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Editor: Adam Smith
Graphic/Layout: Susan Helmink

The Nebraska Forest Service publishes **Timber Talk** four times annually (Feb. 1, June 1, Sept. 1 and Nov. 1) to serve the forest industry of Nebraska. All questions and correspondence concerning **Timber Talk** should be directed to:

Adam Smith, **Timber Talk** Editor, Nebraska Forest Service, University of Nebraska, 201B Forestry Hall, P.O. Box 830815, Lincoln, NE 68583-0815. Phone 402-472-1276, FAX 402-472-2964.

Email: asmith11@unl.edu
Website: <http://www.nfs.unl.edu>

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Lumber Market

Northern. The Lake States Lumber Association convened last week for its 2015 Winter Meeting. Among the presentations were updates on US Fish and Wildlife Service proposals for a threatened or endangered status for the northern long eared bat. Depending on the final ruling, the potential impacts on logging could range from as little as a couple of weeks in specific locations to as much as several months in adjoining areas covering 38 states. LSLA is working with other associations and groups to protect common interests of the industry. The charge in Washington, D.C. is spearheaded by the Hardwood Federation.



Appalachian. Most sawmill operators entered winter with better than normal log decks. Yards and secondary manufacturers also have adequate to ample supplies of lumber. It took time, but the hardwood supply stream filled. In fact, production surpassed consumption in 2014. Now, the industry is contending with soft to declining prices for several key species. Stronger U.S. housing markets and international business have the potential to absorb lumber inventories and ease negative price pressures, though it is too early in the year to tell much about either. Information shows little change in sawmill output. To this point, sales operations are shipping developing supplies. Cutbacks in production will not occur until buyers are unable to purchase total output or mills are unable to obtain a reasonable return on timber or log investments.

Southern. Information shows log decks are adequate, especially for January. Most domestic yards and secondary manufacturers have more than enough lumber to meet current demand. And, international markets have seasonally slowed. There is not a great deal of energy in hardwood business at this time. However, most contacts expect activity to pick up in the coming months. Projections are for stronger US single family home sales in 2015. Furthermore, sales operations have orders in hand for shipments to China. For most key Southern species, green lumber pricing is stable. There are exceptions; ash and cottonwood prices are firm to higher. Similar circumstances are noted for kiln dried stocks. Red oak prices have settled for many grades and thicknesses, while Ash and Cottonwood numbers are trending higher.

(Source: Condensed from Hardwood Market Report, January 23, 2015. For more information or to subscribe to Hardwood Market Report, call 901-767-9216. Email: hmr@hmr.com, website: www.hmr.com)

Hardwood Lumber Price Trends—Green

Species	FAS				#1C				#2A			
	12/14	9/14	6/14	3/14	12/14	9/14	6/14	3/14	12/14	9/14	6/14	3/14
Ash	1100	1075	1075	890	710	710	710	600	475	475	475	415
Basswood	885	885	895	865	565	565	575	545	310	310	320	285
Cottonwood	705	685	685	685	500	480	480	480	260	260	260	250
Cherry	1355	1355	1355	1295	955	955	955	850	620	620	620	530
Elm	650	650	650	635	420	420	420	420	300	300	300	280
Hackberry	530	530	530	475	480	480	480	455	305	305	305	285
Hickory	1000	1000	1000	920	835	835	835	775	615	615	615	570
Soft Maple	1295	1295	1320	1320	845	880	880	880	550	565	565	565
Red Oak	1200	1275	1430	1465	885	940	1045	1000	750	770	780	765
White Oak	1430	1430	1430	1345	900	900	900	850	685	700	700	645
Walnut	3040	2990	2840	2545	1645	1645	1550	1325	1035	1015	990	820

Note: Lumber prices quoted in dollars per MBF, average market prices FOB mill, truckload and greater quantities, 4/4, rough, green, random widths and lengths graded in accordance with NHLA rules. Prices for ash, basswood, northern soft grey elm, unselected 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; website: www.hmr.com.)

