Production and Costs for a Processing Head on a Southeastern U.S. Harvesting Operation

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Conventional Logging System in the Southeastern United States
History Behind Whole Tree Logging in S.E.U.S.

- How S.E. started out being as logging industry
- Why switched, who mandated switch
- Efficiency and effectiveness of whole tree versus ctl in s.e.
Current CTL Systems in United States

- Northeast and their hardwoods
- Lake states and 100 inch wood
- Northwest and cable logging
Motivation from the Mills

- Specific mills are offering incentives and subsidies to haul dimension wood
- Encouragement to purchase dangle-head processors and harvesters

Benefits:
- Increased overall production
- Production of dimension cut wood
- Premium price offerings
- Increased time and cost savings from the mill

Issues:
- Machine utilization rate
- Tract size
- Truck availability
- Affordable transportation costs for future biomass
Time Study Comparison of Operators
Processor versus Knuckle Boom Loader
Initial Results Operator 1

- 5 time trials
- Average number of trees harvested per trial was 94
  - 45 being ply logs
- 94 tons (85.1 tonnes) of wood produced on average per time trial

<table>
<thead>
<tr>
<th>Product Class</th>
<th>Trees Cut Trial 1</th>
<th>Trees Cut Trial 2</th>
<th>Trees Cut Trial 3</th>
<th>Trees Cut Trial 4</th>
<th>Trees Cut Trial 5</th>
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<tbody>
<tr>
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<td>45</td>
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<td>Pulp</td>
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<td>86.0</td>
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Initial Results Operator 2

- 6 time trials
- Average number of trees harvested each trial was 102
  - 57 being ply logs
- 112 tons (101.6 tonnes) of wood produced on average per time trial

<table>
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</table>
Initial Results Study 1

- Operators ton’s per hour produced were not significantly different (95% level)
  - If removal O2 last time trial, tons produced per hour becomes significant

- Operator 2 harvested 6% more ply logs. Were also overall longer in length
- No differences found in amount of pulpwood harvested
- No difference found in amount of topwood
- Significant difference found in second product class harvested
Initial Results KB versus Processor

- **Significant**
  - Diameter
  - CNS
  - Pulpwood Top
  - Pounds/Tree
  - Tons/Tree
  - Price with no Topwood

- **Not Significant**
  - Plywood
  - Pulpwood
  - Total Length
  - Price per Total Tree
Initial Conclusions

- Processor is estimated to be capable of producing ~35 loads a day
- Average conventional logging system produces 8-14 loads a day
- Underutilization of machine is believed to result in it being unaffordable
- Tract size and moving costs become an issue if the number of machines increase
- There is a difference in processing pulpwood and CNS between machines
- Difference is due to market prioritization made by KB operator
Questions?