Research Finds Promising Use for Sweetgum Lumber


Submitted

By Karen Brasher

Sweetgum trees are a common sight in forests across the South, but their usefulness in the lumber industry has been limited.

"The sweetgum tree is a species that is underused," said Rubin Shmulsky, forest products associate professor in Mississippi State University's Forest and Wildlife Research Center. "Sweetgum lumber is prone to warp, and the wood color and grain are erratic, which further limits its use for cabinetry and flooring."

Mixed hardwoods, including sweetgum, are a prolific resource in Southern woodlands, but their market is steadily shrinking. In the past, sweetgum was heavily used for upholstered furniture frames, but the development and acceptance of composite material for frames has significantly reduced the market for sweetgum lumber.

However, collaboration between MSU scientists and an Arkansas-based forest products company has found a promising new market for sweetgum.

"In 2005, MSU began a project with Anthony Hardwood Composites, Inc., to explore the possibility of making a high-value composite from sweetgum lumber," Shmulsky said. "The primary goals of the research were to assess strength properties, technical feasibility, and lumber yield."

The MSU scientists set up special equipment to manufacture composite beams from sweetgum lumber supplied by Anthony Hardwood Composites. The rough lumber was sorted, planed, chopped and glued into 6-by-12-inch-deep beams. The beams were then put through a series of rigorous tests to determine their bending strength.

"Results showed that the 6-inch-deep laminated sweetgum beam has a bending strength equivalent to that of a 12-inch-deep solid oak beam, yet uses about half the material, weighs less than half as much and incorporates a lower value raw material," Shmulsky said.

The success of the project has allowed Anthony Hardwood Composites to design, build and begin operating a commercial factory in Sheridan, Ark. that will eventually employ 100 individuals.

"For production, an abundant and underused species is incorporated, reducing the need to harvest large oak trees to make 12-inch-deep oak mats, the traditional source of industrial matting," said John Fiutak, general manager of Anthony Hardwood Composites. "The product is targeted for use in remote and environmentally sensitive areas."

In the commercial product, the individual laminated beams composed of kiln or air dried mixed hardwoods are assembled into patented industrial mats.

"The mats are used as ground flotation material at road, bridge, pipeline, oil rig or other types of construction sites," Fiutak said. "The beams work well to support heavy equipment in areas where topography and soil conditions are difficult and unreliable."

The process is environmentally sound with respect to both production and application. Following construction, the mats are picked up and removed, leaving no residual or long-lasting environmental damage.

"The mats disperse vehicular loading so that the soil is minimally disturbed," Fiutak said.

Additional testing has shown that other underused species and oak also can be used to produce laminated beams for similar applications.