Hardwood Lumber Price Trends—Kiln Dried

Species	FAS				#1C				#2A			
	12/14	9/14	6/14	3/14	12/14	9/14	6/14	3/14	12/14	9/14	6/14	3/14
Ash	1570	1515	1515	1365	1075	1060	1060	910	785	770	770	740
Basswood	1190	1170	1170	1170	785	765	765	765	495	480	480	480
Cottonwood	900	855	855	855	660	625	625	625	—	—	—	—
Cherry	2145	1905	1905	1840	1515	1370	1370	1245	1010	920	920	835
Elm	—	—	—	—	—	—	—	—	—	—	—	—
Hackberry	—	—	—	—	—	—	—	—	—	—	—	—
Hickory	1575	1575	1575	1475	1335	1335	1335	1250	1105	1105	1105	1035
Soft Maple	1755	1780	1780	1780	1140	1155	1155	1155	835	835	835	835
Red Oak	1715	1765	2005	1975	1350	1465	1560	1470	1080	1180	1255	1200
White Oak	2040	2040	2040	1850	1500	1520	1520	1365	1180	1200	1200	1125
Walnut	4250	4090	3795	3490	2320	2300	2185	1965	1595	1520	1345	1160

Note: Kiln dried prices in dollars per MBF, FOB mill, is an estimate of predominant prices for 4/4 lumber measured after kiln drying. Prices for cottonwood and hackberry from Southern Hardwoods listings. Prices for ash, basswood, northern soft grey elm, unselected soft maple, red oak, and white oak from Northern Hardwood 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 901-67-9126; email: hmr@hmr.com; website: www.hmr.com.)

Innovation Treats Firewood for Safe Transport

The rising cost of energy for heat has resulted in a dramatic increase in demand for firewood to fuel fireplace inserts, wood-burning stoves, and outdoor boilers, according to the National Firewood Association. The increased demand, however, raises concerns about transporting firewood unknowingly infested with invasive insects.

Two Virginia Tech researchers have developed a new method for treating wood that addresses these concerns while saving time, energy and resources.

Invasive insects have had a devastating effect on trees in various parts of the country. Those insects that bore deeply into trees are especially troublesome to detect and are often inadvertently transported to uninfested areas.

For example, the emerald ash borer, first detected in Detroit in 2002, has destroyed tens of millions of ash trees, prompting regulations on the transport of ash logs and the establishment of quarantine zones.

Current Methods

The currently available methods for treating wood to kill invasive pests use either chemicals or extreme heat. However, Research Scientist Zhangjing Chen and Professor Marshall White have introduced a vacuum-contained steam method as an efficient way to treat firewood and other wood products.

Their method was tested with firewood from ash infested with emerald ash borer in Cacapon Resort State Park in West Virginia and proved successful at killing all of the insect's life stages in the wood. The pest destroyed all of the ash trees at Cacapon within only two years; the only ash remaining in the park is firewood.

The vacuum and steam method took less than half the time and 25 percent less energy than the 140-degree, 60-minute heat treatment required by the U.S. Department of Agriculture before wood can be moved off site.

"Steam carries a large amount of heat, and condensation releases the energy to heat up logs faster," said Chen. "In addition to saving time and energy, two major advantages of the steam and vacuum treatment are it doesn't require chemicals and it can be portable."

The chemical used to fumigate wood is methyl bromide. Use of this ozone-depleting material is severely restricted but is currently permitted for the quarantine and pretreatment of logs.

However, even methyl bromide may not penetrate to the center of logs, where other wood-boring pests like Asian long-horned beetle larvae and pinewood nematodes live, "and conventional heat treatment takes a long time to heat the core to a killing temperature,"

said Chen. "But the vacuum and steam treatment can raise the core temperature of even large-diameter logs in a relatively short time."

