

Anthracnose

Anthracnose is a term applied to a group of foliage diseases that affect many deciduous tree and shrub species throughout North America. 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 twig dieback. After several consecutive years of severe disease, weakened trees may be invaded by insect borers and secondary disease agents such as canker and root decay fungi.

Symptoms

Foliar symptoms of anthracnose vary considerably among host species. On ash, black oaks, dogwood, and walnut, discrete circular or angular lesions occur on leaves (Figure 1). On sycamore, white oaks and maple, large irregular brown to purplish lesions (dead areas) develop usually along leaf veins (Figure 2). Lesions may also develop on flowers and fruit of some hosts.

Figure 2: Angular leaf lesion along vein of sycamore



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Figure 1: Angular anthracnose lesions on flowering dogwood



Foliage lesions may coalesce, causing distortion, blight, and defoliation. Blight and defoliation usually occur in early spring when leaves are small and succulent. Trees defoliated by anthracnose in early spring usually produce a second set of leaves later in the growing season.

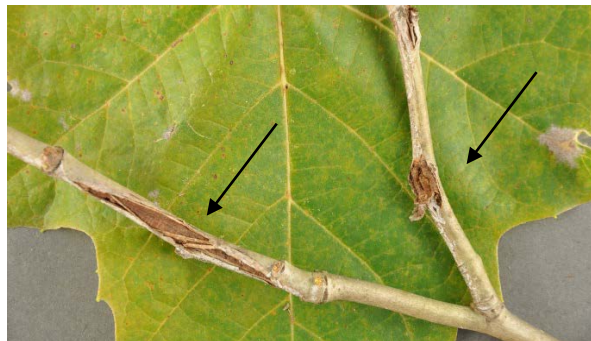
On some tree species, including sycamore, white oak and maple, buds and succulent new shoots may be killed as a result of anthracnose. Cankers may also form on twigs and small branches resulting in twig distortion, dieback and witches' brooms. (Figure 3).

Causal Agent

Anthracnose is caused by several genera of closely related fungi. These fungi overwinter in twig cankers and within specialized structures on diseased, fallen leaves. Coinciding with budbreak in spring, large numbers of spores are produced from the overwintering sites. Spores are disseminated by wind and rain-splash to susceptible plant tissue. Under cool, moist conditions, spores germinate and infect succulent plant tissue and begin their destructive activity. Shortly after lesions develop, spores are

produced on the diseased plant tissue. As long as moist, cool weather conditions prevail, these “summer spores” can cause late season leaf lesions. 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 bud-break. Infected twigs and buds distal to cankers may be killed during the dormant season.

Figure 3: Twig cankers caused by Anthracnose fungus on sycamore



Control

Cultural Practices: Sanitation practices, which eliminate sources of the overwintering fungi, will provide some degree of anthracnose control. To reduce overwintering inoculum, collect and remove fallen leaves and prune to remove diseased twigs and branches.

Periodic pruning will allow optimum light and air penetration 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. Fungicide sprays are applied at periodic intervals during the spring in order to protect developing plant tissue from infection. However, once infection occurs, 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 treated 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. On some tree species such as sycamores, a systemic fungicide is available for injection directly in the root flare to suppress new infections.

Resistant Varieties: Anthracnose resistant varieties of certain highly susceptible tree species including dogwood and London plane are available for planting.



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