29. Anthracnose

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Hosts

Anthracnose, caused by fungi in the genera *Gleosporium, Gnomonia,* and *Glomerella,* and others, commonly affects many species of hardwoods, including ash, basswood, birch, catalpa, elm, hickory, horsechestnut, London planetree, maple, oak, sycamore, walnut, and yellow-poplar. The disease is particularly severe on American sycamore, black walnut, and oaks in the white oak group.

On horsechestnut, anthracnose is called leaf blotch. On other species such as ash, elm, hickory, and walnut, anthracnose is sometimes called leaf spot.

Distribution

Anthracnose diseases of hardwood seedlings occur throughout the range of the host species.

Damage

Anthracnose may cause partial or complete defoliation of seedlings, resulting in a decrease in growth and vigor. Mortality of infected plants is rare.

Diagnosis

On infected leaves, look for symptoms that range from small black, brown, or purple spots (fig. 29-1) to large, circular or irregular dead blotches (fig. 29-2). Spots may merge until the whole leaf is affected. Most infected leaves and leaflets fall prematurely.

When seedlings are infected early in the spring, the emerging leaves are often killed. These dead leaves turn black and look frost damaged. If they are not killed, the young leaves, particularly on the oaks, may become distorted by the unequal growth of healthy and infected parts.

Figure 29-1—Anthracnose symptoms on leaf of hickory.

On sycamore (fig. 29-3) and maple (fig. 29-4), infected areas are often found along the leaf veins and midrib.

By definition, anthracnoses are leaf and twig diseases caused by fungi that produce conidia in fruiting bodies called acervuli. During wet weather, pink spore masses from these fruiting bodies break through the leaf surfaces and can be seen easily with a 10 x hand lens. Conidia of these fungi are hyaline and one-celled. Sizes vary according to species.

Biology

Anthracnose diseases are caused by several species of closely related fungi. These fungi overwinter in infected leaf-and-twig debris or in cankered twigs on trees.

Figure 29-2—Symptoms of anthracnose, commonly referred to as "blotch," on leaf of horsechestnut.

Figure 29-3—Typical veinal necrosis associated with anthracnose disease on sycamore.

During rainy periods in the spring, large numbers of microscopic spores of the sexual state, called ascospores, are discharged from these leaves and twigs and spread by wind or splashing rain onto young, developing leaves of

Figure 29-4—Anthracnose symptoms on Norway maple.

host seedlings. The spores germinate under moist conditions, and the fungus penetrates the leaves.

On most species, secondary spores, called conidia, are produced in fruiting bodies on infected parts of the new leaves. Produced in large numbers, the conidia are also spread from leaf to leaf by wind and splashing rain. The rapid increase and spread of anthracnose in the summer and fall occur by means of these spores.

Yellow-poplar anthracnose is seedborne.

Control

Prevention—Plant anthracnose-resistant species or varieties. For example, London planetree is much less susceptible than American sycamore, and oaks in the red oak group are more resistant than white oaks.

When sowing yellow-poplar, use a disease-free seed source.

Cultural—Eliminate the overwintering fungus in plant materials in and around the nursery. Raking leaves and pruning out infected twigs and branches reduce the amount of inoculum that causes infection in the spring. This infected material should be destroyed by burning or other appropriate means.

Chemical—Anthracnose can be controlled with properly timed applications of a suitable fungicide. Bordeaux mixture is registered for use against anthracnose on elm, maple, and sycamore. Dodine can be used for sycamore and walnut anthracnose.

To protect seedlings from primary infection, apply the first spray in the spring when the foliage is one-half mature size. Following this application-depending on weather conditions-apply two or three additional sprays at approximately 2-week intervals.

Benomyl foliar spray applied at weekly intervals from seedling emergence until July 15 is effective in controlling anthracnose on yellow-poplar seedlings.

Selected Reference

Berry, Frederick H. 1985. Anthracnose of eastern hardwoods. For. Pest Leafl. 133. Washington, DC: U.S. Department of Agriculture, Forest Service. 8 p.