PURDUE UNIVERSITY

PURDUE EXTENSION

Hardwood Lumber and Veneer Series

Soft Maple

FNR-290-W

EXPERT REVIEWED

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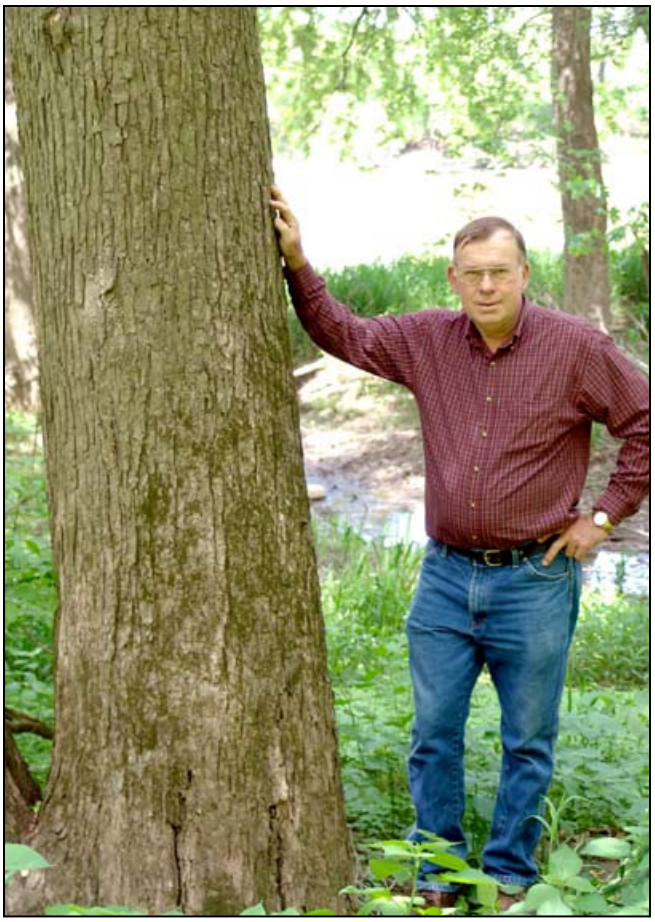
Soft maple is an increasingly poplar lumber category. It consists of two species, silver *(Acer saccharinum* L.*)* and red maple *(Acer rubrum* L.*)*. Silver maple ranges from the Great Plains east, excluding the Gulf and Atlantic coastal region. It is a bottomland species often found with other water loving trees such as elm, cottonwood, sycamore, sweetgum, black willow, and river birch. Red maple has a reduced western range but grows throughout the eastern United States including the coastal regions. Like silver maple, it can be found in swampy sites as well as on drier sites with white pine and other northern hardwoods in the northeast. Most of the silver maple is produced in the Mississippi Delta and central states region while red maple dominates more to the east.

Both species are medium sized trees from 50 to 80 feet tall and two to three feet in diameter. The largest silver maple reported is 7.8 feet in diameter at 4½ feet above the ground. The largest red maple is 7.3 feet in diameter at 4½ feet above the ground.

Wood Color and Texture

The sapwood is white and wide; the heartwood is a light brown or pink with a grayish or greenish cast. The contrast between the white sapwood and dark heartwood is more distinct in red maple than silver maple. The sapwood is easily discolored by oxidation and fungal stain if not properly handled in the log and green lumber stage. The pores are indistinct without a hand lens and evenly distributed. The wood is considered fine textured. The growth rings are delineated by a narrow band of slightly darker, dense tissue. The wood has no characteristic odor. Soft maple can develop a beautiful curl just like its hard maple counterpart.



Chip Morrison

Soft maple tree

Soft maple commonly has light brown streaks along the grain. The spots are called pith flecks and are more characteristic of soft than hard or sugar maple, although they can develop in hard maple.

Chip Morrison

Figure 1. The holes shown here are from the Columbian Timber Beetle. The holes are usually in pairs but one and four holes in a spot may also occur. The beetle carries a fungus with it which causes the flagging above and below the holes. The beetle cultures and feeds on the fungus. Silver maple from areas which flood often has bore damage whereas that from upland locations does not.

Soft maple, particularly that growing in flood areas can be attacked by the Columbian timber beetle which usually results in two holes bored side by side with a very characteristic dark streak running along the grain for several inches from the hole (see Fig. 1 on next page). Sometimes only one hole or maybe three or four holes may appear at each location. The lumber is referred to as wormy soft maple.

Workability

In terms of planning, shaping, turning, and boring, the wood of soft maple is rated medium to below average in comparison to the other woods reported here. The wood is somewhat soft, and silver maple in particular can contain substantial tension wood which develops in leaning trees. Tension wood tends to fuzz when machined.

Strength

Silver maple weighs about 33 pounds per cubic foot while red maple weighs about 38 pounds per cubic foot. In the lumber trade, soft maple is used to distinguish these two species because they are lighter and "softer" than hard or sugar maple. Red maple is a relatively strong wood, whereas silver maple is not.

Steam Bending

The wood is a relatively poor choice for steam bending.

Drying

A moderate kiln schedule can be used for drying.

Shrinkage

Total volumetric shrinkage of silver and red maple is relatively low when compared to the other hardwoods.

Decay Resistance

The wood has no resistance to decay.

