

Juglans nigra, Black Walnut



Black Walnut is a valuable timber for fine furniture. It is often used as a veneer.
Photo: A. Drauglis, Wikipedia.org CC BY 2.0

Introduction

Juglans nigra is a species of deciduous tree in the walnut family, Juglandaceae, native to Eastern North America. Black walnut is an important tree commercially. The brown hard-wood is extremely valuable. The fruits, walnuts, are cultivated for their distinctive and desirable taste. Often trees are grown for both lumber and walnuts simultaneously.

Black walnut is currently under threat from *thousand cankers disease* which is causing a decline in some areas. Black walnut is alleopathic - it releases chemicals from roots and other tissues which harm other species, giving it a competitive advantage.

It is primarily a pioneer species, a common weed tree found along roadsides and forest edges, classified as shade intolerant.

Description

Most parts of the tree have a very characteristic pungent or spicy odour. The **Trunk** 30-40m (100-130 ft) develops tall and straight under forest competition. The **Bark** is typically grey-black and deeply furrowed into thin ridges. The **Pith** of the twigs is chambered and light brown. The **Buds** are pale, silky and covered in downy hairs; the terminal buds are ovate. The **Leaves** are compound and alternately arranged on the twig, 30-60cm long. There is heavy variation among the leaves. The leaf stems have 15-23 leaflets. The **Flowers** are monoecious. The male flowers are in drooping catkins 8-10cm long born from axillary buds on previous year's growth. The female flowers are terminal in clusters of 2-5 on the current year's growth. **Fruit** ripens during autumn into a nut, semi-fleshy husk and a brown corrugated nut.

Black walnut has a strong taproot making seedlings resilient, but difficult to transplant. It is resistant to frost and thrives on warmth. It requires full sun for optimal growth and nut production, and prefers soil which holds large quantities of water.

Uses

Introduced to Europe in 1629 from mid west and east central USA, it is cultivated in Hawaii. It is cultivated for its high quality wood and for its nuts or both. Nut quality is poor compared to varieties selected specifically for nut production. *J. nigra* is often used as rootstock for *J. regia* which produces better nuts

Food

Black walnuts shelled commercially in USA, provide a natural flavour for ice cream, bakery goods and confectionary.

Dye

Black walnut drupes contain juglone, plumbagin and tannin providing a brownish black dye. Tannins in walnuts act as a mordant, fixing dye into the material being coloured. They are also useable as dark ink or wood stain.

Wood

The timber is highly prized for its dark-coloured straight-grained, true heartwood. It is heavy, strong and shock-resistant, yet can be easily split and worked. It is one of most durable hardwoods in America. It holds its shape during kiln-drying, therefore being attractive for wood-working. It is used for furniture, flooring and coffins.

Pests

J. nigra trees are threatened by *thousand cankers disease*. Vectored by the walnut twig beetle, this fungus spreads into wood and causes cankers which inhibit movement of nutrients in tree, leading to crown and branch dieback and ultimately death.

Allelopathy

These trees excrete chemicals into their environment which harm competing plants. Juglone occurs in all parts of the tree, especially buds, nuts, hulls and roots. Leaves and stems contain smaller quantities which is leached into the soil after they fall. Toxicity exists 15 – 20m out from trunk. Well drained and healthy soil will help break down juglone. Not all plant species are affected.

Family: Juglandaceae

Genus: *Juglans*

Species: *Juglans nigra*

Common name: Black Walnut

Origin: Eastern North America

Species size: 25-35m high, 3m Diameter Trunk, 15m spread

Size of tree in GBG:

National Trust measurement 28/3/04: 32m high, 2.2m diameter, spread 21 x 16m

Date planted: Estimated 1889

Heritage Listed: Heritage Victoria and National Trust, T11598: ‘an outstanding specimen and the largest known example of the species in cultivation in Victoria.’

Location in GBG: Black Walnut Bed, outside Friends meeting room. See map.

References: Victorian Heritage Database, Wikipedia.org article ‘*Juglans nigra*’



Above: *Juglans nigra* leaves and fruit.

Photo: Mongo, commons.wikimedia.org, Public Domain

Note that the leaflets in this photo are not always exactly opposite one another, although they are in the illustration on the next page. (The leaves are alternate.)

Below: Female flowers.

Photo: Dan Mullen, flickr.com, CC BY-NC-ND 2.0





Black Walnut .

Juglans nigra.

P.J. Redouté del.

Bessin Sculp.

Black Walnut *Juglans nigra* 1. Fruit, 2. kernel, 3. male flower, 4. leaf,
'The North American sylva: A description of the forest trees of the United States,
Canada and Nova Scotia' 1819. Author: François André Michaux, Illustrator: Pierre-
Joseph Redouté, Engraver: Bessin. commons.wikimedia.org, Public Domain.



GEELONG BOTANIC GARDENS

gbg

CITY OF GREATER GEELONG

Geelong Botanic Gardens Map

