

# Black Walnut

*Juglans nigra*

## Twig & Bud



Buds are large with a few pubescent scales

leaf scars are 3-lobed, resembling a "monkey face"

twig is stout & has a chambered pith

## Habitat

rich mesic woodlands; moist bottom land woodlands in valleys, along rivers; and lower slopes of bluffs

## Bark

dark brown with flattened, furrowed ridges that have a diamond pattern

## Leaf

11-25 leaflets, finely serrate, 3-5 1/2 in. long



alternate, pinnately compound

10-24 inches

fully formed or missing (terminal) leaflet

petiole is short, somewhat pubescent

## Flower

Species is monoecious.

Males are single-stemmed catkins.

Females are short spikes near twig end

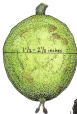


1 1/2 - 2 1/2 inches



1 1/2 inch

## Fruit



Round, thick, indurated husk that contains irregularly furrowed nut matures late summer to fall



diameter 1-1 1/4 inch



# TREE OF THE MONTH

## Black Walnut • *Juglans nigra*

ALSO KNOWN AS: EASTERN BLACK WALNUT, AMERICAN WALNUT

Black walnut (*Juglans nigra*) is a large, deciduous tree with a capacious canopy and a height of around 80 feet, sometimes attaining heights up to 150 feet. Its round, low branching, open crown spreads nearly as wide as the tree is tall. Black walnut branches, twigs, and leaves grow in an alternate pattern; however, it's alternate compound leaves have leaflets that may be alternate or opposite. One can typically find this tree in small groups or as scattered individuals throughout the central and eastern parts of the United States.

Black walnuts prefer moist, organically rich, well-drained soils in riparian zones—the lands that occur along the edges of rivers, streams, lakes, and other water bodies. Black walnuts often associate with yellow poplar, white ash, black cherry, American beech, basswood, sugar maple, oaks, and hickories.

Black walnut leaves are alternately branched and measure 12 to 34 inches in length. Its *pinnately* compound leaf has 11-25 leaflets, with the terminal leaflet poorly formed or missing entirely. Leaflets are *asymmetrical to obovate-lanceolate*, asymmetrical, finely *vennate*, and 3 to 3½ inches long. Each leaflet is *very stiffish*, has an *acuminate* tip, rounded base, and is very fragrant when crushed. The *veinlets* of the leaf is stout and somewhat *pubescent*.

On young trees, the bark is dark and scaly, but mature trees become a darker gray-black with intersecting ridges and furrows that form a diamond pattern. Twigs are stout and often slightly *pubescent*. The leaf scars are shield-shaped with three lobes, resembling a “monkey-face.” The twig has a buff-colored chambered pith, which means there are numerous disk-like segments separated by discrete, shallow cavities in the center of the twig. Not many twigs have this feature; the pith of most twigs are solid and not divided into chambers. The leaflets of the black walnut twig are a grayish-brown and fairly large with a few fuzzy, white scales.

Black walnuts are monoecious, meaning that they have both male and female flowers on the same plant. They bloom in May - June when the leaves are beginning to develop. Male flowers bloom on single-stemmed *catkins* that are 2½ to 3½ inches long and hanging from the leaf scars of the prior season. Female flowers appear as short spikes, in groups of 2 to 5, near the twig end of the season's new growth. Pollination occurs by the wind or self-pollination of the female flowers.

Perhaps the most distinct and well-known characteristic of the black walnut is its fruit—the walnut. These large, green, globes will hang from trees as they mature in late summer to fall. They have a thick, *sclerified* husk that measures 1½ to 2½ inches in diameter. The husk contains an irregularly *furrowed*, hard nut that is oily and edible. The fruit of black walnuts provide food to many rodents, and their leaves host numerous species of caterpillars and moths, which are an important food source for birds.

Black walnut's species epithet, *nigra*, refers to the tree's dark bark and nuts. The genus name, *Juglans*, comes from the Latin name *juvis*, meaning “of Jupiter,” and *glans*, which literally means acorn. The black walnut is often confused with basswood, tree of heaven, and staghorn sumac.

*pinnately* resembling a feather in having part or branches arranged on both sides of a common axis  
*asymmetrical*, having an oval outline or shape, like an egg, but with a convex end on the top  
*obovate-lanceolate*, of an ovary and shape rounded at the base and tapering to a point at the end, somewhat  
*stiffish*, having a leathery edge and  
*acuminate*, tapering to a point

*veinlets*, the vein side of a compound structure  
*pubescent*, hair growing on stems or on short hairs on the surface of a leaf and other part of a plant  
*very stiffish*, very hard  
*asymmetrical*, having an uneven edge of outline, either from overlapping scales or a slight thickness  
*chambered*, having a pith that is not splitting open to show the inside when ripe



Black walnut has been vilified for decades as a “killer tree” due to it containing a toxic chemical called juglone that will kill any other plants growing nearby. This phenomenon is called allelopathy. Juglone occurs naturally in all parts of the black walnut tree, and many laboratory studies have found that concentrated amounts of the chemical will kill plants. However, as recent as 2019, a published study proved that black walnuts are not allelopathic. Previous research has used artificial experimental methods to test for allelopathy in relation to juglone and didn't test for this relationship in natural conditions. The most recent study done by Linda Chalker-Scott found that the amount of juglone in walnuts can't survive in soil with microbial conditions.



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