Portable Technology

The system Chen and White designed consists of a vacuum pump, control unit, flexible vacuum container, and steam generator. The wood to be treated is encased in a bladder tank, which looks like a large plastic bag with a zipper. This portable technology can be used by small business operators to treat firewood, pallets and other products.

"Several thousand dollars investment and you are ready to go, whether you are treating firewood or pallets," Chen said. Mother Earth Farms in Millersburg, Ohio, is working with Chen and White to build several units intended to treat firewood and other forest products.

Large bladder tanks can be carried and used in the back of a pickup truck for small loads of firewood, but large logs must be treated in large, rigid chambers, typically found at a research or production facility.

However, in addition to funding more research with firewood, Chen and White are using U.S. Department of Agriculture Animal and Plant Health Inspection Service funding to develop a pilot-scale rigid unit that fits in a truck trailer so that treatment of logs and large amounts of firewood can take place on site.

Further Research

The two researchers first tested a vacuum and steam treatment to control insects, fungi and mold in wood used for pallets in 2006. Further research has proven successful with large logs, such as veneer logs for export, without loss of quality, and for other wood products and packing materials.

Chen is also working in partnership with Chinese colleagues on treatments to kill Asian long-horned beetles in willow wood. He has been named a professor at Northwest Agriculture and Forestry University in China and is currently hosting a visiting scholar from Inner Mongolian Agriculture University who is collaborating on modeling heat and mass transfer during vacuum and steam treatment.

"The goal is to develop technology to address urgent issues on a global scale, to eliminate pathways for the transport of insect and disease pests," said Chen.

Source: National Woodlands magazine, Autumn 2014, Article by Lynn Davis. For more information or to subscribe to National Woodlands, call 703-255-2700 . Website: <http://woodlandowners.org/>

Tax Tips for Forest Landowners for the 2014 Tax Year

Timber transactions occupy a very specialized area of tax law not commonly known among tax professionals. Yet they are important to timber owners in terms of the ongoing cost of owning and managing timber, forest stewardship and compliance to the tax law. This article reviews the major federal income tax laws to help forest owners in filing their 2014 income tax returns. The information presented here is current as of Sept. 30, 2014.

Timber Property

There are three basic types of timber ownerships: investment, business or personal-use property. The tax rules vary considerably with each classification. For each tax year, you must determine your woodland property's tax classification based on your purpose of ownership, your use of and activities on the property.

Timber property held for an income-producing purpose may be an investment, but it may rise to the status of a business if you regularly and continuously engage in the timber activity to make a profit. Legal entities such as LLC, sole proprietor, partnership, or corporation (S or C corporations), state and trust may own the property. It is a good practice to document your profit motive in a written forest management plan. You must materially participate in a business in order to avoid the restrictions on loss deductions (passive loss rules).

If your primary purpose of owning the property is personal use (vs. profit making), the property is personal use property, which is subject to limitations on deductions.

Example 1: A woodland owner grows timber for profit and documents the income production in her forest management plan. She claims the property as investment property and deducts qualified expenses on Schedule A (subject to 2 percent adjusted gross income limitation). As a contrast, expenses are fully deductible for materially participating business owners.

Timber Basis and Depletion

Timber basis may be deducted from timber sales, which reduces the tax due on the sales. If you purchased the timber property, the timber basis is the amount you paid for it. If you inherited the property, the basis of timber is its fair market value (FMV) on the decedent's date of death. If you receive the timber as a gift, the timber basis is the lower of its FMV or the donor's basis.

Example 2: You inherited forest land on June 1, 2010. Your consulting forester gives you a professional estimate on the fair market value of the timber on June 1, 2010. The timber was valued to be \$32,000 (\$27,000 pine sawtimber, \$3,000 pine pulpwood, and \$2,000 hardwood pulpwood), which is your timber basis.

