**INTRODUCTION**

White Oak is a long-lived, slow-growing tree, reaching 60 to 100 feet in height with a spread of 50 to 90 feet in its native bottomland soil (Fig. 1). Old specimens can be massive, growing to be several hundred years old. Since trunks can be six feet in diameter leave plenty of room for this tree in the landscape. The trunk flares out at the base lifting sidewalks and curbing if planted in tree lawns less than eight feet wide. The red fall color is fairly reliable year to year and is outstanding among the Oaks in USDA hardiness zones 8a and colder areas. Brown leaves may be held on the tree into the early part of the winter.

**GENERAL INFORMATION**

- **Scientific name:** *Quercus alba*
- **Pronunciation:** kwark-us al-buh
- **Common name(s):** White Oak
- **Family:** Fagaceae
- **USDA hardiness zones:** 3B through 8 (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; specimen; no proven urban tolerance
- **Availability:** grown in small quantities by a small number of nurseries

**DESCRIPTION**

- **Height:** 60 to 100 feet
- **Spread:** 60 to 80 feet
- **Crown uniformity:** irregular outline or silhouette
- **Crown shape:** round; pyramidal
- **Crown density:** moderate
- **Growth rate:** slow
- **Texture:** medium
Figure 2. Shaded area represents potential planting range.

Foliage

**Leaf arrangement:** alternate (Fig. 3)
**Leaf type:** simple
**Leaf margin:** lobed; parted
**Leaf shape:** oblong; obovate
**Leaf venation:** pinnate
**Leaf type and persistence:** deciduous
**Leaf blade length:** 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
**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:** droop as the tree grows, and will require pruning for vehicular or pedestrian clearance beneath the canopy; showy trunk; should be grown with a single leader; no thorns

**Pruning requirement:** needs little pruning to develop a strong structure

**Breakage:** resistant

**Current year twig color:** brown
**Current year twig thickness:** medium; thick

**Wood specific gravity:** 0.68

Culture

**Light requirement:** tree grows in part shade/part sun; tree grows in full sun
**Soil tolerances:** clay; loam; sand; acidic; occasionally wet; well-drained
**Drought tolerance:** moderate
**Aerosol salt tolerance:** high
**Soil salt tolerance:** good
Other

**Roots:** surface roots are usually not a problem

**Winter interest:** tree has winter interest due to unusual form, nice persistent fruits, showy winter trunk, or winter flowers

**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

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**USE AND MANAGEMENT**

White Oak has a stately silhouette all year long. It is one of the best-looking Oaks in the winter due to the light grey, platey bark and open crown. The trunk is straight with main branches well-attached to the tree making this a long-lived, durable tree for large, wide-open landscapes. Best to leave the area within the drip line totally undisturbed if attempting to save an existing tree on a construction site.

Transplant White Oak when the trees are young since the deep-growing tap root in well-drained soil can make transplanting very difficult. White Oak grows in sun or partial shade and prefers an acid, moist, well-drained soil. Unfortunately, it is not readily available in the nursery trade. Not adapted to dry areas. Supply new transplants with plenty of water and mulch the area beneath the canopy to eliminate grass competition.

Propagation of Oaks by seed is the most common, but horticulturists are developing techniques for vegetative propagation.

**Pests**

None normally serious. In spite of a long list of pests found on the Oaks, White Oak is long-lived and durable if given enough room to develop.

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 are usually 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 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, especially White Oak. 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 occasionally suck juices from leaves causing them to look dusty or whitish gray. They are usually not serious.

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

None normally serious. In spite of a long list of pests found on the Oaks, White Oak is long-lived and durable if given enough room to develop.

Anthracnose 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 usually 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 but is not a serious problem.

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 high pH soil.