



Castanea dentata
American Chestnut

Family: Fagaceae

Chestnut (*Castanea* sp.) contains about 7 to 12 species distributed in: North America [4] and Europe [1] and Asia [7]. European Chestnut (*Castanea sativa*) was introduced into England by the Romans probably as food for domestic animals. North American Chestnut trees were virtually wiped out by the fungus *Endothia parasitica*. The different species of Chestnut hybridize with each other. All species look alike microscopically.

Castanea dentata: Chestnut, Prickly O-heh-yah-bur, Sweet Chestnut, White Chestnut, Wormy Chestnut

Distribution

American Chestnut pre-blight range extended from Maine west to Michigan and south to Mississippi, Alabama and Georgia. The major stands were in southern New England and the Appalachian Mountains. The finest timber came out of the Appalachians.

The Tree

American Chestnut grew to heights of 120 feet, with a diameter of 7 feet. Its ability to sprout from the cut or dead stump has kept this species in existence, temporarily, although the blight eventually kills the sprouts.

The Wood

General

The narrow sapwood of Chestnut is near white, while the heartwood is grayish brown to brown and darkens with age. The wood is coarse, intermediate in strength, light in weight, low in shock resistance, of average hardness and moderate shrinkage. It can be kiln dried or air seasoned with minimal problems.

Mechanical Properties (2-inch standard)

	Specific gravity	MOE X10 ⁶ lbf/in ²	MOR lbf/in ²	Compression		WML ^a in-lbf/in ³	Hardness lbf	Shear lbf/in ²
				Parallel lbf/in ²	Perpendicular lbf/in ²			
Green	0.40	0.93	5600	2470	310	7.0	420	800
Dry	0.45	1.23	8600	5320	620	6.5	540	1080

^aWML = Work to maximum load.

^bReference (98).

^cReference (59).

Drying and Shrinkage

Type of shrinkage	Percentage of shrinkage (green to final moisture content)		
	0% MC	6% MC	20% MC
Tangential	6.7	5.4	2.2
Radial	3.4	2.7	1.1
Volumetric	11.6	9.3	3.9

Kiln Drying Schedules^a

Condition	Stock				
	4/4, 5/4, 6/4	8/4	10/4	12/4	16/4
Standard	T10-E4	T8-E3	-	-	-

^aReferences (6, 86).

Working Properties: Chestnut is easy to work with tools and is easily glued. Because it split readily, care is required in nailing.

Durability: It is as resistant to decay as the cedars, cypress and redwood.

Preservation: No information available at this time.

Uses: Lumber, tannin extract, furniture, caskets, boxes, crates, core stock for plywood, poles, railroad ties, pulpwood, shingles, barrel staves, mine timbers, fuelwood.

Toxicity: No information available at this time.

Additional Reading and References Cited (in parentheses)

1. Boone, R.S., C.J. Kozlik, P.J. Bois & E.M. Wengert. 1988. Dry kiln schedules for commercial woods - temperate and tropical. USDA Forest Service, FPL General Technical Report FPL-GTR-57.
2. Elias, T.S. 1980. The complete trees of North America, field guide and natural history. Van Nostrand Reinhold Co., New York, 948 pp.
3. Hausen, B. M. 1981. Wood Injurious to Human Health: A Manual. Walter deGruyter & Co., Berlin, Germany; New York, NY.
4. Little, Jr., E.L. 1979. Checklist of United States trees (native and naturalized). USDA Forest Service, Ag. Handbook No. 541, USGPO, Washington, DC.
5. Markwardt, L.J. and T.R.C. Wilson. 1935. Strength and related properties of woods grown in the United States. USDA Forest Service, Tech. Bull. No. 479. USGPO, Washington, DC.
6. Mitchell, J.; Rook, A. 1979. Botanical Dermatology: Plants and Plant Products Injurious to the Skin. Greenglass Ltd., 691 W. 28th Ave., Vancouver, British Columbia, Canada V5H 2H4.
7. Panshin, A.J. and C. de Zeeuw. 1980. Textbook of Wood Technology, 4th Ed., McGraw-Hill Book Co., New York, 722 pp.
8. Record, S.J. and R.W. Hess. 1943. Timbers of the new world. Yale University Press, New Haven, 640 pp.
9. Saucier, J.R. 1973. American chestnut, and American wood. USDA Forest Service, FS- 230.
10. Simpson, W.T. 1991. Dry kiln operator's manual. USDA Forest Service, FPL Ag. Handbook 188.
11. Summitt, R. and A. Sliker. 1980. CRC handbook of materials science. Volume 4, wood. CRC Press, Inc., Boca Raton, FL. 459 pp.
12. USDA Forest Service, FPL. 1974. Wood handbook: wood as an engineering material. Ag. Handbook 72.
13. Woods, B.; Calnan, C. D. 1976. Toxic Woods. British Journal of Dermatology; 95(13):1-97 Published by Blackwell Scientific Publications, Oxford, England OX2 OEL.

Harry A. Alden, 1994

13): 1-97.