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## Outreach to the Woody Biomass Industry in Minnesota

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# **Outreach to the Woody Biomass Industry in Minnesota**

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**Abstract:** Minnesota has aggressive state policies to encourage renewable energy production. Biomass is a renewable energy source with great potential in Minnesota. We developed an Extension program that provided outreach to each link in the supply chain: landowners, land managers, loggers, and energy-intensive businesses. The content generally included information on markets, site and ecological impacts, and available resources. As a part of the outreach to energy-intensive businesses, we developed a GIS resource assessment tool and conducted an up-to-date harvest residue assessment for the state. We are happy to be able to provide this kind of support to a fledgling industry.

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## **Introduction**

The state of Minnesota has been very aggressive in promoting renewable energy through legislative mandates. Recently, Minnesota passed legislation that mandated all energy utilities produce 25% of their energy from renewable energy sources by 2025. Biomass as a source of renewable energy has gained momentum, with several biomass-using facilities either beginning operation or being constructed in the last 10 years. According to recent research, several million tons of biomass for energy are already in use (Abbas, 2007).

Because the majority of biomass that is in a concentrated location (sawmill residues, bark, pulping co-products, etc.) is already being used for energy or other higher value uses (for example, livestock bedding

and re-constituted wood products), harvest residues currently left in the woodlands (approximately 1.9 million tons) and brushland harvests (possibly as high as 8.6 million tons) are the main remaining untapped sources of woody biomass (Abbas, 2007). For this reason, we focused our outreach efforts on these two sources of biomass. In this article, we only discuss the efforts on harvest residues.

## The Extension Program

Prior to initiating this project, we needed to gather a group of potential collaborators as well as a funding source. We secured a grant through the US Department of Agriculture (USDA) and Department of Energy (DOE) - Joint Biomass Initiative grants and numerous matching grants that funded this project. We focused our outreach efforts on the main participants in the supply and utilization chain of biomass: the landowners (who decide whether this harvest will be allowed), the land managers (who use these harvests to reach landowner goals), the loggers (who harvest and deliver this material), and the energy-intensive businesses (who decide whether they can economically use this fuel source).

Our goal in targeting outreach efforts at these specific audiences was to reach each main link of the supply chain that produces and utilizes biomass. The main objective across all audiences was to increase participant knowledge about biomass harvest so that they can make informed decisions about becoming involved in supplying biomass. Because each of these clients has different needs, the outreach for each varied; however, there was significant "cross-attendance" between the groups. We chose workshops as the main delivery method because they have been shown to be an appropriate venue for increasing participants' "capabilities to make informed decisions about various woodland management practices" (Decker, Lassoie, Goff, & Parrish, 1988).

### Land Managers

The first series of workshops targeted land managers (specifically foresters and wildlife managers) and was held in March 2006 in three distinct wood-producing portions of the state: the Northeast (Grand Rapids), the Central (Little Falls), and the Southeast (Rochester). These three locations have quite different wood market conditions; however, all three have a biomass burning facility that sources fuels locally. These workshops drew large audiences (a total of 294), with the largest turnout in Northeastern Minnesota. The workshop covered the following topics presented by state and regional experts:

- Effects of biomass harvesting on soil and site productivity
  
- Biomass harvesting as a wildlife management tool
  
- Marketing of biomass
  
- A presentation by one or more local biomass burning facility
  
- Biomass sources
  - ◆ Harvesting residues
  
  - ◆ Pre-commercial thinnings

- ◆ Brushland harvest
  
- ◆ Dead trees from insect and disease outbreaks
  
- ◆ Forest fuel reduction activities (to reduce wildfire risk)

At the end of the workshops, an open discussion was scheduled to assess opportunities and needs regarding biomass in the region. The evaluations of these workshops showed that they were well received, with 80-90% of the attendees saying each presentation was good or excellent.

## Loggers

The outreach targeted solely to loggers was conducted in Northeastern Minnesota and was offered in conjunction with the Minnesota Logger Education Program (MLEP). The Northeast was chosen for this activity because 1) it is located in the main wood-producing region of the state, where 59% of Minnesota's loggers are concentrated; 2) the Institute for Agricultural and Trade Policy (IATP) was implementing biomass demonstration harvests using novel equipment in the adjacent Superior National Forest, which allowed for site visits on active harvests; and 3) several large heat users (potential biomass users) operate in this region.

The involvement of MLEP allowed the use of this training as a part of the annual training requirements for MLEP loggers and increased the size of the audience. This training was held August 2, 2006 in Grand Marais, MN. The content of this program was quite different from the workshop for land managers because the loggers have different concerns with biomass harvest. The focus of this workshop was on harvesting technology, the scale of the resource, as well as assessing site impacts and marketing. In addition, a field component highlighted the IATP harvest activities in the Superior National Forest (funded by the US Forest Service). (For more information on these sites, see "Cutting Costs and Reducing Forest Fire Hazards Through Biomass Harvest" at [www.forestrycenter.org/](http://www.forestrycenter.org/).)

The field demonstration initiated the liveliest debate regarding US Forest Service site prescriptions, machinery operations, and general viability of biomass harvest. The evaluation were overall good, with 63% of the 30 participants saying that they got as much as or more than they expected out of the workshop.

## Landowners

The landowners are the hardest group to reach overall due to sheer numbers. We focused this outreach effort on members of woodland owners groups and Minnesota Woodland Advisors (a master volunteer group). The woodland owners groups and Woodland Advisors reach a large audience through their volunteer efforts. These workshops also attracted loggers and land managers.

We offered two workshops in late-July/early August 2007: one in Grand Rapids (Northeast) and one in Little Falls (Central) because of 1) greater concentration of private woodland owners in these regions of the state and 2) the presence of large-scale biomass users in these towns. In addition to including presentation of ecological services payment (e.g., carbon credit payments) derived from tree planting for biomass, the topics covered were similar to those covered in the workshops for land managers but were presented in a more abbreviated and less technical manner. Additionally, both workshops included a site visit to an active biomass harvest operation and a visit to a biomass burning facility that buys biomass for energy. Workshop

evaluations showed that 71% of the 151 participants for both workshop locations indicated that they got more than they expected out of the workshops.

## Energy-Intensive Business

This audience has quite different expectations than the other three. For this audience, we created an up-to-date resource assessment for harvest residue available after a sale. We also prepared a GIS framework that will allow a business to assess the available harvest residue by freight distance for their plant. Last, we are currently conducting direct outreach to heat users with capacities of greater than 5 million BTU's that are not currently burning biomass.

## Conclusion

This project has provided a great deal of education in a state where biomass utilization has the potential to bloom. We believe we have provided a realistic picture of site impacts, resource availability, and potential markets for the main participants in the biomass supply chain. While it is still too early to tell whether this effort will foster increased economic activity, this increased knowledge will help these participants make informed decisions regarding biomass production or utilization.

For Extension professionals hoping to initiate similar programs, we believe that the effort must be demand-driven. Our largest audiences were in Northeastern Minnesota. Several plants have begun operation in the last 10 years in this region, so there is a strong interest in learning about biomass harvest. Smaller audiences were encountered in the Southeastern region of the state possibly because the local wood products market is quite different and there are less opportunities for marketing biomass. It has been a wonderful opportunity to be involved in providing outreach to a fledgling industry with enormous potential.

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