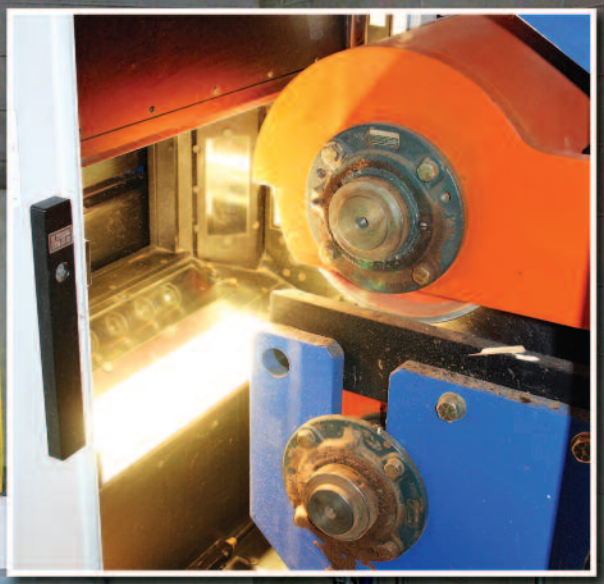
VALUE DRIVEN GRADESCAN



BY **DAN SHELL**

Westervelt Lumber boosts grade uplift, adds value with new auto grading line.

MOUNDVILLE, Ala.

Addition of a new auto grading system at Westervelt Lumber's high-production sawmill here in west Alabama has delivered more consistent, tighter grading, higher value and a significant improvement in #2 and better grade percentage.

The mill cuts around 200MMBF annually across three processing lines that produce 2 in. and 4x4-6 dimension, 1x4-6-8, 5/4 and 6/4 decking and 6x6 timbers—in lengths up to 16 ft. The facility's planer mill includes two complete planer/trimmer/sorter lines under one roof, one line handling mostly 2 in. boards.

"We were looking to improve grade-out and trim," says Tommy Clemmons, complex manager. "Human graders are good, but they get only three seconds or less to make a decision not just on grade but also how to trim for value."

The mill has spent lots of time in the green end running computer simulations and using scanning and optimization to cut for value, Clemmons says. "But on the finishing end we were relying on a grader with a price list being able to think real fast. A real good human grader can do it to an extent, but they can't look at a board and think of every possible value combination," he adds.

PROJECT

Two years ago, when analyzing auto grading system options, Westervelt personnel took lumber hand-graded by the mill's lead grader and SPIB agency grader, tallied the results and then shipped the lumber to several auto grader system vendors and had each run the same batch through their respective scanning systems and software.

"We sent the lumber to Lucidyne and two other companies to let them run it, then we looked at it from a statistical evaluation to see which one was the most accurate," Clemmons says.

Westervelt personnel liked the Lucidyne system's accuracy, and especially the control, monitoring and analysis software included. "What we wanted to do was be able to react if the sales force calls and says they need so many packs of something, that we can make a quick adjustment in price and grade," Clemmons says. "The technology we saw with Lucidyne, we felt confident that was the company we wanted to work with."

The Westervelt board approved the capital expenditure in December 2009, and the system was installed in August 2010. The project included installing

GradeScan system offers accurate lumber scanning, defect identification, best value solution.

Downstream from grading station, warp scanner, left, and grade mark reader and True-Q system, right, complete planer optimization hardware package.

the Lucidyne GradeScan system at planer outfeed and related equipment downstream, modifying and straightening outfeed conveyors leading to the landing table, raising an existing Newnes trimmer to handle 4 in. material and adding a new Comact infinite fence trimmer system.

Scotty Nolan, production superintendent, says the installation went well and beyond simply adding a grade scanner. "Lucidyne did a lot while they were here, helped us out a lot on our sorter controls by putting in their package, working on the timing from the lug loader through the sorter," he says.

With the previous configuration, boards leaving the planer had to make two turns heading to the slowdown belt, which caused cross-ups and bottlenecks in the landing table area. "When we put the grader in, we took out a grading booth and were able to take a straight shot to the landing table," Nolan says. "That's one of the biggest things that helped us increase speeds. Now, we're not controlled by how many pieces a grader can grade; we're just running what the system can handle."

SYSTEM

The auto grading package Westervelt installed includes Lucidyne's GradeScan scanner, downstream grade mark reader, "warp bridge" scanner, new Lucidyne True-Q system, and an Autolog inkjet sprayer that marks each piece for internal quality control. The system includes a Wagner in-line moisture meter. Lucidyne also supplied planer line controls and all grade scanning and optimization software.

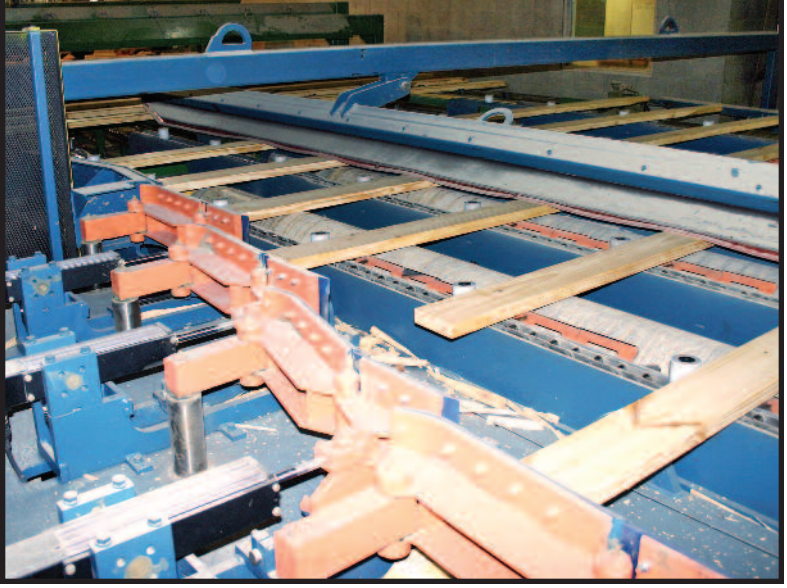
The primary scan box behind the planer is temperature-controlled and features a color video sensor that detects visual characteristics, a geometric sensor for board profile and a tracheid sensor that determines fiber direction and quality and provides data that assists the color and geometric sensors. A through-board, dielectric sensor scans boards for density and helps with knot analysis, decay detection and blonde knot identification.

