PCT/non-PCT Study: Austin Pond - A Case Study -

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Austin Pond History

- 1970 – Clear Cut
- 1977 – Herbicide Trials
- 1986 – Precommercial Thinning
- 2013 – Thinning of PCT stands
- 2014 – Thinning of Non-PCT stands

Third Wave
Stand Conditions

PCT Plots

NPCT Plots
Austin Pond Thinnings

- Prescriptions in PCT stands
  - 33% removal of softwood volume
  - 50% removal of softwood volume

- Prescriptions in NPCT stands
  - 33% removal of softwood volume
  - 50% removal of softwood volume
Thinning of PCT Plots (2012/2013)

- Cut-To-Length system
  - Ponsse Ergo processor
  - Timberjack 1110 forwarder
- 8 PCT plots thinned
- 1 training plot
Thinning of NPCT Plots (2013/2014)

- Whole-Tree system
  - CAT 501 feller-buncher
  - John Deere 648 GIII grapple skidder
  - Morbark Model 23 chipper
- 6 NPCT plots thinned
- 1 training plot
No difference in processor productivity between the two removal intensities!

Average: 8.5 tons/PMH
No difference in feller-buncher productivity between the two removal intensities!

Average: 15.2 tons/PMH
Unit Cost of Production

• Harvester and feller-buncher productivity was measured
• Skidding and forwarding was simulated
• Cut-to-length system produced stud- and pulpwood
• Whole-tree system produced biomass chips only
Producing roundwood costs as much as producing biomass chips! 

![Production Costs](chart)

- **Cut-To-Length system in PCT stands** (Round-trip distance: 50 - 100 miles)
- **Whole-Tree system in NPCT stands** (Round-trip distance: 50 - 100 miles)
No statistical difference
Profit Calculations

Not accounted for PCT investment

- Cut-To-Length System in PCT Stands (Round-trip distance: 50 - 100 miles)
- Whole-Tree System in NPCT Stands (Round-trip distance: 50 - 100 miles)
Profit Calculations (including PCT costs in 2013 dollars)

- Cut-To-Length System in PCT Stands (Round-trip distance: 50 - 100 miles)
- Whole-Tree System in NPCT Stands (Round-trip distance: 50 - 100 miles)
Profit Calculations (including PCT costs in 2013 dollars)

No statistical difference

- Cut-To-Length System in PCT Stands (Round-trip distance: 50 - 100 miles)
- Whole-Tree System in NPCT Stands (Round-trip distance: 50 - 100 miles)
Conditions

- Cut-To-Length system in PCT plots
  - sawlogs and pulwood

- Whole-Tree system in NPCT plots
  - biomass chips

- Round-trip distance to mill: 50 – 100 miles

- Mid quality site (Briggs 3, Site Index $_{50}$ 46 ft.)
Take Home Message

• Unit cost of production is similar for roundwood and biomass chips within each prescription

• Profits are similar across both prescriptions for PCT and NPCT plots (including PCT costs)

• PCT allows for sawlog production in shorter period of time, but does not result in a financial gain or loss in this study

• The proposed whole-tree system can economically thin high density stands
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Questions?