If you didn't establish the basis at the time of acquisition, a consulting forester can determine it retroactively, but you should weigh the cost of doing so against the potential tax

savings. Dividing your timber basis by the total volume of timber gives you the depletion unit, multiplying it by the units of timber sold gives you the depletion amount.

Example 3: You sold 300 MBF of sawtimber, out of a total of 1,000 MBF on your property, for \$250 per MBF. The total basis of your 1,000 MBF of sawtimber was \$40,000. The depletion unit is therefore \$40 (\$40,000 / 1,000 MBF) and the depletion is \$12,000 (\$40/MBF x 300 MBF). You can deduct \$12,000 from your sale proceeds \$75,000 (\$250 / MBF x 300 MBF).

Sale of Standing Timber

Sale of investment timber "on the stump" generally is taxed as a capital gain. If you hold the investment timber for more than one year before the sale, the sale qualifies for long-term capital gain, which is taxed at advantageous lower tax rates than ordinary income. Sale of inherited timber is considered long-term. Report the sale of standing timber held as an investment on Form 8949 and Schedule D.

To be eligible for long-term capital gains (Sec. 1231 gains) for sale of timber held in business, you must own the timber for more than one year in the business. Both outright sales and pay-as-cut sales of standing timber by a timber business qualify after the timber has been held for more than one year.

Report the sale of standing timber held for business use on Form 4797 and Schedule D. If you sell timber outright in a business, you also are required to file Form T unless you only have an occasional timber sale (see below).

Example 4: You sold your standing timber that you inherited for \$9,000. The timber is an investment property for you. You paid \$1,900 in hiring a consulting forester and legal fee (writing the sale contract). Assuming a depletion deduction of \$1,330, your net long-term capital gain is \$5,770 (\$9,000 - \$1,900 - \$1,330).

Sale of products cut from timber held for use in a business. If you cut your own timber or have it cut by a contractor working at your direction, either for sale or for use in your business, the gains are ordinary income unless you elect to use sec. 631 (a) on Form T, Part II.

Example 5: You paid a contractor \$2,000 to cut standing timber held for business use for over one year into logs and sold the cut logs to a mill for \$30,000. The FMV of the standing timber was \$23,000 on Jan. 1 and your basis in it was \$1,000. If you elect to use sec. 631(a) on Form T, report a \$22,000 long-term capital gain (\$23,000 - \$1,000) on Form 4797 and Schedule D, and \$5,000 of ordinary income (\$30,000 - \$23,000 - \$2,000) on Schedule C. If you fail to make the election, all \$27,000 is ordinary income.

On top of the capital gain tax, for taxpayers meeting income threshold, an additional 3.8 percent tax on net

investment income applies to investment timber sales and passive business timber sales, effective Jan. 1, 2013. This 3.8 percent tax, enacted as part of the 2010 healthcare reform law, applies only to single taxpayers with adjusted gross income ("AGI") over \$200,000 or couples with over \$250,000 AGI.

Example 6: You sold your investment timber for a gain of \$30,000. Your adjusted gross income is \$230,000 and you file as single taxpayer. Because your income is above the \$200,000 individual threshold, the \$30,000 capital gains are subject to the 3.8 percent tax, in addition to the long-term capital gain tax.

Installment Sales

An installment sale involves receiving one or more payments after the year of sale, allowing you to defer tax by spreading your gain over two or more years. Interest is charged on deferred payments.

Example 7: You sold timber for \$10,000 (\$8,000 after deducting timber depletion and sale expenses) in 2013. The buyer paid you \$5,000 in 2013 and will pay the remaining \$5,000, plus interest, in 2014. Your gross profit percentage is 80 percent ($\$8,000 \div \$10,000$). Report a \$4,000 gain for 2013 ($\$5,000 \times 80$ percent), using Form 6252.

