

# Kentucky Nursery LISTSERV Bulletin

University of Kentucky Nursery Crops Team

End of May 2016

## Long Range Outlook Information

The central KY region cooled off this week, but all the forecasts say it will not last. The three month outlook shows temperatures will be consistently higher than normal averages for July, August and September, while precipitation will be about average over the long term. In the near term, is predicted to be above normal averages over the next two weeks.

See [UKAg Weather's Long Range Outlooks](#) for a variety of forecasts of temperature and precipitation probabilities.

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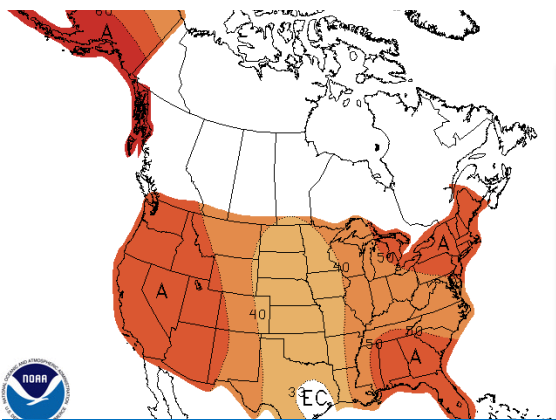
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Three-Month (July, Aug, Sept) Outlook, Temperature probability, Image: NOAA

- **Fall-colored damage in bald cypress, caused in late spring (*Taxodium distichum*) caused by rust mites in late spring**
- **Anthraxose Diseases on Shade Trees**
- **Summer Management of Ornamental Pear Damaged by Fire Blight**
- **Dogwood Anthracnose Spotted**

# Fall-colored damage in bald cypress (*Taxodium distichum*) caused by rust mites in late spring

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Bald cypress, a deciduous conifer, sheds their needle-like leaves in early fall after the foliage turns tan, cinnamon and deep orange. We noticed fall-colored needles in bald cypress trees grown in a nursery in western Kentucky last May (Figure 1). It looked like nutrient deficiency at first, but as we looked closely we noticed irregular red spots. Nothing could be seen with naked eyes, until leaves were checked under a stereoscope in the laboratory to find many tiny creatures everywhere that were identified as eriophyid mites.

Bald cypress rust mite (*Epitrimerus taxodii*) has been previously reported in bald cypress. This mite is species specific, hence it will not attack other species nearby. High temperatures of late spring as well as high humidity trigger a rapid increase of overwintered eriophyid mite populations. The bald cypress rust mites feed and live freely on the surface of the needles of bald cypress. They are clear-white or light orange colored mites, with worm or cigar shape (Figure 2A) that occasionally show their bodies covered with a white wax (Figure 2B).

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Figure 1. Nursery bald cypresses severely affected by rust mite and mineral deficiency.

