

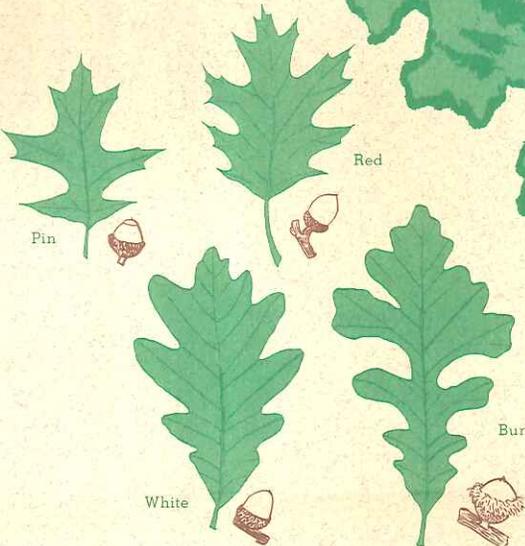
Trees are unquestionably a major contributor to our quality of life. Besides beauty, our trees provide us with many practical benefits such as shade from summer sun, protection from winter wind, habitat for wildlife, reduced air and noise pollution, added privacy and increased property values.

A deadly disease — oak wilt — threatens to kill many oaks in our state, if left unchecked.

### What Is Oak Wilt?

Oak wilt affects all oaks, although some species are more susceptible than others. There are two families of oaks — red and white — and within these families there are many species of oak trees. In the red oak family, pin and red oaks are very susceptible to oak wilt and are rapidly killed by it. In the white oak family, bur oaks are less susceptible and white oaks are reasonably resistant to the disease.

Oak wilt is caused by a fungus that invades the water conducting vessels of the tree. As the tree tries to protect itself from the invading fungus, it

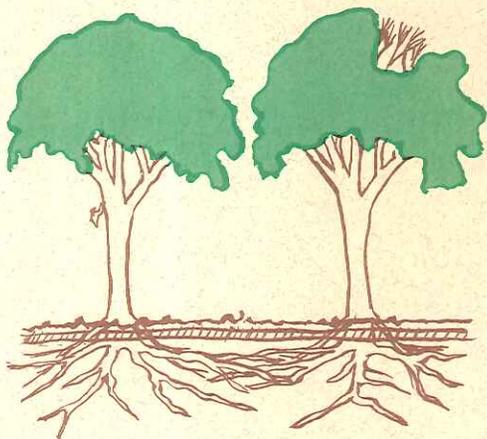


produces substances that plug the tree's vessels. That cuts off the tree's water supply and causes the leaves to wilt and the tree to die.

### How Does It Spread?

In more than 90 percent of the cases, the fungus moves from a diseased tree to a healthy tree through root grafts. Roots often grow together and may unite oaks of the same species as far as fifty feet from one another. When this occurs, the fungus passes from the infected tree to the healthy tree through the shared root system.

The disease can be spread by two other means: insects and people. Sap feeding beetles spread the disease when they fly from an infected tree to a healthy tree. When these insects crawl over an infected area of a red oak, the fungal spores adhere to their bodies. Then, when they fly to a healthy tree which has been recently pruned or wounded, they introduce the fungus to another tree. People spread the disease when they transport infected wood to previously uninfected oak stands.



### How To Identify Oak Wilt

The leaves of infected red oaks turn a dull green, bronze or tan beginning at the tip of the leaf. The leaf then gradually wilts from the tip toward the stem of the leaf. Wilting in red oaks generally starts near the top of the tree and gradually spreads over the entire crown. At the same time, the outer sap wood of infected branches changes from white to brown or black. This change may be seen by peeling back the bark. A red oak completely wilts and dies within a few weeks after the first symptoms appear.

White and bur oaks are more resistant to oak wilt and often remain healthy after surrounding red oaks have died. Although white oaks show the same pattern of wilt and brown streaking as red oaks, they usually drop only a few leaves and only scattered branches show early signs of wilting. Infected trees may live for several years while the disease slowly spreads through the tree. Eventually, the tree dies from oak wilt or is so weakened that it dies from other causes.

Early detection is important. This is especially true in red oak stands because the fungus has usually infected the entire tree by the time wilting is visible. If you suspect oak wilt, you can get help in making a positive identification. If your community conducts a local shade tree disease control program, you can call your tree inspector or city forester at city hall or the park board.

If your community does not operate a shade tree program or if the oaks are located in a rural area, contact your county extension agent.

### Controlling Oak Wilt

There is no cure for oak wilt, but fortunately this disease spreads slowly and can be effectively confined.

Early identification, isolation, and removal, as well as proper disposal of diseased oaks is the only way to save nearby healthy trees. If an infected oak stands within 50 feet of a healthy oak of the same species, root grafts probably connect the two trees. These should be severed either mechanically or with chemicals. Your tree inspector or county agent can give you information on how this is accomplished.