Boards exiting the Newman planer through the GradeScan flow to a landing table, then travel transverse past a manual grading station where one grader monitors the system, performs quality control, and can see the raw scan and grade data on a large flat screen. The grader can override the auto system with traditional grade marks.

A new control room built right behind the grading station allows operators and supervisors to monitor, troubleshoot and control the planer line from one location. "We now have one control system that controls planer speed, the grading line, trimmer and sorter, all from one location," says Mickey Lambert, planer mill superintendent. "When I get here, I can know in two or three minutes exactly what we're doing and how the shift before did."

Past the grading station, boards flow under a Lucidyne grade mark reader that checks for any overrides from the graders, then under Lucidyne's new True-Q scanner that compares a 2 ft. segment at the end of each board to previous scan data from the GradeScan and ensures that boards and solutions are matched up in case of any cross-ups at the landing table. Boards then flow under a Lucidyne warp bridge scanner that provides data on board warp that could affect trim decisions.

After passing through the trimmer, boards receive a spray-on board ID num-



New Comact infinite trimmer fence, left, and Autolog inkjet printer, right, are two components of planer line project.

ber that includes length and grade information. For quality control purposes, boards can be pulled from any stage in the sales process and matched back with original scan and grade decision data. (The system keeps a running backup of the last 50,000 boards scanned and graded.)

According to Bill Briskey, Lucidyne director of marketing & sales, one of the system's innovations is the use of parallel processing that utilizes multiple PCs. Since data acquisition and decision-making are distributed instead of forced through one large computer, "This allows more decision time and better solutions. You can also bring in values from other sensors like a moisture meter or MSR, and develop more fully informed decisions," he says.

Briskey notes that "Westervelt has truly run the system through its paces here for almost anything you can imagine with Southern yellow pine, including dimension, commons, narrows, decking and timbers. They've taken a very aggressive position with making it work and training their people to support the technology."

While he touts the system's accuracy, Briskey notes that the system is sold as much more than just a grade scanner. "This is a business tool that can play a strong role in sawmill and planer mill and customer and sales relationships."

OPERATIONS

Darryl Lightsey, Westervelt quality process manager, notes that the auto grading system has delivered a big uplift in grade distribution. Prior to installing the new equipment, the percent of lumber grading below #2 was in the low 20s. Now, Lightsey says, that number is in the low teens.

"We've seen a significant uplift in C, #1, #2 prime, 2 and better percentage and in premium decking," Lightsey says. "We not only saw #2 and better change, we saw the mixture within change—more #1s off the #2s, some C out of ones, that kind of thing."

Lightsey runs a cutting matrix for the following week when market prices come out each Friday. "This tells us what we'll cut based on grade and block price, but also about cut-in-two combinations and other values," Lightsey says. "We plug the information into our own spreadsheets and then into the Lucidyne system, and we know what it's going to do."

As the week goes on, grading line operators are constantly monitoring the system's performance. "It's going to drive the value out based on what you tell it," Lightsey says, adding that there's more to the process than simply boosting #2 and better. "There are a lot of value decisions based on trim block values, and there's no way humanly possible to consistently get that right," he says.

An example is a 12 ft. piece that looks like a good #2, but with block and trim value the better decision may be an 8 ft. #2 prime with a 4 ft. block worth 15-20 cents more, he says. "A grader can't calculate that. We have some good graders, but they can't do what that machine can do."

The mill reduced grader requirements from five to two per shift, placing some employees in other mill areas and keeping some on the grading line for quality control.

Lightsey says the system requires dedication and effort among employees to learn how to use it, and some time is required for supervisors to learn how to tweak it to adjust performance to match sales and customer expectations. "There's a good learning curve for the supervisors and lead men to deal with, but from a production quality control standpoint, the system is limitless," he says.

Tweaking the system's spot-on agency grading parameters with customer-based grade rules is also important. "We've had to work closely with the sales force on this, because pricing is critical and it can change product distribution and appearance," Nolan says. "We've had some feedback that even though the lumber is on grade, the customer wants some of the characteristics changed. We can quickly get the customer what they want, and the change doesn't take five minutes."

An example is a customer who said he'd seen too many knots near the ends of boards in a recent shipment. "We went in and changed our parameters to not allow knots in the last three inches of the boards, and it only took a few seconds to make the change," Lightsey says.

Looking ahead, Nolan and Lightsey say they're looking forward to continuing to refine the system to add even more value and efficiency. One feature in development is a merchandising program that ties the operation closer to the sales effort to optimize order filling and smoothly shift between product and order runs.

"This will allow us to program the packs we want to build and help fill orders more efficiently," Nolan says, "and it also allows more fine-tuning grades for specific orders and customers. We've worked with it some, but it's still in development."

Supervisors are also working with the line's density data to try and develop specialty markets such as scaffolding and laminated beam applications for denser lumber pieces.

Also, Nolan says, "In the next few months we hope to continue to refine the system to increase our speeds even more—not just the grading but the overall line. The difference is the graders aren't the holdup anymore." TP