

American Hornbeam

Carpinus caroliniana

Nickname "Blue Beech", "Ironwood"

Mature Height 20 - 30 feet

Mature Spread 20 - 30 feet

Soil Type Well Drained

Moisture Moist to Wet

Mature Form Wide Spreading

Growth Rate Slow

Sun Exposure Full Sun - Full Shade

Flower Color Inconspicuous

Fall Color Scarlet

Foliage Color Green

Zones 3-9



In early spring, the American Hornbeam is thickly decorated with yellow and orange flowers. The dense canopy is a generous giver of welcome shade and relief from the hot sun.

Charming in appearance, Hornbeams can be successfully grown in a variety of conditions. Your new tree will easily adapt to growing in wet or dry soil, doing well in soil ranges from heavy clay to sand ... it can even be grown in the shade!

Top all those beneficial features off with more ... birds and butterflies love the American Hornbeam... so you'll enjoy attracting winged beauty of all shapes and colors to your yard.

When fall arrives, the beautiful foliage display will delight you with shades of yellow, orange and red.

Just plant your American Hornbeam Tree and watch it grow! The tree is pest and disease resistant, and does great in the urban environment where nasty smog can harm many beautiful trees. Very tolerant of high winds as well, making it resistant to storm damage.

Plant American Hornbeam trees along the street or sidewalk and watch them reach for the sky. Their extremely strong wood makes them an excellent landscape tree in areas that are prone to high winds and winter ice storms.

Black Oak

Quercus velutina

Hardiness zones: 3

Height: 100 feet

Spread: 90 feet



Leaf Characteristics

- broad, flat
- simple
- pinnately lobed
- bristle tips
- not deeply lobed thick, leathery, lobes wide toward tip

Fruit Characteristics

- acorn
- cup without fringe, without long stalk
- acorn no longer than 1"
- scales not swollen, mostly flat
- deeper cup
- cup covers 1/2 of nut usually light brown



This is a large tree, sometimes growing more than 100 feet in height. At 104 feet, the tallest example in Ohio lives in Summit County. Another massive specimen in Pike County has an average crown spread of 93 feet. The thick, nearly black bark is marked with deep furrows and irregularly broken ridges. The characteristic inner bark is bright yellow to orange, hence the alternate common name. This tree grows on dry uplands, slopes and ridges. It occurs generally throughout Ohio, but is most abundant in the eastern part of the state and on the ancient, sandy beech ridges near Lake Erie. The wood, while hard and strong is not tough, checks while drying and generally is inferior to that of the Red Oak. Still, it is used in much the same ways. Historically, the inner bark was important for its tannin and as a source of yellow dye. The bitter acorn is inedible.

Additional information:

The black oak is a stately oak that was introduced to commerce as early as 1800. It can reach a height of more than 100 feet. Co-national champion trees are in Michigan (131 feet) and Connecticut (84 feet).

The very prominent tap root of black oak ensures this species' survival under poor growing conditions. However, the black oak is not as common in the nursery trade because it can be difficult to transplant.

Like other tree species, oaks can suffer where construction means a change in the grade around the root system of the tree. The black oak's common name refers to its nearly black bark. This oak's inner bark, however, is yellow or deep orange and is used to make a yellow dye called quercitron.

Although the native black oak is most frequently found in dry, poor areas, it prefers rich soil. Its seedlings, however, will not survive in shade so the black oak is often relegated to poor soils in native areas.

The specific epithet, *velutina*, is derived from the Latin word for fleece, wool or down, *vellus*, which refers to this species' velvety winter buds and young foliage.

