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## IT'S NO LONGER CALLED WASTE

We have all heard the phrase how "one mans junk is another mans treasure." It's ironic how over time everything seems to come full circle, and something that once had very little value is now a valuable commodity.

Over the past 20 year time period the market has changed for what was once considered either forest/logging or sawmill waste, otherwise known as "residuals." Most of the change has happened in this market within the past 24 to 36 months. Even as short as 30 years ago, if a saw mill was built, there wasn't a cliff tall enough or a ravine deep enough for the mill to dispose of its wood waste.

The changing market is primarily due to the need for bio fuel. I think we all knew the day would come but didn't want to admit it that some of our fossil fuels, especially crude oil, would come to an end or at least to limited quantities.

With more government mandates coming, requiring higher percentages of our energy to be produced from renewable fuel, this will continue to put pressure on the markets to be able to obtain enough bio fuel supply. With managed forests that obtain optimum growth we do have more residuals available. In fact, a number of our forests are on a harvest plan where a good percentage of trees are not harvested because the harvest plan is not aggressive enough. Those trees end up dying in the woods and goes past their optimum value.

We do have to remember though, that wood residuals are of a limited quantity even when we do maximize growth and harvest. The DNR has come out with some numbers to show what MN forests and sawmill residuals would support some of our bio fuel needs. And yes, there is not an endless supply. Some interesting estimates for what our available wood residuals might support could be one of the following, but only one.

- Could produce 150 million gallons cellulosic ethanol, which happens to be 15% of the current corn ethanol production.
- Heat 225,000 homes which is approximately 16% of Minnesota's single family dwellings
- Produce 1.3 million tons wood pellets.

Once again, this does show the economic importance of the states forest system and, the fact that we can have a balance between our forest harvesting and nature. Remember a happy, healthy forest is a well managed forest.

By: Larry Dubbe, Bemidji Area Forestry Affairs Council

## UPCOMING EVENTS .....

**December 16, 2009:** *The Minnesota Forest Resources Partnership* will meet in Grand Rapids at the Forest History Center. The program will include representatives from, and updates on, the Ainsworth facilities in both Grand Rapids and Bemidji. For more information on the meeting and to RSVP, contact: Kathleen Preece: 218-759-7730; email [katy@paulbunyan.net](mailto:katy@paulbunyan.net)

**January 12, 2010:** *White Pine Seminar* including update on blister rust research. Cloquet Forestry Center. For information, contact: Carrie Pike [cpike@umn.edu](mailto:cpike@umn.edu)

**May 25 & 26, and optional field trip May 27, 2010:** *Black Ash Management* symposium, coordinated by the U.S. Forest Service, Minnesota Department of Natural Resources and Minnesota Forest Resources Partnership. For information, contact Kathleen Preece: 218-759-7730 email [katy@paulbunyan.net](mailto:katy@paulbunyan.net). See page 4 in this newsletter for further information.

## News Release:

Criminal Damage to property FELONY.

The Cass County Land Department along with Investigators from the Cass County Sheriff office are investigating the Criminal Damage to Property of trees that were recently sold at a public timber auction by the Cass County Land Department.

It is believed that several suspects had driven 6” pole barn nails into Red Pine Trees on a plantation north of Backus MN. Over 500 trees were damaged. This act is taken very seriously. If the nails were not discovered, they could have caused Great Bodily Harm or Death to the operator conducting the harvest.

The nails were discovered by the Forest Resource Manager prior to the operator moving on site. The Criminal Damage to the property is being handled as a Felony Crime and the Cass County Sheriff Office is asking for the publics help in identifying the persons involved in this Criminal Act. A reward of up to \$5000 dollars is being offered for information leading to the arrest and conviction of the person or persons responsible.

Joshua Stevenson, Land Commissioner for Cass County provided this statement. “It is fortunate that this was uncovered before anyone was seriously injured. This crime is not only against the Resource but also the township, school district, and other entities that rely on revenue generated from the Resource. The damage that has occurred to the stand must be removed resulting in the complete harvest of the plantation. The plantation would have been managed for another 70-80 years through a series if thinning resulting in older, larger, high quality Red Pine. With the damage it has sustained and the potential danger to future operators, it will now be clear cut and replanted.”

Cass County Sheriff’s Investigators have collected evidence and are actively investigating the crime.

Confidential information can be directed to the Cass County Sheriff’s office at 1-800-450-2677. Ask for investigator Mike Diekman.



