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NEBRASKA FOREST SERVICE

TIMBER TALK

Nebraska Forest Industry Newsletter

Nebraska Forest Service **Institute of Agriculture and Natural Resources** **University of Nebraska–Lincoln**

June 1, 2006 **Vol. 44, No. 2**

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The Nebraska Forest Service publishes *Timber Talk* four times annually (September 1, November 1, February 1, and June 1). The purpose of the newsletter is to serve and promote the forest industry of Nebraska. All questions and correspondence concerning *Timber Talk* should be directed to: Dennis M. Adams, *Timber Talk* Editor, Nebraska Forest Service, University of Nebraska, 109 Plant Industry Building, P.O. Box 830815, Lincoln, NE 68583-0815. Phone (402) 472-5822, FAX (402) 472-2964. E-mail: dadams2@unl.edu. *Timber Talk* is partially supported by University of Nebraska–Lincoln Extension funding.

Lumber Market

HARDWOODS

NEWS

Northern. Although considerable volumes of Hard Maple and other whitewood species are still being used, efforts by mills to saw through log decks boosted green lumber supplies and prices are responding accordingly. Oak markets are a bit more stable due to this focus on whitewood production. Most sources describe log decks in the north country as ample, however, many express concerns over the high prices of logs and timber.

Southern. The market is described as competitive for key species and grades, although most mills and yards are still balancing shipments with production. However, concerns regarding future demand for 4/4 #1C Red Oak abound, particularly since on-hand raw material inventories are high at most oak strip flooring plants. Demand for FAX and 1F White Oak and Poplar is characterized as robust. Log decks are ample across the territory, though frequent rains have affected logging in specific locations.

Appalachian. An issue concerning suppliers is that many secondary manufacturers and concentration yards have ample lumber inventories at this early point in the year. Price often becomes a primary negotiating tool for obtaining orders. Reports show prices are trending lower for some key species, including Red Oak and selective grades and thicknesses of Maple. Prices for Poplar, Walnut, Cherry, Hickory, and upper grade White Oak are steady to advancing.

(Source: Condensed from *Hardwood Market Report,* May 13, 2006. For more information or to subscribe to *Hardwood Market Report,* call 901-767-9216, or email: hmr@hmr.com.)

New District Foresters

Two new District Foresters recently assumed duties with the Nebraska Forest Service. On April 1, 2006 Rachel Allison became the South West District Forester stationed in North Platte, and Richard Woollen became the North Central District Forester stationed in Ord. As District Foresters, their primary duties are to provide technical forestry assistance to rural landowners and communities within their districts.

Rachel and Rich bring tremendous forestry experience to their new positions. Both have served as service foresters within the NFS for over 12 years.

Rachel received her BS degree in Forest Resource Management from Iowa State University and an MS degree in Public Administrations from the University of Missouri-Columbia.

Before assuming duties as District Forester, Rachel served as District Forestry Assistance in Bassett and North Platte, and most recently as Community

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The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by the Nebraska Forest Service is implied.

Hardwood Lumber Price Trends

	FAS				#1C				#2A			
Species	**6/05**	**9/05**	**12/05**	**3/06**	**6/05**	**9/05**	**12/05**	**3/06**	**6/05**	**9/05**	**12/05**	**3/06**
Ash	730	730	730	670	565	565	565	575	420	415	415	365
Basswood	710	710	710	795	435	435	435	435	225	225	225	225
Cottonwood	600	600	600	600	400	400	400	400	220	220	220	220
Cherry	1625	1570	1570	2330	1370	1330	1320	1290	670	640	625	575
Elm	635	635	635	635	420	420	420	420	235	235	235	235
Hackberry	475	475	475	475	455	455	455	455	265	265	265	265
Hickory	760	770	770	770	620	630	650	650	370	380	405	415
Soft Maple	1200	1200	1200	1525	800	800	790	825	420	410	400	425
Red Oak	1150	1150	1150	1125	840	760	740	730	530	515	500	500
White Oak	885	895	910	910	645	625	625	590	400	400	400	400
Walnut	2040	2040	2040	2040	1005	1020	1030	1045	625	640	650	685

