infection. They may be pinpoint in size or up to ¼ inch in diameter (Fig. 2). On the underside of the infected leaves during wet periods, whitish-pink masses are found under the purple spots. These masses contain spores plus a gelatinous substance. The spots, or lesions, usually dry, and a chlorotic (yellow) ring forms around the edge. The center of the lesion may shrink and fall out, causing a shot hole effect. This shot hole develops more on sour cherries than on sweet. The older leaves turn yellow and usually drop prematurely.

Favorable Environmental Conditions

Young leaves must have functioning stomata (air pores), primarily on the underside, before they are susceptible in the early spring. The stomata are mature when the leaves have unfolded after emerging from the bud. The fungus develops most rapidly under wet and warm temperatures, around 70°F. At lower temperatures infection occurs, but more slowly.

LIFE CYCLE

There are two stages in the life cycle of this fungus. Knowledge of these cycles will aid growers in carrying out their control practices.

Primary cycle — The fungus overwinters in the dead leaves on the ground. In the spring, fruiting structures called apothecia develop on these leaves in late April. Spores (ascospores) mature at various times, depending on temperature and moisture. Generally most of the spores are discharged from bloom to 4 to 6 weeks after petal fall during wet periods.

The infection early in the primary cycle is limited, because the susceptible developing leaves are small and most of the air pores (stomata) are too immature

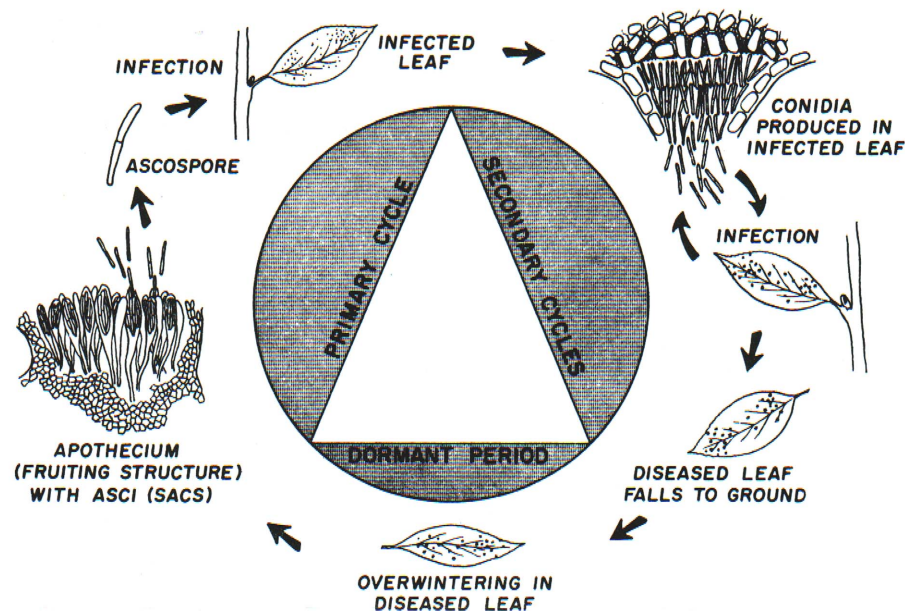


Fig. 3. Life cycle of cherry leaf spot fungus.

to be infected. Other factors are low temperatures and drying out of ascospores. Prevention of this early infection is important to eliminate early spore production on the leaves.

On germination, the fungus enters through the stomata (air pores on the underside of the leaf), and the mycelium branches out inside the leaf and later forms a fruiting structure (acervulus) on the underside of the leaf surface. Each acervulus contains thousands of spores (conidia).

Secondary cycle—The acervulus (fruiting structure) appears as a pink to whitish-pink mass on the underside of the leaves during humid conditions. In dry periods this mass is brown in color. The conidia are spread from leaf to leaf by water. The rapid spread of leaf spot fungus in the summer and fall is usually due to rapid increase and spread of the fungus during wet periods by means of repeated generations of conidia.

CONTROL

Timing and thoroughness of application as well as choice of fungicides, are very important in the control of cherry leaf spot.

Timing — Sprays are timed to prevent both primary infection and secondary infections in orchards. The first spray prevents initial primary infection and the three subsequent cover sprays at 10-day intervals prevent primary and secondary infections until harvest.

The post-harvest spray helps to check leaf spot fungus for the remainder of the summer.

Thoroughness — Thoroughness is essential in leaf spot control. Cover all parts of the tree with spray, particularly the top centers. Because the entrance points (air pores or stomata) are found chiefly on the underside of the leaves, coverage of this area is very important.

SPRAY SCHEDULE

Time of application	Fungicide	Commercial Amounts to use with water to make 100 gallons	Home orchard Amounts to use with water to make 1 gallon
¾ petal fall or when first leaves unfold	Dodine (Cyprex) (Red Tart* and Sweets**) Glyodin + Ferbam (Red Tart only) Captan	4 to 6 ounces 1½ pints + ½ pound 2 pounds (Sweets only)	— — 2 tablespoonsful (Red Tart and Sweets)
First Cover (10 days after petal fall spray)	Use same fungicides and rates as listed in petal spray		
Second Cover (10 days after first cover spray)	Same as first cover		
Third Cover (10-14 days after second cover spray)	Same as second cover		
After Harvest Cover	Dodine (Cyprex) Captan	4 to 8 ounces —	— 2 tablespoonsful

*Red tart = Montmorency variety.

**Use ¼ pound Dodine (Cyprex) on sweets in pre-harvest sprays and ¾ to ¾ pound in the post-harvest spray.

Note: If Dodine (Cyprex) is available for home orchardists, use 1 teaspoonful per gallon of water.