

A Key to Important Diseases of Common Deciduous Kentucky Landscape and Forest Trees

John R. Hartman¹, Jody M. Thompson², Julie W. Beale³ and Sara J. Long³

¹Plant Pathologist, University of Kentucky (retired).

²Forest Health Specialist, Kentucky Division of Forestry, jody.thompson@ky.gov

³Plant Disease Diagnosticians, University of Kentucky.

Instructions: Select the tree that you are examining from the following choices. After selecting the appropriate tree, choose from the disease descriptions listed below the selected tree. Choose the description that most closely matches what you see on the tree.

Ash

- 1) Signs or symptoms on the foliage: Leaflets with brown spots, blotches, or dead patches; fallen leaflets may litter the ground around the tree when disease is active in the spring. **Ash anthracnose**
- 2) Signs or symptoms on the branches: Twigs and branches dead, bark may turn a reddish color with gray areas. **Botryosphaeria canker**

Cherry

- 1) Signs or symptoms on the foliage: Leaflets with small, circular brown to black spots; may cause leaves to turn yellow and fall prematurely. **Cherry leaf spot**
- 2) Signs or symptoms on twigs and branches: Twigs and branches with large lumpy black swellings; (Found mainly on flowering *Prunus* spp., i.e., flowering cherry, flowering plum, etc.) **Black knot**

Crabapple

- 1) Signs or symptoms on the foliage: Leaves with olive-green to black surface lesions later turning dark brown. Leaves turn yellow and fall from the tree. **Scab**
- 2) Signs or Symptoms on the foliage: Leaves with a white powdery growth on the surface; leaves sometimes curled, deformed or stretched. **Powdery mildew**
- 3) Signs or symptoms on leaves, fruits, and shoots: Leaves with circular reddish-orange spots; shoot tips swollen with roughened growth on the swollen areas; fruits with roughened orange lesion, usually on the calyx end. **Cedar-apple and -quince rust**
- 4) Signs or symptoms on twigs or branches: In spring and early summer branch tips die and are bent over with blackened, dead leaves (crabapple, flowering pear). **Fire blight**

Dogwood

- 1) Signs or symptoms on the foliage: In springtime, purple to brown dead blotches generally along leaf veins, or sometimes as isolated leaf spots or along the leaf margin. New shoots may be attacked and killed. **Anthracnose**
- 2) Signs or symptoms on the foliage: In summer, leaves may yellow somewhat or develop purple blotches. Newest leaves develop a white, powdery growth on the leaf and shoot surface. Later, leaves may be drooped faded, and curled. **Powdery Mildew**
- 3) Signs or symptoms on the lower trunk and roots: Tree declining and dying, loosened bark may be observed at the base of the tree. Cutting into the lower trunk may reveal reddish brown staining under the bark in the root collar region. If roots are dug up and examined, they may appear dark and decayed. **Phytophthora root rot**

Elm

- 1) Symptoms at first on isolated branches: Branches, dying or dead with curled yellow or brown leaves, often on one side of the tree. Disease may spread to other parts of the tree, eventually killing the entire tree. Examination of wood of affected branches reveals a dark brown staining of the wood. **Dutch elm disease**
- 2) Symptoms on the trunk or large limbs: Bark with a water soaked streak due to wetness exuding from a wound, bark sometimes bleached, often a slimy pink, yellow, or whitish matrix is associated with the wetness. **Bacterial wetwood**
- 3) Symptom generally affects the whole tree: Tree fades to yellow and eventually dies. Examination of wood of affected branches reveals light brown staining under the bark. **Elm yellows**

Magnolia

- 1) Symptoms on foliage: White powdery growth develops on leaf surface during summertime. **Powdery mildew**
- 2) Symptoms on foliage: In winter or early spring, leaf edges of evergreen magnolia leaves turn brown **Winter drying**

Maple

- 1) Symptoms on foliage: Leaves with dark brown spots and blotches appearing in springtime. See description under Dogwood. **Anthracnose**
- 2) Symptoms on foliage: In summer, black, slightly raised somewhat circular spots develop on leaves. Spots resemble droplets of tar. **Tar spot**
- 3) Symptoms on foliage: In late summer, leaves show marginal leaf burning. See description under Oak. **Bacterial leaf scorch**
- 4) Symptoms on limbs or branches: Leaves on individual branches or limbs, often on one side of the tree, turn brown and die. Branch and limb dieback may continue until after a few months or a year the entire tree may die. Cuts made into the wood of affected limbs reveals streaks of a dark, greenish black stain. **Verticillium wilt**