Note: Hardwood prices quoted per MBF, FOB mill, truckload or carload quantities, 4/4, rough, green, random widths and lengths. Prices for ash, basswood, elm, soft maple, red oak and white oak from Northern Hardwoods listings. Prices for cottonwood and hackberry from Southern Hardwoods listings. Prices for cherry, hickory and walnut (steam treated) from Appalachian Hardwoods listings. (Source: *Hardwood Market Report Lumber News Letter*, last issue of month indicated. To subscribe to Hardwood Market Report call (901) 767-9126, email: hmr@hmr.com.)

Timber Stumpage Prices

The Nebraska Forest Service does not have a reliable system of collecting data on timber stumpage prices paid for Nebraska timber. Since current timber stumpage price information would be useful to landowners, loggers, sawmills and forester's in Nebraska, timber stumpage price information will be summarized from selected states and periodically presented in Timber Talk. Although this data is not collected from Nebraska timber sales, it may serve as a general guide in tracking stumpage trends. Prices quoted in $/MBF.

	(1) Illinois (Nov. 2004 - Feb. 2005)		(2) Missouri (January - March, 2006)	
Species	**Sawtimber**	**Veneer**	**Sawtimber**	**Veneer**
Ash	50-200 (150)		100-140 (125)	
Basswood	100-200 (120)		100-100 (100)	
Cherry	200-800 (450)	400-2500 (1160)		
Cottonwood	30-80 (70)		90-295 (170)	
Elm	60-100 (80)		130-130 (130)	
Hackberry	60-100 (80)		130-295 (195)	
Hickory	50-160 (130)		50-295 (120)	
Soft Maple	100-220 (140)		130-295 (140)	
Red Oak	200-350 (280)	475-800 (590)	85-295 (95)	
White Oak	200-550 (290)	500-1600 (1050)	100-295 (125)	240-340 (340)*
Sycamore	50-120 (90)		100-295 (260)	
Black Walnut	200-1000 (560)	800-3500 (1810)	100-415 (180)	140-2500 (855)
Redcedar				

(1) Stumpage price range for Sawtimber reported from the Prairie Unit (Zone 3). Sawtimber price average, in parentheses, and veneer price range and average reported from Statewide statistics. Doyle Scale.

(2) Stumpage price range and average, in parentheses, reported for North Region. Asterisk (*) indicates prices from Statewide statistics. International 1/4" Rule.

Attention Sawmillers

The Nebraska Forest Services needs your help!

All sawmills and other primary wood processing businesses in Nebraska will soon be surveyed for information about the logs processed and residue disposal at your mill. This important survey, which is part of a national effort, is conducted about every 5 years to update statistics concerning the species of volume of logs processed in each state. The Nebraska survey is a cooperative effort between the USDA Forest Service and Nebraska Forest Service. The last Nebraska sawmill survey was conducted in 1999.

The survey will also serve a second important function — to update the Nebraska Forest Products Manufacturers Primary Processors Directory. This directory serves as a good marketing tool for Sawmills and other primary processors that choose to be listed, but inclusion is voluntary. The current directory can be accessed online at: http://www.nfs.unl.edu/FPU.htm.

When you receive the survey packet (or access it online), PLEASE take a few minutes to complete the questionnaire. All individual production information is confidential and will be used only for statistical reports. For those who choose to be listed in the Nebraska Primary Processors Directory, only "Processor" contact information, "Major Products," "Species Used" and general "Production Class" information will be listed for each business. Your input is critical to the accuracy of the product statistics and contents of the Primary Processors Directory for Nebraska.

Thanks for your cooperation in the past and we look forward to hearing from you in a few months.

Small-Scale Drying

Lumber needs to be dried for most uses, and lots of value can be gained or lost during the drying process. Whether air drying or kiln drying, I've found that it is attention to the details that largely determines whether I end up with beautiful boards or stained, bent and checked junk of little value.