Black Walnut

Juglans nigra

Height: 70-90 feet

Width: 40-50 feet

Soil: Any soil

- Black walnut produces a toxin, known as “juglone”, which may inhibit the growth or kill other plants that are near them.
- The largest sources of juglone on the tree are located in the roots, but buds, leaves and nut hulls can also cause problems.
- The branches are widely spread and form a massive crown. The bark is thick and brown to grayish-black in color.
- The bark has deep furrows and narrow forking ridges. The furrows and ridges form a diamond pattern.
- The twigs are stout with notched leaf scars. They are light brown to orangish in color.
- The terminal buds are short, blunt, and covered with a few hairy scales.
- The leaves are long with 9-23 leaflets attached directly to a stout rachis without a supporting stalk.
- The rachises are covered with fine short hairs. Flowers appear in late May to early June.
- The flowers bear 17-50 stamens, but lack pistils. The fruits are 4-6 cm in diameter and spherical shaped. They can be found in groups of 2-3 or solitary.
- The fruits have a thick, semi-fleshy, husk covered with short hairs and are yellowish-green in color. The nut is corrugated with rounded ridges.



Bur Oak

Quercus macrocarpa

Height: 50-80'

Width: 40-80'

Hardiness Zone: 3a

Majestic, spreading form

Large Leaves

Tolerance to poor soils sandy, clay, loam

Prefers moist soils

Zones 3-8



Also known as blue oak, mossy-overcup oak, mossy-overcup oak, and scrub oak, has the largest acorns of all native oaks and is very drought resistant. It grows slowly on dry uplands and sandy plains but is also found on fertile limestone soils and moist bottomlands in mixture with other hardwoods. In the west, it is a pioneer tree invading prairie grasslands, and it is planted frequently in shelterbelts. The acorns become an important source of food to wildlife. The wood is commercially valuable and marketed as white oak. The comparative ease with which bur oak can be grown makes it a fine tree for streets or lawns.

Bur oak is a very drought-tough tree common to dry uplands, sandy plains, and prairie grasslands. The wood is commercially valuable and acorn production benefits wildlife. Bur oaks are relatively easy to grow and are often used for shade trees, or shelterbelt plantings.

Requirements and Culture:

Bur Oak is a large tree and needs room to spread. Very tolerant to a broad range of soil conditions. Very tolerant of drought and alkaline soils. Full sun.

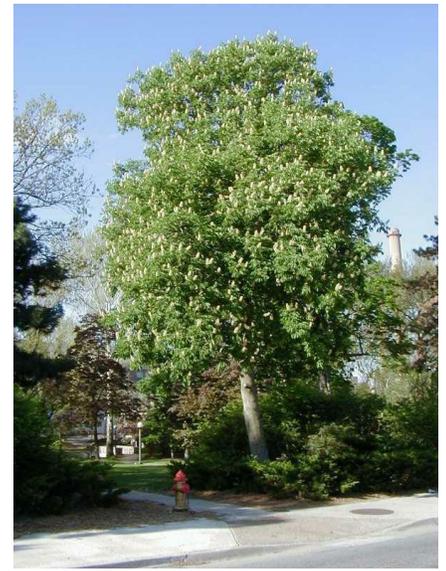
Limitations:

Difficult to transplant because of their strong tap root. No serious insect or disease problems. Good resistance to oak wilt. Several types of galls are frequently found on the leaves and small branches of Bur Oak. These galls are unattractive but cause little damage.



Ohio Buckeye
Aesculus glabra

Height: 20 to 40 feet
Spread: 20 to 40 feet
Bloom Time: April to May
Bloom: Greenish-yellow
Sun: Full sun to part shade
Water: Medium
Maintenance: Medium
Suggested Use: Rain Garden
Flower: Showy, Fragrant
Leaf: Fragrant, Good Fall
Attracts: Butterflies
Fruit: Showy
Zone: 3 to 7



Culture

Easily grown in average, medium, well-drained soils in full sun to part shade. Prefers moist, fertile soils. Foliage tends to scorch and generally depreciate in dry conditions. This is a taprooted tree that once established is very difficult to transplant.

