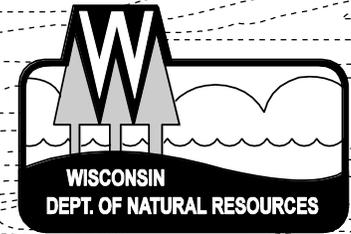


# WISCONSIN WOOD

## MARKETING BULLETIN



A Quarterly Newsletter Published by the Wisconsin Department of Natural Resources

Summer 2015

### Sometimes it's the Simple Things: A Quick Look at Lumber Recovery

-Steve Hubbard, FPS Team Leader

#### Overview

In the often fast paced world that we now find ourselves working in, it has become easier to lose sight of "simple things" we can do to help our day to day operations. Even the best intentions to increase a mill's efficiency, effectiveness, and bottom line through creative new business practices can fall short if the fundamentals get overlooked.

When most of us make a purchase- be it for groceries, clothing, or any number of products we might consider, we have an intuitive sense of whether we got a "good deal" or a "bad deal." Simply stated we ask: did I get the biggest bang for my buck? You can (and should) be asking the same question each time your mill purchases logs for milling. While this may seem obvious, you might be surprised to know that not everyone does it. So what are we talking about?

Consider the following example. A mill purchases the logs it needs for day to day operations and the desired products it will produce. For the purposes here, we will assume that the end product is sawn lumber. How does a mill know whether it got the biggest bang for its buck? There are two ways to address this question. These are Overrun and the Lumber Recovery Factor. Depending upon which measure you use and your mill's operations, you might get different answers to the same question.

#### Overrun

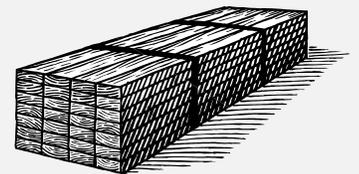
Overrun is defined as *the volume of lumber that is actually obtained from a log in excess of the estimated volume of the log, based on a given log scale.* In other words, the logs arrive at the mill and get scaled. Once they have been sawn, the actual volume of lumber recovered is measured. If the volume of lumber recovered is better than what the mill had scaled, we have a percentage overrun. By the same token, if the volume of lumber recovered is less than what was expected it is called underrun (not good).

#### Lumber Recovery Factor

The Lumber Recovery Factor (LRF), on the other hand, is defined as *the volume of lumber recovered in board feet per cubic foot of the log processed.* The LRF can provide hints about your processing efficiency that overrun cannot.

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## Putting it together

So what are the differences and how do they impact my mill? If we look at how each is calculated by formula we have:

$$\text{Overrun} = \frac{\text{lumber tally} - \text{log scale}}{\text{log scale}} \times 100$$

$$\text{LRF} = \frac{\text{board foot lumber tally}}{\text{cubic foot log scale}}$$

Overrun helps you compare what you paid for your logs when accounting for the lumber sold. It can help you measure if you got a good deal on the logs you bought based on the scale and products you use and produce, respectively. However, care is needed when interpreting overrun because of the nuances and variability among different log rules. Overrun is heavily influenced by the log diameters under consideration. Considering just log diameter, overrun will increase as log diameters decrease. The Lumber Recovery Factor is a better measure of sawmill efficiency. Because the LRF is calculated using the nominal lumber size when measuring the recovery of your inputs, the LRF reflects the quality of sawmill equipment, mill design, operation, and even maintenance. The LRF is also influenced by log diameter, but not as much as overrun using log rule Scribner Decimal C for example. Keep in mind that LRF will also vary with the products a mill produces due to kerf size and other variables.

In summary, it is always wise to know what you are paying for and what you can expect your return on that investment to be. Overrun tells you how well you did on a timber sale or payment for a particular load of logs. This method is very dependent on the log scaling diameter and is not really a good measure of your sawmill's performance. The Lumber Recovery Factor, on the other hand, is a better indicator of how efficiently or effectively a sawmill is operating from a production standpoint. It can provide insights to sawmill improvements that in turn can help improve bottom lines.

## Industry Headlines

### Development of a wood-based computer chip

Researchers at UW-Madison and the USDA Forest Products Lab have developed a [computer chip substrate](#) that is derived from cellulose nanofibrils (CNF) of wood instead of metal or petroleum (UW-Madison News).

### Termite tips from the FPL

Luckily, termite damage is much less prevalent in Wisconsin than in other areas of the US. From keeping water away from your foundation to choosing concrete during basement construction, experts at the FPL offer some useful tips for keeping [termites](#) out of your home (USDA-FPL Lab Notes).