## Key Terms

**Conservation Easement:** A legal agreement between a landowner and a qualified organization (usually a land trust or government entity) that restricts future activities on the land to protect its conservation values. Most conservation easements are perpetual and apply to current and future landowners.

**Fee-title Acquisition:** Full and unconditional ownership of land, with the right to use and sell during the owner’s lifetime, and then to pass on to one’s heirs.

**Forest Conversion:** The replacement of forest cover with other cover such as urban, suburban, and industrial development; and cropland. Conversion results directly in the loss of forest resources for forest recreational users, wildlife, and forest products.

**Forest Fragmentation:** The creation of forest “islands” that are isolated from one another by un-forested land.

**Forestry Legacy Program:** Part of the State and Private Forestry division of the USDA Forest Service, the agency administers Forest Legacy in partnership with States and works with the interested private landowners to acquire lands and conservation easements.

**Forest Stewardship Committee:** It, or a suitable substitute, is required by the Federal Forest Legacy Program. It provides oversight to the Minnesota Forest Legacy Program by helping to establish the priority of individual tracts of land and by providing overall philosophical guidance.

**Sustainable Management:** Management to maintain the long-term health of ecosystems and sustain a full range of environmental, economic, and social benefits for current and future generations. A sustainably managed forest provides not just timber and other economic products, but also public benefits like water quality, recreation, and wildlife habitat.

**Working Forest:** A forest providing a broad range of goods and services, including forest products, recreation, fish and wildlife habitat, clean water, clean air, and carbon sequestration.

**Working Forest Conservation Easement:** A working forest conservation easement (WFCE) removes an owner’s rights to conduct certain activities such as subdivision, residential, or commercial development. It also adds language that informs forest management to protect specific forest values. WFCEs provide a means to address societal goals such as sustaining a regional economy and other important public values by protecting the forest land base on which they depend.

Source: Minnesota Forests for the Future

# THE NEW "HAY" BALE

By Mimi Barzen and Jodie Provost, DNR Wildlife, Aitkin

Biobaler is a very appropriate name for a piece of equipment that literally bales biomass like a farm crop. This Canadian made system creates woody bales from brushlands, short-rotation woody crops, and pre-commercial thinning operations. The harvesting system cuts, compacts, bales, and ties biomass as it rolls through a suitable site.

Minnesota is an appropriate place to test this new system. In a state with over 15 million acres of forest and brush sites, the Biobaler may be just the tool needed for thousands of acres of minimally managed land. If the system is successful, these acres will be able to benefit from more intensive management, some of which will be through the use of biomass. Currently, a biomass hurdle is the of lack of specialized equipment for harvesting operations.

## **Tour notables**

In September, the Biobaler was on tour in Minnesota, stopping at several sites to demonstrate capabilities of this unique system. The eight stops ranged from a willow/aspen site in Waseca to an aspen pre-commercial thinning site in Hibbing with woody invasives in prairie locations and wildlife management sites in between. Each site and its management objectives were unique, so the prowess of the Biobaler was thoroughly tested. The results ranged from impressive to problematic.

The Chesterville, Quebec company demonstrated the Biobaler WB- 55, a machine that operates with a hammer mulching system. The tour was a collaboration with 17 sponsors, including partners such as: University of Minnesota, Department of Natural Resources, Minnesota Prairie Chicken Society, Woodcock Minnesota, Iron Range Resources, and Minnesota Power, plus graduate students from Minnesota and Quebec who assisted in organizing the tour and collecting data.

Tour attendees ranged from natural resources agency employees and loggers, to people in the energy business and private landowners. All came together to witness what may in the future be common place once some bugs are ironed out.

The Biobaler comes with notable credentials. The highly maneuverable machine, pulled by a tractor or other piece of equipment with a power take-off and a minimum of a 130-horsepower engine, can cut vegetation that is up to 4 inches in diameter and 25 feet tall. The baler is on wheels, but the company claims there is little soil compaction. In addition, the green, 1,000 pound bales dry naturally and existing equipment can be used to retrieve and load bales for transportation to a biomass facility.

