

Knock on Wood

Overhauling East Texas Lumber Production

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Timberland became a popular retirement investment vehicle in the 1980s. Purchasers idealized the prospect of buying a piece of land, planting trees, and returning in 30 years to harvest their retirement profits. Today, unattractive timber (unprocessed wood) prices and competition from institutional players have made the passive strategy of the '80s less realistic and possibly obsolete. Institutional investment in East Texas timber has turned the previously passive wait-and-harvest method into a highly optimized process, maximizing harvestable timber and minimizing waste.

Ninety-two percent of East Texas timberland is privately owned, with 53 percent considered family forest landowners. The remaining 8 percent of Texas timberland is publicly owned by the U.S. Forest Service (572,000 acres), the State of Texas (129,000 acres), and the Department of Defense (173,000 acres). Historically, wood and paper mill companies dominated the region, acquiring timberland to supply their mills. From the 1980s into the 1990s as timber prices declined, many of these

The Takeaway

When lumber prices dropped after the Great Recession, East Texas' lumber industry changed its processes to optimize production and reduce waste.

companies sold off their land, which has since been largely subdivided. Companies such as International Paper, Gibbs Bros., Champion International Corp., and Louisiana-Pacific sold a total of 1.6 million acres during this time (See "Seeing the Forest for the Trees . . . and Streams and Fish and Wildlife," *Tierra Grande*, January 2004). Timber investment management organizations bought the majority of the land and managed it for ten to 12 years before selling.

Following the economic recession of 2008, demand for lumber (processed wood) for residential building halted and lumber prices declined. Prices recently increased due to demand from the construction industry and the

imposition of a 20 percent duty on imported Canadian lumber in 2016. Imports reduced by nearly two billion board feet. The resulting lumber price increases were substantial enough to rival labor shortages as home-builders' primary cost concern.

Several factors prevented timber prices from experiencing similar price growth. Landowners postponed harvesting timber following the decline in 2008 to avoid smaller margins or even selling their timber at a loss. Delaying harvest resulted in an increase in both the inventory of timber acres

and the size of trees. Today, the oversupply of timber is present throughout the southeastern United States.

Another factor suppressing timber prices is growers' contracts with mills. Growers in East Texas are locked into long-term contracts to supply timber at a set price. Therefore, despite changes in demand for lumber prices, timber prices have been set for some time. With many of these contracts set to expire, timber prices may react more consistently to changes in demand for lumber in the near future.

Optimizing Lumber Production

Land and managers, foresters, and mill owners have improved their processes, often through automation and mechanization.

It begins at the nursery. Growers cultivate trees to ensure consistent timber quality. The seedlings, once mature, are harvested by a team that sprays and packs the seedlings in the field as the machine moves up and down the rows. Seedlings are delivered to planting sites and planted by machine on 75 percent of the land. The planter plows a groove for the seedling, and a disk pushes soil around it. Roughly 550 trees are planted per acre, six feet apart in rows 14 feet apart. The density management maximizes the number of seedlings per acre, allowing the trees to self-prune (reducing the size of the limbs) as they grow but without restricting stalk growth. The seedlings have a 90 percent expected survival rate.

Managers and foresters monitor a portfolio of fields spanning multiple counties, with each portfolio having as many as 200,000 acres. Their responsibilities include daily field monitoring, planning the timing of plantings, thinnings and harvesting, and hiring and scheduling the

planters, loggers, and other contract labor. In addition, they are in charge of hunting leases and property taxes for the fields. The result of this intensive quality control is uniform fields with similar timber size and quality, each resembling a Midwestern row-crop field.

Field management also entails strategic planting to protect surrounding resources. Specific breeds of trees are planted a minimum of 50 feet from nearby waterways to protect water resources. Trees are also planted as barriers to roadways and homesteads. These management techniques are part of a sustainable forestry certification implemented by the forestry industry as a proactive measure for dealing with environmental issues. Companies receive tax breaks for planting these trees as they are not income producing. Fields are audited annually to ensure compliance with the program.

Fields are thinned 12 to 15 years after planting. The first thinning establishes the "down row." Timber harvested from down rows is sold either to paper mills or oriented strand board (similar to particle board) mills. A second thinning

takes place 18 to 20 years after planting. Timber removed at this point is sold as pulpwood, with larger trees going to "chip-n-saw" mills. The final harvest takes place at 25 to 30 years (compared with an average of 35 years for trees planted in the 1950s). At this time, the field has maintained the resemblance of a midwestern row crop field, a stark contrast to the traditional, less-manicured timber fields of the past. The field is clear cut at this stage as most trees have reached saw timber quality, their highest value.

Similarly, mills have automated and mechanized their processes to minimize error and optimize revenue. Computers measure incoming timber and cut-to-size timber based on open orders and current lumber prices to maximize profits. Some of the most efficient mills have removed human involvement almost entirely and run their operations with nearly a quarter of the staff some of their competitors employ. The only time a human hand touches the product is as it is being tagged for shipment. The remaining electrical, mechanical, and lead staff follows the processing from a control room. The mechanizing of the process reduces waste and requires less timber to produce the same amount of lumber previously supplied.

Finally, processes have been optimized to minimize costs in the lower price environment. Like the oil industry during the 2016 crash in prices, the timber industry prioritized cutting costs to maintain profit margins. Each step in the timber-supply chain, from the nursery to the mill, was optimized to increase output per unit of input while decreasing waste (see sidebar). The previous vertical integration structure is now decentralized with each player optimizing their individual practices.

The passive timber investment strategy is no longer competitive in today's optimized timber management

and production environment. The low-demand environment resulting from the Great Recession reduced prices and production margins, promoting optimization throughout the timber-supply chain. The result has been an increase in the amount of output and a substantial reduction in waste. 📌

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