

Anthracnose of Shade Trees

Identification, Biology and Management

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Anthracnose is a term applied to a group of foliage diseases that affect most hardwood tree species throughout the United States. Anthracnose is most prevalent and destructive in early spring when cool, moist weather conditions favor disease development. On highly susceptible species such as **sycamores, oaks (especially white oaks), maples, ash and walnut**, anthracnose may result in leaf and shoot blight, defoliation and even twig dieback. Several consecutive years of defoliation will severely weaken trees, predisposing them to invasion by insect borers and secondary disease causing organisms such as canker and root decay fungi.

SYMPTOMS

Foliar symptoms of anthracnose vary considerably among host species. On sycamore, white oaks and maple, large irregular brown to purplish lesions (dead areas) develop usually along leaf veins. On ash, black oaks, **dogwood** and walnut, discrete curricular or angular lesions occur on leaves (Figure 2). Lesions may also develop on flowers and fruit of some hosts.

Lesions on the foliage often coalesce, resulting in distortion, blight and defoliation. Blight and defoliation usually occur in early

spring when leaves are small and succulent. Crowns of severely diseased trees appear thin and scrubby. Often, the foliage is tufted on ends of branches, while the center of the tree is defoliated. Trees defoliated by anthracnose usually produce a second set of leaves in late spring or summer.



Figure 1 - Anthracnose on Sycamore

On some tree species, including sycamore, white oak and maple, buds and succulent new shoots may be killed as a result of anthracnose. Cankers may also form on twigs and small branches resulting in twig distortion and dieback (Figure 3).

CAUSAL AGENT

Anthracnose is caused by several genera of closely related fungi.

The pathogens overwinter in twig cankers within specialized structures on diseased, fallen leaves. Coinciding with budbreak in the spring, massive numbers of spores are produced by anthracnose fungi.



Figure 2- Anthracnose on Dogwood Flower

Spores are disseminated by wind and rain splash to susceptible plant tissue. Under cool, moist conditions, spores germinate and infect susceptible plant tissue and begin their destructive activity. Shortly after lesions develop, spores are produced on the diseased plant tissue. These "summer spores" are disseminated to healthy tissue where they cause new infections. As long as moist weather conditions prevail, summer spores are produced from lesions on diseased plant parts. These spores are responsible for infections that occur in late spring and summer.

On some tree species, anthracnose fungi invade twigs from infected leaves. The pathogen may continue to grow in the twigs during the autumn after the leaves are cast, and in the spring prior to budbreak. Subsequently, infected twigs and buds distal to cankers may be killed during the dormant season.

CONTROL

Cultural Practices: Sanitation practices, which eliminate sources of the overwintering fungi, will provide some degree of control of anthracnose. Diseased leaves should be collected and destroyed in the fall, and

diseased twigs and branches should be pruned out and destroyed to whatever degree possible.



Figure 3 - Twig canker caused by Anthracnose fungus

Periodic pruning will allow optimum light and air penetrations of the crown, which will inhibit disease development by allowing more rapid drying of plant tissue following rains. Periodic fertilization will maintain tree vigor and help offset the deleterious effects of any premature defoliation from anthracnose.

Chemical Control: Properly timed fungicide applications will help control anthracnose. Fungicides are applied at periodic intervals during the spring in order to protect developing plant tissue from infection. Once infection occurs, however, chemical sprays are ineffective in preventing further disease development. The effectiveness of chemical control is dependent on spring weather conditions, the proximity of untreated trees to sprayed trees, and the thoroughness of the sanitation program. Generally, more frequent applications of fungicides are necessary to obtain a high degree of control during cool, moist springs. With Sycamores the option exist to inject fungicide into the tree providing multiply years of protection. Consult the Bartlett Tree Research Laboratories Disease Control Recommendations or local state recommendations for the proper fungicide, rates and timings for control of anthracnose on specific tree species.