Drying lumber on a small scale – from 1,000 to 50,000 board feet per year – has some different challenges from larger scale operations. One advantage is that there is usually less of a rush to get the wood dried. Disadvantages include the need to deal with small amounts of boards of different lengths and thicknesses, and the hard work and time it takes to handle the lumber without machines that are just to costly to justify. Over the years, I've found some ways to not only reduce the work, but also improve the odds that my lumber will be of the highest quality.

Stickler for the basics

I can't stress enough how important it is to begin drying immediately. For wood where the appearance is important, if the weather is hot and humid it's imperative that the drying begin soon after the lumber is cut to avoid staining. Under these conditions, staining organisms can get a foothold in dead stacked lumber in less than a day.

While you can be in less of a rush at low temperatures, I still make it a practice to get each day's production stickered before I mill more lumber or go on to other activities. This lessens the risk that I won't get around to dealing with a pile of lumber before staining sets in. Where appearance is not critical – as in framing lumber – I've found that it's still worthwhile to try to minimize staining; most customers prefer stain-free lumber.

The quality of your stickers will have a big influence on the quality of your lumber. Used to separate each course of lumber in a pile so that air can flow between the courses and carry off moisture, stickers should be dry, straight, stain-free, narrow, and of uniform thickness. Stickers of variable thickness will result in bent boards; wet, stained or wide stickers all invite stained lumber. I've found that I can get away with green (freshly cut) stickers in the winter, and I suspect that people in areas with consistently low humidity could get away with green stickers year round.

I make most of my stickers when edging boards. In a pinch, I've been known to cut boards up into stickers. My standard size is between 3/4-inch and 1-inch thick and wide, and 41-inches long. I use kiln-dried stickers in my dry kiln, and plane them to ¾-inch thick. Keep in mind that stickers are valuable: There's a third of a board foot of clear lumber in each of mine, plus a considerable investment of time into making them. I think of each sticker as being worth $1, which encourages me to take care of them.

With 41-inch-long stickers, my stacks are 40-inches wide, which is narrower than the 48-to 72-inch widths common in the lumber industry. I've found that this narrow width has advantages: One person can readily sticker lumber form one side of the stack, and, when air drying, air circulation through the stack is better than for wider stacks.

My rules for stickering are simple:

- Maximum spacing between stickers is 2 feet.
- There must be a sticker within 3 inches of the end of every board, both above and below the end.
- Stickers must be placed directly above the ones in the courses below; in other words, both ends of every sticker must align vertically with the ends of the corresponding stickers in the courses above and below.
- Even short boards must have at least 3 stickers above and below.

People who have worked for me over the years have quickly discovered that I'm a stickler when it comes to stickering rules. I've learned the hard way that being careless results in warped lumber.

One trick I use to help with sticker alignment is to mount pieces of 1-1/2-inch channel iron vertically along one edge of the stack's foundation at 2-foot (or

(continued on page 4)

other appropriate) intervals. Working from the other side, I slip the ends of the stickers into the channel irons, holding them in position while I set the boards in place.

The speed of drying

Drying too slowly invites stain problems. On the other had, because wood shrinks during drying, drying too quickly can cause surface checks and drying stresses. These result when there is too steep a moisture-content gradient between the surface and interior of the boards. Moisture diffuses through different species at different rates, so a safe drying rate for one species may be too fast for another. The thicker the lumber of any given species, the more slowly it needs to be dried.

In a dry kiln, we (hopefully) have good control over the drying rate. Because kilns are expensive to own and operate, however, there is an incentive to dry lumber in them as quickly as possible in order to maximize the number of loads that can be dried in a year. The quality problems I mentioned earlier will be the result if the wood is dried too quickly.

When air drying, we're at the mercy of the weather. Orienting the stacks with or against the prevailing wind can provide a little control in increasing or decreasing drying rates. Wrapping stacks with a porous fabric can decrease the drying rate and reduce the amount of re-wetting from rain, sow and fog. Air drying in an open building (a.k.a. "shed drying") is another option to reduce the drying rate and minimize re-wetting from rain, fog and melting snow. Adding fans to the building gives control of air circulation, although this is rarely done in small-scale drying.

