

# Walnut

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## Walnut



Shoot and nut of *Juglans regia*

### Scientific classification

Kingdom: Plantae  
Division: Magnoliophyta  
Class: Magnoliopsida  
Order: Fagales  
Family: Juglandaceae  
Genus: ***Juglans***  
L.

### Species

**Walnuts** (genus *Juglans*) are plants in the walnut family Juglandaceae. They are deciduous trees, 10-40m tall, with pinnate leaves 20-90cm long, with 5-25 leaflets; the shoots have chambered pith, a character shared with the wingnuts (*Pterocarya*) but not the hickories (*Carya*) in the same family.



Walnut shoot cut longitudinally to show chambered pith. Scale in mm.

The 21 species in the genus range across the north temperate Old World from southeast Europe east to Japan, and more widely in the New World from southeast Canada west to California and south to Argentina. The Latin name *Juglans* derives from *Jovis glans*, "Jupiter's nuts", the nut fit for a god.

Walnuts are used as food plants by the larvae of some Lepidoptera species including Brown-tail, Common Emerald, Emperor Moth, The Engrailed and the Coleophora case-bearers *C. laticornella* (recorded on *J. nigra*) and *C. pruniella*.

The word *walnut* derives from Old English *wealhhnutu*, literally "foreign nut", *wealh* meaning "foreign" (*wealh* is akin to the terms Welsh and Vlach; see *\*Walha* and History of the term Vlach). The walnut was so called because it was introduced from Gaul and Italy. The Late Latin name for the walnut was *nux Gallica*, "Gallic nut".

## Species and classification

- **Sect. *Juglans***. Leaves large (20-45 cm) with 5-9 broad leaflets, hairless, margins entire. Wood hard. Southeast Europe to central Asia.
  - *Juglans regia* L. (*J. duclouxiana* Dode, *J. fallax* Dode, *J. orientis* Dode) - Persian Walnut
  - *Juglans sigillata* Dode - Iron Walnut (doubtfully distinct from *J. regia*)
- **Sect. *Rhysocaryon***. Leaves large (20-50 cm) with 11-23 slender leaflets, finely pubescent, margins serrated. Wood hard. North America, South America.
  - *Juglans australis* Griseb. (*J. boliviana* Dode) - Argentine Walnut
  - *Juglans brasiliensis* Dode - Brazilian Walnut

- *Juglans californica* S.Wats. - California Walnut
- *Juglans hindsii* (Jepson) R.E.Smith - Hinds' Walnut
- *Juglans hirsuta* Manning - Nuevo Leon Walnut
- *Juglans jamaicensis* C.DC. (*J. insularis* Griseb.) - West Indies Walnut
- *Juglans major* (Torrey) Heller (*J. arizonica* Dode, *J. elaeopyron* Dode, *J. torreyi* Dode) - Arizona Walnut
  - *Juglans major* var. *glabrata* Manning
- *Juglans microcarpa* Berlandier (*J. rupestris* Engelm.) - Texas Walnut or Little Walnut
  - *Juglans microcarpa* var. *stewartii* (Johnston) Manning
- *Juglans mollis* Engelm. - Mexican Walnut
- *Juglans neotropica* Diels (*J. honorei* Dode) - Andean Walnut
- *Juglans nigra* L. - Black Walnut
- *Juglans olanchana* Standl. & L.O.Williams -
- *Juglans peruviana* Dode - Peruvian Walnut
- *Juglans soratensis* Manning -
- *Juglans steyermarkii* Manning - Guatemalan Walnut
- *Juglans venezuelensis* Manning - Venezuela Walnut
- **Sect. *Cardiocaryon*.** Leaves very large (40-90 cm) with 11-19 broad leaflets, softly downy, margins serrated. Wood soft. Northeast Asia, eastern North America.
  - *Juglans ailantifolia* Carr. (*J. cordiformis* Maxim., *J. sieboldiana* Maxim.) - Japanese Walnut
  - *Juglans cinerea* L. - Butternut
  - *Juglans mandschurica* Maxim. (*J. cathayensis* Dode, *J. formosana* Hayata, *J. hopeiensis* Dode, *J. stenocarpa* Maxim.) - Chinese Walnut or Manchurian Walnut



The best-known member of the genus is the Persian Walnut (*Juglans regia*), native from the Balkans in southeast Europe, southwest & central Asia to the Himalaya and southwest China. This is the species which is widely cultivated for its delicious nuts. *J. regia* is also called English walnut because English merchant marines once controlled its world commerce.