Noteworthy Characteristics

Native Americans reportedly called the fruit of this tree “hetuck” meaning eye-of-the-buck in reference to the supposed resemblance of the shiny dark mahogany brown fruit to the eye of a buck deer. The common name of buckeye evolved therefrom. Ohio buckeye is native from western Pennsylvania to Iowa south to Alabama and Arkansas. It is found throughout the State of Missouri where it typically occurs in rich or rocky wooded areas of valleys, ravines, bluff bases, slopes and thickets (Steyermark). This is a low-branched, small to medium sized deciduous tree that typically grows 20-40’ (less frequently to 75’) tall with a broad oval-rounded crown. Bright green palmate compound leaves emerge in spring, each with five spreading ovate-oblong leaflets to 3-6” long. Leaves mature to dark green in summer. Fall color is usually yellow, although foliage may develop interesting and attractive shades of orange and red in some years. Greenish-yellow flowers (to 1” long) appear in clusters in mid-spring (late April-May in St. Louis). Flowers are followed by the familiar fruit, which is a globular dehiscent capsule consisting of 1-2 buckeyes encased by a leathery light brown partitioned husk covered with warty spines. Fruit on the tree is interesting but not particularly ornamental. When ripe, each buckeye turns a handsome shiny dark mahogany brown with a light tan eye. Since colonial times, buckeyes have been carried by many school children and adults as good luck charms. Ohio is known as the Buckeye State and has adopted the buckeye as its State Tree. All parts of this tree, particularly the flowers, bark and twigs, emit an unpleasant odor when bruised, hence the sometimes common name of fetid buckeye.



Pin Oak

Quercus palustris

Height: 60'-80'

Width: 40'-50'

Growth: Fast

Soil: Any

Zone: 4

Mature Height/Spread: Pin oak grows 60 to 80 feet tall and 40 to 50 feet wide. It has a pyramidal shape usually with a central trunk.

Growth Rate: A rapid grower, pin oak will grow about 18 inches per year.

Ornamental Features: The pin oak has a straight trunk and small, well-attached branches. The lower branches droop, the middle branches grow horizontally, and the upper branches are upright.

Foliage: The glossy, dark green leaves change to bronze or red in the fall. Some brown leaves cling to the tree throughout the winter.

Landscape Use: This very popular tree is used for street tree plantings, lawn specimens and shade trees. Remove lower branches when locating this tree in high-traffic areas. Persistent lower branches can be attractive in lawn settings.

Pin oaks grow in sun or partial shade and require acid soils that are moist, rich and well-drained. They do not tolerate high-pH soils. They are easy to transplant and grow.

Problems: The most common problem is chlorosis due to iron deficiency in soils with a pH greater than 7.0. Chlorosis may not become evident until several years after planting the tree. Bark is thin and easily damaged by mechanical impact.

Other problems may include galls, oak wilt, cankers, bacterial leaf scorch, two-lined chestnut borer and orange-striped oakworm.

In winter or early spring, prune drooping branches to allow clearance beneath the tree. Remove dead or damaged wood any time of year.



Red Bud

Cercis canadensis

Flowering: Blooming

Height: 20 - 30 ft

Width: 15 – 20 ft

Growth Rate: Moderate growth rate

Annual Growth Rate: 12 to 18 inches

Plant Group: Tree

Plant Type: Deciduous

Plant Zone: Zone 4 - Zone 9



This small tree is widely adaptable, durable, and tough. This tree has two purposes: shade and ornamental. This tree grows to a **height of 10-25 ft.** with a **15-20-ft spread.** It is flat topped with widely spreading single to multiple - stemmed tree form. The Eastern Redbud has purple red flowers in clusters along the stem before the leaves emerge in the early Spring. Flowers may also be white depending on cultivar. It produces an oblong, flattened pod, 2-3 in long, with a reddish to brown color that persists all through winter. The plants most notable characteristics are it's durability and its flowers. This plant is usually purchased in container stock or ball and burlap.

This plant is adaptable to many soil conditions and is hardy to zone 4

This tree is susceptible to stem canker, leaf rollers, leaf miners and bores on old trees. The best prevention of the diseases mentioned above is to keep your tree healthy by fertilizing and feeding it.