Air drying

In most areas of the country, wood can be air dried to between 10- and 14-percent moisture content. In particularly humid areas, it may not be feasible to reach this low a moisture content. In desert and some high-altitude areas, much lower moisture contents are possible; the biggest risk in these areas is drying too fast.

Air-dried lumber is adequately dry for many uses. Furthermore, moving air-dried lumber into a heated building for a while before it is used can bring the wood's moisture content down to the EMC, rendering it perfectly usable for interior finish work or cabinet and furniture making. I did just this when building my house: I stickered air-dried lumber inside the house in winter (when the inside humidity was lowest) prior to using it for flooring, paneling and the cabinets.

Let's look at a few of the important variables in air drying:

Stack size – From my earlier information on stickers, you'll recall that I make my stacks 40-inches wide. The length of the stack is dictated by the longest boards that will go in the stack. I generally limit the stack height to "nose height," because I've found it to be particularly tiring and time consuming to sticker lumber higher than my nose. If you have a large enough fork lift, you can make lifts of stickered lumber and build tall stacks by placing lifts on top of each other. This has the advantage of reducing the number of foundations and roofs needed as well as the size of the drying yard. If you do this, make sure the foundation is really stable (the higher the stack, the bigger the risks of a stack tipping) and that the stickers all line up from one lift to the next. If your stacks are more than two lifts tall, it's wise to use longer stickers and make wider stacks to increase stability.

The foundation – It's essential to have a good foundation. I t must be flat and not settle over time; otherwise you may introduce a twist to the lumber. Since I don't have a large forklift, I sticker my lumber where it will dry. After years of experimentation, I've settled on a double-stack system. This has two key advantages: The footprint on the ground is wide, which makes the stacks far more stable than a narrow foundation would; and by placing some 2-inch-thick planks on the cross-pieces between the stacks, I have a good platform to work on as the stack height increases. The volume in each finished stack depends on the length and thickness of the lumber; I average about 1,000 board feet of 4/4 lumber in my typical stack (2,000 board feet per double stack).

To minimize settling, I make the bottom of each support pier have a large surface area. In the past, I used wood, but I now use 2-foot x 2-foot x 4-inch concrete blocks to reduce rot problems. It's important to get the bottom course of lumber well off the ground so air can freely circulate under the stack. I place the piers so that they will be about 10 inches inside the long edge of the stacks and about 1/5 the length in from the ends. I use straight 4 x 6 or 6 x 6 timbers for the framework under the stacks. I make the two crosspieces 10-feet long, and the four long pieces the length of the stacks (the two stacks can be different lengths). I construct the foundation so there will be a slight slope parallel to the length of the stacks, which facilitates water drainage off the roof. For the bolsters under the sticker locations, I use 4 x 4-inch pieces that are 40-inches long, checking to be sure they are all exactly the same thickness. As a last step, I attach the 1-1/2-inch channel iron stickering guides using galvanized drywall screws and a level to be sure they are vertical.

The roof – A watertight roof over each stack is essential. The roof should extend far enough over the sides and ends of the stack to keep water from dripping off the roof and onto the lumber. If the roof leaks, some of the wood will be re-wetted every time it rains. This invites stain problems and makes it unlikely that the boards will be uniformly dry.

For years I used cheap roofs – sheets of plastic, plastic tarps, and used metal roofing. One day, while bemoaning how much lumber was stained when one of my roofs leaked, I realized that the lost value would have paid for a good roof many times over. I now use new metal roofing, and my leaky roof problems have disappeared. A side advantage is that the new sheets of roofing are much easier to handle than used roofing or plastic, which saves me time.

One further note about roofs: They need to be adequately tied down or weighted so that the wind won't blow them off.