## **Pros and cons**

The demonstration proved several points. Overall, the Biobaler worked well as stated by its inventor. It was found though, that the baler has a hard time processing biomass in grassy areas, particularly when wet. The baler, set up to process wood, had a hard time dealing with the fine strands of grass. Woody material under an inch in diameter was also harder to process as it would clog or jam the rake teeth where the baler's 7.5 foot cutting head decreased to 4 feet, at the point the bale is created. This resulted in many stops to unclog the baler. Even with that problem, the Biobaler was able to create 11 bales in two and a half hours. Not bad when you consider the small size of the vegetation encountered and the many patches of grass. *Continued on page 4.*

Source: The MarketPlace Bulletin, MN DNR

*Bemidji Area Forestry Affairs Newsletter*

A potential hazard of the biomass baler is the rather long, pointed stems that remained after the Biobaler passes over the vegetation. The sticks pop back up at an angle, creating difficult conditions to traverse. On brushland sites, the severed stems are everywhere and cannot be avoided. Thinned sites may require a short jaunt across a baled strip or a hike down an unharvested strip. This may not be an issue if sites are harvested when frozen.

Sites with biomass that are over an inch in diameter fared better. An aspen thinning with scattered trees up to 4 inches in diameter did not slow down the baler as it cut a swath through the nine-year-old regeneration. However, it was noted that sites harvested in the recent past with leftover slash had not decomposed enough for the baler to conquer. Older sites that did not exceed the diameter and height limits of the machine processed well. Denser stands also had better utilization. On these types of sites, the machine can produce about 20 bales per hour or 10 tons of green biomass. On sparse sites, the number of bales per hour drops up to 50 percent.

### **Statistics**

It is estimated that once dry, the bale weighs about 450 pounds. The Natural Resource Research Institute stated that the bales would sell for \$10 to \$12 each. A logger estimated he could put about 25 bales on a truck bed, resulting in \$250-300 per load. For comparison, a standard 11 cord load of pulp wood at \$50 per cord delivered to the mill, results in \$550 per load.

If a landowner is able to harvest 10 to 20 bales per acre, \$100 to \$200 per acre is produced. For a 40 acre site, this could result in \$4,000 to \$8,000 gross yield. The potential exists, but currently the connection between the energy industry and harvesting is tenuous.

### **Biomass demand**

However, in time this could change dramatically. On the northern sites, Laurentian Energy Authority's Terry Leoni and Minnesota Power's Mike Polzin, were on hand to view the demonstration. Items that must be considered prior to purchasing the bales include: the moisture content, amount of dirt in the bales, diameter of the biomass (preferably at least 2 inches), and how well it will flow through each plant's chutes. Shorter, chunkier pieces flow better. Terry and Mike explained that Minnesota utility plants by law must meet increasing mandates for the amount of energy they produce from biomass.

It is anticipated that the demand for biomass will increase as time goes on, which means there will be a need for biomass from other sources, such as those harvested on the Biobaler demonstration sites. Both northern Minnesota energy facilities will soon be certified to take biomass from landowners through the new Biomass Crop Assistance Program.

In central Minnesota, the Silva Company in Princeton, was willing to take the bales produced at the demonstration sites. Even though the number of companies that can process these bales is low, as the industry expands, more companies should be able to utilize this material.

The Biobaler can also be re-engineered to address some of the problems encountered on the demonstration sites. This includes the ability to work more efficiently while processing smaller diameter material and creating a tracked version of the baler that would result in even lower ground pressure on the soil. This, in turn, would enable the machine to work wetter brushland sites and the uneven terrain that is often associated with them.

### **Fixes**

It could be a few years before this machine or its descendant are being utilized on a variety of forested and nonforested sites, but cooperation between land managers, biomass facilities, and equipment owners could make this happen sooner rather than later. To see the Biobaler go to: [www.grpanderson.com/en/biomass/biobaler/wb-55](http://www.grpanderson.com/en/biomass/biobaler/wb-55)

### **Further Information on the Black Ash Symposium .....**

The Chippewa National Forest, Minnesota Forest Resources Council, Minnesota DNR and the Minnesota Forest Resources Partnership are hosting a Black Ash Symposium, at Bemidji State University, Bemidji Minnesota on May 25, 26, 27, 2010. Black Ash is a major species and forest type in Northern Minnesota, providing an important cultural and ecological resource as well as a variety of products.

Black Ash is also the only native ash species that grows in pure stands. The ecological impact of emerald ash borer (EAB) will therefore be the most dramatic in black ash systems. This symposium will look at Black Ash from an environmental and cultural context.

Latest research findings will be presented. Management strategic of Black Ash systems prior to, during, and after EAB invasion will be presented. The overall focus will be to address the challenges facing resource managers responsible for the management of Black Ash forest types. The target audience is resource managers and academics.

For more information please visit the Symposium at <http://www.fs.fed.us/r9/forests/chippewa/Ash/index.shtml>. More information will be added to this website as it is acquired, such as SAF continuing education credits.