

# The Current Status and Relevant Issues associated with Woody Biomass Harvesting in MN: A Survey of Participatory Loggers

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Fueling the Future:

The Role of Woody Biomass for Energy Workshop

April 2, 2009

Brainerd

Sponsored by:

University of Minnesota Extension, WesMin and Onanegozie RC&Ds, Natural Resource Conservation Service – Baxter, MN, Soil and Water Conservation District – Crow Wing County

# The Current Status and Relevant Issues associated with Woody Biomass Harvesting in MN: A Survey of Participatory Loggers



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# Outline

- MN's Biomass Harvesting Guidelines
  - Necessity for this study
- Environmental Literature Review
- Survey Method
- Survey Results
  - Major Findings
- Conclusions



# Background on MN's Biomass Harvesting Guidelines (BHGs)



- 2005 legislation (MN §89A) mandated the development of sustainable woody biomass harvesting guidelines
- Developed by DNR and MFRC (scientists, loggers, resource managers)
- Must use most recent available scientific information
- Must reflect a variety of practical and sound management practices

# Background on MN's Biomass Harvesting Guidelines (BHG) Cont'd.

- Specifically, guidelines should address the harvesting and processing of logging residues (non-merchantable tops, limbs and branches)
- Guidelines should also address soil productivity, water quality, biological diversity and wildlife habitat
- Guidelines to be complete by July 1<sup>st</sup>, 2007
- Two sets of voluntary BHGs developed: brushland and forest land
- BHGs were appended as a separate chapter in MN's existing Timber Harvest/Forest Management (TH/FM) guidelines

# MN's BHGs

- First and only state in the nation to create and uphold BHGs
- Entirely Voluntary
  - Guidelines upheld by certification agencies (SFI, FSC) and on land belonging to state or local governments or some timber industries
  - Small, non-industrial private landowner has greatest flexibility in the use of these guidelines
  - Guidelines communicated to loggers through the Minnesota Logger Education Program (MLEP) and informative pamphlets are distributed to landowners

# MN's BHGs Cont'd.

- Guidelines are broken up into several sections depending on the nature of the harvest site and intended harvesting objective
- Most important message for loggers:
  - Retain 33% FWD on a harvest site
  - Suggest obtaining 20% by retaining the tops and limbs from one out of every five trees harvested
  - Additional 10-15% achieved through breakage

# Other Important Messages for Loggers

- Avoid re-trafficking site.
- -Watch landing & road size.
- -Avoid many special concern areas
  - Ex: lowland spruce sites, aspen & other hardwoods on very sandy or very shallow soils, endangered & threatened spp.

## Habitat

- Use extra precaution in others (riparian zones, some rare plant communities) - Contact local DNR office for assistance with this.

# Other Important Messages for Loggers Cont'd.

- Maintain enough material onsite to meet WL Habitat, water quality, aesthetic and soils productivity maintenance needs. 20% of tops & limbs PLUS snags, etc.
- -Do not remove stumps, forest floor or litter.
- **VERY brief overview.** Forest Management Guidelines and new Draft biomass guidelines available online at:
- **<http://www.frc.state.mn.us/>**

# Environmental Literature Review

- BHGs (with TH/FM General guidelines) represent a synthesis of the best-available scientific literature regarding the effects of biomass harvesting on the environment
- When used appropriately, the BHGs provide four major benefits to the environment
  - Benefits to soils, water quality, riparian areas and wildlife habitat

# Environmental Literature Review Cont'd.

- Majority of environmental information contained in the BHGs comes from the GEIS (2004)
- Since that time, information regarding the effect of biomass harvesting on various soils has been updated
- However, we need more updated information regarding the effects of biomass harvesting on wildlife habitat and its cumulative effects
- Recommended amount of 33% FWD needs to be re-evaluated

# Survey Methods and Rationale

- Need to understand MN's current biomass harvesting practices and how closely they align with the recommended BHGs
- First study that extensively inventoried and sought information from all loggers that harvest biomass in the state

