

Cherry Leaf Spot

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Cherry leaf spot is one of the most serious diseases of both sweet and sour cherries in the Midwest. The disease mainly affects the leaves, but lesions may also appear on fruit, petioles, and fruit stems (pedicels). Diseased leaves drop prematurely, and severely affected trees may be defoliated by mid-summer. Early and repeated defoliation can result in: (1) dwarfed and unevenly ripened fruit with poor taste; (2) devitalized trees that are more susceptible to winter injury; (3) death of fruit spurs; (4) a reduction of fruit set and size; (5) small and weak fruit buds; (6) reduced fruit growth; and (7) eventual death of the tree.



Figure 1. Cherry leaf spot symptoms on upper surface of cherry leaf.

Symptoms

During the latter part of May and the first half of June, small circular purple spots appear on the upper surface of the leaf (Figure 1). Spots gradually enlarge to about 1/4 inch in diameter and turn reddish-brown. Lesions may emerge to produce large, irregular spots. Whitish-pink masses of sticky spores (conidia) form within the spots on the undersides of infected leaves during periods of damp weather (Figure 2). After six to eight weeks, the centers of the spots may dry up and drop out, giving a “shot-hole” appearance. The “shot-hole” effect is more common on sour than on sweet cherries.

The most conspicuous symptom, especially on sour cherries, is the golden yellowing of older infected leaves before they drop off (Figure 3). Although this symptom does not occur every season, the spotting of infected leaves is always visible.

Spots similar to those on the leaves may also form on leaf petioles and fruit pedicels, causing fruit to ripen unevenly. Spots usually do not form on fruit.

Causal Organism

Cherry leaf spot is caused by the fungus, *Blumeriella jaapii* (previously called *Coccomyces hiemalis*). The fungus overwinters in dead leaves on the ground. In early spring (about petal fall), fungal fruiting bodies called apothecia develop in these leaves. Spores (ascospores) are produced in the apothecia and are forcibly discharged during rainy periods for about six to eight weeks, starting at petal fall. The optimal temperatures for ascospore discharge are 61 degrees F (16 degrees C) and higher. Very few ascospores are discharged at temperatures below 46 degrees F (8 degrees C). These ascospores are spread by wind or splashing



Figure 2.

raindrops to the green, healthy leaves and serve as primary inoculum for disease. The ascospores stick to the leaf surface, germinate in a film of water, and within several hours at the proper temperature (Table 1), penetrate the leaf through stomata (natural openings) on the underside of the leaf. The small purple spots soon appear on the upper surface. Incubation time, from fungus penetration to the appearance of the spots, varies with temperature. Under damp conditions and with temperatures between 60 and 68 degrees F (15 and 20 degrees C), the period may be as short as five days. When rain and dews are absent and at lower temperatures, as long as 15 days may be required before symptoms appear.



Figure 3. Infected leaves usually turn yellow or gold before they drop prematurely.

Table 1. Approximate minimum number of hours of leaf wetness required to produce leaf spot infections caused by conidia on sour cherries.^a

Average temperature (degrees F)	Wetness (hours) ^b	Average temperature (degrees F)	Wetness (hours)
46	28	61-62	6
47	25	63-68	5
48	23	69-70	6
49	20	71-72	7
50	19	73	8
51	17	74	9
52	15	75	11
53	14	76	12
54	12	77	14
55	11	78	16
56	10	79	18
57	9	80	21
58	8	81	28
59-60	7		

^a Requirements for primary (ascospore) infections are presumed to be similar.

^b Hours of wetness from the beginning of the rain. Data of S. Eisensmith and A. Jones (Michigan State University).

We wish to thank the New York State Agricultural Experiment Station for the use of this table. Taken from Tree Fruit Crops IPM Disease Identification Sheet No. 8.

Once lesions have developed, masses of secondary or summer spores (conidia) are formed from the slightly concave eruptions (acervuli) on the underside of the leaf. This mass of conidia provides the white appearance to the underleaf lesions. Conidia are spread to other leaves by splashing raindrops and are capable of causing new infections (each producing thousands of additional conidia) under the temperature and wetness conditions listed in Table 1. Serious leaf spot damage usually occurs in years with numerous rainy periods throughout late spring and summer, when repeated secondary infection cycles allow the disease to snowball into an epidemic.