### Chinese demand for US hardwood soars to \$1.3 Billion

China now accounts for 42.6% of the total export volume of US [hardwoods](#). The American Hardwood Export Council (AHEC) indicates that an increased opportunity exists for US hardwoods as inland cities become better equipped to manufacture wood products (China Daily News).

### The US housing market summarized in ten graphs

The US housing market is a major driver for the demand for wood products. Housing starts, home values, supply, existing home sales, renting, and other factors can influence the performance of the market. Follow this [link](#) to view graphs that highlight trends across the housing market (Wall Street Journal).

## **Team Updates**

### **Statewide- *Sabina Dhungana***

In April, I had the opportunity to attend the “Heating the Midwest” conference to learn about market trends, issues and challenges in the biomass market and the “wood to energy” industry in our region. As usual, the economics of the project is a big issue for biomass users and business owners. I have also been actively involved with the Wisconsin statewide wood energy team to identify feasible biomass projects and to promote the biomass and bio-based products market. Recently, I attended the 2015 NAASF utilization meeting in Connecticut. The meeting was filled with information on grants and assistance for the forest industry and innovative projects implemented in other parts of the country. There were discussions about industry issues similar to Wisconsin’s i.e. Shortage of truckers, quarantines and utilization of forest health affected species, sustainability of standards for wood fuels, and recruitment and retention of wood manufacturers. Additionally, I have been receiving and responding to requests on certified wood products, pine lumber, and the use of biomass in Wisconsin.

### **Southeast District-*Scott Lyon***

It is nice that the days are longer and everything is greening up. Since the weather has finally warmed up, I have been out meeting with secondary wood products companies in the Southeast region to better understand their production and sourcing needs. In addition, I continue to assist small sawmill operators with sawmilling and drying practices to help increase yield and reduce drying defects. In the past few months, some urban communities have confirmed that the Emerald Ash Borer has infested their ash trees. To help find a use for this wood resource, I have assisted the communities with ways to utilize and market their impacted ash trees and also trees that may be impacted in the future. If your community is looking for better uses for urban trees affected by invasive species or storm damage, please feel free to contact one of our district forest products services specialists.

### **Southwest District-*Anna Healy***

Hello from south western Wisconsin! I have been busy looking into workforce development concerns, primary mill process improvement studies, and supply chain issues. I am planning on conducting a survey of secondary wood users in my territory in the coming months. In my travels, I would appreciate the opportunity to speak with primary and secondary wood users in my service area about workforce development issues specific to their business and the region. I am also really excited to do more process improvement studies. If you are interested in capitalizing on available technical assistance, discussing opportunities for optimizing your business, or exploring new technologies in the wood products industry, please feel free to contact me. I look forward to working with you.

### **Northern District -*Collin Buntrock***

Lately, I have been providing supply chain and marketing assistance to companies. With markets on the move, it can be difficult to keep a pulse on buyers and sellers in the marketplace. A key service our program can provide is to help you find a product or market you are looking for. Please feel free to contact Forest Products Services if we can be of any help in this matter or other utilization and marketing needs. With regard to markets across Wisconsin, an issue facing the hardwood industry is the price of common grade oak and maple lumber, which continues to be a tough sell for many sawmills. Another concern across sectors is the ability to find skilled, dependable labor as positions are filled. As always, thank you for your time and have a safe and enjoyable summer!

## A Warm Welcome

In news from our Forest Service partners, Brian Brashaw has recently been selected as the Program Manager for the Forest Products Marketing Unit of the US Forest Service. A Wisconsin native, Brian has been interested in working for the Forest Service since he was a child. He developed a passion for natural resources while growing up fishing, camping, and hiking in the Nicolet National Forest. In pursuit of a career in Forestry, Brian earned a B.S. degree in Forestry from UW Stevens Point, a M.S. in Materials Science with an emphasis in Wood Products from Washington State, and a Ph.D. in Forest Resources with an emphasis in sustainable bio-materials from Mississippi State University.



Brian comes to the Forest Service after 24 years with the Natural Resources Research Institute (NRRI) of the University of Minnesota, Duluth where he served as Director of the Wood Materials and Manufacturing Program. Highlights from his tenure at NNRI include developing biomass briquette parameters for hazardous fire species as a coal replacement, developing several publications including “Wood Utilization Options for Urban Trees Infested by Invasive Species”, and research on thermally modified wood technology. His primary duty station is in the Superior National Forest Headquarters in Duluth, Minnesota. He will also maintain an office at the Forest Products Laboratory in Madison.

In his role as Program Manager, Brian is interested in providing technical linkages among natural resource managers, researchers, and the wood utilization community across the country. He is looking forward to strengthening partnerships between existing and emerging industries and Forest Service researchers to develop markets for wood products made from hazardous fuels and underutilized species. The Forest Products Service team is looking forward to collaborating with Brian and his team.

