

Q: My sycamore trees were not sprayed this winter, and the leaves have all turned brown and have fallen off. My lawn looks like it is fall not spring! Am I going to lose these trees?

A: Anthracnose is the name for disease symptoms caused by a number of different fungi, on a variety of plants. The severity of the symptoms is dependant on weather patterns, and the wet April we had provided the perfect environment. Even if you had your trees sprayed, you would have anthracnose symptoms this year on susceptible trees.

On sycamore trees, the brown or tan lesions usually appear along the major veins of the leaves if the leaves are developed when they become infected. If the leaves are young, they emerge curled and twisted. Heavily infested leaves will abscise or fall off, which is why you are raking leaves this spring. If the weather changes and becomes warm and dry, the emerging new leaves will be healthy. If we have a cool foggy summer with ample moisture, the disease symptoms may continue, with the fungus spreading into stems and twigs. After the leaves have dropped in the winter, the fungus over-winters in cankers on the twigs and stems, producing spores to infect new leaves the next spring.

Once symptoms develop or become severe, anthracnose cannot be effectively controlled by any kind of fungicide. There are no recommended fungicides recommended for Sycamore anthracnose. Available pesticides are effective in preventing anthracnose infections on Modesto ash only. The spraying you have had done in the past would have seemed effective if it was followed by a dry spring, which is to say that you are not at fault for the symptoms appearing on your tree.

Cultural controls: Pruning during winter to remove the previous season's infected twigs and branches can control this disease. On a large tree, this can be difficult and time-consuming. Large limbs should not be removed. To encourage tree health after the spring rains have stopped, fertilize with a high nitrogen fertilizer under the entire canopy area and water deeply. Do not over-fertilize. Do not let irrigation water hit the branches, or you will continue the spread of disease spores. Pollarding the trees in the winter will control anthracnose, but the new shoots that emerge in response to that kind of drastic pruning are highly susceptible to powdery mildew, and you will only be substituting one problem for another.

Your tree will survive this year. If we have repeated years of late warm rains, and the trees are regularly defoliated with the fungus moving into the branches, the trees might be at risk. If you decide to replant, there are resistant varieties of sycamores available.

ANTHRACNOSE

[PDF to Print](#)

Home & Landscape

Published: 8/99



Anthracnose is a disease found on many deciduous and evergreen trees and shrubs; some trees such as sycamore, ash, and evergreen elms can be noticeably blighted. Often called leaf, shoot, or twig blight, anthracnose results from infection by any of several different fungi, including *Apiognomonia errabunda*, *A. veneta*, *Discula fraxinea*, *Glomerella* sp., *Gnomonia* sp., and *Stegophora ulmea*, depending on the tree attacked. Infections on deciduous plants are more severe in areas where prolonged spring rains occur after new growth is produced. Anthracnose fungi need water to be disseminated and infect; they do not spread under dry conditions.

IDENTIFICATION AND DAMAGE

Anthracnose symptoms vary with the plant host, weather, and time of year infection occurs. The fungi affect developing shoots and expanding leaves. Small tan, brown, black, or tarlike spots appear on infected leaves of hosts such as elm or oak. Dead leaf areas may be more irregular on other hosts such as ash. Sycamore anthracnose lesions typically develop along the major leaf veins. If leaves are very young when infected, they may become curled and distorted with only a portion of each leaf dying.

Generally, mature leaves are resistant to infection, but when conditions are favorable, they may become spotted with lesions. Heavily infected leaves fall prematurely throughout the growing season, and sometimes trees are completely defoliated. Early leaf drop is usually followed by production of more leaves. Twigs and branches also may be attacked and killed, resulting in a tree with crooked branches.

On some trees, cankers (infected areas on branches that may or may not be surrounded by callus tissue) are another symptom of anthracnose infection. They develop in twigs, branches, and on the trunk, occasionally resulting in girdling and dieback. If defoliation, branch dieback, or cankering does not occur every year, anthracnose will not seriously harm plants. In California anthracnose rarely causes permanent damage to plants except for elm trees.