Oak

- 1) Symptoms on foliage: Leaves with brown spots and blotches, often along the veins, appearing in springtime. See description under Dogwood. **Anthraxnose**
- 2) Symptoms on foliage: Leaves abnormally yellow, especially between the veins. Leaf spot or dead areas may develop in yellowed leaves. **Iron deficiency**
- 3) Symptoms on foliage: In late summer, leaves on individual branches or limbs show marginal burning or scorch. The following spring foliage has normal green color, but scorch symptoms appear again in late summer and affect a few more branches. After several years, late summer scorch appears in the entire tree and twigs and branches begin to die back. After 10 to 15 years the tree may have so many dead limbs that the tree needs to be removed. **Bacterial leaf scorch**
- 4) Symptoms on limbs or branches: Smooth, dark gray patches may develop where on affected limbs, trunk, or branches of declining trees. **Hypoxylon canker**

Redbud

- 1) Symptoms on limbs or branches: In summer, all the leaves on a portion of a single branch suddenly turn brown. Close examination of the region where the dead branch part meets with the still live branch part may reveal a sunken canker. By peeling back the bark in that region, the creamy white live tissue can be contrasted with the brown, dead tissue. This disease may also appear on the trunk, often associated with Pruning activity or wounds from prior years. **Botryosphaeria canker**
- 2) Symptoms on limbs or branches: Leaves on individual branches or limbs, often on one side of the tree, turn brown and die. See description under maple.
..... **Verticillium wilt**

Sycamore

- 1) Symptoms on foliage: Leaves with brown spots and blotches in springtime. Tree may appear defoliated in spring, especially in the lower canopy, but re-foliates in summer. See description under Dogwood. **Anthraxnose**
- 2) Symptoms on foliage: In late summer, leaves on individual branches or limbs show marginal burning or scorch. Over several years, branches and limbs may die back. See description under Oak. **Bacterial leaf scorch**

Tulip Poplar

- 1) Symptoms on foliage: General yellowing of foliage in the tree and premature leaf fall often appearing in late summer. **Physiological response to dry weather**
- 2) Symptoms on limbs or branches: All of the leaves on individual branches or limbs wilt, turn brown and die, often just on one side of the tree. See description under Maple.
..... **Verticillium wilt**

Trees, general

- 1) Signs appear on twigs, branches or trunk: Greenish gray growth on bark surface which may appear crusty or may be growing flat on the bark. **Lichens**
- 2) Signs or symptoms on the trunk: Mushrooms or fungal conks found on the trunk, sometimes at the base or often higher up on the tree. **Trunk decay**

This Key addresses only the most common diseases of several common Kentucky trees. There are many additional diseases of these trees that occur less frequently than those listed, or that might require microscopic examination or laboratory tests. To confirm your field diagnosis, contact your County Extension Office. Extension agents with trees needing additional tests are backed up by the U.K. Plant Disease Diagnostic Laboratory. The following links may be helpful for learning to recognize tree diseases in more detail.

Anthracnose

<http://www.ca.uky.edu/agc/pubs/ppa/ppa17/ppa17.pdf>

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-6.pdf

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1232.pdf>

Apple/Crabapple Scab

<http://www.ca.uky.edu/agc/pubs/ppa/ppa24/ppa24.pdf>

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1197.pdf>

Armillaria Root Rot

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-5.pdf

Bacterial Leaf Scorch

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-12.pdf

Bacterial Wetwood

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1207.pdf>

Black Knot of Prunus spp.

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1223.pdf>

Cankers

http://www.uky.edu/Ag/kpn/kpn_07/pn070716.htm#shacan

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1190.pdf>

Cedar Rusts

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1191.pdf>

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1243.pdf>

Dutch Elm Disease

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-2.pdf

Fire Blight

<http://www.ca.uky.edu/agc/pubs/ppa/ppa34/ppa34.pdf>

Hypoxyylon Canker

http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/kpn_05/pn051010.htm#shastr

Iron Deficiency

<http://www.ca.uky.edu/agc/pubs/id/id84/id84.htm>

Lichens, Sooty Mold

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-MISC-3.pdf

Physiological Leaf Yellowing

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1239.pdf>

Powdery mildew

http://www.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-13.pdf

Tar Spot

http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/kpn_06/pn060807.htm#shamap

Verticillium Wilt

<http://www.ca.uky.edu/agc/pubs/ppa/ppa18/ppa18.pdf>

<http://www.ca.uky.edu/agcollege/plantpathology/extension/KPN%20Site%20Files/pdf/KPN1240.pdf>