

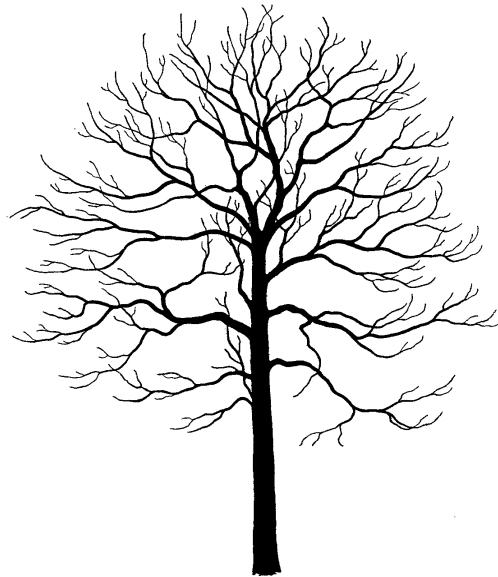


# Red Oak

Northern red oak (*Quercus rubra*) is a stately moderately fast growing, large maturing shade tree that has a pleasing oval shape. Leaves are glossy dark green during the summer. Fall color is highly variable, ranging from bright red to yellow brown.

Red oak grows in a wide range of geographic areas ranging from Canada's zone 4 in the north to Georgia's zone 8 in the south. To the west it is limited mainly by water availability, rarely growing west of Missouri.

Growth of is best in areas of full sun, but moderate shade is tolerated. Red oak will grow in most types of acidic soils with pH range of 4 to 7. Best growth is obtained on moist, well-drained loamy soils. It is however known for its tolerance to clay soil. Soils that are saturated for more than a few weeks during the growing season may be detrimental to tree growth.



One of the most common problems with this species is chlorosis that develops when soil pH is over 7 to 7.5. This results in yellowing or browning between the leaf veins and eventual decline of the tree. This problem may be corrected either by treating the soil or by injecting iron into the trunk.

There are many insects that feed on red oak. Many prefer trees that are under stress from root damage, lack of water or nutrients. Gypsy moth (*Lymantria dispar*) prefers red oaks to almost any other species. One complete defoliation by this insect can seriously weaken the tree to attack by other pests. Multiple years of defoliation or defoliation of a previously weakened tree may kill it outright. Other caterpillars that are occasional problems include orange striped oak worm, cankerworms and oak leaf skeletonizers. Obscure scale (*Melanapsis obscura*) is a very small insect that feeds on twigs and branches. From under its bark colored cover, it removes food produced by the leaves and intended for other parts of the tree. When the tree is weak two-lined chestnut borer (*Agrilus bilineatus*) often bore into the wood interfering with the movement of water and structurally weakening the tree.

Oak wilt (*Ceratocystis fagacearum*) is a vascular wilt disease closely related to the Dutch elm disease fungus that effects red oak. It can kill red oak in one season. The disease is spread by root grafts and by beetles that carry spores from tree to tree. In areas where oak wilt is known to be a problem it is best not to wound the tree when the beetles are flying, from mid-April through June. Common diseases that

cause dieback and decline include bacterial leaf scorch, cankers and root rot. Several common sucking insects transmit leaf scorch (*Xylella fastidiosa*). Symptoms start as marginal browning separated from the green leaf blade by a thin yellow line and end as severe branch dieback. Numerous canker fungi attach twigs and the trunk of trees stressed by lack of water, root damage or nutrient deficiency. Root rot fungi are difficult to detect in these early stages. In final stages trees often totally collapse during hot, dry periods in the summer. Leaf spot, anthracnose, and leaf blister disease all may cause premature defoliation.



Since red oak is typically one of the tallest trees in the landscape and it has coarse bark that holds rainwater, it is one of the most susceptible trees for being struck by lightning. Depending on the severity of the strike, the tree may die within a few weeks, it may decline for years as decay moves in or it may not be seriously damaged at all. Lightning damage can be prevented with the installation of a lightning protection system.

To promote overall tree health, proper mulching, pest management, fertilization and irrigation are required. Some of these treatments can be applied at any time; others require very specific timing.

### Recommended Monitoring for Red Oak

Timing	Treatment
Winter-Early Spring	Prune * to remove dead, dying, diseased and interfering limbs. Inspect root collar. Soil sample. Apply sulfur and iron chelate as needed. Inspect for scale, cankers, gypsy moth egg masses and twig galls. Spray scale and gypsy moth if needed.
Mid Spring	Anthracnose and leaf spot disease suppression treatment, if needed. Avoid wounding at this time of year, paint wounds if in an oak wilt area.
Late Spring	Anthracnose and leaf spot disease suppression treatment, if needed. Monitor leaf feeding insects.
Early Summer	Same as above. Monitor, soil moisture, leaf feeding insects and obscure scale. Treat as needed.
Mid Summer	Monitor soil moisture, leaf feeding insects and obscure scale crawlers. Treat as needed.
Fall	Monitor bacterial leaf scorch, iron deficiency. Soil treat iron deficiency, gall and scale insects. Soil apply systemic treatments for sucking insects. Fertilize * as needed to promote tree growth or improve tree health.

Systemic injections are available to treat iron deficiency. This treatment can be applied at any time except when the tree is frozen, during droughts or on trees with severe root damage. Treatment should not be repeated more than once every three years.

\*Can be done at other times depending on the individual requirements of the tree.