

AGRICULTURAL GUIDE

Published by the University of Missouri-Columbia Extension Division

Tree disease

Anthracnose of shade trees

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JAN 21 1986

Anthracnose is the common name for a fungus disease of shade and forest trees. Although symptoms vary with the tree species, the typical symptoms are leaf blights characterized by irregular brown-black lesions developing adjacent to the midrib, veins, and leaf tips (see Figure 1). In Missouri, the disease is most common on sycamore, white oak, and maple (silver and sugar). Sycamore anthracnose is serious, because the fungus also invades and kills twigs and buds. Other tree species affected include ash, birch, hickory, linden, tulip tree, and walnut, but damage is usually very slight. This guide describes the symptoms of the anthracnose diseases on various trees and provides recommendations for control.

Cause

Anthracnoses are caused by several related species of fungi that are usually specific to a particular tree host. For example, the fungus causing sycamore anthrac-

nose infects only sycamore and not other tree species. Anthracnose symptoms often occur simultaneously on several tree species in the landscape, because the fungi involved are influenced by the same environmental conditions.

Symptoms

Anthracnose symptoms vary somewhat, depending on the tree species involved:

Ash: Large, irregular, light brown spots develop along the leaf margins. Premature leaf fall is common.

Birch: Small, irregular, circular spots with dark brown margins develop.

Elm: Irregular brown to reddish-brown spots develop between veins and along margins. Infected leaves turn yellow and drop prematurely.

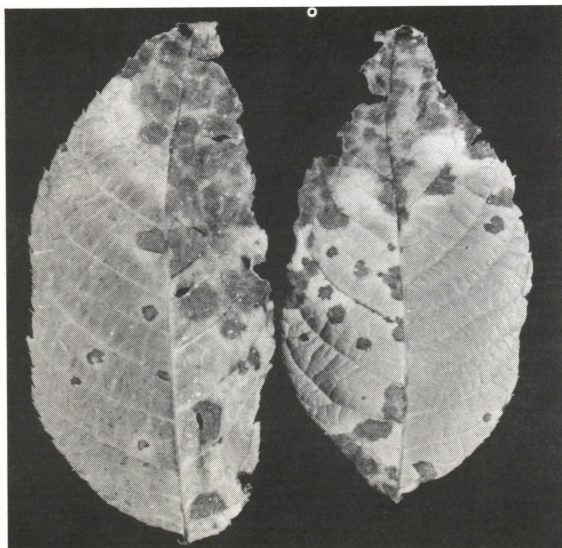


Figure 1. Anthracnose kills leaf tissues of oaks and other shade trees.

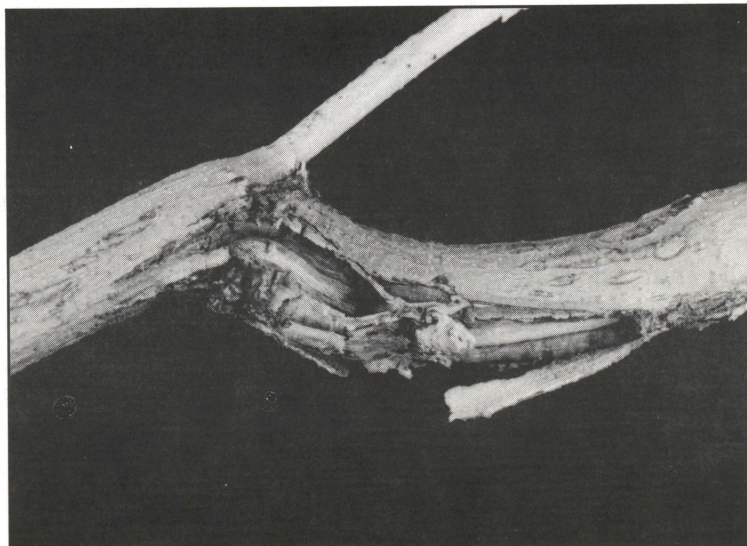


Figure 2. Twig cankers in sycamore trees can cause serious dieback.