Photo: Virginia Travis, UK-Horticulture

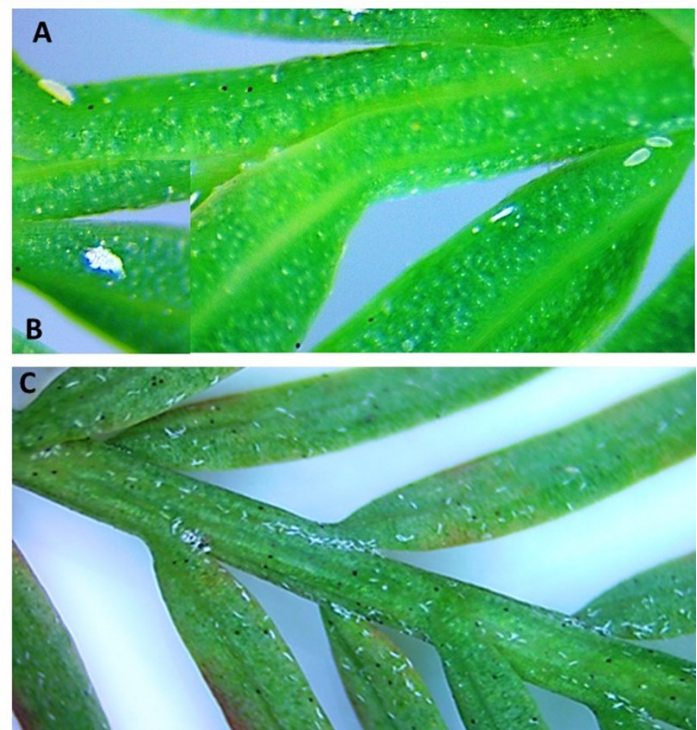


Figure 2. Bald cypress rust mites. A) White to yellowish cigar shaped mites. B) Mite covered with white wax. C) White molted skins shed by mites during development

Photo: Zenaida Viloría, UK-Horticulture

A large number of molted skins (exuviae) are left on the affected foliage (Figure 2C) after high populations migrate to healthy leaves.

Rust mites feed by rasping the epidermal cells to suck their content. The needles initially turn yellow and later brown and red as the damage progresses. In nursery, trees with obvious mineral deficiency showed severe damage (Figure 1).

Landscape bald cypresses (Figure 3), grown in UKREC-Princeton, showed mild discoloration that can hardly be distinguished in the distance. The presence of bald cypress rust mite is usually detected when the damage is considerable. Bald cypress rust mite monitoring is especially recommended for small plants to avoid severe injury and economic losses in nurseries. To detect rust mites, it is necessary to use 10X or higher power handheld magnifier.

Chemical control: eriophyids can be controlled with insecticides such as carbaryl or miticides such as abamectin. Horticultural oil can cause injury to bald cypress, therefore it should be avoided. Please read the insecticide label for the proper use and rates. For more information, consult your county extension agent.



Figure 3. Landscape bald cypress affected by rust mites.

Photo: Zenaida Vilorio, UK-Horticulture

### **Additional information**

Boggs, J. 2014. Rusty baldcypress. [http://bygl.osu.edu/bygl\\_archive2015/content/rusty-baldcypress-0](http://bygl.osu.edu/bygl_archive2015/content/rusty-baldcypress-0)

Popenoe, J. 2008. Bald cypress, *Taxodium distichum*.

<http://orange.ifas.ufl.edu/cfnurseries/pdf/files/plantfacts/BaldCypress.pdf>

# Anthracnose Diseases on Shade Trees

Nicole Ward Gauthier, Extension Specialist, Plant Pathology

Kim Leonberger, Extension Associate, Plant Pathology

This spring has been cool and wet, leading to slow emergence of leaves on many shade trees. This combination of favorable weather conditions and slow leaf maturity created ideal conditions for development of anthracnose disease on several common shade trees.

The term anthracnose refers to the dark blotching (necrotic) symptom common to these diseases. When expanding leaves are affected, leaf distortion frequently results (Figure 1). Defoliation (leaf drop) often occurs during severe infections. The disease

is generally not fatal, and a new flush of foliar growth immediately follows defoliation on some tree species. Causal fungi may also infect twigs and branches resulting in cankers that girdle stems (Figure 2).

## Symptoms

The fungal pathogens that cause anthracnose diseases are quite host-specific, meaning that the anthracnose pathogen on oak will not infect ash, etc. Symptom appearance and severity differ with each host and with climatic conditions.

**Ash anthracnose:** Common symptoms include brown blotches along leaf edges. Leaf drop often results, and then new leaves soon emerge. Causal fungus: *Discula umbrinella*.



Figure 1. Symptoms of anthracnose on shade trees include dark blotches and leaf distortion.

Photo: Nicole Ward Gauthier, UK-Plant Pathology



Figure 2. The fungal pathogens that cause anthracnose may also infect twigs and branches. Resulting cankers girdle affected branches.

