

Examine Trees For Insect, Disease Problems

Insects and diseases can be threatening to trees unless a reasonable diagnosis of the problem is made and the proper treatment is selected.

Plant diseases require three things to develop: the presence of a disease agent called a pathogen, susceptibility to that pathogen and environmental factors which can affect both the plant and the pathogen. These factors are subject to variation, depending on the particular plant and pathogen involved.

Non-infectious diseases, which account for 70–90 percent of all plant problems in urban areas, can be caused by nutrient deficiencies, temperature extremes, vandalism, pollutants and fluctuations in moisture. Infectious diseases include fungi, viruses and bacteria. Correct diagnosis of plant disease requires careful examination and systematic elimination of possibilities by following these important steps:

- **Accurately identify the plant.**

Infectious pathogens are mostly plant-specific, so this information can quickly limit the number of suspected diseases.

- **Look for a pattern of abnormality.**

For example, if the affected plants are restricted to a walkway, road or fence, the disorder could be a result of wood preservatives, de-icing salts or other harsh chemicals.

- **Carefully observe the land for**

drainage, history of the property, number of species affected or percentage of injured plants in the area.

- **Examine the roots.** Brown or black roots may signal problems. Brown roots often indicate dry soil conditions or the presence of toxic chemicals. Black roots usually reflect overly wet soil or the presence of root-rotting organisms.

- **Examine the trunk thoroughly for wounds,** as they provide entrances for cankers and wood-rotting organisms. Weather, fire, lawnmowers, rodents and a variety of other environmental or mechanical factors may cause such wounds.

- **Note the position and appearance of affected leaves.** Dead leaves at the top of the tree are usually the result of environmental or mechanical root stress. Twisted or curled leaves may indicate viral infection, insect feeding or exposure to herbicides.

- **Think about current and past management practices.** Sometimes a plant's current problem is actually a result of something that happened much earlier. Changes in grade, the use of pesticides or nearby construction work may all contribute to tree problems.

Insects can cause considerable damage to trees and shrubs. Chewing insects, such as beetles and webworms,

eat plant tissue such as leaves, flowers, buds and twigs. Sucking insects, such as aphids and mealy bugs, insert their beak into plant tissues and cause discoloration and drooping. Boring insects make tunnels in the wood as they eat through it.

The treatment method used for a particular insect problem will depend on the species involved, the extent of the problem and a variety of other factors specific to the situation and local regulations. (DJ)

SOURCE: Christine Meyer, NU/IANR; International Society of Arboriculture brochure, *Insect & Disease Problems*, 1995

Online Resources

UNL Cooperative Extension in Lancaster County
lancaster.unl.edu/hort

- *timely articles*
- *pest updates*
- *University of Nebraska Cooperative Extension resources*

Nebraska Forest Service
www.nfs.unl.edu

- *forest pest and disease management*
- *Nebraska Forest Service and UNL Forestry Publications*

The National Arbor Day Foundation
www.arborday.org

- *online tree ID guide*

Anthracnose: A Sickness in Sycamores

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Twig dieback caused by sycamore anthracnose.

Wet spring weather can favor fungi. Sycamore trees are one of the most striking victims of these fungi. Usually large and stately, sycamore trees appear as skeletons at this time of year, void of the normal covering of green leaves. Instead, only tufts of brown, wilted leaves are scattered throughout the branches. Diseased leaves eventually fall, leaving a blanket of brown on the ground beneath the tree.

This widespread disease problem of sycamore is called anthracnose. Actually anthracnose is a general plant disease term. There are many different anthracnose diseases that occur on various plants, caused by a number of different fungi.

Fungi that cause anthracnose diseases, tend to thrive when spring conditions are cool and wet for an extended period of time. If these conditions occur when tender leaves are emerging from buds, anthracnose can reach epidemic proportions. Diseased leaves tend to show dark spots or blotches and fall to the ground prematurely.

Anthracnose on sycamore can be especially noticeable because the fungus not only infects the new leaves but also buds, shoots, twigs and branches. Year after year of shoot death can result in tufts of dead twigs throughout the tree. These clusters of dead twigs are referred



Shoot blight and leaf blight caused by sycamore anthracnose. Leaf blight lesions typically extend along the leaf veins.

to as "witches brooms."

When the sycamore anthracnose fungus invades woody twig and branch tissue, cankers are formed. Cankers are sunken, dead areas that are often elliptical in shape. As these cankers enlarge, twigs and branches may be girdled. Tissue that is girdled or restricted cannot transport water and nutrients. The section of the twig beyond the canker eventually dies.

