

# Fungal leaf spot diseases of cranberry in Wisconsin

P. S. M c M A N U S

Leaf spot diseases of cranberry are common in Wisconsin, but losses are usually insignificant. The most common leaf spot diseases—red leaf spot, *Protoventuria* (*Gibbera*) leaf spot, and *Cladosporium* leaf spot—are caused by fungi. Although each disease is distinct, they frequently occur together, probably because they are favored by similar conditions (e.g., dense vine growth, excessive moisture, lack of fungicides).

## Signs and symptoms

Red leaf spot, caused by *Exobasidium rostrupii*, is marked by large, circular, bright red spots on the upper surface of the current year's leaves (figure 1). Affected leaves often are more circular in shape than the elongated healthy leaves. The undersides of leaves eventually become covered with white, powdery fungal growth including spores. Infected shoots become bright red and swollen and sometimes distorted (figure 2). In severe cases, the shoot tips will die. A second fungus, *Mycosphaerella nigromaculans*, sometimes invades shoots and fruits affected by red leaf spot, causing the disease black spot (figure 3). Thus, it is not uncommon to see red leaf spot and black spot in the same plantings. Young plantings of the cultivars Ben Lear and Stevens are particularly susceptible, but any cultivar may get red leaf spot if vine growth is lush. For more information about this disease, see Extension publication *Red Leaf Spot* (A3343).

*Protoventuria* leaf spot, caused by *Protoventuria myrtilli*, was formerly called *Gibbera* leaf spot and is very common, especially in plantings where fungicides are not used. Leaf spots first appear in late summer and early fall as small, dark red to purple blotches on the upper surface of the current year's leaves. By late spring of the following year, the spots enlarge and fade to yellow (figure 4). By mid-summer, entire leaves appear chlorotic and tiny black fruiting bodies are clustered irregularly across the upper leaf surface. Spores are released from the fruiting bodies and infect the current year's leaves. *Protoventuria* leaf spot may cause infected plants to prematurely drop 1-year-old leaves. Loss of

these leaves probably doesn't harm yield as almost all of the resources for developing fruit come from the current year's leaves. *P. myrtilli* also causes red speckling on fruit, especially at the stem end. However, the speckling is superficial and does not affect fruit flavor or storage quality.

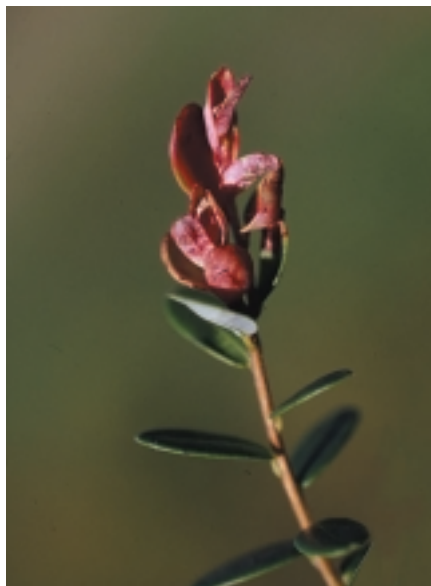


Figure 2. Severe red leaf spot affecting an entire shoot. Masses of fungal growth and spores create the powdery pink appearance of leaf undersides.



Figure 1. Leaves affected with red leaf spot have distinctive coloration and are shorter and rounder than normal.



Figure 3. Black spot of fruit (top) is frequently found in plantings affected by red leaf spot.

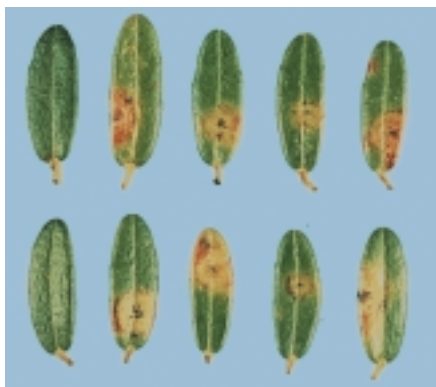


Figure 4. Protoventuria leaf spot the spring following the previous year's infection. Healthy leaves at left.

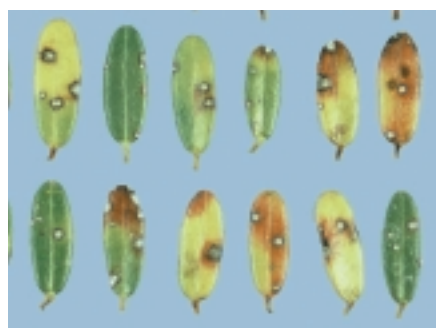


Figure 5. Cladosporium leaf spot is distinguished from the other leaf spots by the white centers in spots.

Cladosporium leaf spot, caused by *Cladosporium oxycocci*, is less common than the other leaf spot diseases, but some growers have reported significant early drop of the previous season's leaves. Cladosporium leaf spots are distinguished from Protoventuria leaf spots by white to gray fungal growth in the centers of spots (figure 5). Symptoms on fruit are inconspicuous, tiny red spots with white centers.

### Managing leaf spot diseases

Modifying cultural practices is the key to managing leaf spot diseases. In general, leaf spot diseases are favored by excessive moisture. Cultural practices to manage water and fertility levels will reduce the susceptibility of plant tissue and minimize fungal infection.

- Irrigate early in the day so that foliage will dry before nightfall.
- Correct soil drainage problems in low-lying areas—areas that remain wet for long periods are prime locations for fungal leaf spot diseases.
- Manage fertility levels—excessive nitrogen promotes lush, succulent tissue that is especially prone to red leaf spot. Also, luxuriant vine growth is slow to dry after rain or irrigation.

Leaf spot diseases are rarely significant enough to justify fungicide sprays. However, if a disease cannot be brought under control by modifying cultural practices, then judicious fungicide use might prevent economic losses. Only young leaves and stems are susceptible to red leaf spot, so fungicides should be applied at budbreak and during shoot elongation. Fungicides are ineffective later in the season after symptoms have developed. For Protoventuria leaf spot, fungicides should be applied during late July and early August when spores are released. Fungicides applied to control fruit rot diseases will usually control Protoventuria.

Before choosing a fungicide, you should consider the potential for side effects, such as phytotoxicity and reduction of fruit color, that are associated with some fungicides. The economic benefit of using fungicides to control leaf spot diseases is questionable.

For current information on available fungicides, see Extension publication *Cranberry Pest Management in Wisconsin* (A3276).

You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.



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