# Survey Methods and Rationale Cont'd.

- 15-20 minute phone surveys conducted July-August 2008
- Loggers owning a chipper and/or a grinder identified through MLEP
- Study questions developed through researcher expertise and professionals in the industry
  - Questions pre-tested
- Interviews were not recorded, administered by a single graduate student and entirely voluntary
  - Open ended responses were analyzed for common themes

# Survey Methods and Rationale Cont'd.

- Categories of Questions:
  - Harvest information
  - Logging site configuration
  - Biomass guideline interpretation
  - Environmental Considerations
  - Constraints and Opportunities
- 26 of the 28 loggers identified by the MLEP were successfully contacted
- As many as 20 attempts were made to reach the remaining two loggers

# Survey Results: Harvest Information

- Breakdown of all participatory loggers and their biomass harvesting equipment.

No. Participating Loggers	No. Loggers Chipping	No. Loggers Grinding	No. Loggers Chipping & Grinding
26	17	3	6

# Survey Results: Harvest Information Cont'd.

- For the majority of loggers (64%), a biomass harvest is almost always conducted in conjunction with roundwood harvest (91-100% of the time)
- Collectively, tree species has little or no bearing on the harvesting of biomass.
- Roughly half the loggers surveyed cited particular and contradicting species of preference for biomass harvesting, while the other half noted that they had no preference.
  - Shape of the tree and the market parameters for chipped material overshadow any species effect.

# Survey Results: Harvest Information Cont'd.

- For loggers operating chippers, stems and tops are the most commonly used parts of the tree
- About 50% of loggers noted that it does not make economical sense to use the limbs and branches
- Tops = the upper portion of the main stem below the usual diameter for producing roundwood.
- Limbs and branches = the unmerchantable portions of the tree along the main stem not contained in the top

# Survey Results: Harvest Information Cont'd.

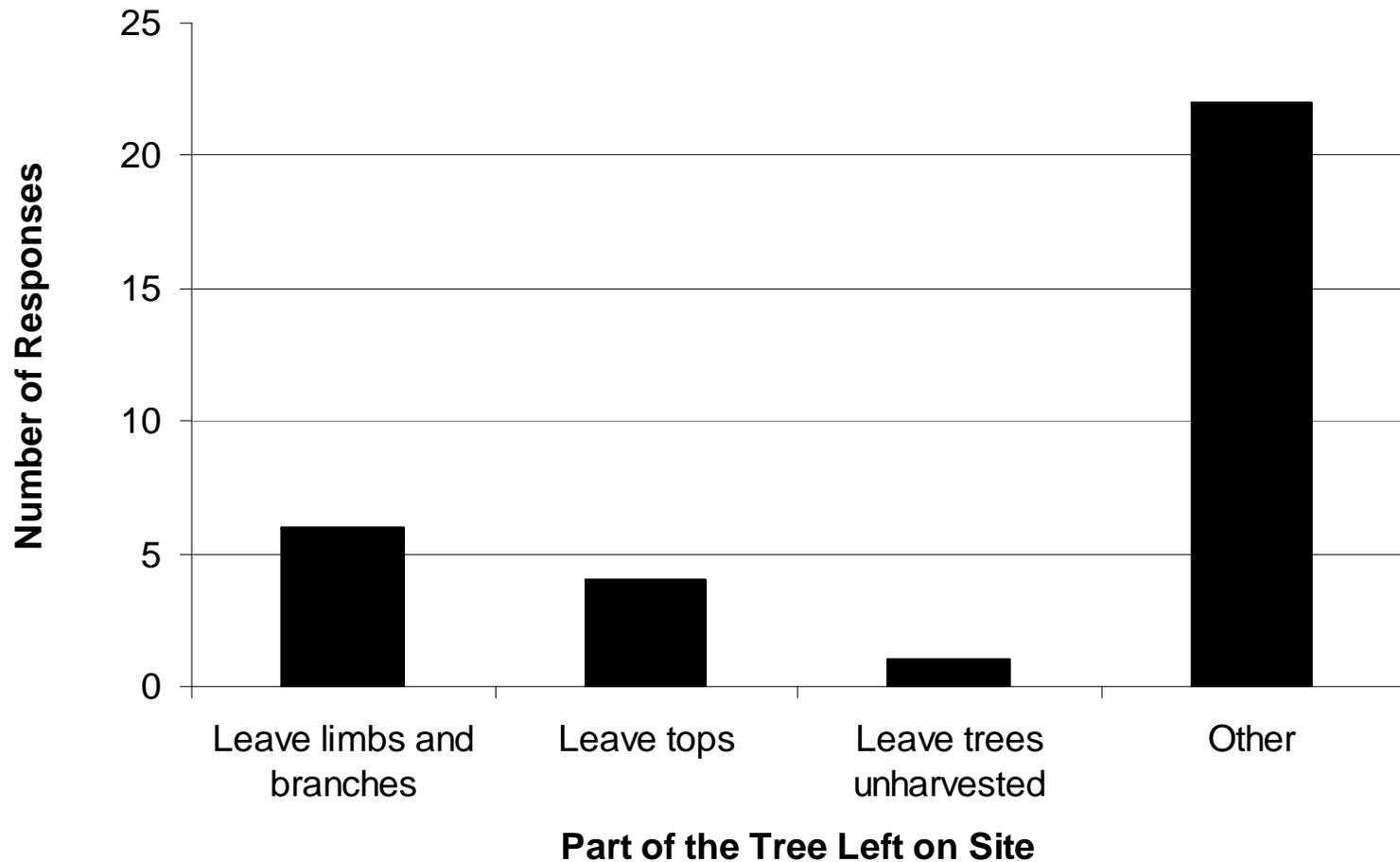
- Parts of the tree commonly utilized for biomass with chippers and grinders.