Timber Management Expenses

If you hold your forest land to grow timber for profit, you can deduct ordinary and necessary timber management expenses, such as the cost to protect the timber from insects, disease or fire, control brush, do a precommercial thinning or mid-rotation fertilization, or maintain firebreaks. If you qualify as an investor, deduct these expenses on Schedule A, where they are subject to a 2 percent of adjusted gross income reduction; if you qualify as a material participant in a business, deduct them on Schedule C.

Reforestation Costs

All taxpayers except trusts may deduct up to \$10,000 (\$5,000 for married couples filing separately) per year of reforestation costs per qualified timber property (QTP). Qualifying costs include the direct costs to establish or reestablish a stand of timber by planting, seeding, or natural regeneration.

Any amount over \$10,000 per year per QTP may be deducted over 84 months (amortized).

Example 8: You spent \$17,000 to reforest after a harvest. Deduct \$10,000, plus 1/14th of the remaining \$7,000 (\$500) on your 2014 tax return. Deduct 1/7th of the \$7,000 (\$1,000) on your returns for 2015-2020 and the last 1/14th (\$500) on your 2021 return. If you qualify as an investor, take the \$10,000 deduction as an adjustment to gross income on the front of Form 1040; if you hold your forest land for business use, take it on Schedule C. Elect to amortize and take amortization deductions on Form 4562, Part VI.

Depreciation, and Sec.179 Expensing

You may depreciate capital expenditures, such as for

logging equipment, bridges, culverts, fences, temporary roads, or the surfaces of permanent roads over a set number of years. For example light-duty trucks and logging equipment are depreciated over five years. If you hold your forest land for business use, you may expense up to \$25,000 in qualifying property (generally tangible personal property) in 2014, subject to a \$200,000 phase-out and business taxable income limitation (sec. 179 expensing).

Cost-Share Payments on Form 1099-G

If you receive a cost-share payment from a qualified government program, you may exclude part or all of the payment from your income if the cost share is used in capital expenditure. Qualified federal programs include the Forest Health Protection Program (for southern pine beetle and mountain pine beetle), Conservation Reserve Program, Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, and Wetlands Reserve Program (discontinued Feb. 7, 2014). Several state programs also qualify for exclusion.

The excludable amount is the present value of the greater of \$2.50 per acre or 10 percent of the average annual income from the affected acres over the last three years. You cannot exclude part or all of a cost-share payment from your income and also claim a deduction for the expense reimbursed by the payment.

Example 9: You received a \$3,900 cost-share payment from the Conservation Reserve Program and used it as capital expenditure for your 100-acre woodland. If you had no income from the property in the last three years, you could exclude up to \$4,725 ($(\$2.50 \times 100 \text{ acres}) + 5.29 \text{ percent}$). The interest rate is from the Farm Credit System Bank. If you had \$6,600 of income from the property, you could exclude the entire payment: $(10 \text{ percent} \times (\$6,600 + 3)) + 5.29 \text{ percent} = \$4,158 > \$4,000$. Attach a statement to your tax return describing the program and your calculations.

Timber Casualty and Theft Losses

Loss of timber from a casualty—a sudden, unexpected, and unusual event such as a fire or severe storm—may be deductible from your taxes. The deduction is the lesser of the decrease in FMV caused by the casualty or your basis in the timber block (the area you use to keep track of your basis).

Similarly, a theft loss deduction is limited to the lesser of the decrease in FMV or your basis in the stolen timber. A competent appraisal usually is required.

Filing Form T (Timber)

You must file Form T (Timber), Forest Activities Schedule, if you claim a timber depletion deduction, sell cut products in a business (under sec. 631 (a)), or sell outright timber held for business use. There is an exception for owners who only have an occasional timber sale, defined as one or two sales every three or four years.

Source: National Woodlands magazine, Autumn 2014. Article by Linda Wang, U.S. Forest Service national timber tax specialist. She is the author and coauthor of numerous articles on the subject. For more information, visit the National Timber Tax. Website, www.timbertax.org.

