



Quercus rubra Northern Red Oak¹

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INTRODUCTION

An adaptable, widely planted Oak with a rapid growth rate, Red Oak will reach a height of 60 to 70 feet and a spread of 40 to 60 feet when open-grown, and is native to rich woodland areas where it will grow to 90 feet tall (Fig. 1). Branches and upper trunk are marked with long, light grey longitudinal lines which remind some people of ski trails. Open-grown trees form a rounded crown which makes a nice shade, park or street tree. Many communities use Red Oak as a street tree where overhead space is not limiting. Acorns are small and easily cleaned up, broken into small pieces by pedestrians or eaten by squirrels. The foliage turns a wonderful dark red in the fall.

GENERAL INFORMATION

Scientific name: *Quercus rubra*

Pronunciation: KWERK-us ROO-bruh

Common name(s): Northern Red Oak

Family: *Fagaceae*

USDA hardiness zones: 5 through 8A (Fig. 2)

Origin: native to North America

Uses: large parking lot islands (> 200 square feet in size); wide tree lawns (>6 feet wide); recommended for buffer strips around parking lots or for median strip plantings in the highway; shade tree; residential street tree; tree has been successfully grown in urban areas where air pollution, poor drainage, compacted soil, and/or drought are common

Availability: generally available in many areas within its hardiness range

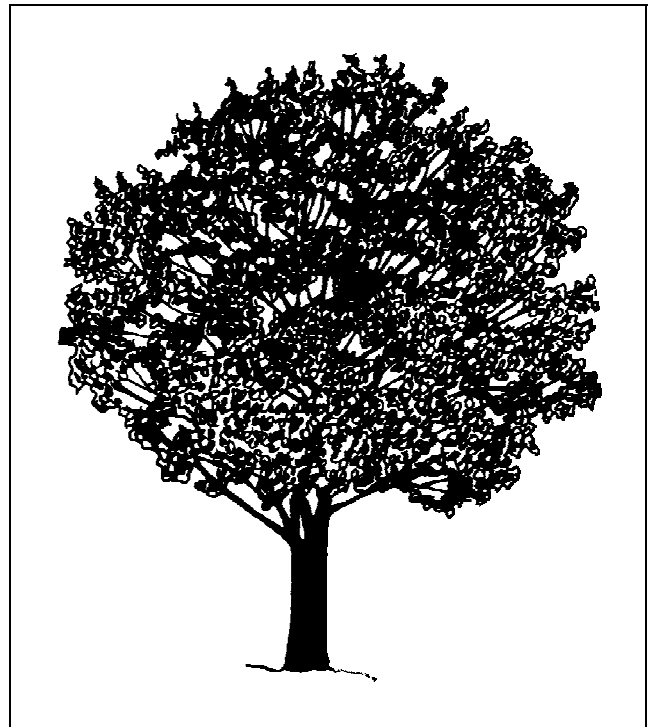


Figure 1. Mature Northern Red Oak.