Part of the Tree	Loggers Chipping	Loggers Grinding
Stems	15	6
Tops	22	8
Limbs and Branches	12	9
Other	2	1

# Survey Results: Logging Site Configuration

- If logger utilizes the tops of the trees alone:
  - Delimiting is typically conducted at the stump and limbs and branches are left on site.
- If logger utilizes the tops, limbs and branches:
  - Biomass harvesting process typically mimics that of a conventional whole-tree roundwood harvest operation.
- Collectively, MN does not have a well-established biomass harvesting site configuration

# Survey Results: Biomass Guideline Interpretation



# Survey Results: Biomass Guideline Interpretation Cont'd.

- 8 loggers said they were intentionally leaving woody material on site, while 18 loggers were not intentionally leaving woody material on site
  - However, material may still remain through breakage
- The majority of loggers in this survey are leaving “other” types of woody material on site, such as material produced through incidental breakage

# Survey Results: Environmental Considerations

- When asked to describe the types of sites where they would not harvest biomass, the following themes were given:
  - Loggers' ability to harvest biomass depends on the site prescription or landowner objectives
  - Many loggers said they would not harvest biomass on sites with nutrient poor or sandy soils.
    - If harvest, leave more material behind
  - Most interpreted the question from a production point of view

# Survey Results: Constraints and Opportunities

## ■ Constraints:

- Inconsistent market demand
- Insufficient prices paid for the end product
- Large transport distances

## ■ Opportunities:

- Increased market options. Rising fuel costs will create market growth. Transport distance may decrease.
- Tool to improve forest health
- Environmental benefit of renewable energy

# Conclusions

- Need to address the gap between the recommended 33% FWD and what is actually being retained on site
- Need to address market constraints to ensure the long-term sustainability of the industry
- Need to identify an efficient site configuration for harvesting biomass

# Additional Research Needs

- Need to determine how much residual is actually being retained on site (post-harvest) with unintentional efforts
- Need additional research regarding the amount of residual material needed to sustain forest productivity

# Questions?

