Leaf Spot Diseases of Trees and Shrubs

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All shade trees are attacked by one or more fungi that cause scattered, rather definite, round to oval, angular, or irregularly shaped spots on the leaves. These spots usually become conspicuous from late June through August. Leafspots are the most common diseases of shade and ornamental trees.

A few spots on the leaves do little harm to a tree and are far more unsightly than they are injurious. However, leaf spot infections that start early in the growing season can lead to premature defoliation. If it occurs over two or more successive years, it can seriously weaken a tree, reduce its growth, and increase its susceptibility to bark borers, winter injury, and other diseases. Leaf spots commonly increase in number and size in late summer and early autumn as the leaves begin to senesce. The occurrence of a leaf spot disease late in the growing season generally does not seriously affect the health of a tree.

Most leaf spot diseases develop as small, scattered, circular to oval dead areas in the leaves; usually tan, dark brown, yellow, gray, purple, or black. Some spots are raised, shiny, and coal black, others may drop out leaving ragged holes; some are marked with light and dark concentric zones. Numerous spots develop yellow, purple, red, or reddish brown to black margins; and later, in damp weather, increase in size and number and merge into large, angular to irregular dead areas. Dark areas and speck-sized, fungus-fruiting bodies (known as pycnidia, acervuli, and perithecia) commonly form in the dead tissues of many older spots. Heavily infected leaves may turn yellow to brown, wither, and drop early. Occasionally, some leaf spotting fungi deform or kill flowers, buds, fruits, twigs, or even small branches.

Many leaf spot diseases are caused by fungi that overwinter in fallen leaves. Other fungi overwinter in infected buds, fruits, twigs, and branch cankers. In most cases a fungus that causes a certain leaf spot attacks only one species of tree; a few may attack several species. From early spring into summer, microscopic spores are produced in tremendous numbers on the surface of the leaves. The spores are spread primarily by air currents, splashing water, and insects to newly emerging leaves of susceptible plants where, in the presence of free water, the spores germinate and penetrate, and infection begins. Depending on the fungus, there may be one or several generations of the pathogen in one growing season.

Control

Protective control measures are not generally warranted for most leaf spots. Although the fallen leaves are often collected and then composted, burned, or hauled away with the trash,

1. In early spring, properly fertilize trees that have been severely defoliated in previous years. Surface applications of ammonium nitrate fertilizer at the rate of 18 pounds per 1,000 square feet. Fertilization will help to stimulate vigorous growth, as will watering thoroughly (soil should be moist to a 12-inch depth) at weekly intervals during extended dry periods.

2. Prune trees regularly to thin out dense crowns. Remove weak, diseased, insect-infested, or dead wood and crossing or rubbing branches. Proper pruning will promote air movement, speed drying of the leaves, and help to stimulate vigorous growth.

3. In most years, the weather is not favorable for severe disease development and, in most cases, leaf spot diseases are not especially harmful. Therefore, for the control of most leaf spot diseases, protective fungicidal sprays are generally not recommended unless the health of the tree is in danger. However, there are a few common leaf spot diseases that can be controlled by using fungicidal sprays. In these cases, two or three applications are needed at 7- to 21-day intervals, usually as soon as the buds start to open and the leaves begin to expand, and long before the leaves are visibly infected. **Spraying fungicides after the disease appears will reduce secondary infections but will not eliminate infections that have already occurred.**