DESCRIPTION

Height: 60 to 70 feet

Spread: 50 to 60 feet

Crown uniformity: symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms

Crown shape: round

Crown density: dense

Growth rate: fast

1. This document is adapted from Fact Sheet ST-560, a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: October 1994.
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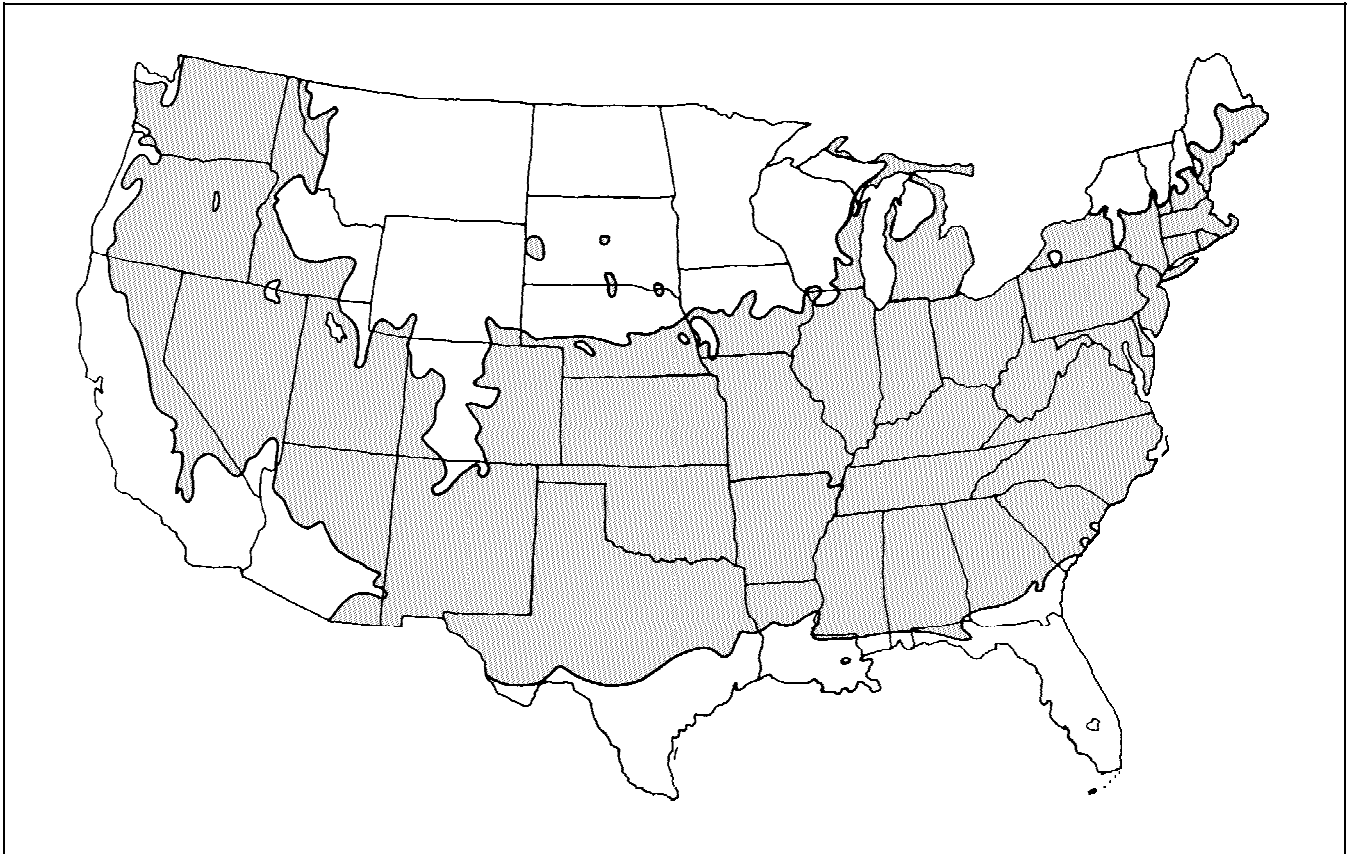


Figure 2. Shaded area represents potential planting range.

Texture: coarse

Foliage

Leaf arrangement: alternate (Fig. 3)

Leaf type: simple

Leaf margin: lobed; parted

Leaf shape: elliptic (oval); oblong; obovate

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 8 to 12 inches; 4 to 8 inches

Leaf color: green

Fall color: red

Fall characteristic: showy

Flower

Flower color: brown

Flower characteristics: inconspicuous and not showy

Fruit

Fruit shape: oval; round

Fruit length: .5 to 1 inch

Fruit covering: dry or hard

Fruit color: brown

Fruit characteristics: attracts squirrels and other mammals; inconspicuous and not showy; fruit, twigs, or foliage cause significant litter

Trunk and Branches

Trunk/bark/branches: grow mostly upright and will not droop; not particularly showy; should be grown with a single leader; no thorns

Pruning requirement: needs little pruning to develop a strong structure

Breakage: susceptible to breakage either at the crotch due to poor collar formation, or the wood itself is weak and tends to break

Current year twig color: brown

Current year twig thickness: medium; thick

Wood specific gravity: 0.63

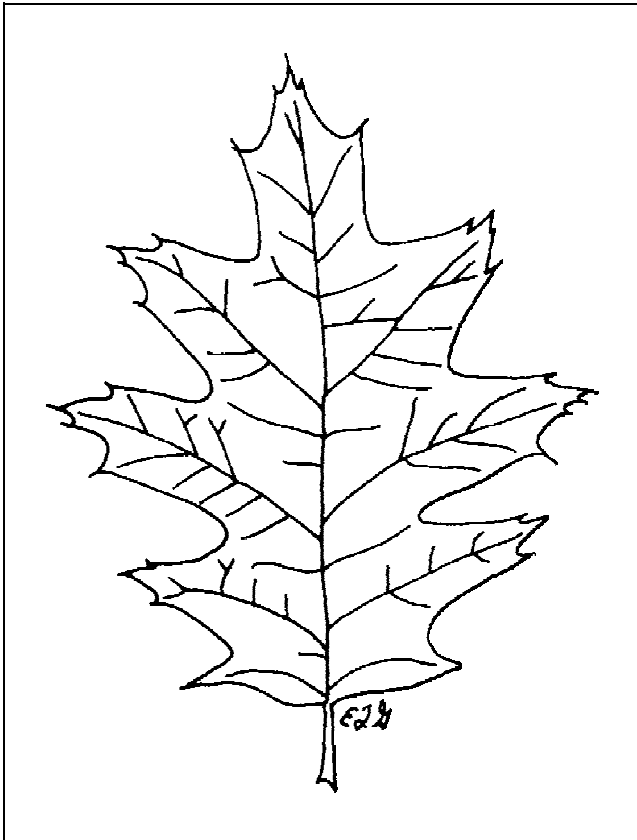


Figure 3. Foliage of Northern Red Oak.