Nebraska Forest Industry Spotlight



GAIA-ECO SERVICES, LLC



Gaia-Eco Services, LLC was founded by Wade Anderson and his wife Eloisa Oporto-Leiva of Chadron, Nebraska in early 2014. Their company specializes in providing two services; rangeland vegetation surveys throughout Nebraska and contracted forest thinning (fall, winter, spring) in the Nebraska's Pine Ridge.

To complement their thinning operation, they conduct winter time burning of slash piles for forest landowners utilizing a machine (skidder) for pushing followed with hand mop up. Apart from the LLC, they custom graze yearling cattle during the growing season. Their latest business endeavor is beekeeping where they hope to market natural wildflower honey.

Wade and Eloisa started off by having thinning done by another contractor, along with themselves, on their own property. They knew that the forest was not in good shape due to what was growing (or not) under the forest canopy. They surmised that sunlight needed to reach the forest floor so ground vegetation would flourish and the key to the puzzle was forest thinning.

In addition, they decided that waiting around for nature to take its course with wildfire was risky. Since then, the Anderson's began taking on thinning projects for other landowners and taking opportunities to learn from other contractors and Nebraska Forest Service foresters. Presently, they are working on a Nebraska Game and Parks Commission thinning project to enhance wildlife habitat north of Harrison, Nebraska. Also, they are conducting a fuel break project on private land, whereby black/dead trees caused by the 2012 wildfires are removed to reduce fuel around the green/living trees for containment of future wildfires.

Their company does not have large equipment or a lot of labor workforce, which lends itself well for small scale projects. They hand fell trees and utilize a skidder or skidsteer to remove and pile them. Due to their small equipment and hand work, soil disturbance is minimal and in a few years it's hard



Gaia-Eco Services uses machinery and manual labor to move and stack wood material.

to notice any machinery was present. Though unavoidable, they believe the less soil disturbance the better as it reduces rutting, soil erosion, and helps prevent cheatgrass and weeds from invading.

For Wade and Eloisa, it's not just about cutting down trees for fire protection and timber production. Their business plan is to provide a viable land management tool for sustaining the forest landscape, including all the creatures that call the forest home. There is something new to learn every day from the land if you just look and listen. They both hope to continue learning and doing good projects for folks in the Pine Ridge.

Gaia-Eco Services, LLC, can be contacted at: Attn.: Wade Anderson/Eloisa Oporto-Leiva, 703 Mears St., Chadron, NE 69337. Phone: 308-665-5445. Email: wadeanderson65@gmail.com or eloblue21@gmail.com

Little Known Nebraska Facts

The first permanent railroad bridge in Nebraska was built on the Missouri River in 1873.

Utilization of Small-Diameter Material

A classic example of the desire for low-cost material is demonstrated by the many articles in woodworking magazines and videos on YouTube that show how to use a shop-sized band saw to cut lumber out of firewood. The material processed is small diameter, as it must be small enough to fit between the blade and the throat of the saw. This sounds like a great way to get free or low-cost wood! What about processing small-diameter wood on a portable sawmill? Small-diameter wood can be obtained at low cost, often for pulp wood prices or less. However, are there issues associated with processing this small-diameter wood and why don't more people produce material from small-diameter logs? Let's start by defining what small diameter means. Logs with a small end diameter 3 to 8 to 10 inches are typically considered small diameter. The upper limit is often related to the species, products produced and processing equipment. This material is commonly used for firewood, pulpwood and engineered wood products (OSB, oriented strand board, for example). Small-diameter material is available throughout the United States. It is often produced when thinning stands or when clearing land. In the western part of the U.S. there is an abundance of small diameter material due to the need to reduce fuel buildup. There is so much material that mechanical thinning is often required prior to prescribed burns. The Forest Service estimates that approximately 56 million acres of national forests need some kind of fuel reduction.