- Hickory:** Large, irregular, reddish-brown spots develop on the upper surfaces of leaves. The lower surfaces turn dull brown.
- Maple:** Symptoms vary somewhat depending on species of maple. On sugar maples, brown or reddish-brown areas occur along or between the veins. On Norway maples, narrow purple to brown bands appear along leaf veins.
- Oak:** Brown diseased areas develop along the oak leaf midrib and major veins in the spring and early summer. These areas give the leaves a scorched appearance. Severely damaged leaves, found mostly on the lower branches, die and fall prematurely. However, new leaves usually replace those that fall. The fungus also attacks young twigs, causing cankers to develop. These infected twigs may eventually die.
- Sycamore:** Young leaves and growing tips of twigs may be killed in early spring. Infections may resemble frost injury. Infections on older leaves occur from late April through May. Older leaves have irregular brown areas adjacent to the leaf midribs, veins, and leaf tips. Blighted leaves fall prematurely, but new leaves are produced during the summer. Cankered twigs and branches die. Trees that are severely damaged for several consecutive years are vulnerable to other die-back diseases (see Figure 2).
- Walnut:** Small, irregular, dark brown-black lesions develop on new leaves in May. These lesions often merge to form large dead areas with yellow borders. Shoots and hulls also may be attacked. Irregular, sunken areas with red-brown margins develop on the shoots. Black, circular, sunken areas develop on the hulls. Infected leaves and nuts often fall prematurely, especially in wet weather.

Disease development

The anthracnose fungi overwinter in infected leaves and twigs that fall to the ground, or in cankered twigs that remain on the tree. The fungus spores spread from these infected tissues to buds and young leaves by wind and rain during the early spring and summer. Disease development is favored by extended periods

of cool, wet weather. Sycamore anthracnose is most severe when the average daily temperature is below 55 degrees F for one to two weeks following leaf emergence. Little or no shoot blight develops above 60 degrees F.

Control

Anthracnose of shade trees generally does not cause permanent damage except in sycamores. However, severe defoliation for several successive years can weaken a tree, making it vulnerable to other injuries and leading to progressive die-back. The following practices help control anthracnose or reduce the disease once it occurs.

1. Rake and destroy fallen leaves and twigs in the fall to reduce the disease potential for the following spring. If possible, prune cankered twigs and branches.
2. Fertilize affected trees in early spring to stimulate new foliar growth and maintain vigor. Use a complete fertilizer that includes nitrogen, phosphorus, and potassium.
3. Fungicide applications in the early spring help reduce damage from anthracnose. This practice may not be economically feasible for many of our shade trees, but it might be especially important to control sycamore anthracnose.

For most large, mature trees in the landscape planting, fungicide applications are not feasible. If you chose to spray fungicides, hire a trained arborist who has the high-pressure spraying equipment to provide thorough coverage on large trees. Home garden sprayers might be adequate for small, recently planted trees where good coverage is possible.

Timing of fungicide application is very important for success. Fungicides should be in place *before* the disease is apparent—not after. Generally, you will need two or three applications depending upon weather conditions. Apply the first spray in the dormant stage before the buds begin to swell. Apply a second spray when the buds are showing green tips. You might need a third spray when the leaves are about half grown. It is essential to cover leaves and twigs thoroughly for good control. Discontinue sprays when daily temperatures commonly exceed 70 degrees F.

The following fungicides are registered for use in controlling anthracnose on shade trees. Some are not registered for all tree species, so read the label.

- Benlate 50W (benomyl) at 1 lb./100 gallons of water.
- Bordeaux mixture 4-4-100. See label for directions.
- Fore (mancozeb) at 1.5 lbs./100 gal.
- Zineb at 1.5 lbs./100 gal.