

## Oak Wilt

by Debbie Lauer, Bell County Master Gardener

Oak Wilt is a serious fungal disease that attacks oak trees and can kill them in as little as ten days. It was first identified as a serious disease in 1944 in Wisconsin and is now in 21 states including Texas. The counties of Central Texas are among the over 60 counties in Texas that have recorded instances of oak wilt. The Austin area alone has lost over 10,000 trees over the last 20 years. It is also a problem here in Bell County.

The fungus, once introduced to a tree clogs up its vascular system. It effectively chokes off the tree's access to water by filling up the spaces in the tree used to transport water from the roots to the crown of the tree. Live oaks, and Red oaks (Spanish, Shumard, Water, Blackjack, and Pin oaks) readily get the disease. Red oaks are the most sensitive to the fungus. Some red oaks have died as soon as 10 days after showing symptoms while most die within four to six weeks after showing symptoms. Live oaks usually die within four to six months, but can take up to a year to die. Approximately 10% of live oaks survive the infection but they never recover fully from it. White oaks (Burr, Chinquapin, Monterey, and Post) are the most resistant oaks but can become infected under circumstances where there is a lot of the disease in their environment.

Oak wilt is spread to oak trees in two ways. The most common way for an oak tree to become infected with this disease is through its root system. Oak trees within 50-60 feet of each other have overlapping root systems. Over time these root systems fuse with one another and the disease is spread from tree to tree through the roots. Live oaks especially get infected this way as they form large communal groups that have interconnecting root systems. Most of root connections stay within a species but if planted side by side, root connection/sharing can take place in between species such as a Live oak and a Spanish oak. Oak wilt spreading from tree to tree can move 75-100 feet per year moving in this manner. Another way this disease is spread is by the sap eating Nitidulid beetle.

Nitidulid beetles are extremely small, approximately the size of the head of a pin. They are attracted to the sweet smelling sap of an oak tree oozing from a fresh wound on a tree. They can fly up to one mile to seek out sap and have been recorded on a fresh wound as soon as 15 minutes after it was opened. Red oaks infected with the disease form fungal mats under the bark of the tree that eventually become so large that they break through the bark. The fungal mat is the phase of the disease that forms spores. When the beetle is attracted to the sap oozing through the bark surface they become covered with fungal spores. When they fly off to their next food source they carry the spores with them and infect their next host.

Symptoms of Oak Wilt vary by type of tree. Live oak leaves become brown and necrotic along the central veins of the leaves. Live oak leaves can also show the disease through burnt looking leaf tips. Leaves can also look banded with light and dark green bands prior to the brown and necrotic stage of the veins. Leaf drop occurs as the tree becomes more infected. Symptoms on red oaks are not as easily determined. The first symptom is the wilting of the leaves. Leaves curl in on themselves and look oily or waxy. This usually occurs on a single branch first and then spreads to other branches and eventually to the entire canopy. Another red oak symptom is out of season leaf color change and leaf drop. For color pictures go to the "Eight Step Program To Oak Wilt Management" page on the Texas A&M Plant Pathology and Microbiology website.

Now is the time of year that you need to be especially vigilant watching for symptoms and taking care not to wound your oak trees. From February 1st until mid June is when the beetle that spreads the disease is especially active. Do not prune your oak trees during this time period. The beetles don't like cold weather or temperatures over 95 degrees. The best time to prune your oak trees is during the hottest part of the summer. Paint the wound immediately with black latex paint. The next best time is the coldest part of the winter. If your trees are damaged in any other ways such as with string trimmers or lawn mowers, paint the wounds as soon as possible. In addition any branches knocked down by wind or lightning need to have the wounds treated.

The best way to control oak wilt is to prevent oak wilt. Here are some other methods to control its spread. Sterilize/sanitize all pruning equipment between trees. Chain saw blades get hot enough to kill the spores

but loppers and any other manual pruning tools should be cleaned with a bleach solution (1 part bleach:9 parts water) before going on to another tree. In addition do not buy or transport unseasoned oak firewood, especially wood from red oaks. Ensure that the wood has been seasoned by checking for splitting on the ends of the logs before buying it. To season oak firewood, put clear plastic over it and cover the edges all around with dirt. The fungus cannot survive in dry conditions. After it has dried out over a full summer it is safe. Finally promptly bury or burn all red oaks that are dying or have been recently killed by oak wilt.

Finally here is the Eight Step Program to Oak Wilt Management taken from the above listed website.

1. Identify the Problem. An accurate diagnosis is important.
2. Create a Buffer Zone: Spread of the disease by roots can be stopped by creating a buffer zone using a rock saw to trench around infected trees. The trench needs to be at least 4 feet deep and 100 feet away from the last symptomatic tree.
3. Sanitation. Remove dead and diseased trees. Burn them in place if possible, especially if red oaks are in the diseased area. Spores are destroyed by heat; smoke does not spread the disease.
4. Avoid pruning from February to mid-June.
5. Protect pruning cuts and other wounds immediately with black latex paint.
6. Buy only seasoned firewood. Cover with clear plastic and bury edges for one summer to season the wood which dries out and kills spores.
7. Tree Injection with Systemic Fungicide. Trees with in the buffer zone can be treated with a fungicide labeled for oak wilt. This is injected into the root flare. For more information see the website for the Oak Wilt Information Partnership.
8. Replant. Live oaks, as well as Spanish, Shumard and Water oaks can be replanted where trees have been lost from the landscape if care is taken not to wound the trees. Consider adding other tree species to improve diversity.