**Juglans regia** in Europe: distribution, habitat, usage and threats

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**Juglans regia**, commonly known as common, English or Persian walnut, is an economically very important tree species, prized both for its nuts and for its attractive high-quality timber. It is the most widespread nut tree worldwide.

The common walnut (**Juglans regia**) is a large, deciduous tree, reaching a height up to 25–35 m and exceptionally a maximum trunk diameter up to 2 m. It is long-lived: normally 100–200 years, but some specimens may reach 1,000 years old. It has a deep root system, with a substantial tap root starting from the juvenile stage.4 The bark is silver-grey and smooth between deep, wide fissures. The leaves are 20–45 cm long, with 5 to 9 leaflets, the ones from the apex being larger compared with those from the base of the leaf. Crushed leaves have a scent like shoe-polish. The crown diameter of the common walnut is larger in relation to its stem diameter than any other broadleaf tree species used in Europe. The fruit ripens during hot summers and is a large rounded nut of 4–5 cm and weighing up to 18 g. It may be propagated both by seeds and also vegetatively. It can hybridise and it has been reported by the National Forest Inventories. The chorology of the actual distribution range of this species is not clear. Although widespread in its range, it is long-lived: normally 100–200 years, with exceptionally a maximum 2,000 years old. It is thought to be native to the Mediterranean (Southern Europe, Western Asia) and Central Asia, but some specimens may reach 2,000 years ago. It has been widely cultivated across the northern hemisphere, and can now be found in most of Europe apart from northerly regions. It is particularly important in Turkey, which is the third largest walnut producer in the world. After China and the United States, it is also grown in India and China, and has been introduced into many other temperate regions of the world, including the Americas, Australia, New Zealand and parts of Africa, its distribution ranging nowadays between 10° and 50° northern latitude.

**Habitat and Ecology**

The common walnut is a demanding species and requires special site conditions. Usually grown in pure stands or as individual trees, rather than within mixed woodland, it needs a warm and sheltered site and a long growing season. **It also prefers deep and rich soils, with pH values of between 6 and 7.5**. It is light-demanding, highly susceptible to competition and sensitive to winter and late spring frosts. Older trees are however able to withstand winter temperatures as low as −30°C. Germination is improved in mild winters, indicating that a changing climate with warmer winters may prove beneficial to its establishment.13,14

**Importance and Usage**

Walnut is very appreciated for its nuts, which are a highly nutritious food source. They are rich in oil composed of unsaturated fatty acids, proteins, vitamins and minerals. The kernels contain a wide variety of flavonoids, phenolic acids and related polyphenols, which have good antioxidant, anti-inflammatory, anti-mutagenic properties.15 A diet rich in walnuts is also thought to have a cardiovascular protective effect.16,17 Bark or leaf extracts are used worldwide in traditional medicine to treat a variety of conditions including fungal infections such as Candida, to inhibit the growth of bacteria responsible for dental plaques and oral hygiene problems,18 or to increase the insulin level in diabetic patients.19 The wood of the walnut is highly prized, being strong, attractive and easy to work. Good quality logs are sold for veneer and can command high prices.20 It is also used in agaroforestry.14

**References**