Plant needs to be planted in full sun and during extreme drought needs to be watered.

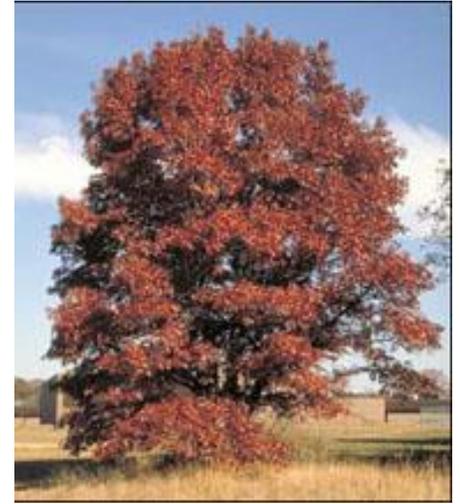


Red Oak

Quercus rubra

Red Oak is a major timber tree of the eastern and Midwestern United States. The tough, heavy wood of Red Oak has a reddish-orange coloration, and is an important hardwood for the Ohio timber industry, involved in the production of beams, railroad ties, furniture, flooring, and other usages.

Along with Pin Oak, it is also one of the few oaks that is an important shade tree in the landscape industry, noted for its brick-red autumn color and its rapid and vigorous growth rate. It is also known as Northern Red Oak (since there is also a Southern Red Oak of the southern United States), and may be found cited in older literature by its previous scientific name of *Quercus borealis*. Its large acorns mature earlier in the season than those of most other Oaks. Reaching 60 feet tall by 70 feet wide when found in the open under urban landscape conditions, it may grow taller and more massive in the wild. As the flagship member of the Red Oak group and as a member of the Beech Family, it is related to the Beeches, Chestnuts, and other Oaks.



Planting Requirements - Red Oak prefers moist, deep, rich, well-drained soils of slightly acidic pH. It adapts readily to dry soils of acidic, neutral, or slightly alkaline pH (some specimens develop chlorosis in high pH soils). It thrives in full sun to partial sun (but is shade tolerant in youth), and is found in zones 3 to 7.

Potential Problems - Other than cosmetic blemishes on its dark green foliage due to minor insect feeding, Red Oak is basically problem-free, although it may on occasion be subject to the standard army of pests and pathogens that afflict the Oaks.

Acorns - Red Oak is monoecious, having pendulous pollen-bearing catkins in mid-spring that are the "showy" golden-brown flowers seen from a distance.

By being a member of the Red Oak group, the miniature female flowers on the same tree take two years to develop into mature acorns. As such, they are not obvious until the second year, when they fill out rapidly during the summer and ripen early as compared to other members of the Red Oak group, in late summer and early autumn, often with heavy fruit crops.



Shellbark Hickory

Carya lanciniosa

Height: 60-80 feet

Width: 20-30 feet

Soil: Moist bottom lands

Botanical Information

- **Growth habit:** This large tree is high-branching with a straight, slender trunk and a narrow crown. Lower branches droop, upper ascend.
- **Tree size:** A very slow-growing tree, this species attains a height of 60 to 80 feet.
- **Flower and fruit:** Male flowers are 5- to 8-inch-long catkins. Female flowers are in 2- to 5-flowered spikes. Fruit is an edible nut in a thick, chestnut-brown to orange-brown husk.
- **Leaf:** Generally this 10- to 24-inch- long leaf has seven downy leaflets. Fall color is yellow-brown and leafstalks persist on the branches through the winter.
- **Hardiness:** Winter hardy to USDA Zone 5.



Culture: Large, slow-growing shellbark hickory thrives in full sun or partial shade in deep, fertile, moist soils. It grows well in wet bottom lands and may withstand its roots being periodically submerged. Plant it in a park-like area where large size, leaf litter, fruit and twig drop will not be a problem. Its savory nuts attract squirrels and other animals that may be unwanted in a residential area. Although this tree is self-fertile, cross-fertilization produces an increased number of better-quality nuts. The hickory bark beetle is sometimes a significant pest on this tree, as are borers and twig girdler. Seed production can be reduced by pecan weevil and hickory shuckworm. Hickory is resistant to Verticillium wilt.

