

# 4221E Select Sawmill

**T**he fact that sawmills cut in one direction means that there is a wasted trip back to make the next cut. In theory, a mill that can cut in both directions sounds like a great idea; but in practice, designing a blade with teeth on both sides, and eliminating the back roller guides is no easy task. Select Sawmill of Plantagenet, Ontario, Canada, has successfully solved the challenge with a 6-inch-wide blade and a heavy-duty production saw. The result is a fast, efficient band saw that slices through a log in either direction with equal ease.

Sally and Brandon Kieffer of Walnut Valley Timber Products, located near the small southwest Missouri town of Pierce City, decided that this mill would suit their business. Specializing in milling walnut, they are focused on maximizing production while utilizing resources as efficiently as possible.

Sally Kieffer recalled the moment when she and her husband, Brandon, decided to start a sawmill business. “We were driving down the road. We’d been buying walnut logs, and having a local Amish mill saw them. Brandon said he would really love to have his own sawmill, and I agreed that would really be awesome.” Not ready to give up his logging business, Brandon replied they would need somebody to run it. “I said

“I’ll do it!” Sally continued, “He asked, can you?, and I said I can do anything I want!” Brandon took her at her word and, 4-1/2 years ago, they purchased their first sawmill. To get the best profit from each log, both signed up for a short course on lumber grading. Having never even been around a sawmill, Sally also spent a lot of time studying on-line. The Kieffers started out with a mid-size hydraulic band saw mill and three employees. Although they were able to create a profitable business, they found themselves working well after dark and during the weekends to keep up. It was clear that they needed to up their production speed. “A mill with a 1-1/2-inch-wide band can only cut so fast,” explained Brandon. “After 40 hp or so, it doesn’t matter how much power the engine puts out. We just couldn’t find the cutting speed we wanted with any mill using a 1-1/2-inch band.” After looking at several wide band saws, they traveled to the Select Sawmill manufacturing facility to get a first-hand look. “We were a little apprehensive,” Brandon recalled. “They had a mill that Sally was able to run, and they took us to an operation nearby that has been cutting 30,000 board feet of pine per day for the last 16 years, running two shifts per day.”

The Kieffers mill for grade, frequently turning the



The unique bi-directional cutting action of the Select mill, coupled with a feed rate of up to 3 feet per second, makes for high production. Frequent turning to the best face maximizes the quality of the lumber.



Sally keeps an eye on the milling process from her office. The operation is designed for smooth flow of materials from the live deck to the bundling of the final product.

log to the best face. They were concerned that cutting in both directions loses its advantage if you remove the board after each cut, but an experienced Select sawyer brushed aside that issue. "He just said, you learn to read the log," said Brandon. "And he was right. Sally has gotten to the point where she can read the logs. There have been some instances, when we're cutting high-grade lumber, that she will have the offbearer pull a board so she can see the next cut, but that still makes faster cutting speed than a 1-1/2 band can cut. Once you get to the point where you're not going to turn any more, it is almost like resaw mode."

According to Sally, it is actually easier to saw for grade with the Select mill, because the swedged teeth and large gullets are so effective in removing sawdust from the surface of the cant, making it easier to see the wood and "read" what is inside. Does the grade of walnut lumber really make all that much difference? Brandon looks at it this way: "Our focus is on quality. The difference between #1 common and FAS walnut is more than an FAS oak board will bring! We'd have to quadruple to handle the same dollar amount of oak."

Installation of the 10,000-pound behemoth proved challenging. Even though it has roughly the same footprint as their previous mill, the Kieffers had more changes in mind for their production facility. The logs now start out through a Select debarker, before they are loaded on a live deck. A conveyor alongside the mill transports boards to a green chain. Slabs go to a cart where they are bundled and hauled out. Boards are sorted according to size, and any boards requiring edging move to another stack. The entire layout is well-thought-out and efficient. Providing power for the 75-hp, 3-phase motor on the mill, log debarker, and edger left the Kieffers with little choice other than to bring in a 3-phase electric line.

Sally occupies the catbird seat in a heated/air-conditioned upstairs office at the end of the building. The main front window gives her a commanding view of the entire operation. In front of her is a control panel with preprogrammed buttons, and below that is a line of a

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Brandon Kieffer is in constant motion, keeping materials flowing smoothly, as they come off the mill. Keeping the deck loaded, moving bundles of lumber, and running the edger are a few of his duties, when he isn't buying logs.

Sally Kieffer and Dusty put a fresh blade on the mill. Typical blade change is once per day (around 4,000 board feet), unless they hit metal in the log. According to Sally, the blades can be sharpened 50 times before discarding.

dozen hydraulic valves. With two years' experience behind her and a pair of earbuds in her ears, Sally keeps everything moving smoothly. "It didn't take long to learn," Sally said. "When we went to the company in Canada, I worked with the mill and memorized the controls, so when we got back, I went over that in my mind, practicing loading and turning logs. Within a couple of weeks running it, I was comfortable." "I've watched her over the course of a year

where she gets a little faster, and a little faster, and now she can finesse every detail," added Brandon. The debarker and laser make Sally's job easier, because she can see the cut line on the actual log instead of trying to compensate for the bark.