The Black Walnut (*Juglans nigra*) is a common species in its native eastern North America, and is also widely cultivated elsewhere. The nuts are edible, but have a smaller kernel and an extremely tough shell, and they are not widely grown for nut production.

The Butternut (*Juglans cinerea*) is also native to eastern North America, where it is currently endangered by an introduced disease, butternut canker, caused by the fungus *Sirococcus clavigentii*. Its leaves are 40-60 cm long, and the nuts oval.

The Japanese Walnut (*Juglans ailantifolia*) is similar to Butternut, distinguished by the larger leaves up to 90 cm long, and round (not oval) nuts.

#### Hybrids

- *Juglans x bixbyi* Rehd. - *J. ailantifolia* x *J. cinerea*
- *Juglans x intermedia* Carr. - *J. nigra* x *J. regia*
- *Juglans x notha* Rehd. - *J. ailantifolia* x *J. regia*
- *Juglans x quadrangulata* (Carr.) Rehd. - *J. cinerea* x *J. regia*
- *Juglans x sinensis* (D. C.) Rehd. - *J. mandschurica* x *J. regia*
- *Juglans x paradox* Burbank - *J. hindsii* x *J. regia*
- *Juglans x royal* Burbank - *J. hindsii* x *J. nigra*

## Uses



The nuts of all the species are edible, but the walnuts commonly available in stores are from the Persian Walnut, the only species which has a large nut and thin shell. A horticultural form selected for thin nut shells and hardness in temperate zones is sometimes known as the 'Carpathian' walnut. The nuts are rich in oil, and are widely eaten both fresh and in cooking. Oil paint often employs walnut oil as an effective binding medium, known for its clear, glossy consistency and non-toxicity. Walnuts are also an excellent source of omega-3 fatty acids, and have been shown as helpful in lowering cholesterol. They need to be kept dry and refrigerated to store well; in warm conditions they become rancid in a few weeks, particularly after shelling.

Walnut nut husks are often used to create a rich yellow-brown to dark brown dye that is used for dyeing fabric and for other purposes. When picking walnuts, the husks should be handled wearing rubber gloves, to avoid dyeing one's fingers.

## Wood

The Persian Walnut, and the Black Walnut and its allies, are important for their attractive timber, which (except in young trees) is hard, dense, tight-grained and polishes to a very smooth finish. The color ranges from creamy white in the sapwood to a dark chocolate color in the heartwood. When kiln-dried, walnut wood tends toward a dull brown color, but when air-dried can become a rich purplish-brown. Because of its color, hardness and grain it is a prized furniture and carving wood. Walnut burls are commonly used to create bowls and other turned pieces. The wood of the Butternut and related Asian species is of much lower value, softer, coarser, less strong and heavy, and paler in color.

## Parkland and garden trees

Walnuts are very attractive trees in parks and large gardens. The Japanese Walnut in particular is grown for its huge leaves, which have a 'tropical' appearance.

Walnuts are not particularly well suited to smaller urban gardens. They drop numerous small twigs, leaves, branches or nuts, so are considered "messy" by some people; the falling nuts in late summer and early autumn can be quite dangerous. Both the fallen leaves and the roots secrete a substance called juglone which kills many popular garden plants, such as tomato, apple and birch; all walnuts produce juglone, but Black Walnut produces larger amounts than other species. Juglone appears to be one of the walnut's primary defense mechanisms against potential competitors for resources (water, nutrients and sunlight), and its effects are felt most strongly inside the tree's "drip line" (the circle around the tree marked by the horizontal distance of its outermost branches). However, even plants at a seemingly great distance outside the drip line can be affected, and juglone can linger in the soil for many years even after a walnut is removed as its roots slowly decompose and release juglone into the soil.

An old English rhyme states:

A dog, a wife a walnut tree;  
The more you beat them  
The better they be.