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Problem: Anthracnose of Shade Trees- *various disease species*

Host Plants: Sycamore, Maple, Ash, Elm, Oak and Walnut. London plane is considered partially 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. Other species can also be infected by anthracnose with maple and ash being more commonly attacked in Kansas than elm or oak.

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 reinfecting 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 are usually not recommended. 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 rarely eliminates the problem, especially since anthracnose fungi 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, propiconazole (Banner Maxx, Fertilome Liquid Systemic Fungicide II, Bonide Infuse Systemic Disease Control) and copper fungicides.

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.

Certain fungicides are labeled for systemic injection into sycamore trees for the control of anthracnose including Arbotect and Alamo. 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.

References:

1. Tree & Shrub Problems in Kansas, K-State Research & Extension, MF3132, Pg 6
2. Diseases of Trees in the Great Plains. USDA, RMRS-GTR-335, Pg 12

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