Since the oak wilt fungus can live in red oak logs for up to a year, insects can still spread the fungus to nearby healthy trees unless precautions are taken. To prevent the oak wilt fungus from infecting surrounding trees, you should remove the bark from red oak or completely cover the stack of split firewood with heavy (4 mil) plastic between April 15 and July 1 during the first year after removal. White oak wood can be stored without plastic because the fungal spores do not form on these species.

### What Can I Do?

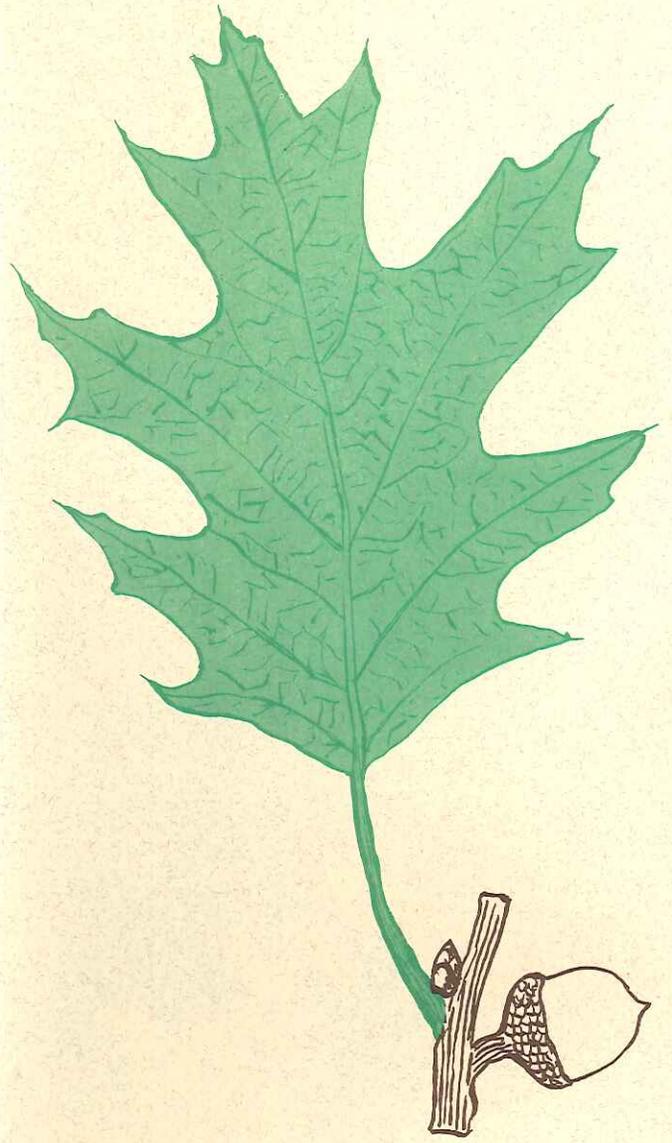
You can do a great deal to protect your oaks from contracting the disease in the first place. Above all, do not prune or injure your oaks during April, May and June. When a tree is pruned in the spring, the wound attracts the insects that carry the disease. This greatly increases the chance of oak wilt infection. Just by pruning oaks only in the fall or winter, we can save thousands of oaks every year.

You can also increase your oak's disease resistance by avoiding construction damage to the tree. Oaks are very sensitive to soil disturbances around their roots. Root damage can be caused by changing the grade around the tree during construction, changing the drainage flow, or even driving heavy equipment near the tree. These activities either injure the root system directly or change the air and water availability to the roots. Oaks decline and usually die within a few years as a result of construction activity unless proper care is taken to avoid disturbing their roots.

You can also learn about your community's efforts to care for its trees. Many Minnesota communities operate a shade tree program to control oak wilt and Dutch elm disease, as well as plant new trees. Participating communities receive grants from the Shade Tree Program in the Minnesota Department of Agriculture to cover part of their costs. The rest of the money comes from local tax revenues or special assessments.

Watch for oak wilt symptoms. If you think your tree is diseased, call your tree inspector, city forester or county agent. Don't delay!

The prospect for our oaks is very optimistic. Oak wilt does not threaten oaks in the same epidemic manner that Dutch elm disease threatens elms. If individuals and communities take action, oak wilt can be effectively controlled.



# OAK WILT



## Shade Tree Program

Minnesota Department of Agriculture  
90 West Plato Boulevard, St. Paul, MN 55107

1. In the earliest stages of oak wilt, leaves begin to turn a dull green, bronze, or tan. Discoloration starts at the tip and outer edges of the leaf. In red oaks, wilting begins near the top of the tree. In white oaks, wilting is scattered throughout the crown of the tree.

2. As the disease progresses, more of the leaf turns brown. Discoloration progresses from the outer edge inward, with the base of the leaf and the portion around the main vein, the last to change color.

3. Soon after, the entire leaf is brown and somewhat shriveled. Complete wilt of the entire tree occurs within a few weeks of initial symptoms on red oaks. White oaks may die within one year of initial symptoms, but usually die gradually over a period of several years.

