



Newsletter

Landscaping and Trails Committee

High Desert Gardening

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Leaf Spot Diseases of Ornamentals

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Leaf spot diseases are probably the most common types of plant diseases in many parts of the US. However, leaf spots are rarely problematic in high desert, limited-rainfall areas of New Mexico unless overhead irrigation is used. These diseases are most widespread after relatively cool, wet spring weather, since free water on leaf surfaces is usually necessary for infection. Most common herbaceous ornamentals, trees, and shrubs are hosts to one or more leaf-infecting pathogens. In most cases, leaf spots are considered to be more aesthetic than life-threatening problems, although they can result in significant and sometimes disconcerting premature leaf drop.

Causal Agents:

Most leaf spot diseases are caused by fungi, although other organisms, such as bacteria and nematodes, can also cause foliar diseases.

Symptoms:

Leaf spot symptoms vary with the plant host and the causal agent. However, typical leaf spots usually have fairly defined margins and brown, black, tan, or reddish centers (Figures

1-7). Spots vary from pin-head to several centimeters in diameter and can coalesce to encompass entire leaves. Some spots are circular and others are irregular in shape, some are raised, some spots drop out and give the leaf a shot-holed appearance (Figure 5) and some spots have distinct yellow haloes (Figure 4).

Heavily infected leaves turn yellow and brown, shrivel, and drop prematurely. Partial to complete premature defoliation of a tree or shrub may occur under some circumstances. For example, crabapples heavily infected with scab are often defoliated by early July.



Figure 1. Fungal leaf spot of iris.

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Figure 2. Fungal leaf spot of phlox.



Figure 3. Fungal leaf spot (scab) of crabapple.

Management:

Leaf spots can be managed using a variety of strategies. They are rarely serious enough to warrant yearly chemical control and are often effectively managed by following good sanitary and cultural practices. In fall, it is important to rake and remove fallen leaves from the vicinity of the plant since many of the leaf-spotting fungi persist on fallen leaves and in plant debris. This practice reduces the overwintering inoculum and the number of spores available to infect emerging leaves in spring.



Figure 4. Fungal leaf spot of hawthorn.



Figure 5. Shot-hole of cherry caused by a fungus.

It is also helpful to follow sound cultural practices that promote plant vigor. These include proper watering, fertilizing (as needed or as suggested by a soil test), mulching, and appropriately timed pruning. Leaf spots are most severe under crowded and shaded conditions.



Figure 6. Bacterial leaf spot of columbine.



Figure 7. Black spot of rose.

Leaf spots are especially problematic on new transplants or on weakened or stressed plants. In such cases, chemical control can be helpful, especially in cool, (wet) springs. However, accurate diagnosis of the specific leaf spot is often necessary to select the most efficacious fungicide for control. Among the fungicides registered for use in New Mexico are thiophanate-methyl, chlorothalonil, and mancozeb. Organic options include sulfur and copper compounds. Several biological products can also be used as protectants, some of which are acceptable for organic standards. These include *Trichoderma harzianum* Rifai strain KRL-AG2, *Streptomyces griseoviridis* strain K61, *Bacillus amyloliquefaciens* strain D747, and *Bacillus subtilis* strain QST 713. The pesticide labels contain information for use, including specific plant hosts and diseases, dosage rates, and safety precautions. Since most leaf-spotting fungi infect in spring as new leaves are emerging, the first fungicide spray is usually applied at bud break. Additional applications may also be necessary in unusually wet and prolonged springs. When symptoms are visible on the new leaves, it is usually too late for effective chemical control.