Board thicknesses and lengths - Ideally, all the boards in a stack should be the same thickness, length and species (and the same width for lumber that is not random width). This is impractical, however, for small-scale drying, especially if you cut many different species, a range of thicknesses, and a range of log lengths (like me).

You can, however, take some compromise actions. For instance, I generally keep softwoods and hardwoods separated. When milling lumber for a building, I sticker the joists, studs, rafters, sheathing and siding

boards in different stacks. This minimizes lumber sorting when constructing the building. For hardwoods, I often mix species and usually put 4/4 and 5/4 boards in different stacks from 6/4 and thicker boards to account for the longer time it takes the thicker boards to dry. I also tend to make separate stacks for 8-foot, 10-foot and 12-foot boards.

Nonetheless, I often have boards of different thicknesses and lengths in any given stack. It's very important that every board in a course be the same thickness. If I don't have enough boards of some thickness to make a full course, I save them for the top of the stack. When I'm stickering boards of different lengths in a stack, I strive to have full-length boards on both edges of the stack, because stickers that aren't supported at their ends do a poor job of restraining boards from bending, cupping and twisting. If I don't have enough full-length boards, I use a strip of the wood that I cut for future stickers along the outside of the course so that the ends of every sticker will be supported.

Location and housekeeping - In most climates, it's best to sticker lumber in an open area where it will be exposed to the wind and warmth of the sun (during the day it's usually several degrees warmer and significantly less humid in a field than in adjoining woods). In a climate where drying too fast is a concern, a sheltered, shady location is preferable.

Vegetation around lumber stacks should be mowed regularly. Grass and weeds can quickly grow tall enough to limit the air circulation under the stacks and increase the humidity around the bottom of the stack. Despite my best intentions, I find that I sometimes don't keep up with the mowing. For this reason, I began experimenting last summer with using woven black plastic ground cover under my lumber stacks (the type of material used at garden centers to keep weeds from growing up around the plants out on display). This does a good job of controlling the weeds, and seems to make the microclimate around the stacks somewhat warmer and drier, which helps promote more rapid drying.

Kiln drying

In recent years, there's been a proliferation of kilns suitably sized for small-scale drying. Dry kilns enable you to dry lumber to lower moisture contents than air drying and/or dry lumber faster than air drying. Because moisture diffuses through wood more readily at higher temperatures, kilns generally operate of higher than room temperatures. The energy can come from a fire, (wood or a fossil fuel,) electricity or the sun. The kiln chamber is usually insulated to improve efficiency. Moisture is removed by venting and/or condensation, with the condensate going out a drain. In most kilns, air is circulated by fans to speed drying and make the drying rate more uniform throughout the kiln. One further advantage of dry kilning lumber is that the pitch in softwoods can be set (solidified) by high temperatures, with a temperature of at least 160 degrees Fahrenheit being desirable.

Four main types of kilns are available in the marketplace:

- Conventional – the air is heated and moisture is removed by venting.
- Solar – the sun provides the heat.
- Dehumidification – a refrigeration unit condenses moisture, which is drained from the chamber; once the kiln reaches operating temperature, waste heat from the compressor and fans keeps the chamber at the desired temperature.
- Vacuum – a partial vacuum lowers the boiling temperature of water to speed drying. Because air at low pressure does a poor job of heat transfer, another way to provide the heat required to evaporate the water is needed. Electric heating blankets have been used, but radio frequency (RF) heating – similar to a microwave oven – is more common.

How long does it take to kiln dry lumber? Drying speed is limited by either how fast the kiln can remove moisture, or by how fast moisture can be removed from the lumber under the conditions within the kiln without causing degradation problems. As a result, drying time depends on the species, thickness, temperature, target dryness and the technology used.

At one extreme, very high-temperature conventional kilns can dry nominal "2-by" softwood construction lumber to 19-percent moisture content in less than a day. At the other end of the drying spectrum, it can take a solar kiln more than 6 months to dry 4/4 hardwoods in winter in a northern clime. Kilns should be designed for the thickness and species that they will be used for. For hardwoods, it typically takes about 25 days to dry 4/4 lumber from green to 6 to 8 percent in conventional and dehumidification kilns; more time would be required in a solar kiln (and the process would be highly dependent upon the weather), and significantly less time would be required with a vacuum kiln.