Distinguishing Features:

The bark breaks up in thin plates, which are free at the end and attached in the middle; the overall effect is a "shaggy" appearance. Bruised or crushed leaves have the faint aroma of apples.

Interesting Features: Shagbark hickory nuts are sweet and edible. They were once a staple food of some Native Americans and today are the important hickory nut of commerce.



Shingle Oak

Quercus imbricaria

Height: 60' +

Width: 60' +

Sun: Full

Soil: Adaptable

Habit: Pyramidal

Growth: Slow

Heat Tolerance: High

Zone: 4

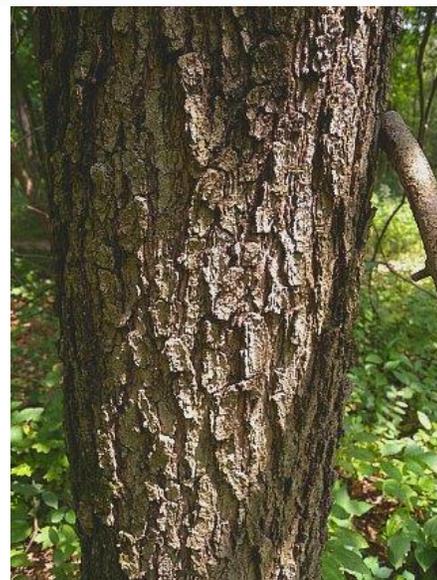


Introduction: Shingle oak is a member of the red oak group with willow-like leaves. It is one of the most handsome of the oaks. Shingle oak has an attractive branching habit and ridged bark, and it casts medium shade in summer. Although fall color may not be outstanding, the shiny, willow-shaped leaves are nonetheless quite attractive through all four seasons.

Culture: Shingle oak is an easy oak to grow and adapts to various sites. While it prefers rich, moist, acidic soil and full sun, it is tolerant of drought, urban conditions and slightly alkaline soil. Shingle oak is easy to transplant. Because of its very strong wood, this oak is not subject to storm damage. Shingle oak has few serious insect and disease problems, although potential problems include obscure scale, two-lined chestnut borer, bacterial leaf scorch, oak horn gall and gypsy moth. In addition, as little as 1 inch of fill soil can kill an oak.

Botanical Information

- **Native habitat:** Central and eastern North America in rich woods; Kentucky native.
- **Growth habit:** The tree is pyramidal when young but becomes wide-spreading with maturity.
- **Tree size:** Shingle oak will slowly attain a height of 50 to 60 feet with a similar or greater spread. It can reach 100 feet tall in the wild.
- **Flower and fruit:** Female flowers are in spikes; pendulous male catkins are yellow-green. The top half of the 5/8-inch-long acorn is covered by a cap of reddish-brown scales.
- **Leaf:** The willow-shaped leaves are 2½ to 6 inches long and 1 to 3 inches wide with a bristle on the end. They become yellow-brown to russet-red in autumn and persist on the tree through winter. The summer foliage is glossy green with a pale underside.
- **Hardiness:** Winter hardy to USDA Zone 4.



