



Carpathian walnut

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Carpathian walnut (*Juglans regia* var. *carpathian*) is primarily grown for its outstanding nut qualities. A variety of English (also called Persian) walnut, this species is the most common nut tree

planted in Idaho and has escaped and become naturalized in the warm river canyons of the western part of the state. This variety of walnut is native to the Carpathian mountains eastward to Korea, but was brought to Europe through Persia in early history. Carpathian walnut is a more cold hardy strain of English walnut (*Juglans regia*) and can be grown further north than English walnut and in climates with more variable winters.

Biology and Silvics

Carpathian walnut has a rounded, spreading crown, and often reaches 40 to 60 feet in height. It is deep-rooted (nine to 12 feet) and develops strong tap-roots if restrictive layers are not present in soils. Carpathian walnut is extremely intolerant of soil flooding and salinity.

Carpathian walnut flowers from mid-May to early June and flowers occur at the same time foliage is leafing out. All walnut species are extremely susceptible to late frosts and will often lose new foliage and flowers to this type of damage. Carpathian walnut is monoecious (bearing separate male and female flowers on the same tree) and relies on wind for pollination. Because of this, trees need to be in close proximity to ensure fruit set. A common practice is to plant Carpathian walnut trees in groves.

Walnuts ripen in September or October and drop from the tree shortly after the leaves fall. Carpathian

walnuts have thin shells and, unlike other walnuts, are released from the fleshy outer covering when ripe, making them much easier to shell than other species of walnuts. Trees usually begin to bear nuts at age four to 10, depending on the variety. Nut production will continue at this rate until age 80 to 100, when production begins to decline.

Establishment

Site selection. All walnut species grow best on top quality sites. To be successful with Carpathian walnut, you need to choose a site with deep (three feet or more), well-drained loamy soils with pH values between 6.0 and 8.0. Smooth or gently rolling landscapes provide the best topography, although lower north- and east-facing slopes in mountainous terrain, as well as stream terraces and floodplains, also provide good sites for Carpathian walnut. Avoid frost pockets at all costs, as this species is very susceptible to frost damage. Poor site characteristics such as insufficient or excess moisture, steep slopes, south- or west-facing aspects, hardpan layers, and shallow or clay soils should also be avoided.

Planting densities. Traditional Carpathian walnut orchards are usually planted at densities of 48 to 76 trees/acre (30 by 30 foot or 24 by 24 foot spacing).

Planting stock. Selecting planting stock that is compatible to the conditions of your site is another important step in the establishment of a successful alternative tree plantation. Ungrafted Carpathian walnut is best suited for Idaho. Over the years, growers have selected cultivars of Carpathian walnut that are particularly suited to northern regions, including 'Chopaka', 'Hansen', 'Russian', and 'Sommers'.

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Culture and Management

Vegetation control. Keeping cover crops short or maintaining bare ground conditions during the spring blossom period can aid in frost protection. Soils in orchards with short or no ground cover collect more heat during the day and lose it much slower at night than those with heavy vegetative cover.

Pruning. Proper pruning is as much of an art as it is a science. Carpathian walnut is traditionally pruned to a modified central leader, also referred to as a delayed open center. This method allows four to five scaffold branches to develop on the central leader, at which time the central leader is removed (visualize an up-side-down umbrella, remove the handle and you have a delayed open center). In Idaho, most landowners are growing Carpathian walnut for the dual purposes of nut and timber production. If this case, pruning to a central leader and limbing up branches until you have a 9' clear trunk would be the preferred method of pruning. Walnut has a tendency to produce multiple leaders due to frost or insect damage to the terminal bud, so corrective pruning to maintain a single leader may be necessary.

Harvest, post-harvest. Carpathian walnuts mature one to four weeks prior to when the hull opens. However, they are usually harvested before this when the seed coat is a light tan color. Trunk/limb shakers are used depending on tree size. A windrow machine places the nuts into narrow rows to be picked up by a sweeper. Nuts are collected in large bins and taken to the processing plant. Freshly harvested nuts are removed from hulls and dried in forced-air dryers at 100° to 110°F until eight percent moisture content is achieved. In-shell nuts are bleached and sold fresh, or shelled and marketed as kernels. Nuts can be stored several months at room temperature when dried or for years if frozen.

Carpathian walnut is known for its outstanding nut qualities and fine wood and aesthetic characteristics. Escaped and naturalized in areas of Hell's Canyon, ID, this species is a fine choice for Idaho landowners interested in alternative tree crops.

At a glance...

Species: *Juglans regia* var. *carpathian*

Common names: Carpathian walnut, English walnut, Persian walnut.

Native range: Carpathian mountains, eastward to Korea.

Hardiness: USDA Zone 4 to 9.

Soil type: deep, rich, moist soils for maximum growth; will grow in drier, less fertile sites at a slower rate.

Shade tolerance: intolerant.

Form: large, semi-formal tree; 50 to 100 feet tall.

Regional insect & disease problems: aphids.

Objectionable characteristics: produces a substance called juglone, which is selectively toxic to certain other species of plants - highest concentration of chemical in roots and fruit husks; deep taproot, making it difficult to transplant; will not tolerate extreme heat and dryness.

Other: as quantities diminish, wood is used primarily for veneer; nuts have a distinct flavor that are in demand for baked goods and ice cream; ground shells are used in many products.

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