LIFE CYCLE

Anthracnose fungi occur primarily on leaves and twigs. On deciduous trees these fungi overwinter in infected twigs. In spring many microscopic spores are produced and spread by splashing rain or sprinkler water to new growth where they germinate; the fungus enters the leaves and twigs. If moist conditions prevail, a successive generation of spores is produced in the infected parts of new leaves. On evergreen species such as Chinese elm, the fungus can occur year-round on leaves and twigs.

MANAGEMENT

With careful management, some cultivars of susceptible landscape plants can be grown at a high level of aesthetic quality, despite the presence of anthracnose. For new plantings, choose varieties that are resistant to the anthracnose fungi. Once symptoms develop or become severe, anthracnose cannot be effectively controlled during the current season. Pruning during winter, however, to remove the previous season's infected twigs and branches can control this disease. Available pesticides are effective in preventing anthracnose infections on Modesto ash only.

Environmental factors also play important roles in managing anthracnose. Pay close attention to past and current conditions such as rain and irrigation to determine if anthracnose development is favored. Dry spring weather could mean that disease management is not necessary. A wet spring or an irrigation system that wets the foliage could result in disease outbreak that may warrant control.

Resistant Varieties

Avoid planting highly susceptible species, including Modesto ash (*Fraxinus velutina* var. *glabra*), American sycamore (*Platanus occidentalis*), and the London plane tree (*P. acerifolia*). California sycamore (*P. racemosa*) should be avoided in the north but it is not affected in the southern part of the state. The ash varieties Moraine and Raywood are more resistant to anthracnose than other varieties. For evergreen Chinese elm, plant the more resistant Drake cultivar instead of the True Green or Evergreen cultivars, which are susceptible to anthracnose.

When planting London plane (also called plane tree), decide whether anthracnose or powdery mildew resistance is more beneficial based on prevailing environmental conditions at that site and the planned pruning method (see *Cultural Practices*). Two common London plane tree cultivars are resistant either to the fungus that causes anthracnose or to the one that causes powdery mildew, but not to both pathogens.

London Plane Susceptibility to Anthracnose and Powdery Mildew.		
Cultivar	Anthracnose	Powdery mildew
Bloodgood	resistant	susceptible
Yarwood	susceptible*	resistant

* Anthracnose is controlled if trees are pollarded regularly.

Cultural Practices

When feasible, prune infected twigs and branches during fall or winter. Removal of large limbs is not recommended for most types of trees. Limb removal can have negative effects on a tree and will probably not satisfactorily accomplish the intended goal of reducing disease. To stimulate vigorous growth of trees severely affected by anthracnose, fertilize after the leaves open and spring rains have stopped. Avoid irrigation systems that wet the leaves.

Pollarding (severely pruning) London plane trees controls anthracnose because the pathogen infections that persist on wood are removed when branches are pruned. However, pollarding increases susceptibility of London plane trees to powdery mildew because it stimulates growth of new foliage. If London plane trees are regularly pollarded, "Yarwood" is a good choice because it is highly resistant to powdery mildew and its susceptibility to anthracnose will be controlled by pruning.

Fungicide Applications

Some fungicides provide a degree of control on Modesto ash if thoroughly sprayed on all new growth as buds begin to open in spring. The spray must be applied before rainy periods because fungicides can only protect healthy tissue and do not eradicate existing infections. To be effective, apply thoroughly on leaves and twigs. If no rains are predicted, this application can be delayed. If moist weather prevails, additional applications may be needed at intervals of about 2 weeks to protect newly exposed growth.

The most effective fungicides for control on Modesto ash are chlorothalonil, a protective fungicide, and thiophanate-methyl, a systemic fungicide. Chlorothalonil is readily available to home gardeners whereas thiophanate-methyl is not. Proper application timing is critical for both fungicides.

