Anthracnose

by Karen L. Snover-Clift and Sandra Jensen-Tracy

Anthracnose diseases are caused by fungi that are capable of infecting stems, branches, leaves and fruits of a wide variety of deciduous trees and shrubs. Sycamore, ash, maple, oak and privet are especially susceptible. The disease can be found throughout the eastern United States. The symptoms of the disease are more severe in years of extended cool, wet spring weather.

Symptoms

Symptoms vary according to the plant part and the host attacked. Leaf infections may show necrotic spots, irregular dead blotches or necrotic lesions associated with large leaf veins (Figure 1). Infections on new shoots may kill them entirely or cause severe tissue distortion. Defoliation may occur early in the season followed by a second growth of leaves in early summer. Buds are often invaded and killed. Twig lesion often expands and may girdle the twig entirely, causing death of the parts beyond the lesion. Repeated twig dieback may alter the form of the tree, causing crooked branches and "witches brooms" (a development of clusters of twigs around a common point on a branch).

Cankers form on the branches as a result of the death of buds and twigs. Cankers may remain active beyond one dormant season, girdling and killing branches. Cankers may also be inactivated by callus formation near the margins. Large trees that sustain repeated attacks by the pathogen are severely weakened showing loss of vigor, dieback of large branches and increased susceptibility to insect borers and winter injury.

Disease Cycle

Anthracnose pathogens overwinter in leaf debris. In spring, they produce spores that are carried by air currents to young buds of the host. Spores germinate under moist conditions and infect leaf tissue. If moist conditions persist, the first generation of new spores is produced in the infected leaf tissue. There are dispersed by rain to cause new infections. The death and loss of many leaves greatly weaken the host plant. The fungi that attack both stems and leaves overwinter in infected buds and twigs, in branch cankers and in debris on the ground. They contain spores that are dispersed by air currents and raindrops and remain in contact with the host plant throughout the year. The fungus spreads from the infected leaves into the twigs, where it overwinters. It resumes growth before any tree growth occurs in the spring and kills buds and twigs. If a prolonged period of cold weather retards tree development after bud break, the fungus kills new shoots. The fungus than reproduces on those dead buds, twigs and shoots, and in cankers. Cool moist conditions favor infection and

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Figure 1: Foliar symptoms of vein damage and leaf blotching.

epidemic development of anthracnose diseases. Prolonged cool weather before bud break favors bud and twig blight and canker phases of the anthracnose by retarding tree development more than fungus growth. Cool moist weather after bud break favors shoot blight and leaf blight phases by retarding host growth and providing conditions necessary for dispersal and germination of spores.

Management Strategies

Good control of some anthracnose diseases can be obtained by destroying plant material and debris in which the fungus overwinters. Gathering and destroying leaves or composting them under several inches of soil and pruning out infected twigs reduces the amount of available inoculum and reduces the severity of the disease. When planting trees and shrubs that are normally susceptible to anthracnose diseases, preference should be given to resistant varieties. Control of many anthracnose diseases can be accomplished through properly timed sprays of fungicides. Follow label directions.

Be certain any formulation(s) of pesticide(s) you purchase are registered for the intended use. If large trees must be treated, consider hiring a commercial applicator. Commercial applicators, please refer to the appropriate commercial pest management guidelines, or contact your local Cooperative Extension Office for more information on currently registered products.

For more information, contact the Plant Disease Diagnostic Clinic at Cornell University, 334 Plant Science Building, Ithaca, N.Y. 14853; call 607-255-7850; fax 607-255-4471; e-mail *kls13@cornell.edu* or *slj2@cornell.edu*.◆

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