



Woody Biomass Guidelines: Economic Considerations

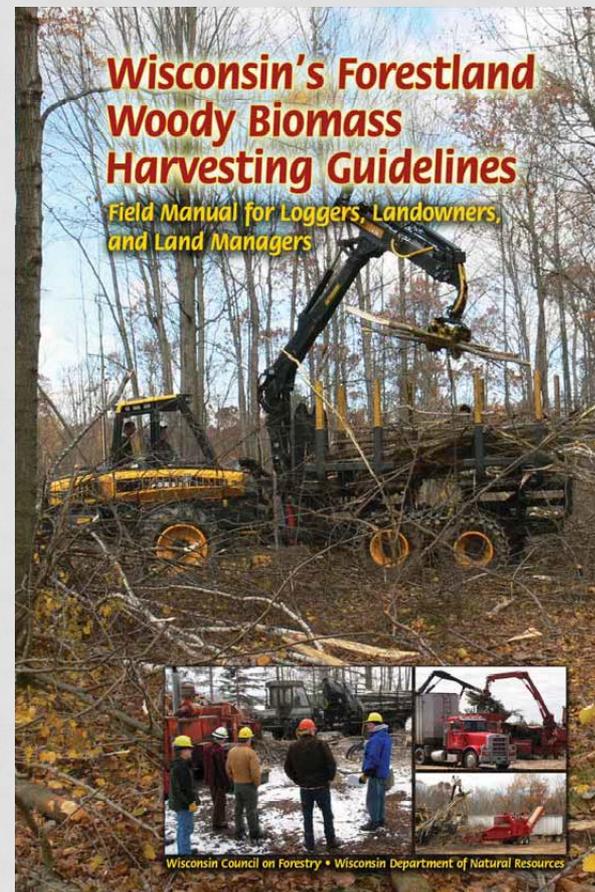
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OVERVIEW

- Biomass Sales (2010-2012)
- Literature Review:
 - *Forest Harvest Guidelines*
 - *Biomass Profitability*
- Implementation Experiences:
 - *Wisconsin's County Forester Perspectives*



CURRENT SALES ADVERTISED & SOLD

- Number of sales (2010-2012) state and county lands*:
 - **211 total** that were advertised and/or sold as “Cordwood combined with fine woody material”
 - 58% sold as a combination
 - 36% advertised as combination and sold as a combination
 - 22% were advertised as cordwood, and sold as a combination
 - 42% were advertised as a combination, and sold as cordwood only

LITERATURE REVIEW

- Costs & Benefits of Guidelines: Example Impacts of Forest Harvesting Guidelines

Benefits

- Forest productivity
- Soil conditions
- Water quality
- Wildlife habitat
- Biodiversity

Costs

- Harvest volume per unit area
- Administrative expenses
- Operational expenses
- Stumpage prices

LITERATURE REVIEW

- Regional studies of “costs” of FHGs:
 - Increased administrative effort¹
 - Lower harvest productivity²
 - Lower profits for landowners¹
 - On average, 10% lower stumpage bids
 - Loss of 2.4 cords per acre

¹. Blinn and Kilgore 2005; ². Goychuk et al. 2011

WOODY BIOMASS LITERATURE: BIOMASS FEASIBILITY

- Bioenergy and biomass feasibility¹ -
 - Biomass Supply
 - Environmental Guidelines
 - Harvesting Efficiency
 - Industry Infrastructure
 - Transportation Costs
 - Market Price
 - Competing Uses

¹Becker et al. 2009 & 2011

WOODY BIOMASS LITERATURE: BIOMASS FEASIBILITY

- Bioenergy and biomass feasibility¹ -
 - Biomass Supply
 - Environmental Guidelines → Impact of guidelines?
 - Harvesting Efficiency
 - Industry Infrastructure
 - Transportation Costs
 - Market Price
 - Competing Uses

¹Becker et al. 2009 & 2011

PROFITABILITY & BIOMASS GUIDELINES

- No comprehensive evaluation of BHGs
 - North Carolina: Interviewed foresters, loggers, and landowners¹
 - Thought to limit profitability - equipment needed and associated fuel costs
 - Quebec, Canada: Simulated various levels of environmental restrictions²
 - Biomass availability
 - Supply costs

¹Fielding et al. 2012; ²Thiffault and Samuel 2012

PERSPECTIVES FROM COUNTY FORESTERS

- Economic considerations in Wisconsin:
Feedback from County Foresters
 - Uncertainty: *"We have offered some sales that had good biomass potential, but very few people have bid anything other than standard utilization."*
 - Example "costs" of guidelines:
 - *Limit Availability*
 - *Foregone Revenue*
 - *Timber Sale Bidding*
 - *Forest Management Expenses*

PERSPECTIVES FROM COUNTY FORESTERS

- Timber sale bidding:
 - *“The restrictive soils have basically eliminated any whole tree chipping operations here...It used to be fairly common to have at least one whole tree chipper bid on each sale.... Typically we only have 3-7 bidders so taking one out is a big thing.”*

PERSPECTIVES FROM COUNTY FORESTERS

- Complexity of Impacts
 - Seasonal timing:
 - *“The restrictive soils rule has eliminated pretty much all of the soils that can be operated on by whole tree operations during spring breakup and many of the sand sites that can be operated during wet periods. This will result in more downtime for the whole tree crews.”*

PERSPECTIVES FROM COUNTY FORESTERS

- Complexity of Impacts
 - Site-prep costs:
 - *“Restrictive soils have caused us some issues in our scrub oak stands, especially the stands that have a lot of oak wilt. Leaving all the slash behind has created issues with our site-prep for planting.”*

PERSPECTIVES FROM COUNTY FORESTERS

- Operational Issues with guideline design:
 - *"Our whole tree crews aren't very well equipped to implement the one in ten tops rule."*
 - *"'Limiting the disturbance on CWD already present'. With the current equipment and operations this very difficult to do, and maximize our utilization standards."*

PERSPECTIVES FROM COUNTY FORESTERS

- Flexibility in Implementation:

- *“We have had several sales in the last year that were on restricted soils. At least 2 of these sales had large amounts of dead and down wood already present so we used our best judgment and decided to allow biomass harvesting on these sales.”*

ECONOMIC CONSIDERATIONS: COSTS & BENEFITS

- Example Impacts:

Benefits

- Forest productivity
- Soil conditions
- Water quality
- Wildlife habitat
- Biodiversity

Costs

- Harvest volume per unit area
- Administrative expenses
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Market & non-market costs/benefits can accrue to different groups

ECONOMIC ISSUES INCLUDE COSTS & BENEFITS

- Economic Considerations*
 - Compare alternatives
 - Evaluate marginal effects
 - List and then quantify benefits, then monetize, when possible
 - Determine overall impact and impacts across groups



QUESTIONS

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