Wood Quality

So with an abundance of small diameter material, why aren't more folks using it to produce lumber? Small-diameter wood is typically associated with poor quality. Much of the volume of wood is composed of juvenile wood, which has lower strength properties and shrinks more in length than normal wood. Juvenile wood tends to machine with poor quality and the increased longitudinal shrinkage during drying means that the lumber will have more potential to warp. Juvenile wood is produced when the tree is young and is growing vigorously. Over time, the tree begins to produce what we consider "normal" or mature wood with the characteristics we are used to. Hence larger diameter material, while it has juvenile wood in the center, has a larger volume of normal or mature wood. This is one reason why cants are often sawn out of larger-diameter logs-to confine the low-grade core that contains juvenile wood.

Lumber produced from small diameter trees is more prone to cup, since the difference in the radial and tangential planes of reference will be drastically different from the top of the piece versus the bottom. Notice the difference in the radius of the growth rings and the differences in the top and bottom surface of each board. The board from the larger-diameter tree has less of a difference in growth ring angle from the top and bottom surfaces. These differences in radius lead to differences in the amount of material that is tangential and that which is radial. For most species,

material produced from the tangential surface shrinks about twice as much as that produced radially. Hence a board with more tangential material on one face will cup in the direction with the most tangential material, i.e., the surface facing the bark.

Small-diameter lumber will also be more prone to bow and crook, as juvenile wood shrinks more in length (about 10 percent more) than "normal" or mature wood. If the juvenile wood is contained on one edge with mature wood on the opposite edge, the board will crook or shrink more in length along one edge. If the board contains juvenile wood on one surface, the board will tend to bow or curl upward as it dries.

Lumber produced from small diameter material will typically result in lower-grade lumber than larger-diameter material. More of the lumber produced will have the pith, which is limited in many lumber grades. The pith is the center of the stem. Small-diameter material will also contain more knots, which will limit the clear area in lumber and also reduce the grade. The amount of heartwood is typically less per volume than larger diameter logs, since heartwood tends to form later in the tree's growth. On average, heartwood starts to form at 14 to 18 years of growth.

Small-Diameter Wood All Bad?

As with most rules for wood, there are exceptions to the comments above. For example, it is possible that some small-diameter material is actually very old and has lots of growth rings per inch. This would be an example of material that has suppressed growth, i.e., was small in diameter not due to age but due to growth suppression from other trees. Such material may have better wood quality than typical small diameter wood (fast growth and young age). Suppressed trees will have smaller areas of juvenile wood and many more growth rings per inch. Studies conducted by the Forest Service show that suppressed-growth Douglas fir with small diameter can have a large number of growth rings per inch and small tight knots, producing quality structural lumber.

Also, some small-diameter plantation wood grown in the tropics can have large amounts of heart wood at an early age. For teak, only the heartwood is desired in final products. The material shown is less than 10 inches in diameter and it contains large amounts of heartwood. This material was exported to India and used to make engineered wood flooring!

While there are several quality issues associated with processing small-diameter material into lumber, there are other products for which the lower wood quality does not have much of a negative impact. For example, products that use the material in round form: round wood structural members in buildings, structural posts, fence posts, and round wood furniture. Since the juvenile wood is contained uniformly within the piece (not on one edge or one

(continued on page 8)

The Trading Post

The *Trading Post* is provided as a free marketing service for forestry industry. Only forestry-related advertisements will be accepted with the exception of products manufactured in the normal course of your business. 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

Sawmill. Mighty Mite band sawmill. 20 horse electric motor, tandem axles with brakes on one axle, 36" x 24' log capacity, (I have cut 46" beams) hydraulic operation includes winch, knees, taper, near arm, dogging arms, far arm, dogging spike, log loading arms, and electric clutch and blade lift. Also includes automatic blade sharpener, setting machine, 12 used blades and four new blades. Excellent condition. Never been used commercially. \$17,500. Contact: Gary Fisher, Crawford, NE. Phone: 308-665-1580. Email: fisher@bbcbw.net.

