

# Trees and Woodlands

## Is it oak wilt or oak anthracnose?

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### Oak wilt

Oak wilt kills infected oak trees. Left untreated, oak wilt can spread to neighboring trees. It is very important to properly identify oak wilt and treat infected oaks to prevent spread of the disease.

### Susceptible trees

#### Red Oak Group



Northern Red Oak

Northern Pin Oak

created by USDA Forest Service

All oaks are susceptible to oak wilt. Northern red oak and northern pin oak (pointed leaf tips) are VERY susceptible, while white oak and bur oak (rounded leaf tips) are moderately susceptible.

### Biology

Oak wilt is caused by the fungus *Ceratocystis fagacearum*. The oak wilt fungus infects the tree's xylem, water carrying cells. This blocks the flow of

### Oak anthracnose

Oak anthracnose infects twigs, buds, and leaves of the oak tree. This disease can discolor, distort, kill leaves and generally stress the tree. Oak anthracnose is considered a minor stress on the tree and oaks recover from oak anthracnose.

### Susceptible trees

#### White Oak Group



Bur Oak

White Oak

created by USDA Forest Service

Oak anthracnose is most severe in white oak and bur oak (rounded leaf tips). Northern red and northern pin oaks (pointed leaf tips) are mildly affected by oak anthracnose.

### Biology

Oak anthracnose is caused by the fungus *Discula quercina*.

The oak anthracnose fungus lives in infected areas

water and nutrients from the roots to the crown of the tree, resulting in wilt and potentially death.

The fungus produces a sweet smelling mat containing fungal spores under the bark of trees killed by the oak wilt fungus. These spore mats attract sap feeding beetles which can carry the spores from diseased trees to healthy trees.

Oak wilt is also transmitted from tree to tree by underground connections called root grafts. Root grafts commonly occur between trees 50 feet or much further apart.

of twigs and leaves. During a wet spring, spores are splashed onto new leaves and shoots to cause infection. Only young leaves and twigs or wounded leaves are susceptible to the oak anthracnose fungus.

## Identification



Photo by M. Grabowski

Leaves first begin to wilt

Red oaks (pointed leaf tips) can wilt completely in 2-6 weeks. Red oak trees typically die within a year of infection.

In white oaks (rounded leaf tips), leaves become discolored and wilt just like in red oaks (pointed leaf tips). In white oaks, however, wilt affects a few branches, not the whole canopy. White oaks have some resistance to the oak wilt fungus and the disease progresses much slower in these trees than in red oaks. It may take months or even years for a white oak to succumb to oak wilt.

## Identification



Photo by M. Grabowski

Leaves have irregular, water-soaked blotches that turn black. Eventually, blotches dry out and become tan or brown.



Photo by M. Grabowski

Discoloration in the leaves often starts along veins, in random locations. Spots may grow together into large blotches.

Leaves become distorted or cupped by the infection.



Photo by M.Grabowski

Leaves turn dull bronze to brown from the tip and outer edges of the leaf. The base of the leaf may remain green. Although leaves are discolored, they are not misshapen or distorted in any way.

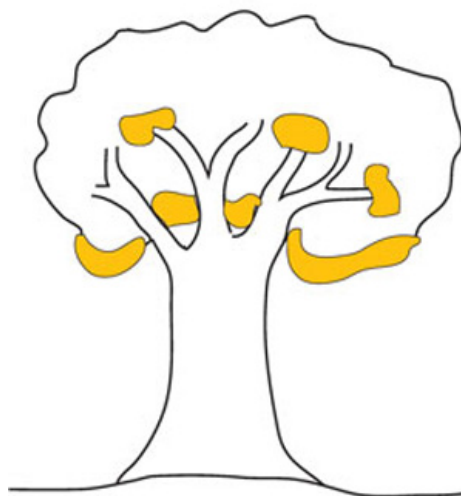


Image created by M.Grabowski

Symptoms first appear in the lower and inner branches, where humidity is highest.

Oak anthracnose can cause leaf drop and complete defoliation, but infected trees often produce a second flush of leaves within the same growing season.



Image created by M.Grabowski

Top most leaves and branches wilt and show symptoms first.

Oak wilt can cause leaf drop and complete defoliation. Often leaves with the characteristic brown margins and green center can be found on the ground underneath infected trees.



Photo by R. Blanchette

In a cross section of an infected white oak branch, it is common to see black streaks or spots in the inner wood.

## Control

Red oaks infected with oak wilt will eventually die. Oak wilt needs to be identified and treated early in white and bur oaks for successful treatment of the disease. In all oak trees, the best management strategy for oak wilt is to prevent disease in the first place.

### Preventing oak wilt

NEVER prune oak trees in the months of April, May, or June! Sap feeding beetles are attracted to these cuts and will bring in fungal spores from diseased trees.

If trees are accidentally wounded during the months of April, May, or June, immediately paint the wound with water based (latex) paint or shellac.

If a healthy oak tree must be removed, do not cut the tree down in April, May or June. However, if the tree must be removed during these months, immediately seal the top of the tree stump with water based (latex) paint or shellac. This will prevent the new stump from becoming infected with oak wilt and transmitting the disease to neighboring trees through its root grafts.

### If infection occurs

Infected red oaks will die in weeks to a year. Because the disease progresses so rapidly in red oaks, there are currently no treatments available that will stop the disease once a red oak is infected.

It is critical to cut the underground connections, or root grafts, between healthy and diseased trees. This will stop the oak wilt fungus from spreading from tree to tree through root grafts. Specialized equipment is required to cut roots at least 5 feet deep in the soil. Call a professional tree care company.

## Control

Oaks can recover from oak anthracnose. The fungus needs leaf moisture to infect and spread. As temperatures rise in the summer months and rains cease, the disease will be reduced.

Rake up and destroy leaves in the fall. Prune out any dead twigs after November. Fungi survive in leaves and twigs and infect new leaves the following year if not removed.

Help your tree recover from the anthracnose infection by reducing stress on the tree throughout the season.

Mulch around the base of the tree, from the trunk out to the drip line of the canopy, with an even 2-4 inch layer of organic mulch like wood chips. Take care not to pile mulch against the trunk of the tree. Instead pull the mulch away from the trunk so an air space exists between the trunk and the mulch. This will discourage decay and rodent feeding.

Water trees during periods of drought. Young trees can be watered with a garden hose. Mature trees should be watered with a lawn sprinkler. Water at least the area from the trunk of the tree out to the edge of the canopy until the top 6-8 inches of soil is wet. Some tree roots expand well beyond the canopy so if watering a larger area is possible, do so. Allow soil to dry before watering again.

Avoid using heavy equipment underneath the tree. This will compact the soil and injure the root system.

Take care when mowing and weeding around the base of the tree. Yard and garden equipment can easily injure trees.

If a tree has lost the majority of its leaves several years in a row, call a professional tree care company to apply a fungicide as leaves open the following spring.

Infected bur and white oaks may take several months to several years to die. If the disease is identified early (less than 30% of the tree's canopy is affected) it may be possible to save the tree. Fungicidal injections can be used to protect the tree, and infected branches can then be pruned out. Fungicidal treatments need to be applied by a certified arborist.

Fungicidal injections can also be used to protect trees from infected neighbors when it is not possible to cut root grafts.

What to do with oak wilt infected wood?

- All small branches should be chipped or burned (chips can be used in landscape).
- Logs must be split for firewood before September. This causes the wood to dry out and the fungus to die.
- Any unsplit logs must be covered with 4-6 mil plastic, with all ends completely sealed down to the soil line, from March until late July.
- Never move oak wilt infected firewood offsite until it has been properly split and dried.

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