Commercial Use, Grading, Value

The commercial significance of the soft maple lumber category has increased substantially in the last several years. Except for where strength and hardness are concerned, soft maple is used for the same purposes as hard maple. As the demand for "white" hard maple increased, so did the demand and value of white soft maple. Commercially, the wood can also be stained to look very much like cherry, further increasing demand for it. Current higher valued uses included millwork, kitchen cabinets, and furniture. The wood is also used for pallets, crates, and basket veneer.

The NHLA grading rules, industry practices, and associated pricing structure are complicated.

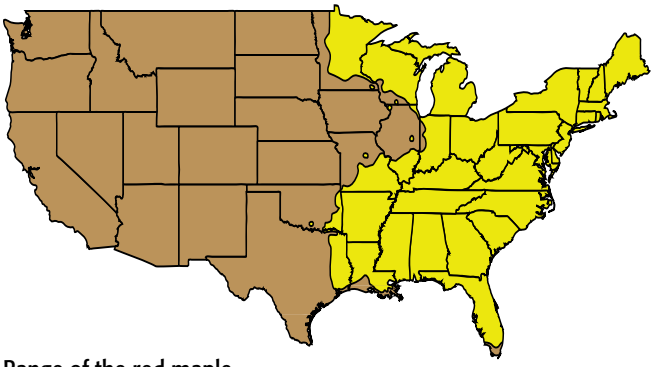
In the past, both silver and red maple was sold as soft maple. More recently, the term red leaf is being used in the industry. Red leaf indicates that the lumber is from red maple and not silver maple. Red maple is a somewhat stronger, harder wood than silver maple. Some lumbermen feel it is higher "quality" than silver maple. Others indicate that it is easier to blend the color of sap and heartwood in silver maple. However, once the tree or log is milled into lumber, it is impossible to consistently separate silver and red maple from each other.

Soft maple can be graded standard and not selected for color. It can also be graded standard with the notation WHND (worm holes no defect) or WHAD (worm hole a defect). The WHND separation is commonly used where the wood has numerous small pin knots or it has been attacked by the Columbian timber beetle. In this application, the rule states that knots or their equivalent cannot exceed ¼″ in their greatest dimension and sound or containing unsound centers cannot be over ⅛″ in diameter and still be admitted in the cuttings. Soft maple lumber, WHND, is inexpensive and was commonly used for upholstered furniture frames. This particular grade separation would also make an attractive, rustic paneling.

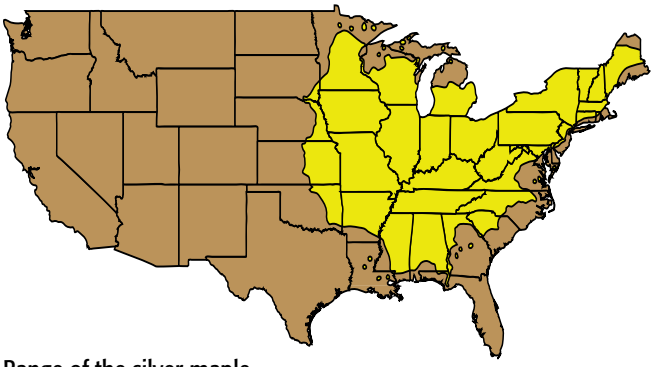
Because of the demand for the white sapwood, some companies are selling a category called sap and better soft maple. Previously, this designation was reserved for hard maple. For the particular grade, each required cutting must have one clear sapwood face. With the exception of the sapwood face, other grade requirements remain standard except for the FAS grade. For the FAS grade, the standard minimum 6 inch width drops to 5 inches wide, but in these narrow pieces the amount of clear wood required increases. Selecting out the white wood, leaves behind the darker colored heartwood. Although not a specific NHLA grade, some mills are applying the term "brown" to indicate that the white wood has been removed.

The NHLA rules also specify a No. 1 and No. 2 white maple for both hard (see details under hard maple) and soft maple. However, this separation is currently not common for soft maple.

Unselected soft maple is intermediate in value and currently comparable to red oak in the No. 1 Common and Better grades but priced below its hard maple counterpart. Soft maple selected for the white color will be priced about 15 percent above a comparable unselected grade. WHND maple is inexpensive.



Range of the red maple



Range of the silver maple

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Soft maple is a diffuse porous wood, and as such, the growth rings are barely visible. As demand and price for hard maple increased several years ago, soft maple followed. Some mills are now separating silver maple from red maple, both considered soft maple. Silver maple is referred to as silver leaf and red maple is referred to as red leaf. The two species can be separated in the field and red leaf is said to have a white sapwood and smaller heartwood. It is somewhat heavier than silver maple. Anatomically, the two cannot be separated.

Boards 1 and 2 represent the best the species has to offer. Board 1 is all sapwood and Board 2 contains a section of darker flesh colored heartwood, typical of silver maple. The sapwood of soft maple is typically not as white as hard maple.

Boards 3 and 4 show characteristic knots and color variation between heartwood and sapwood.

Numerous pith flecks are present in all pieces. Pith flecks are usually much more common in soft than hard maple.

Board 5 shows the characteristic holes and flagging from the Columbian Timber Beetle. The lumber can be very decorative, especially for wall paneling. The Columbian Timber Beetle commonly infests maple growing in flood plain areas. The beetle carries a fungus with it which causes the flagging. The beetle uses the fungus as a food source.

Board 6 is quartered and cut from the very heart of the log. The pith is shown near the center of the piece.

PURDUE AGRICULTURE NEW 9/07