Tree Shear. 14" Dymax Model 2135D1, Double grapple. Used very little. Excellent condition. Fits universal skid loader mounts. \$4,000. Contact: Gary Fisher, Crawford, NE. Phone: 308-665-1580. Email: fisher@bbcbw.net.

Walnut Lumber. All dimensions. \$3.00 per board foot. Falls City, NE. Contact: Bruce Walker at 402-245-2031.

Nyle Model L500 Dry Kiln. Single phase 100 amp, 230 volt, 12,000 bd/ft hardwood or 4,000 bd/ft softwood. Very energy efficient, approximately 3 cents/bd ft to produce. \$13,500. New kiln is \$20,000. Contact: David Champlin. Phone: 785-275-2181.

Wanted

Logs and Slabwood. Cottonwood, cedar and pine. 4" to 26" diameter and 90"-100" lengths. Below saw grade logs acceptable. Contact: American Wood Fibers, Clarks, NE at 800-662-5459; or Email: Pat Krish at pkrish@AWF.com

Cottonwood Logs. Veneer-quality cottonwood logs, 16" to 36" diameter, 7' and longer. Pick up service available. Contact: Barcel Mill & Lumber, Bellwood, NE 68624. Ask for Barton or Megan. Phone: 800-201-4780. Email: bj@barcelmill.com.

Services and Miscellaneous

Woodshop Services. Millwork made from your lumber on my planer/molder. Chris Marlowe, Butte, NE. Phone: 402-775-5000. Marlowepasture@nntc.net.

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

Used Portable Sawmills. North America's largest source of used portable sawmills and equipment. Contact: Sawmill Exchange. Phone: 800-459-2148. Website: www.sawmillexchange.com.

If items have been sold, please contact editor to remove ads from the next publication.

Small-Diameter Material (continued from page 7)

face), the entire piece remains more stable as it dries. Also, there are lower production costs associated with using the material in round wood form.

Processing Costs

One of the biggest problems for utilizing small-diameter material is the cost associated with processing. It typically takes more energy and time to harvest enough small-diameter wood to produce the same volume output that could be produced with larger-diameter material. Small-diameter material requires more trips from the woods to the landing to get material, resulting in higher harvesting costs. Less volume on trucks means higher transportation costs. Processing small diameter material on typical production equipment means higher processing costs. Imagine sawing 8-inch-diameter logs on your portable sawmill. While there are fewer lines to saw per log, each log still must be turned and squared. Your daily production volume would be significantly less for a lower-grade and lower-quality final product.

There are small log processing systems that are designed to process large volumes of small diameter material, which reduce the production costs. For example, small-diameter processing machines exist that can produce pallet parts at about 250 lineal feet per minute or hundreds of logs an hour. Investment in this kind of machine is well over

\$1 million. The problems with wood quality and high processing expenses are one reason why most large-scale industry uses of small-diameter wood are for making engineered wood products (OSB), paper, or burned for energy.

So, Small-Diameter Timber is No Good?

Small-diameter material definitely has some issues. It is less dimensionally stable when dried (more warp). It can also have lower strength properties, lower wood quality and higher processing costs. All of these problems make it undesirable for the typical lumber-producing operation, especially if you are using a small sawmill.

However, this material can be used successfully in round form, and can be processed into low-value goods such as pallet parts, using high-production machines. Additionally, for small-scale woodworkers wanting to make a jewelry box or other small items, the pleasure of sawing their own wood and ability to deal with warp (use more wood) may easily outweigh the problems mentioned. Small-diameter material has its place—just be sure to understand the limitations.

Source: Sawmill & Woodlot magazine, May/June 2014. Article by Brian H. Bond, an associate professor and extension specialist in the Department of Wood Science and Forest Products at Virginia Tech. For more information, visit the Sawmill & Woodlot website: www.sawmillmag.com