Stickering lumber with the confines of a kiln chamber is more difficult and slower than out in the open, particularly as the kiln nears being full. Also, the kiln can't be used to dry lumber when it is being filled and emptied, so more lumber can be dried per year if the time between kiln cycles is minimized.

There are two ways to speed the emptying and refilling of the kiln chamber. One is to prepare stickered packages (stacks) of lumber that are moved in and out of the kiln with a forklift. The other is to use kiln carts – the lumber is stickered onto these carts, which are rolled into and out of the kiln on tracks. Kiln carts usually ride on 'V' grooved wheels that roll on inverted angle iron tracks.

My kiln is a dehumidification kiln with a nominal capacity of 2,500 board feet of 4/4 lumber. I use kiln carts and designed my kiln chamber with a door at each end. While a charge is in the kiln, I sticker the next load on a cart outside. My carts measure 12-feet long x 7-feet wide, with removable channel iron stickering guides in the center. I sticker from both sides of the cart, allowing for two stacks each 40 inches wide. I place a layer of metal roofing material over the cart and the charge starts to air dry, which reduces the time needed in the kiln, depending on the weather and length of time.

When a charge has finished drying, I roll the cart into my shop and roll the next cart into the kiln. The kiln carts are heavy (more than 6 tons when loaded with green hardwood), so I use a hand winch to move them. It takes less than an hour to empty the kiln, reload it and begin the next drying cycle.

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Nebraska Forestry Industry Spotlight

HIDDEN VALLEY SAWMILL

For seven years Evart Barton has been operating a portable sawmill south of Pauline, Nebraska. It was not until he had some milling of his own done did he become interested in this as a business. Evart admits that when he purchased his first mill, a used Woodmiser LT 30, he wondered what he was getting into. He adds, "I had a customer the very first weekend after I bought the mill and have been busy ever since."

Known as Hidden Valley Sawmill, Evart does mostly custom work which includes the sawing of cedar trees for rough lumber, cottonwood for pallets, and power poles and railroad beams for decking and trailer floors. Other species for furniture and dimension lumber would include oak, ash, and occasionally cherry. One of the most unusual species that he has run though his mill is Teak that a customer purchased at auction. Over time Evart has made a display of "finished' wood samples to show people what the different species can look like in the furniture market.

Evart Barton with his portable sawmill.

Currently, Evart has a Woodmiser LT 40 that he purchased new about three and one-half years ago. The portable mill has a 25 horse power engine with "Computer Set Works". The "Computer Set Works" allows him to more quickly set up his mill to cut dimension lumber without having to "eyeball" his next cut when he moves the carriage. This makes it much easier to be consistent and faster he points out.

Having retired four years ago after 30 years as a Machine Tool Technology Department Instructor at the Central Community College in Hastings, Evart has taken the time to share his new found passion with others. He has often demonstrated his mill at the Old Trusty Days at Clay Center, NE, the Blue Hill Public School, and the Central Community College in Hastings, NE. He indicates that it is good for people to become aware of the types of lumber and wood products we can get from our Nebraska species.

Hidden Valley Sawmill can be contacted by phone at 402-756-2332. Address is 2125 Road AA, Blue Hill, NE, 68930.

Coming Events

Lakes States Lumber Association (LSLA) Workshops. University of Wisconsin Stevens Point Wood Lab. Contact: LSLA at phone: 906-774-6767; Website: www.lakestateslumber.com.

June 6	**Sawmill or Dry Kiln Startup and Expansion — Could It Be Profitable?**
June 7	**Is It Profitable to Saw This Log?** and **Identifying and Correcting Problems in Your Sawmill to Increase Profitability**
July 11	**Wood Fueled Boiler — Could It Save You Money?**
July 25	**Lean Manufacturing Workshop**

July 30-Aug. 2 **Walnut Council Annual Conference.** Nebraska City, NE. Cost: $135-$160. Contact: Steve Karloff at 402-472-3645, email: skarloff1@unl.edu.