Unfortunately for the sycamore tree, the fungus survives from year to year in specialized structures in the cankered twigs and diseased shoots. Nestled in the woody tissue, these fungal structures, called pycnidia, are protected from the dry heat of summer and the cold of winter. They lie in wait until wet spring conditions occur. The black, pepper-like pycnidia are small, but can be seen on the dead or dying twigs with the naked eye. The fungus also can survive in the diseased leaves that fall to the ground.

When the cool spring rains occur, these pycnidia release thousands of spores that are whisked away by spring rains and land on newly forming leaves, shoots and twigs of sycamore trees. Some of the infected leaves wilt and turn completely brown, but others only develop dark brown spots along the veins. As the leaf symptoms progress, larger brown blotches, sometimes V-shaped, develop along the leaf vein tissue.

The dramatic symptoms caused by the anthracnose fungus can be alarming if your yard is home to a sycamore tree. Fortunately, anthracnose does not kill sycamore trees. The onset of hot and dry summer conditions squelch the activity of the fungus and uninfected buds of the tree become active, eventually pushing out new flushes of growth.

Because the fungus manages to hang around from year to year, there are some cultural practices that help improve tree vigor. Most are aimed at removing as much diseased leaf and twig tissue as possible to help reduce the amount of fungus that survives to the next season. As feasible, prune out cankered branches or twigs. Unfortunately, the large size of mature sycamore trees make pruning out diseased twigs a fairly unrealistic chore.

Fungicides can be used to protect trees in the spring, but this may not be economical or warranted on large trees. However, fungicide treatments might be desirable in certain situations. Protective fungicides must be first applied at the time of bud swell, with two additional applications at 10-14 day intervals.

Certain fungicides can be injected into sycamore trees and provide protection from this fungus. These products are injected into small holes drilled in the base of infected trees. This is a procedure that

should be done by a certified arborist who has the appropriate equipment.

Finally, if you enjoy sycamore trees and are looking for a substitute with a similar appearance but less vulnerability to this common disease, you might consider the London planetree. Like sycamore, it is a large tree so it is not suited to small lots. It is rated a zone 5 tree, so it may show some twig dieback if winter weather is severe.



Sycamore tree with thin crown caused by anthracnose-induced twig and bud mortality.

Septic Tanks Must Be Pumped By Certified Professionals

As of January 1, 2004, it is illegal for anyone to pump septic tanks, including homeowners pumping their own tank, unless they are certified by the Nebraska Department of Environmental Quality (NDEQ). Homeowner pumping of septic tanks and land-application of the septage has been a common practice in rural Nebraska areas. The new law makes it illegal without proper certification. Septage that is improperly handled and applied can be a public health hazard due to the pathogens it contains, and can be harmful to the environment if pathogens, organic matter, or nutrients enter lakes, streams or groundwater. There are also Federal regulations and recordkeeping requirements for the proper disposal, including land application, of septage.

The Private On-site Wastewater Treatment System Contractors Certification and System Registration Act requires anyone who works on a septic system to apply to NDEQ to become certified to perform the work. The requirement for certification includes pre-installation tasks such as doing a site evaluation, a soil evaluation, or a percolation test. It also covers all aspects of working on a system including designing, installing, inspecting, repairing, or altering. And, it includes pumping and disposal of the septage.

If a homeowner wants to pump a tank, including his or her own, he or she must be certified. To apply for a temporary provisional certificate to pump septic tanks, an individual must submit an application on a form prescribed by NDEQ and pay a \$300 certification application fee to NDEQ. The application must include a signed affidavit certifying the individual has been engaged in the pumping of septic tanks for at least 12 months prior to August 31, 2003. This temporary provisional certificate is valid through December 31, 2005. By then, NDEQ will have a more comprehensive certification program developed which will likely include requirements for continuing education and examination for competency. According to NDEQ staff, individuals pumping a tank without proper certification would be in violation of NDEQ regulations and subject to enforcement action including potential fines.

Hiring a certified professional to pump a septic tank is the best option available for most homeowners. Over 500 individuals throughout the state are currently certified to engage in work related to on-site systems in Nebraska, including over 200 certified to do septic tank pumping. NDEQ has posted a list of certified professionals on their Web site at www.deq.state.ne.us. Contact NDEQ at 471-2186 for additional information regarding the new state regulations. Sharon Skipton at 472-3662 or Jan Hygnstrom at 472-9614 — both of University of Nebraska-Lincoln Cooperative Extension — can help with questions regarding septic systems for rural homeowners.