



## Juglans nigra

Family: Juglandaceae

Black Walnut

The walnut/butternut group (*Juglans* spp.) contains 15 species which grow in South America [6], Eurasia [4] and North America [6]. The word *juglans* is the classic Latin name of walnut, meaning nut of Jupiter.

North American species of *Juglans* :

*Juglans californica*-California black walnut, California walnut, claro walnut, **southern California walnut**

*Juglans cinerea*<sup>a,b</sup> -**butternut**

*Juglans hindsii*-California black walnut, hinds black walnut, **northern California walnut**

*Juglans major*-Arizona black walnut, **Arizona walnut**, little walnut, Mexican walnut, western walnut

*Juglans microcarpa*-Arizona walnut, dwarf walnut, **little walnut**, Mexican walnut, river walnut, Texas black walnut, Texas walnut, western walnut

*Juglans nigra*<sup>a</sup> -American walnut, American black walnut, **black walnut**, burbank walnut, eastern black walnut, eastern walnut, gunwood, Virginia walnut

<sup>a</sup>commercial species

<sup>b</sup>information available on a separate fact sheet

### Distribution

Black walnut is native to the eastern United States, from southern Minnesota east to Pennsylvania, New Jersey, New York; south to South Carolina, Georgia, Florida, Alabama; west to Texas; and north through Oklahoma, Kansas, Nebraska, and South Dakota.

### The Tree

Black walnut trees reach heights of 120 ft (37 m), with a diameter of over 3 ft (1 m).

### The Wood

### General

The sapwood of black walnut is nearly white, while the heartwood is light brown to dark, chocolate brown, often with a purplish cast and darker streaks. The wood is heavy, hard, and stiff and has high shock resistance.

### Mechanical Properties (2-inch standard)

				Compression				
	Specific gravity	MOE $\times 10^6$ lbf/in <sup>2</sup>	MOR lbf/in <sup>2</sup>	Parallel lbf/in <sup>2</sup>	Perpendicular lbf/in <sup>2</sup>	WML <sup>a</sup> in-lbf/in <sup>3</sup>	Hardness lbf	Shear lbf/in <sup>2</sup>
Green	0.51	1.42	9,500	4,300	490	14.6	900	1,220
Dry	0.55	1.68	14,600	7,580	1,010	10.7	1,010	1,370

<sup>a</sup>WML = Work to maximum load.

Reference (59).

## Drying and Shrinkage

Percentage of shrinkage  
(green to final moisture content)

Type of shrinkage	0% MC	6% MC	20% MC
Tangential	7.8	6.2	2.6
Radial	5.5	4.4	1.8
Volumetric	12.8	10.2	4.3

References: 0% MC (98),  
6% and 20% MC (90).

## Kiln Drying Schedules<sup>a</sup>

Condition	Stock				
	4/4, 5/4, 6/4	8/4	10/4	12/4	16/4
Standard	T6-d4	T3-D3	T3-D3	T3-C2	—

<sup>a</sup>References (6, 86).

**Working Properties** Black walnut is straight grained and easily worked with hand tools and by machine. It finishes beautifully and holds paint and stain exceptionally well. It also glues and polishes well.

**Durability:** Rated as very resistant to heartwood decay—one of the most durable woods, even under conditions favorable to decay.

**Preservation:** No information available at this time.

**Uses:** Furniture, fixtures, cabinets, gunstocks, novelties, interior paneling, veneer.

**Toxicity:** No information available at this time.

## Additional Reading and References Cited (in parentheses)

6. Boone, R.S.; Kozlik, C.J.; Bois, P.J.; Wengert, E.M. 1988. Dry kiln schedules for commercial woods-temperate and tropical. Gen. Tech. Rep. FPL-GTR-57. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.
29. Elias, T.S. 1980. The complete trees of North America, field guide and natural history. New York: van Nostrand Reinhold Company.
55. Little, Jr., E.L. 1979. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service. U.S. Government Printing Office.
59. Markwardt, L.J.; Wilson, T.R.C. 1935. Strength and related properties of woods grown in the United States. Tech. Bull. 479. Washington, DC: U.S. Department of Agriculture, Forest Service. U.S. Government Printing Office.
68. Panshin, A.J.; de Zeeuw, C. 1980. Textbook of wood technology, 4th ed. New York: McGraw—Hill Book Co..
74. Record, S.J.; Hess R.W. 1943. Timbers of the new world. New Haven, CT: Yale University Press.
76. Rink, G. 1985. Black walnut, an American wood. FS—270. Washington, DC: U.S. Department of Agriculture, Forest Service.
86. Simpson, W.T. 1991. Dry kiln operator's manual. Ag. Handb. 188. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.
90. Summitt, R.; Sliker, A. 1980. CRC handbook of materials science. Boca Raton, FL: CRC Press, Inc. Vol. 4.
98. U.S. Department of Agriculture. 1987. Wood handbook: wood as an engineering material. Agric. Handb. 72. (Rev.) Washington, DC: U.S. Department of Agriculture. 466 p.