Aug. 14-17 **Annual Kiln Drying Short Course.** St. Paul, MN. Cost: $395. Contact: Harlan Petersen at 612-624-3407, email: harlan@umn.edu, www.cnr.umn.edu/bp/extension/shortcourses/kdsc.php.

Nov. 18 **Central Region Woodland Stewardship Conference.** Nebraska City, NE. Cost: $41. Contact: Dennis Adams at 402-472-5822, email: dadams2@unl.edu.

The Trading Post

The Trading Post is provided as a free marketing service for forestry industry. Only forestry-related advertisements will be accepted. Please submit written ads to the *Timber Talk* editor at least 15 days before scheduled *Timber Talk* publication dates. Ads may be edited to meet space constraints.

For Sale

Hedge Corner Posts. Some hedge logs for hobby lumber. Contact: Joe Straube, Tecumseh, NE. (402) 335-2400.

Electric Bandsaw Mills. One M-324 ($1200) and one M-267 ($2195). Contact: 4M Lumber, Ravenna, NE. Phone: 308-452-4032; e-mail: fourm57@Charter.net

Wanted

Logs. Cottonwood, cedar and pine. 4" to 30" diameter, 90"-96" lengths. Below saw grade logs acceptable. Contact: American Wood Fibers, Clarks, NE at (800) 967-4789; email: mvanskike@AWF.com

Circle Mill. Older handset, 3 headblocks with movable center headblock. Contact: Ron Howland, Box 296, Jewell, KS 66949. Phone: (785) 428-3327.

Services and Miscellaneous

Sawmill Service and Supplies. Saw hammering and welding. Precision knife and saw grinding. Certified Stihl chainsaw sales and service. Contact: Tim Schram, Schram Saw and Machine, PO Box 718, 204 E. 3rd St., Ponca, NE 68770, (402) 755-4294.

Used Portable Sawmills. Buy/Sell. Contact: Sawmill Exchange (800) 459-2148, (205) 661-9821.

Equipment Reconditioni & Repair. Montgomery hog teeth, anvils & rings. Zeno grinding machine cutters. Hydraulic repair, pumps, cylinders and hose. Contact: G & G Repair, 2525 Westbrook, Magnolia, OH 44643. Phone: (330) 866-9764. Email: hgg94007@aol.com. Website: www.GGRepair.com.

Small Scale Drying (continued from page 5)

Some other tips on kilns:

- Monitoring the kiln: Dry kilns need to be regularly monitored, to ensure everything is working as it should, and that the conditions within the chamber are appropriate for that point in the drying cycle. The moisture content of the lumber needs to be regularly checked as well. I check my kiln twice daily, which usually takes less than 15 minutes.
- Air dry first: by air drying lumber first, each charge will take less time in the kiln, and more lumber can be kiln dried in a year. But there are disadvantages to doing this: The lumber has to be handled more, which entails more labor; and air drying does not give as good control of drying conditions, which can lead to more degrade. With an adequately sized forklift, lumber can be stickered into suitably sized packages for the dry kiln and air dried, and then moved fairly economically into the kiln. For an operation such as mine, air-dried lumber has to be un-stickered board by board and then restickered onto the kiln carts, which is very labor intensive.
- Costs: Kiln manufacturers talk a lot about energy costs because it takes a lot of energy to dry wood. It's easy, however, to neglect the other costs that come along with kilns: the capital costs of the kiln, the kiln chamber, and any related equipment (such as fork lifts or kiln carts); the maintenance costs and time; and the labor costs of loading, unloading and monitoring the kiln. On a per-board-foot basis, these other costs go up dramatically as kiln size decreases. For drying 4/4 hardwoods form green to 6 to 8 percent moisture content with my kiln, I estimate my costs on a per-board-foot basis to be: $0.05 for electricity, $0.10 for capital costs, $0.04 for maintenance and $0.20 for labor. This gives me a total estimated cost of $0.40 per board foot. When I custom dry, I charge $0.50 per board foot, to allow for the time I spend with the customer and to provide some profit.

