



IRIS LEAF SPOT

Iris leaf spot (blotch or fire) is the most common and widespread disease of both rhizomatous and bulbous species of iris. It is caused by the fungus *Mycosphaerella* (*Didymellina*) *macrospora* (imperfect state *Cladosporium iridis* = *Heterosporium gracile*). Other hosts of the leaf spot fungus include daylily (*Hemerocallis*), freesia, gladiolus, and narcissus.

Leaf spot devitalizes plants and makes them unsightly. Repeated severe attacks reduce blooming and may kill plants after several years since premature death of the leaves gradually weakens the rhizomes or bulbs. Heavily infected plants are also more prone to cold damage, other diseases, and insect pests.

The disease is favored by prolonged periods of mild and very damp weather. Leaf spot is most severe in low-lying areas where air movement is poor and where diseased iris debris has been allowed to accumulate.



Figure 1. Early stage of iris leaf spot.

SYMPTOMS

Leaf spot is usually confined to the leaves, especially the upper half, but symptoms also may appear on the stems and flower buds. Minute, green to yellow, watersoaked lesions, which soon turn brown and dry, become surrounded by a water-soaked margin, which later turns yellow. The spots (lesions) form on both leaf surfaces. During spring the oval lesions slowly enlarge up to one-fourth inch long (Figure 1). After the plants bloom, the spots enlarge much more rapidly, up to about one-half inch long, and merge to form large, irregular, dead areas that may cause the leaves to turn yellow, die back from the tip, and curl. Older lesions have grayish centers and distinct reddish brown to dark brown borders. When moist, the centers of the lesions are dotted with dark olive-brown tufts (conidiophores) on which large numbers of similarly colored spores (conidia) are borne.

DISEASE CYCLE

The *Mycosphaerella* fungus overwinters as mycelium in old iris leaves and flower stems. In the spring, masses of conidia are produced on this debris. Sometimes, in addition to these spores, another kind (ascospores) are formed in dark brown to black fruiting bodies (perithecia). The conidia and, to a much lesser extent, the ascospores are responsible for primary infections in the spring. During late spring and

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summer, tufts of conidiophores emerge through the stomata in the diseased leaf spots and bear masses of olive-brown conidia that turn the center gray to black. These spores, which are produced in tremendous numbers, are disseminated primarily by splashing rain and by air currents to other locations on the same leaf or to nearby leaves. The spores germinate within several hours over a wide temperature range (50° to 77°F or 10° to 25°C), with an optimum temperature near 68°F (20°C). Penetration occurs both through the stomata and directly through the epidermis. Within a few days, the minute, watersoaked spots appear. The conidia are responsible for repeated infection cycles during the growing season.

CONTROL

1. Collect and burn or bury all leaf and flower stalk debris in the fall or in early spring before the new leaves appear. Particular care should be taken to remove all dead and living infected leaf tissue when clumps are divided every few years and when bulbs are planted.
2. Cut off and destroy infected parts of leaves as they occur.
3. Plant iris in full sun in a well-drained, rich loam soil. Avoid low spots and other locations with poor air movement.
4. Space plants and keep down weeds to promote good air circulation.
5. Avoid sprinkling the foliage when watering. Do not work among plants when the foliage is wet because you then spread the spores of the leaf spot fungus.
6. Have the soil tested and apply lime if the soil is acid (below a pH of about 6.0).
7. Plant more resistant species of iris. Iris species and cultivars differ greatly in susceptibility to leaf spot. The commonly grown bearded or German iris (*Iris germanica*) is very susceptible. The Siberian iris (*Iris siberica*), the parent species of many forms and hybrids, is remarkably resistant.
8. When the above cultural practices fail to check the development and spread of iris leaf spot, spray the plants with a fungicide. For adequate protection, it is necessary to cover thoroughly all parts of the leaves and flower stems with a fine mist. Start when the new fan leaves are four to six inches tall and then make four or five additional applications spaced 7 to 10 days apart. Spray to the point of run-off.

Spraying is more effective than dusting. Sprays are required at 7- to 10-day intervals to keep the young, susceptible growth adequately covered. If the period is unusually rainy, the spray interval will need to be shortened to 5 days; if dry, lengthened up to 10 or 14 days. If possible, sprays should be applied before it rains to provide maximum protection of the foliage from the spores that are distributed primarily by splashing water. A commercial spreader-sticker (surfactant) should be added to the spray solution to reduce surface tension, ensure better wetting, and make the spray adhere to the waxy iris foliage.

Most insecticides suggested to control iris borers, aphids, and other insect pests may be added to the leaf spot spray solution. Use an insecticide recommended by Illinois Extension entomologists. Consult the Illinois Homeowner's Guide to Pest Management for recommended products. This publication is revised annually and is available at your nearest Extension office.