



Anthracnose of Trees and Shrubs: *Various Fungi*

Introduction

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. These diseases can be found throughout the eastern United States. The symptoms of these diseases are more severe in years of extended cool, wet spring weather.

Symptoms and Signs

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 (**Fig. 1**). Infections on new shoots may kill them entirely or cause severe tissue distortion (**Fig. 2**).



Figure 1: Foliar symptoms of vein damage and leaf blotching (provided by Dr. Wayne Sinclair, Cornell University)

Defoliation may occur early in the season followed by a second growth of leaves in early summer. Buds are often invaded and killed. Twig lesions often expand 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).



Figure 2: Symptoms of twig damage on Sycamore (provided by Dr. Wayne Sinclair, Cornell University)

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

Anthrachnose 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 may then reproduce on those dead buds, twigs and shoots, and in cankers. Cool moist conditions favor infection and epidemic development of anthracnose diseases. Prolonged cool weather before bud break favors bud and twig blight and canker phases of 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 these fungi overwinter. 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. London Plane (*Platanus X. acerifolia*) may be planted in place of susceptible sycamore. When disease is severe, management of many anthracnose diseases may be accomplished through properly timed sprays of fungicides. If needed, some injectable fungicides are registered for use in managing Sycamore Anthracnose. Note: Although registered for use on landscape plants, many products may not be suitable for use by homeowners. Be certain any formulation of any pesticide you purchase is registered for the intended use, and follow label directions. If large trees require treatment, consider hiring a commercial applicator. Commercial applicators should refer to the appropriate commercial pest management guidelines, or contact your local Cooperative Extension Office for more information on other currently registered products.

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READ THE LABEL BEFORE APPLYING ANY PESTICIDE! Changes in pesticide regulations occur constantly. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office.

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