## Photos from the Field



Left: Anna Healy, Collin Buntrock, and Scott Lyon pose for a picture while on a mill visit

Center: Selecting a batch of logs for a sawmill improvement study *(Photo by Collin Buntrock)*

Right: A well-balanced base of a head rig knee (reading 0°) *(Photo by Collin Buntrock)*

## From Forest Health to Flannel: Industry Myths Debunked—VIDEO

It is no surprise to many of us that Wisconsin's forest industry is a critical part of sustainable forestry. At face value, the industry is an essential tool for implementing a wide variety of forest management goals. Logging practices, for example, restore wildlife habitat and can increase a forest's resiliency against insect pests and diseases. In a larger context, Wisconsin's logging and wood manufacturing workforce sustains our communities, our forests, and our growing demand for wood and paper products.

Over the winter months, the Great Lakes Timber Professionals Association (GLTPA) developed a short video that sheds light on many of the common myths surrounding the timber industry. Forestry professionals in Wisconsin debunk topics such as the impact of forest management on wildlife, deforestation in the US, and even the iconic flannel shirt. GLTPA encourages you to share the video (and others on their website) with friends, family, and co-workers. To view this video, please visit: [https://youtu.be/Yvo\\_hH8U8RQ](https://youtu.be/Yvo_hH8U8RQ) or go to [www.gltpa.org](http://www.gltpa.org).



## Is your facility a good candidate for a woody biomass project?

### Here is what you can do to find out!

*-Sabina Dhungana, FPS Specialist*

Financial investment in a woody biomass project is very significant. For anyone considering biomass, a detailed cost benefit calculation and scenario analysis are the most important steps in deciding whether the biomass project is cost effective. Pre-feasibility assessment is recommended for every biomass project whether the plan is to convert the existing energy systems or installing a new one. Woody biomass project economic feasibility analysis includes analysis of wood fuel availability, delivery options, scale of the project using those fuel resources and available financial incentives for implementing and installing the project. Stated below are some action steps you need to follow to analyze the feasibility of your biomass project.

#### Manual computation:

**Step 1:** At the very beginning, you need to estimate the heating requirements of your facility. Fuel bills and heating appliance efficiency (specification or testing) are two required parameters for the calculation. The formula for calculating usable heat is:

$$\text{Usable Heat} = \text{Fuel quantity} \times \text{Btu/unit of fuel} \times \text{appliance efficiency}$$

**Step 2:** Choose fuel type and appliance. Estimate fuel quantity used with fuel energy content and the heating systems efficiency:

$$\text{Fuel quantity} = \text{Usable Fuel} / (\text{Btu/ fuel unit} \times \text{heating system efficiency}) \quad (\text{Con't on page 6})$$

**Step 3:** Obtain the installed cost for the combustion appliance including costs of the chimney/vent, electrical connections, plumbing, fuel storage, accessory equipment (cleaning tools, forklift, loader, conveyer, augur, ash disposal), detailed engineering analysis for large scale projects and permits.

**Step 4:** Analysis of total fuel savings

Check the following:

- Are fuel savings positive?
- Is simple payback < equipment life?

Simple Payback is investment / annual savings. It is used as a quick metric and does not account for annual costs, repairs, inflation, and fuel cost escalation. Conduct cash flow analysis or other financial analysis based on your business / finances to incorporate these other costs.

**Step 5:** The type of biomass fuel that is most appropriate is determined next. Analyze the biomass resource availability, labor availability to transport and manage those resources at the biomass site, available storage area for biomass fuels, capital cost of the project, emission requirements, fuel costs, and truck access for the fuel delivery to the site. As a general rule from USFS experience: if the annual propane consumption is less than 35,000 gallons or heating oil consumption is less than 22,500 gallons, then wood pellets or firewood are good biomass fuel sources for the system. If current fuel use is greater than the above specified quantities, then wood chips, pellets or firewood system may reduce energy costs.

#### **Online financial calculators and computing:**

There are readily available financial calculators that can be used for project feasibility analysis: Each have pros and cons. The summaries below list the inputs required and the assumptions used for doing the energy calculations:

- **Michigan wood energy calculator which is developed by SE MI RC&D**
  - **Inputs:** Contact info – email & location, Type of facility, Boiler size, Current Fuel Type, Current Fuel price, Annual fuel use, Cost of wood fuel (pellet or wood chips), Financing interest rate (%)
  - **Assumptions:** No grants, Financing – 10 years, Wood chips > 3 Mbtu/hr, Wood Pellets <= 3 Mbtu/hr, Portion of fuel wood: 95%, Portion of fuel current fuel: 5%, Wood boilers sized ½ existing boilers, You will receive email with analysis
- **Wood Energy Financial App - developed by the University of Minnesota**
  - **Inputs:** State, county, fuel type, fuel cost, annual fuel usage (fuel quantity or MMBtu/yr), hrs per day operation, months per year, percentage of current fuel to be replaced, type of biomass, moisture content, boiler cost, Building and site costs, labor cost, repair and maintenance cost, fuel cost per unit, grants, interest rates, and project lifespan.
  - **Comments:** It needs more detailed inputs from the user, overestimates capital costs for smaller systems; Indicates projects not feasible that may be.

