

# Pecan Nut

*Carya*

*illinoensis*



Pecan Nuts, (*Carya illinoensis*), were largely unknown in Australia until commercial production began here in the 1960s. The earliest plantations were located near Gatton in south-eastern Queensland and at Bellingen on the mid-north coast of NSW. Previously, walnuts (*Juglans regia*), a closely related genus, were widely grown in cooler parts of NSW, Victoria and Tasmania. Pecan farms are now widespread, from the Hunter Valley north to Bundaberg in Queensland.

Pecans are tall, deciduous trees, originally from south-eastern USA and a few scattered locations in north-eastern





Male flowers in catkins



Female flowers at the end of a shoot

Mexico. The name *Pecan* comes from the Algonquian, and means a *nut requiring a stone to crack it*. However, Native Americans have been selecting Pecan nuts for many hundreds, perhaps thousands, of years and now the shells are so thin it is possible to hold two in the palm of the hand, then crush them together to crack the shells.

Pecan nut kernels are highly valued for their nutritional and medicinal properties, making them the 6<sup>th</sup> most commonly eaten nut in the world. Kernels contain high levels of lipids, proteins, carbohydrates and dietary fibre, together with bioactive phytochemical components including phytosterols, phenolic acids, flavonoids, saponins, and tannins, all of which have been associated with decreasing low-density lipoprotein cholesterol together with reduced risks of cardiovascular disease.

There are about 10 genera (including pecans and walnuts) and more than 60 species in the family



Young pecans

Juglandaceae; most occur in North America although they are widespread throughout the northern hemisphere. First fossils appeared during the Cretaceous. Flowers are wind pollinated, but an important change from wind to animal dispersal coincided with the development of a husk (shell) enclosing the fruit and changes in relative concentrations of fatty acids that presumably attract predators and dispersers.



Pecans are *self-incompatible*. That is, pollen grains from one plant are unable to fertilise ovules from the same (or closely related) plants. On the one shoot, pollen from catkins (male, or staminate flowers) is released long before the female (pistillate) flowers appear on the same shoot and become receptive. This characteristic (flowers of one sex maturing before the other) is known as *dichogamy*, and results in outcrossing, an important factor in maintaining the genetic diversity of wild populations. This has important implications for pecan plantations where great care must be taken to include a mix of genetically different cultivars to ensure outcrossing by producing pollen as the female flowers of the main crop variety become receptive.

Ectomycorrhizal fungi contribute significant benefits to pecan plants, particularly drought tolerance in regions where water supply is limited. Ectomycorrhizal fungi, including the truffle, *Tuber lyonii*, occur in pecan orchards in southern states of the USA and although orchards are managed for the production of pecan nuts, it is believed that in future it may be possible to manage orchards for production of both truffles and pecans.

Map: Modified from Elbert L. Little, Jr., U.S. Department of Agriculture, Forest Service, and others, Public domain, via Wikimedia Commons: [https://commons.wikimedia.org/wiki/File:Carya\\_illinoensis\\_range\\_map\\_1.png](https://commons.wikimedia.org/wiki/File:Carya_illinoensis_range_map_1.png)

Australian Pecan Growers Association: [http://www.pecangrowers.org.au/pages/pecan\\_facts.html](http://www.pecangrowers.org.au/pages/pecan_facts.html)

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United States Department of Agriculture, National Nutrient Database for Standard Reference Release 28:

<http://ndb.nal.usda.gov/ndb/foods/show/3681?fgcd=&manu=&lfacet=&format=&count=&max=35&offset=&sort=&qlookup=Nuts%2C+pecans>

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