Control

1. Collect and destroy the fallen cherry leaves in late autumn. The fungus overwinters in these leaves. This practice should be quite beneficial for backyard growers with one or a few trees, but is generally not considered practical for large commercial plantings.

- Select a planting sight that is always exposed to direct sunlight and has good air circulation and soil drainage. Proper pruning to open the canopy will increase sunlight penetration and air circulation. Any practice that promotes faster drying of leaves will reduce the risk of infection.
- Especially in commercial plantings, the disease is controlled primarily with fungicide sprays. For the most recent fungicide recommendations, commercial

growers are referred to Bulletin 506-A2, *Midwest Commercial Tree Fruit Spray Guide*, and backyard growers are referred to Bulletin 780, *Controlling Diseases and Insects in Home Fruit Plantings*. These publications can be obtained from your county Extension educator or the Extension Publications Office; The Ohio State University; 216 Kottman Hall; 2021 Coffey Road; Columbus, OH 43210-1044.

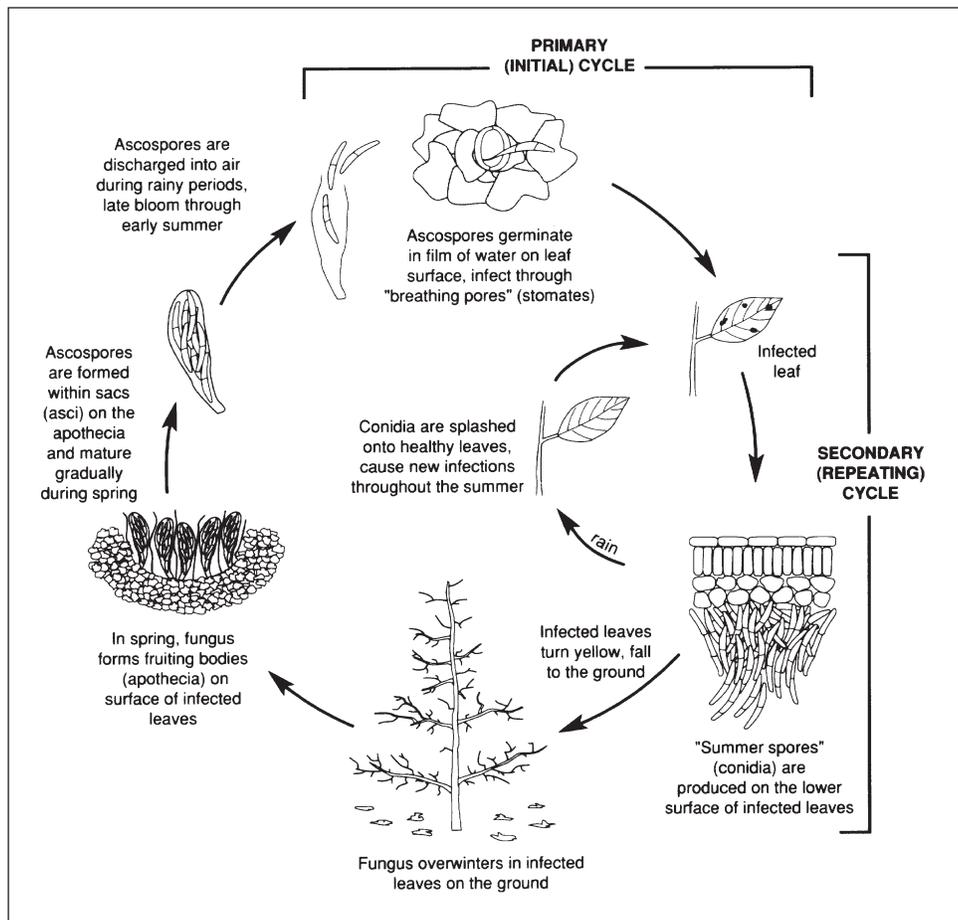


Figure 4. Cherry leaf spot disease cycle. We wish to thank the New York State Agricultural Experiment Station for use of this figure. Taken from Tree Fruit Crops IPM Disease Identification Sheet No. 8.

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