Attention to detail

Drying lumber makes it suitable for more uses and more valuable. Once dry, lumber can be stored indefinitely as long as it is kept in a dry location. Whether air drying or kiln drying, it is the attention to details that determines how good a job is done.

(Source: Article written by Irwin Post for *Independent Sawmill & Woodlot Management* magazine, June/July 2002. For more information or to subscribe to IS&WN call 1-888-762-8476 or website: www.sawmillmag.com)

New District Foresters (continued from page 1)

Forestry Assistant in North Platte. Rachel can be contacted at: UNL West Central Research & Extension Center, 461 Washington Drive, North Platte, NE 69101-7756. Phone: 308-696-6718. Email: rallison1@unl.edu.

Rich is a Nebraska native; born and raised on a farm near Minden. Rich received botoh a BS and MS degree in Forestry from the University of Idaho. Rich was the Assistant Nursery Manager at the Champion Company Nursery in Montana for 6 years and most recently the District Forester Assistant in Ord until assuming his new position as North Central District Forester. Rich can be contacted at: Lower Loup NRD, PUB 210, Ord, NE 68862-0210. Phone: 308-723-3221. Email: rwoollen1@unl.edu.

Timber Sales

The following listings are for stands of timber or logs being offered for sale by owners or persons of delegated authority. Timber was cruised and/or marked for harvest by Nebraska Forest Service or other professional foresters. Volumes in board feet (Doyle scale unless otherwise indicated) are estimates by the forester. If no volume is listed, the trees or logs were not appraised or marked by a forester and the listing is included only as a marketing service to the owner. Listings are prepared according to information at the time of publication.

Item	Forester/Date	Contact
1. **Black Walnut** (31 trees) 2595 bf Veneer 3 - 270 bf Lumber 1 - 200 bf Lumber 2 - 705 bf Lumber 3 - 1,420 bf	Steve Rasmussen 4/06	Marlin Tusha 305 Calumet Circle Yankton, SD 57078 Ph: (605) 668-0430 (Home) (402) 394-1010 (Cell) Location: Knox County
2. **Black Walnut** (29 trees) 4,751 bf Lumber 1 - 1,294 bf Lumber 2 - 1,681 bf Lumber 3 - 1,776 bf	Karloff 3/06	Gary Berhold P.O. Box 294 Nebraska City, NE 68410 Ph: (816) 741-1909 Location: Otoe County
3. **Black Walnut** (7 trees) 1,359 bf Lumber 1 - 634 bf Lumber 2 - 346 bf Lumber 3 - 379 bf	Karloff 3/06	Randy Vaupel 1731 Brookhaven Drive Lincoln, NE 68506 Ph: (402) 467-1890 Location: Saline County
4. **Black Walnut** (65 trees) 11,906 bf Veneer 3 - 826 bf Lumber 1 - 3,531 bf Lumber 2 - 4,602 bf Lumber 3 - 2,947 bf	Karloff 4/06	Ron Fleck 1819 No. 159th Street Omaha, NE 68118 Ph: (402) 306-2962 Location: Saline County
5. Black Walnut (9 trees) 1,807 bf Tract 1 Veneer 3 - 272 bf Lumber 1 - 536 bf Lumber 2 - 563 bf Lumber 3 - 436 bf Black Walnut (20 trees) 3,730 bf Trace 2 Lumber 1 - 1,191 bf Lumber 2 - 1,834 bf Lumber 3 - 705 bf	4/06	Karloff Vern Heskett 64462 - 727 Road Brownville, NE 68321 Ph: (402) 274-5808 Location: Nemaha County

You know you're from Nebraska if....

Your idea of a traffic jam is ten cars waiting to pass a tractor on the highway.