The computerized networks are pretty basic, and that suits Sally fine. There are 12 preset thicknesses and two memories for the thickness and width of the cant. When she turns the cant, the computer stores the last

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## 4221E Select Sawmill

<b>Manufacturer</b> .....	Select Sawmill, Plantagenet, Ontario, Canada
<b>Power</b> .....	115-hp John Deere diesel or 75-hp 3-phase electric
<b>Log capacity</b> .....	42-in. diameter by 22-ft. length (extensions available)
<b>Weight</b> .....	10,000 lbs.
<b>Space between guides</b> .....	34 in.
<b>Throat</b> .....	14 in.
<b>Band wheel diameter</b> .....	36 in.
<b>Hydraulic system</b> ....	12 gpm, variable displacement, piston pump
<b>Hydraulics</b> .....	log turner, 2 back posts, 2 dogs, 2 tapers, blade tensioner, blade guide, head lift, and carriage feed
<b>Setworks</b> .....	12 presets, 2 memories
<b>Options</b> .....	Track extensions, hydraulic log loader, power taper rollers, live deck, offloading decks, conveyors, and coffee cup holder

dimension in its memory. When she turns the cant back to that side, she can call that measurement back up and continue cutting where she left off. “It’s just one less thing I have to remember,” she laughed. With experience, her hand goes to the desired lever without hesitation, as she activates the live deck, clamps, log stops, log turner, manual carriage height, and carriage feed. “I told a fellow that one of the levers controls a ‘Hot Shot’ to keep the floor workers moving in high gear,” joked Brandon. “Not true,” interjected Sally. “Don’t put that in the magazine, or no one will work for us!”

On the day of my visit, there were three floor workers. Brandon kept the lines moving. On one occasion, he noticed a pause in the sawing and quickly cleared a jammed board. In his “free” time, he ran boards through the edger. Dusty, an employee, was also in constant movement, sorting boards and stacking slabs. Lilly (a chocolate Lab) had exhausted herself greeting me when I arrived, and was snoozing in a quiet corner of the building. Things are slow at the mill in the summer, but pick up during the rest of the year. “We typically cut 4,500 to 5,000 feet per day at peak production, noted Brandon. “We shipped out 80,000 board feet last April [2018].”

Brandon is in charge of keeping the mill supplied with logs. “A couple years ago, I cut 60%–70% of the logs we milled. Now we purchase 90%–95% of our logs.” But he still puts his years of experience as a logger and walnut buyer to good use. “When we started this, I knew the log side of things extremely well. We were well established as a walnut buyer and able to hit the ground running.” He noted that in the last year and a half, competition for the timber has driven up the prices. “It also seems like you see a bit smaller logs on average, but we can still manage to get a lot of big logs.” From her sawyer’s perspective, Sally noted that even buying on the Doyle scale (which penalizes footage on smaller logs), “you’re already starting so close to the heart that you’re not going to get much high-grade lumber. All the time for clamping and turning takes about the same amount of time, whether it is a bigger log or smaller log.”

Brandon says that the optimum log for their mill is 10 feet long, 16 to 19 inches in diameter. “That’s where we hit our maximum production. The longer they are, the more you benefit from the double cut, but we’re not set up for more than 10 feet.” Sally, on the other hand, says she likes the challenge of milling the big ones. With a 42-inch maximum log diameter, 14-inch throat and 34 inches between the guides, the mill is capable of sawing up any log they put on it, though Brandon says he has had to trim the ends of the really big ones with a chain saw.

The cost of a double-sided, 21-foot-long by 6-inch-wide blade is significant, but Brandon says that they can typically be sharpened more than 50 times! When the blade width has been reduced to 4-5/8 inches, it goes on the scrap pile. “For the production we’re get-

ting, the cost per board foot is comparable to the cost of the 1-1/2-inch blades we were using before,” says Brandon. “We typically change blades at the end of each day. It’s not too bad.” Of course, striking metal takes its toll on the blade. Brandon handed me a piece of 1-inch angle iron that had been cut through. “It took a couple of tries to get through that one,” admitted Sally. “I didn’t know it was in there!” Brandon also noted that the debarker has helped get more life out of the blades. “Walnut bark is deep and can hide a lot of rocks and grit,” he commented.

By 3 p.m., the temperature had climbed to 97°F, and the Kieffers were ready to call it a day. After shutting down the mill, Sally helped Brandon and Dusty edge and end-trim the last of the boards and clean up the mill area. Lilly moved a little sawdust around when she wagged her tail, but showed little interest in stacking boards. ■

*Dave Boyt has a BS degree in Forest Management and an MS in Wood Technology. He manages a tree farm (2006 Missouri Tree Farm of the Year), and operates a band saw sawmill.*