Culture

Light requirement: tree grows in full sun
Soil tolerances: clay; loam; sand; slightly alkaline; acidic; well-drained
Drought tolerance: high
Aerosol salt tolerance: high
Soil salt tolerance: good

Other

Roots: surface roots can lift sidewalks or interfere with mowing
Winter interest: no special winter interest
Outstanding tree: not particularly outstanding
Invasive potential: little, if any, potential at this time
Ozone sensitivity: tolerant
Verticillium wilt susceptibility: not known to be susceptible
Pest resistance: long-term health usually not affected by pests

USE AND MANAGEMENT

Trees should be trained to a central leader with major lateral branches spaced along the trunk. Untrained trees can develop many untapered branches

growing from the same spot on the trunk which could become crowded on the trunk as the tree grows older. However, the tree has been rated as a "low failure rate" tree indicating that it stays together well in the urban environment. It will break apart in ice storms. Prune in the dormant season to avoid spread of Oak wilt disease vectors.

The tree withstands city conditions well but not high pH soils but is better in calcareous soils than Pin or Willow Oak. Moderately drought-tolerant in most soils, Red Oak is well-suited as a street tree and other areas with at least fair soil. Best planted in the spring from the field (spring, summer or fall from containers) in full sun or part shade, Red Oak does best in well-drained soil with a pH less than 7.5. It tolerates compacted soil, air pollution and moderate salt spray.

Like most other large-sized trees, roots can heave sidewalks.

Red Oak is often used in furniture, for construction timbers and for finished flooring in homes and commercial buildings. It is one of our most widely used hardwood species now that the supply of White Oak has diminished.

Pests

No pests are normally serious.

Galls cause homeowners much concern. There are many types and galls can be on the leaves or twigs. Most galls are harmless so chemical controls are not suggested.

Scales of several types can usually be controlled with sprays of horticultural oil.

Aphids cause distorted growth and deposits of honeydew on lower leaves. On large trees, naturally-occurring predatory insects will often bring the aphid population under control.

Boring insects are most likely to attack weakened or stressed trees. Newly planted young trees may also be attacked. Keep trees as healthy as possible with regular fertilization and water during dry weather.

Many caterpillars including gypsy moths feed on Oak. Large trees tolerate some feeding injury without harm. Trees repeatedly attacked, or having some other problem, may need spraying. Tent caterpillars form nests in trees then eat the foliage. The nests can be

pruned out when small. Where they occur, gypsy moth caterpillars are extremely destructive on Oaks. Fall cankerworm has been a problem in some years.

Twig pruner causes twigs to drop off in the summer. The larvae ride the twig to the ground. Rake up and destroy fallen twigs.

Lace bugs suck juices from leaves causing them to look dusty or whitish gray.

Leaf miners cause brown areas in leaves. To identify leaf miner injury tear the leaf in two across the injury. If the injury is due to leaf miner, upper and lower leaf surfaces are separate and black insect excrement will be seen.

Diseases

No diseases are normally serious.

Anthrachnose may be a serious problem in wet weather. Infected leaves have dead areas following the midrib or larger veins. These light brown blotches may run together and, in severe cases, cause leaf drop. Trees of low vigor, repeatedly defoliated, may die. Trees defoliated several years in a row may need spraying, to allow the tree to recover.

Canker diseases attack the trunk and branches. Keep trees healthy by regular fertilization. Prune out diseased or dead branches.

Leaf blister symptoms are round raised areas on the upper leaf surfaces causing depressions of the same shape and size on lower leaf surfaces. Infected areas are yellowish-white to yellowish-brown. The disease is most serious in wet seasons in the spring but it does not need to be treated.

A large number of fungi cause leaf spots but are usually not serious. Rake up and dispose of infected leaves.

Powdery mildew coats leaves with white powdery growth.

Oak wilt is a fatal disease beginning with a slight crinkling and paling of the leaves. It has caused extensive tree death in some regions. This is followed by leaf wilting and browning of leaf margins then working inward. The symptoms move down branches toward the center of the tree. Cut down and destroy infected trees. The disease may be spread by insects

or pruning tools. The disease appears to infect Red, Black and Live Oaks particularly. Avoid pruning in late spring and early summer in areas where Oak wilt is present. Dormant or summer pruning is best.

Shoestring root rot attacks the roots and once inside moves upward, killing the cambium. The leaves on infected trees are small, pale or yellowed and fall early. There is no practical control. Healthy trees may be more resistant than trees of low vigor.

Chlorosis due to iron-deficiency occurs on soil with a pH above 7.5.