Complete coverage of very large, tall trees is difficult to achieve; spraying is not very efficient and may not be justified or feasible. Fungicide applications for anthracnose control generally are not recommended for hosts other than ash.

WARNING ON THE USE OF CHEMICALS

COMPILED FROM

Dreistadt, S. H., J. K. Clark, and M. L. Flint. 1994. *Pests of Landscape Trees and Shrubs: An Integrated Pest Management Guide*. Oakland: Univ. Calif. Agric. and Nat. Resources, Publication 3359.

REFERENCES

Svihra, P. and A. H. McCain. 1994. *Ash Anthracnose*. HortScript #2, Univ. Calif. Coop. Ext.

McCain, A. H. 1983. *Sycamore Anthracnose*. Oakland: Univ. Calif. Div. Agric. and Nat. Resources, Leaflet 2618.

Sabaloni, J., K. Hesketh, and A. H. McCain. 1982. *Chinese Elm Anthracnose*. Oakland: Univ. Calif. Div. Agric. and Nat. Resources, Leaflet 21322.

Sinclair, W. A., H. H. Lyon, and W. T. Johnson. 1987. *Diseases of Trees and Shrubs*. Ithaca: Cornell University Press.

PUBLICATION INFORMATION



Pest Notes: Anthracnose

UC ANR Publication 7420 [PDF to Print](#)

Editors: P. Gouveia and B. Ohlendorf

Illustrations: Valerie Winemuller

Technical Editor: M. L. Flint

Produced by IPM Education and Publications, University of California Statewide IPM Program

| [Top of Page](#) | [New Pest](#) |
| [Home](#) | [Help Desk](#) | [Search](#) |

| [About](#) | [Manage Pests](#) | [Pesticides](#) | [Resources](#) | [Funded Projects](#) | [What's New?](#) |



All contents [copyright](#) © 2003 The Regents of the University of California. All rights reserved.
For noncommercial purposes only, any Web site may link directly to this page or photo file. FOR ALL OTHER USES or more information, read [Legal Notices](#). Unfortunately, we cannot provide individual solutions to specific pest problems. See [Manage Pests](#), or in the U.S., contact your local [Cooperative Extension](#) office for assistance. Statewide IPM Program, University of California. /PMG/PESTNOTES/pn7420.html revised: April 3, 2003. Webmaster: ipmig@ucdavis.edu

Sycamore Anthracnose

Sycamore Anthracnose has four stages, or levels, of infection. These are called leaf-blight, twig-blight, bud-blight, and shoot-blight. All four stages of Sycamore Anthracnose disease may be present on the same tree during a single year.

Leaf Blight

Spores from fungal cankers on 1 year old twigs are produced in the spring. Which are then carried to newly expanding leaves by water, wind, or insects to begin a new instance of leaf infection. The





sycamore anthracnose fungus grows into the leaf, through the veins, down the petiole, and into the twig where it is in position to create a canker and overwinter.

Infected trees refoliate during the summer and appear healthy because temperatures are too warm for much fungal growth. Healthy trees become originally infected by the leaf blight stage of sycamore anthracnose.

Twig Blight

Once established in a twig, the sycamore anthracnose fungus can grow during the fall, winter, and spring whenever temperatures are suitable.

Fungal growth in the twigs causes cankers that disrupt water movement and eventually lead to twig death before the leaves emerge in the spring.

Occupation of the sapwood protects the sycamore anthracnose fungus from lethal winter temperatures, and repeated killing of twigs causes abnormal branching and gnarled growth.



Bud Blight

During the early spring a brown area appears around the bud which is evidence of the fungal occupation of that tissue.



The sycamore anthracnose fungus girdles the vascular tissue leading to the bud before budbreak occurs.

Symptoms are similar to twig blight - witches'-broom effect, twisted, gnarled growth.

