Virginia Cooperative Extension

Plant Disease Fact Sheets

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Sooty Mold of Conifers and Hardwoods

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Sooty molds of trees and shrubs commonly occur throughout Virginia on conifers, hardwoods, and other plant species. These fungi are named for the black spots or crusts of growth they form on foliage or stems. Sooty molds rarely cause problems in the forest, but in some cases they can interfere with proper growth of Christmas trees, nursery stock, or landscape plants. In most cases, however, the unsightly, black fungal growth is mainly a cosmetic problem.

Cause

Although a few sooty mold fungi grow on plant substances exuded by the leaves, most grow on the excrement of certain sucking insects. The most common insects associated with sooty mold infestations are aphids, scales, mealybugs, and whiteflies. These insects feed on the sugar-rich contents of the phloem of plants and excrete a substance called "honeydew" that is very high in sugar. Sooty molds live entirely on the excretions of the insects, and do not penetrate leaf or bark tissues. No direct injury to the plant results from the presence of these fungi. However, sooty molds may be indirectly detrimental to plants by excluding sunlight and interfering with photosynthesis in the leaves.

Susceptible Plants

Any plant infested with large numbers of sucking insects or growing beneath an insect-infested plant may be affected by sooty mold. Broadleaf trees, such as tulip poplar, magnolia, maple, beech, oak, elm, willow, walnut and basswood, and conifers, such as pines, spruces, and firs, frequently are infested with aphids and scales that can predispose them to sooty mold. Many types of shrubs and herbaceous plants are also commonly affected by this problem.

Symptoms

The presence of a black, soot-like fungus, frequently appearing as a thin crust over the surface of leaves, is the best indicator of this problem (Fig. 1). However, some species of sooty molds grow as a thick, spongy mass that encases the needles of conifers or the twigs of deciduous trees (Figs. 2 and 3). Insect activity may or may not be apparent. Sooty molds may persist long after the insects themselves have disappeared. Although sooty molds do not directly infect plants, severely affected plants may be yellowed and suffer defoliation from the combined effects of insect feeding and the reduction in photosynthesis that results from blockage of sunlight by the fungus. Although sooty mold usually does not cause dieback or mortality, the insect feeding that preceded the sooty mold infestation may be severe enough to weaken or kill portions of infested plants. Pruning out dead and dying branches helps prevent infection by secondary pathogens.

Fig. 1. Sooty mold on walnut.
(Photo by M. A. Hansen)

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Fig. 2. Thick, crusty growth of sooty mold on beech. (Photo by M. A. Hansen)

Fig. 3. Sooty mold on white pine. (Photo by M. A. Hansen)

Control

Prevention or reduction of high insect populations is the only recommended control for sooty mold. Insect control is also essential to protect plants from feeding damage. Usually, aphids and scales are the culprits in sooty mold infestations. The best timing for control of most aphid species in Virginia is early May. Most scale insects can be controlled by a late-winter application of dormant oil, which kills the overwintering stage of the insect. However, some plants, such as sugar and Japanese maples, hickory, beech, birch, Douglasfir, and juniper, are susceptible to dormant oil injury and should be treated with an insecticide other than dormant oil during emergence of the crawler stage. Scale insects are highly variable in the timing of emergence of the crawler stage. It is important to identify the species of scale insect to determine when the crawler stage will emerge. Information on crawler dates and control timing for most scale insects can be obtained from your local county Extension office or from the current Virginia *Pest Management Guide for Home Grounds and Animals* (VCE Publication 456-018) or the Virginia *Pest Management Guide for Horticultural and Forest Crops* (VCE Publication 456-017), http://www.ext.vt.edu/pubs/pmg/. Crawler dates for some of the common scales leading to sooty mold infestations are listed in Table 1. For information on the proper use of pesticides and fungicides, refer to any current VCE pest management guide.

Table 1.

Crawler treatment dates for common scale pests

Pest	Crawler and Treatment Dates
azalea bark scale	June 5-30; treat June 10 and 20.
cottony camellia scale	June 1-10; treat June 10-20.
magnolia scale	Late August-late September; treat September 1-20.
pine tortoise scale	June 10-July 5; treat June 20-25.
tuliptree scale	Late August-late September; treat September 1-20.