



European Walnut

Juglans regia L.

Commercial names:

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| Spanish: | Nogal europeo, Nogal español |
| English: | European Walnut, Common walnut tree |
| French: | Noyer commun, Noyer de France |
| Italian: | Noce comune, Noce d'Italia |
| Portugues: | Nogueira |
| German: | Gemeine Walnuss, deutscher Nussbaum |

Common names:

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|-------------|---|
| Castilla: | Nogal, Noguera |
| Cataluña: | Nogal, Noguera, Noguier |
| País Vasco: | Giltzaurr, Intxaurr, Intxaust, Eltzaurr |

Physical properties:

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| Density: | 630-670-680 kg/m ³ | |
| Shrinkage: | Moderately unstable | |
| Shrinkage values (ASTM): | Total | Unitary |
| | Volumetric: | 9,1% (0,34) |
| Tangencial: | 4,2% (0,15-0,30) | |
| Radial: | 1,2-2,3% (0,08-0,23) | |
| Hardness: | 3,2 | Semi-hard |

Mechanical properties (Wood free of defects (ASTM))

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| Static bending: | 90-146 N/mm ² |
| Modulus of elasticity: | 10,800-12,900 N/mm ² |
| Compression parallel to grain: | 50-70 N/mm ² |
| Compression perpendicular to grain: | 16,0 N/mm ² |
| Shear: | 7,0-8,9 N/mm ² |
| Toughness: | 4,7-9,5 J/cm ² |

Origin and availability:

Located in the Southeast of Europe (Spain, France, Italy, Yugoslavia, Greece, Bulgaria), in the West of Asia (Turkey, Armenia, North of Persia), in the northwest of the India, and in the Himalaya. This tree is widely spread since ancient times, because of its fruits and valuable wood, reason why it is also common in temperate regions of Europe, Asia, and North of Africa. In Spain, there are walnut trees in all the regions, mainly in Galicia, Aragon, Cataluña, Andalusia, and la Alcarria.

Its forest, production and export are stable.

Description of the wood:

The colour of sapwood varied from grey to clear brown and the colour of the heartwood is greyish brown. It frequently presents very dark coloured streaks which tend to blacken. The sapwood is clearly differentiated. The wood rays appear in more or less discontinuous whitish coloured lines, though they are not easily seen. The growth rings are not very marked, although they are visible to the naked eye.

The fibre is normally straight, although, occasionally, it can be slightly undulated. The grain is either thick or coarse.

We can have a beautiful red tone through firing which also enhances the streaks. The bark is rich in tannins which are used as a tan for dyeing.

Drying:

Drying speed is slow. Its drying must be carried out carefully. There is a risk for deformations; for internal cracks and collapse in thick pieces in case the drying speed is forced.

Recommended drying schedules are no2 from CTBA, T6-D2 (4/4) and T3-D1 (8/4) from FPLM and «E» from PRL.

Natural durability and ease of penetration:

The wood is classified as partially durable against the action of fungus and susceptible to anobides, lictides and termites.

Heartwood is not much penetrable, and the sapwood is penetrable.

Technological properties:

Sawing is a difficult operation, because of its toughness, the presence of knots, the irregularity of the slices and other flaws. Not very important yields achieved. For all these reasons, high percentages are devoted to smaller products.

It is not well suited to obtaining of veneer through peeling, due to its toughness and texture. But it is well suited to obtaining veneer through slicing.

It is easy to mechanise. Sometimes, repel may occur during brushing. Dulling of tools it is a normal thing.

It is well suited for bending.

Gluing presents no problems, however alkaline glues should be avoided (as casein's) which are susceptible of reacting with tannins and producing stains. Nails and screws present no problem. The finishing presents no problems.

Applications:

Interior carpentry: coverings, doors, floors, friezes, mouldings, staircases. Decorative veneers. Cabinetwork, (high range furnishing). Applications in pieces (cabinetwork and small craftworks).

It is not used in exteriors, because of its medium durability. It is widely used for fire weapons butts. All the pieces of wood for weapons of the allied armed forces during the World World I were made from the wood of Spanish walnut trees.

The tree has a very sharp crown which drains tannins when it rains, these tannins have an intense smell which causes cephalalgia (headaches) in people who sleep or look for its shelter. This is the origin for the legends which circulate concerning the harmfulness of the walnut tree's shadow.