Shoot Blight

Shoot blight occurs in the spring and results from the girdling of a bud or twig *after* the leaves have begun to emerge. Shoot blight resembles frost injury and is the *most destructive and energetically costly to the tree*.

No moisture is required for Shoot Blight to occur because the sycamore anthracnose fungus is already present in twigs in the spring. The severity of the effect upon the tree depends on the average temperature of the 2 weeks following bud break. Temperatures between 50-55 F are most conducive to severe outbreaks, while warmer temperatures result in less shoot blight.

Sycamore Anthracnose Treatment with Arbotect

Arbotect is a systemic fungicide that is highly effective against the fungus that causes sycamore anthracnose. When macro-infused into the root flares of the tree, Arbotect distributes evenly throughout the canopy and protects the 1-2 year old twigs from infection.

Arbotect is highly resistant to degradation and moves into new sapwood in sufficient quantity to protect trees for 2.5 - 3 years. Applied at a rate of 8 oz per 5" dbh, with each ounce of Arbotect diluted in 1 quart of water, Arbotect treatment takes into account the internal nature of the disease that foliar sprays do not.

Trees should be treated when the canopy is in full leaf. In many years when sycamore anthracnose is severe, the treatment is best applied later in the summer after the trees have refoliated from the infection. Treatments can be administered until there is fall color present in the canopy.

[Sycamoe Anthracnose Disease Cycle](#) | [Treatment of Sycamore Anthracnose with Arbotect](#) | [Disease Research](#)

*Website Design & Administration by:
UndercoverDesign.com*

Leaves have been falling from sycamore trees. This early loss of leaves can be alarming. A close look at the fallen leaves will reveal brown areas that typically follow along the veins of the leaves. These areas of browning are often V-shaped.

Anthracnose tends to be most severe when extended cool and wet weather occurs in the spring. The fungus that causes sycamore anthracnose needs wetness in order to infect the leaf tissue. Leaves are most vulnerable to this fungus during the first weeks of growth.

Unfortunately, the anthracnose fungus can also cause death of buds and twigs on sycamore trees. The death of new shoot growth for repeated years can result in a gnarled or crooked branch growth as side shoots take over as the new leader branches. The fungus can survive the dormant season on diseased leaves that have fallen to the ground or on diseased twigs that remain on the tree.

Damage caused by the anthracnose fungus is usually minimal so fungicide use is rarely warranted. Chemical control can be problematic because proper timing can be difficult to predict from year to year and adequate coverage of big trees is difficult.

As hot and dry summer conditions arrive, the fungus is suppressed. New shoots emerge and new leaves appear.

Problem: Sycamore Anthracnose - *Gnomonia leptostyla*



Host Plants: Sycamore. London plane is considered resistant to anthracnose.

Description: Sycamore anthracnose is the most serious of the anthracnose diseases in Kansas. The most conspicuous symptom of the disease in early spring is death of twigs and new shoots. Small black fruiting structures of the fungus break through the dead bark of blighted, one-year-old shoots. Repeated killing of young twigs results in abnormal branching and gives the tree a ragged appearance. After bud break, sycamores show a scorching and wilting of new shoots and leaves. Later, fully expanded leaves develop elongated tan to brown lesions parallel with the midrib and veins. This should not be confused with summer scorch of sycamore (also a common problem), which causes a burning of the leaf margins. Infected leaves scorch and shed. In exceptionally cool, wet springs, sycamore trees leaf out and then can defoliate heavily.

Disease development: Anthracnose fungi overwinter in leaf debris on the ground and/or dead areas of the bark on the tree, called cankers. In early spring, spores of the fungus are produced in fruiting structures and are dispersed by splashing rain. These spores infect expanding leaf buds, shoots or in some cases young leaves.

The infection process is favored by relatively cool temperatures and prolonged periods of leaf wetness. Therefore, the disease tends to be more severe during wet, cool springs. After infection, the anthracnose fungus colonizes leaf tissue and begins to produce new fruiting structures and spores capable of reinfesting expanding leaf tissue. Disease development may continue throughout the spring into early summer if favorable weather

persists. These diseases tend to be less of a problem during hot, dry summer weather. As temperatures increase, the disease becomes less active and the trees releaf.