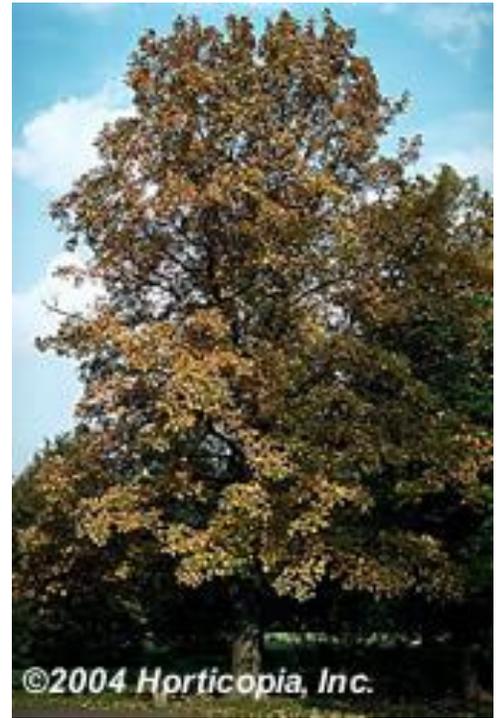
Swamp White Oak

Quercus bicolor

Swamp white oak (*Quercus bicolor*) is a medium-sized tree of the north central and northeastern mixed forests. It is found in lowlands, along edges of streams, and in swamps subject to flooding. It is rapid growing and long lived, reaching 300 to 350 years.

Growth - On the better drained lowland soils, the growth rate of swamp white oak is comparable to that of white oak. The root system is usually shallow, but the tree is relatively long lived-up to 300 years or more. Normally it is a medium sized tree, 60 to 75 ft in height and 50-60 ft wide.

Flowering and Fruiting- Swamp white oak is monoecious; male and female flowers appear on the same tree in the spring at about the time leaves are one-third developed (May to June). The fruit, an acorn, matures in 1 year and is generally paired and borne on slender stalks from 3 to 8 cm (1.25 to 3.25 in) long. The ovoid acorns, each 19 to 32 mm (0.75 to 1.25 in) long and 13 to 19 mm (0.5 to 0.75 in) in diameter, fall during September and October.



Summer Foliage

- alternate leaf arrangement
- simple, deciduous leaves
- obovate leaf shape
- 4" to 8" long
- 2" to 4" wide
- lobed, rounded
- white hairs on leaf underside
- dark green leaf color

Autumn Foliage

- copper to red fall color



White Oak

Quercus alba

Height: 70 feet
Spread: 60 feet
Shape: Spreading
Light: Partial shade to full sun
Moisture: Wet, moist, or dry
Soil Type: Sandy or loam
pH Range: 3.7 to 7.3
Zone: 5 to 9



The white oak tree is probably the most majestic of all oak trees. This tree will spread out at the top even in heavy forest. When found in an open area a mature white oak produces a picture-perfect fullness, and is sometimes wider than it is tall.

This oak tree is easily distinguished from other oaks, even in the winter.

The bark is much lighter in color than other oaks. It is usually a light gray color. The bark also has a "flaky" appearance to it. It can sometimes be peeled off in small pieces. Birds like nuthatches and woodpeckers will look for bugs under the bark. There is one oak tree that can be confused with the white oak. In the winter this tree can sometimes be confused with the swamp white oak. The bark is almost identical. The leaves are the distinguishing feature between these trees. The swamp white oak does not have finger-like lobes.

The leaves of the white oak are also easily distinguished. They are multi-colored in that they are darker green on top and a lighter green on the underside. The leaves have 7 to 9 finger like lobes.

The acorns of white oaks can be quite large. They also can be quite abundant in the late summer and fall. White oak trees can produce very large crops. If you have a white oak in or near your yard you likely have cleaned up a lot of acorns in the fall.



White Pine

Pinus strobus

The white pine is a large, straight-stemmed tree with a pyramidal crown. It grows **50 to 100** feet tall in Iowa. It is native in restricted localities in northeast Iowa, usually where there are limestone outcroppings and porous soils with good internal drainage.

The leaves are needles **3 to 5 inches** long, bluish green on the upper surface, whitish beneath and occurring in bundles of five. The needles remain on the tree for two years.

The cone is slender, gradually tapering, 3 to 6 inches long with the ends of the cone scales prominently light tan to whitish and smooth. Cones are fully grown in the summer of the second season, opening to discharge seed that autumn.

On small branches and twigs, the bark is smooth. On older branches and the trunk, it breaks into broad, flat topped ridges and is dark gray.

