

MANAGING SOOTY CANKER

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Sooty canker, a wilt disease of branches and limbs, commonly attacks mulberry trees in the desert Southwest. This disease, caused by the fungus *Hendersonula toruloides*, infests many smooth-barked trees and occurs on a variety of plants.

Sooty Canker Susceptible Plants of the Southwest

almond	citrus	plums
apples	cottonwoods	poplars
apricot	euonymus	sagebrush
ash	fig	sycamores
butternut	grapes	walnuts
carob	mulberry	wisteria
Chinaberry	oleander	

The fungus enters the plant mainly through wounds in sunburned bark, but also through cracks in the bark, pruning wounds, mechanical damage by equipment, frost damage and injuries from insects and other diseases. Sooty canker spreads from infected to healthy trees by spores carried by wind, rain, insects, birds, animals and pruning tools. Although infection is thought to occur during the winter, germination, growth and reproduction of the fungus occur best at high temperatures, 85°F-105°F. A mild, moist winter followed by a hot, dry summer stimulates development of this disease as does fluctuating irrigation, water-logged soils and damage to the tree by other diseases.

Symptoms

Trees affected by sooty canker experience wilt, particularly during hot and windy periods, and they have cankers on scattered limbs that eventually dieback. Infected trees produce smaller-than-normal leaves. Leaves on affected branches wilt, turn brown, wither and die in mid-summer, but they usually remain attached late into the winter. Symptoms on limbs first appear as brownish, moist areas on the bark. As the disease develops, these areas crack and split revealing a black, dusty mass of fungal spores, Figure 1. It is from this mass of spores that sooty canker derives its name. Beneath the sootiness, the sapwood dies and stains gray to black. Stone



Figure 1. Sooty canker on the limb of a mulberry tree.

fruit and citrus exude gum from the edges of the canker. If the limb survives the infection, it has sunken cankers where the disease occurred. Increasingly the fungus infects nearby limbs and finally the main trunk. Once the main trunk becomes diseased, the tree dies. The entire process from infection to tree death

usually occurs over many years, but in severe cases may occur in two or three seasons.

Control

This disease can be controlled when infections are confined to tree limbs and upper portions of main branches. Remove smaller infected branches whenever symptoms appear. Since sunburned bark of mulberry and many other trees is the primary port of entry for the sooty canker fungus, do not open up a tree's canopy to expose large limbs to direct sunlight, especially during hot, sunny periods. Remove limbs when trees are dormant and even then avoid excessive pruning that opens the canopy too much to sunlight which causes the previously shaded bark to sunburn. It is good to paint the tops of exposed main limbs and the trunk with white, reflective, paint to prevent sunburn. Use white latex paint—never use oil base paints. The latex paint may be diluted by a third to half with water and sprayed on with a hand or back pack sprayer.

When removing infected limbs, cut back to at least one foot below the site of infection. Always cut back to a bud, branch or the trunk to avoid further limb dieback or the proliferation of branches at the cut. Treat the cut area and pruning tools after each cut. Use a solution of one part of household bleach and nine parts of water. Then paint the pruning wounds with a copper fungicide such as Bordeaux mixture to prevent re-infection. Do not use pruning compounds—they do not protect the tree from the disease.

Copper fungicides are water soluble. Consequently, they dilute easily and readily wash off limbs by water from rain and sprinkler irrigation. Reapply a copper fungicide to

wounds each spring and after a period of rain to ensure adequate protection against infection. Direct sprinklers to spray away from treated limbs and trees or convert to a bubbler or drip irrigation system to avoid wetting the bark.

Follow these procedures whenever you remove limbs from susceptible trees or trees with a history of sooty canker infections, even if active infections are not present. Control becomes increasingly difficult as the disease infects the main branches and is virtually impossible to manage once the main trunk is affected.

Good sanitation and sound cultural management practices aimed at preventing the occurrence of sooty canker are the most successful methods of controlling this disease. Maintain tree vigor through proper fertilization and deep watering on a regular schedule. However, do not over-fertilize or over-water a tree. This stresses the tree and encourages disease development. If the soil below a tree does not drain well, correct the problem by installing drainage or by vertical mulching the area to eliminate the hard pan or caliche. See "Vertical Mulch for Healthier Trees and Shrubs," Fact Sheet #93-87 which is available through Nevada Cooperative Extension. Avoid nonessential, elective and severe pruning of larger branches and limbs of trees susceptible to sooty canker. Always paint the tops of newly exposed limbs with white latex paint to prevent sunburn which provides entry for the fungus. Do not use an oil base paint: it may damage the limb tissue beneath it. It is wise to prevent any physical damage to the trunk and limbs of trees. Sound bark is the tree's first line of defense against disease organisms.