Recommendations: Anthracnose rarely causes significant damage to shade trees in Kansas; consequently, specific control measures generally are not required. Nevertheless, the disease may be unacceptable in certain high visibility landscape settings. The disease also can increase susceptibility to other disease or insect problems in areas where trees are attacked year after year.

Several cultural practices can reduce the severity of anthracnose. Remove dead leaves in the fall to help limit the amount of fungal inoculum present for infection of new leaves the following spring. This practice really eliminates the problem, especially for those anthracnose fungi that may also survive in blighted twigs on the tree.

Proper tree spacing and placement to promote good air circulation reduces the number of hours leaf surfaces remain wet, and decreases the likelihood of fungal infection. Many trees recover rapidly from anthracnose if they are maintained in a vigorous condition. Water and fertilize trees regularly. Nitrogen fertilization may increase the tree's tolerance or resistance to anthracnose, but avoid overfertilization.

Chemical sprays normally are not necessary to control anthracnose except on those trees that have had a history of the problem. Several fungicides are labeled for anthracnose diseases including thiophanate and Bordeaux or other coppers.

Thorough coverage and proper timing of the sprays are essential for adequate control. Begin applying a fungicide at bud swell and make 1-2 additional sprays at 10- to 14-day intervals. Early sprays are critical for control. Sycamore trees are often much too large to be effectively sprayed with anything other than commercial sprayers. Consult extension publication C-674, *Tree Diseases in Kansas*, for more information.

Certain fungicides are labeled for systemic injection into sycamore trees for the control of anthracnose including Arbotect and Fungisol PV. The procedure is done during the fall of the year and involves drilling small holes into the trunk or root collar of the tree and injecting systemic chemicals (for two consecutive years). The chemical is carried through the water-conducting system of the tree to the branches and foliage and will protect against early-season infection. Injections should be done by trained arborists as specialized equipment and training are required.

Unfortunately, systemic injection requires that holes be drilled in the tree; this may eventually result in decay or other long-term damage to the tree. Tree injection should only be attempted by a professional arborist or by someone who is familiar with tree anatomy and injection techniques.



Pest Notes

*Agricultural Commissioner
Santa Barbara County*

Sycamore Anthracnose

This fungal disease affects Sycamores (*Platanus racemosa*, *P. orientalis*, *P. occidentalis*) and London Plane Tree (*Platanus x acerifolia*). The pathogen is named *Discula platani* (teleomorph=*Apiognomonina veneta*).

BUD & SHOOT BLIGHT: necrosis of shoot buds before they open up and necrosis of new succulent shoots in spring.



UC Statewide IPM Project
© Regents, University of California

LEAF BLIGHT: angular necrosis of the leaves, often appearing to follow the veins



UC Statewide IPM Project
© Regents, University of California

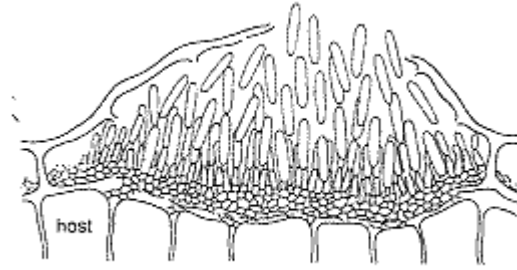


TWIG BLIGHT: necrosis of older woody twigs which results in death of all foliage beyond the point of the infection

CONTROL: Prune out and destroy infected twigs and branches because they provide a source of inoculum for the following spring.

No currently registered fungicides are effective though several list this disease on their labels. The only control is to avoid planting the highly susceptible Sycamores.

Plant the resistant Sycamore cultivar "Bloodgood".



Fungal ascervulus with spores

April 16, 2001