#### **Other project related information:**

- **Grants availability and information:** Grants and loans for biomass projects are available from USDA Renewable Energy for America program (REAP). NRCS and EQUIP grants are other available financial resources for biomass projects. Please visit [www.rd.usda.gov](http://www.rd.usda.gov) or [www.nrcs.usda.gov](http://www.nrcs.usda.gov) for more info.
- **Current Market:** Natural gas is the lowest cost fuel currently available compared to other sources including wood. Competing with natural gas as a fuel source based on cost won't work. Potential good candidates for biomass projects are facilities using fuel oil or propane and large scale facilities where the heating demand is continuous and significant.

Source: *Economic Analysis of Wood Energy Projects by Scott Sanford (UW-Madison Rural Energy Program)*

## Training Calendar:

### Kiln Drying Short Course

When: August 10<sup>th</sup>-13<sup>th</sup>, 2015

Where: Northcentral Technical College Antigo Campus  
312 Forrest Avenue  
Antigo, WI

Cost: \$450-GLKDA member \$500-non-member

Registration: <http://www.glkda.org/Courses.html>

### Sawing, Edging, & Trimming Workshop

When: August 19th, 2015

Where: Menominee Tribal Enterprises  
N3522 Cottage Avenue  
Neopit, WI 54510

Cost: \$100-LSLA member \$200-non-member

Registration: <http://Isla.com/sawcourse.html>

### Wisconsin Local-Use Dimension Lumber Grading Short Course

When: August 24<sup>th</sup>, 2015

Where: Kickapoo Valley Reserve Visitor Center  
S3661 State Hwy 131  
La Farge, WI

Cost: FREE

Registration: Send an email with your full name, mailing address, and phone number to [Collin.Buntrock@wisconsin.gov](mailto:Collin.Buntrock@wisconsin.gov). More information about the course can be found by clicking [here](#).

## Classifieds:

### TIMBER AND FOREST PRODUCTS

WANTED—Firewood: oak, birch, hickory, cherry, split, delivered.

Contact Hager's Country Market, 344 West Main, Barrington, IL 60010 (847) 381-0699.

WANTED—Logs: white cedar, white pine, butternut, catalpa.

Contact Dave Bartels, Bartel's Chainsaw Carvings, W7215 St. John's Church Road, Clintonville, WI 54929 (715) 851-7224.

WANTED— Buckthorn. Large truck loads of buckthorn sized from a pencil diameter to ~3" material.

Located near southeast Wisconsin. Contact Dwayne Sperber, Phone: 262-442-4654

### EQUIPMENT/SERVICES/EMPLOYMENT

FOR SALE—We now also sharpen narrow bandsaw blades besides our experienced circular, wide bands and carbide sawblades repair services.

Contact: Harry R. Schell Sawmill Sales & Supplies, Inc.; 601 West Park Street, Blue River, WI 53518; Phone (800) 462-5807; E-mail: [hirschell@mwt.net](mailto:hirschell@mwt.net)

Also visit our Online Store where you can shop 24 hours/day, 7 days/week at: [www.schellsaws.com](http://www.schellsaws.com)

WANTED—We are looking for a company to distribute a line of firewood processors in the Great Lakes

area. Manufacturer's web site is: <https://www.maaselankone.fi/en/klapikoneet/easy-50-klapikone.html>. For information, interested parties e-mail; Steve Letovsky; [lbc@lbccconsult.com](mailto:lbc@lbccconsult.com)

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If you want to list items, fill in the form below and mail to the following address:

#### Wisconsin Wood Marketing Bulletin

Attn: Phyllis Ziehr

3911 Fish Hatchery Road

Fitchburg, WI 53711

#### FOR SALE

Forest Products

Equipment

#### WANTED TO BUY

Forest Products

Equipment

#### SERVICES

For Sale

Wanted

#### EMPLOYMENT

Available

Wanted

\_\_\_\_\_  
Name \_\_\_\_\_ Date \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ Zip Code \_\_\_\_\_



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**DEADLINE FOR ITEMS TO BE LISTED IS THE 20TH OF: MARCH, JUNE, SEPTEMBER, and DECEMBER.**