# technology transfer fact sheet



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## *Malus sylvestris* Family: Rosaceae Apple

Apple (*Malus* spp.) consists of 30+ species that occur on both sides of the Atlantic in northern temperate zones. Its wood can be confused with pear (*Pyrus* spp.) and other "fruitwoods" in the rose family (Rosaceae). *Malus* is the classical Latin name for apple. Apple hybridizes with North American crab apples.

*Malus angustifolia*-American crab apple, buncombe crab apple, crab apple, crabtree, narrowleaf crab, narrowleaf crab apple, southern crab, **southern crab apple**, wild crab, wild crab apple

*Malus coronaria*-Alabama crab, Allegheny crab, American crab, American crab apple, Biltmore crab apple, Buncombe crab, crab, crab apple, Dawson crab, Dunbar crab, fragrant crab, garland tree, lanceleaf crab apple, Missouri crab, **sweet crab apple**, sweet-scented crab, sweet wild crab, wild crab, wild sweet crab

Malus fusca-crab apple, Oregon crab, Oregon crab apple, Pacific crab apple, western crab apple, wild crab apple

*Malus ioensis*-Bechel crab, crab apple, Iowa crab, Iowa crab apple, prairie crab, **prairie crab apple**, wild crab, wild crab apple

Malus sylvestris-apple, common apple, wild apple.

### Distribution

Apple is a cultivated fruit tree, persistent, escaped and naturalized locally across southern Canada, in eastern continental United States, and from Washington south to California. Native to Europe and west Asia. Apple grows wild in the southern part of Great Britain and Scandinavia and is found throughout Europe and southwestern Asia. It is planted in most temperate climates

### The Tree

The tree rarely reaches 30 ft (9 m), with a small crooked bole to 1 ft (0.3 m) in diameter.

### The Wood

### General

Apple wood has a reddish gray heartwood and light reddish sapwood (12 to 30 rings of sapwood). When steamed, the wood becomes reddish brown to dark red-brown. The wood of wild apple trees is said to be better than that of cultivated varieties, which is also true of pear trees.

### **Mechanical Properties (2-inch standard)**

				Compression						
	Specific gravity	MOE x10 <sup>6</sup> 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	0.61	1.05	7,400	3,000	850	15.7	1,090	1,640		
Dry	0.67	1.27	12,800	6,030	1,300	23.0	1,730	1,740		
<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	10.1	_	-		
Radial	5.6	_	_		
Volumetric	17.6	-	_		
<sup>a</sup> Reference (59).					

Kiln Drying Schedule: No information available at this time.

**Working Properties:** The wood, which is very difficult to split, is hard and difficult to work, but is easily stained and polished. The timber converts cleanly but is moderately hard to saw. A clean finish is produced normally, but a reduction of the cutting angle to 20° is an advantage to planing.

**Durability:** When exposed, apple wood is nonresistant to heartwood decay.

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

**Uses:** Apple is used in furniture, turnings, mallet heads, skittle balls, umbrella handles, machines and toys, cog wheels, fruit presses, shuttles, wood screws, plane blocks, bookbinder screws, boat knees, canes and walking sticks, drawing instruments, pianos and tool handles.

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

#### Additional Reading and References Cited (in parentheses)

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.