Photo: John Hartman, University of Kentucky

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**Maple anthracnose:** Symptoms begin as leaf spots and may progress into shoot blight and shoot cankers. Leaf spots with brown, somewhat angular symptoms may be confused with tar spot (spots are round and black). Symptom development and susceptibility vary with tree species, but lesions often follow veins. Causal fungi: *Discula* sp. and *Kabatiella apocrypta*

**Oak anthracnose:** Not commonly observed in Kentucky. Irregular brown spots develop on leaf tips and along veins. Causal fungus: *Apiognomonia quercina*.

**Sycamore anthracnose:** Young, expanding leaves develop irregular dark, necrotic blotching centered along leaf veins or edges. These dark blotches may turn tan-colored as the diseased areas of leaves dry out. Blighting of twigs or shoots may follow. Trees produce new foliage rather quickly, but affected branches may remain crooked (lateral shoots become dominant when terminals are killed). Also affects London plane tree. Causal fungus: *Apiognomonia veneta*.

## Management

For most trees, anthracnose disease is not lethal. However, repeated defoliation can be stressful to trees. Additionally, persistent rains and disease spread can lead to infection of twigs and branches. Good cultural practices are important to reduce disease:

- Select a planting site with a sunny eastern exposure to promote rapid foliage drying early in the day.
- Rake and destroy fallen leaves, as they can be a source of inoculum (fungal spores). Do not compost.
- Remove dead twigs and branches, as fungi can overwinter in dead wood.
- Reduce plant stress when possible.
- Avoid wounding, such as bumping with mowing equipment and making jagged pruning cuts.
- Maintain mulch 2 to 3 inches thick over the root zone and beyond the drip line (not against the trunk) to help maintain soil moisture and to protect trees from lawnmower injury.
- Protect trees from drought. Water at least once a week during hot, dry months using soakers or drip irrigation. Avoid overhead sprinklers; wet foliage favors sporulation and infection.
- Diagnose and treat insect and disease problems as soon as possible.
- Fungicides are often not recommended. They can be costly and it is difficult to effectively cover large trees. Commercial nurseries, on the other hand, should protect trees with fungicides.

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## **Resources**

### **Shade Tree Anthracnose (PPFS-OR-W-23)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-OR-W-23.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-23.pdf)

### **Landscape Sanitation (PPFS-GEN-04)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-04.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-04.pdf)

### **Considerations for Diagnosis of Ornamentals in the Landscape (PPFS-GEN-15)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-15.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-15.pdf)

### **Woody Plant Disease Management Guide for Nurseries and Landscapes (ID-88)**

<http://www2.ca.uky.edu/agcomm/pubs/id/id88/id88.pdf>

# Summer Management of Ornamental Pear Damaged by Fire Blight

*Kim Leonberger, Extension Associate*

*Nicole Ward Gauthier, Extension Plant Pathologist*

Questions have been plentiful regarding fire blight damage in flowering pear, crabapple, cotoneaster, hawthorn, and pyracantha. During March or April, pathogenic bacteria infected flowers or young shoots. Now, shepherd's crooks (Figure 1) and spur dieback (Figure 2) are becoming more prominent. Often, damage is not noticed until later in the season when branches die completely.

Although symptoms become more obvious during late spring, the fire blight bacterium is not currently active. Hot summer temperatures suppress bacterial growth, and plants are able to compartmentalize and wall off spread. Thus, visible symptoms are the result of early infections.

Current recommendations indicate that pruning of blighted twigs and cankered branches should be delayed until winter when risk of disease spread is lowest. Under certain circumstances, homeowners or commercial landscape contractors may choose to prune infected branches during the growing season. Only young, vigorous trees should be considered, and care should be taken to prevent bacterial spread. Always avoid working with wet plants. Cut branches at least 6 to 8 inches below cankers, disinfecting pruners between each cut (10% Lysol disinfectant, 10% bleach, or rubbing alcohol). Ideally, winter pruning is recommended.

Disease management includes both cultural practices and preventative bactericides. Because the fire blight bacterium overwinters in cankered branches, removal of diseased plant tissue before bud break (mid to late winter) is critical.



Figure 1. Infection of young shoots cause shepherd's crook symptoms.

Photo: Nicole Ward Gauthier, UK



Figure 2. Infection for flower spurs travels down into twigs. Cankers can girdle branches, restricting water uptake to tops of branches.

Photo: Nicole Ward Gauthier, University of Kentucky

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Copper applied as buds swell (late dormancy or silver tip) reduces build-up of bacterial cells, especially during warm rainy spring seasons. Streptomycin applications are only recommended for fruiting apple and are not labeled for landscape use.

## **Resources**

### **Fire Blight of Apple (PPFS-FR-T-3)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-FR-T-12.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-T-12.pdf)

### **Flowering Crabapple (ID-68)**

<http://www2.ca.uky.edu/agcomm/pubs/id/id68/id68.pdf>

### **Landscape Sanitation (PPFS-GEN-04)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-04.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-04.pdf)

### **Homeowner's Guide to Fungicides (PPFS-GEN-07)**

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-07.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-07.pdf)



## Dogwood Anthracnose Spotted

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Anthracnose of dogwood is a common problem in Kentucky. Symptoms on landscape and forest dogwood often first appear during wet periods in late spring. If left unmanaged, the pathogen spreads, eventually resulting in plant death. Selection of resistant varieties and maintenance of tree health are critical for disease prevention.

### Dogwood Anthracnose Facts

- Leaves may develop medium-to-large spots with purple borders or scorched tan blotches that enlarge to kill the entire leaf (Figure 1). Infected petioles and branches exhibit dieback, typically beginning on lower branches (Figure 2). Cankers with a dark brown discoloration under the bark may develop limbs. The development of trunk sprouts increases.
- Other landscape trees can develop diseases also called anthracnose; however, these result from different fungal pathogens and symptoms vary depending on the type of tree.
- Disease is favored by cool, moist periods. Infection may occur throughout the growing season, as long as conditions are conducive.
- Caused by the fungus *Discula destructiva*.
- The pathogen survives winter in infected plant tissues, such as leaf debris and cankers.



Figure 1. Dogwoods affected by anthracnose develop leaves with medium-to-large spots with purple borders or scorched tan blotches.

Photo: John Hartman, UK

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## Management Options

- Select disease resistant cultivars, such as Oriental dogwood or cultivars developed from the 'Appalachian' cultivar series.
- Inspect all trees prior to purchase and installation for symptoms.
- Do not transplant forest dogwood into landscapes.
- Prune trees to allow for increased air movement and leaf drying.
- Select good planting sites that allow for adequate sunlight.
- Maintain plant health with proper nutrition, irrigation, and the addition of mulch.
- Avoid injuries to trees.
- Prune all dead, dying, or diseased branches from trees.
- Fungicides may be applied preventatively. Contact a county Extension agent for more information on fungicide use.



Figure 2. Infected petioles and branches exhibit dieback, typically beginning on lower branches.

Photo: Robert L. Anderson, US Forest Service, [bugwood.org](http://bugwood.org)

## Additional Information

Dogwood Anthracnose (PPFS-OR-W-06)

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-OR-W-06.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-OR-W-06.pdf)

Landscape Sanitation (PPFS-GEN-04)

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-04.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-04.pdf)

Flowering Dogwood (ID-67)

<http://www2.ca.uky.edu/agcomm/pubs/id/id67/id67.pdf>

Considerations for Diagnosis of Ornamentals in the Landscape (PPFS-GEN-15)

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-15.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-15.pdf)

Woody Plant Disease Management Guide for Nurseries and Landscapes (ID-88)

<http://www2.ca.uky.edu/agcomm/pubs/id/id88/id88.pdf>

The University of Kentucky's **Nursery Crop Extension Research Team** is based out of two locations across the bluegrass to better serve our producers.

The **University of Kentucky Research and Education Center (UKREC)** in **Princeton** serves western Kentucky producers while our facilities and personnel on main campus in **Lexington** serve central and eastern Kentucky producers.

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