Harvesting woodlots in NZ: What do small-scale landowners and loggers think?

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Introduction

- Woodlots will add 10-15 million m$^3$/yr to harvest volumes, from now into the 2020s

- Landowners preparing to harvest have a lot to consider

- Loggers that specialize in harvesting woodlots also face challenges

- What are the requirements for a successful woodlot harvest?
Landowner survey

• Brown and Visser (2017)* surveyed 17 landowners with recent woodlot harvest activity

• Study focused on values provided by woodlots and landowner satisfaction with the harvest, including:
  – Health and safety
  – Economic outcomes
  – Protection of environmental and cultural values
  – Disruptions to farming operations
  – Property damage, site clean-up

Findings from landowner survey

• Top woodlot objectives: 1) commercial value, 2) aesthetics, and 3) water quality protection

• Relatively low landowner satisfaction with value recovery (59%) and the overall economic outcome (64%)

Value recovery concerns:
Confusion about tonnage delivered, stem breakage, **residue** →

Other issues: Equipment move-in costs, unforeseen deductions, long transport distance to market
What do loggers think?

• Brown (2017)* interviewed the ‘top 3’ loggers based on most highly satisfied landowners
• Highlighted their perspectives on woodlot harvesting challenges
• Observed their logging operations to demonstrate harvest systems/machines/operating principles they use to address challenges

Harvesting challenges

• Small harvest volumes, frequent shifting of machines
• High harvesting costs exacerbated by tough logging conditions (e.g. steep and erodible terrain, edge trees, fences)
• Lack of infrastructure
• Lulls in harvest activity due to log price dips and seasonality
• Unique safety hazards:
What machinery/system is best suited to woodlots?

• Shovel logging was a popular response
  – Very efficient for short (<100m), downhill extraction
  – Lower earthwork cost and erosion risk

• Loggers emphasized ‘right machines for the job’

• Steep terrain harvest systems
  • Tethered machines
  • Yarder/loaders
What are some logging contractors getting right that others are not?

• **Value optimization**
  – Mechanized felling to reduce stem breakage
  – Using the felling head to minimize nodal swelling
  – Taking logging residue offsite as *random pulp*

• **Understanding landowner needs/values**
  – Protecting fences
  – Working around milking schedules
  – Ensuring a tidy job
Multi-purpose machines

• Hyundai 290 Excavator w/ 10000XT Harvesting Head fells, delimbs, shovels, and processes in forest

• **Key benefit**: reduced equipment transport costs
Innovative extraction systems: Focus on two-staging

• Description: Logs are processed in the forest, forwarded to a roadside landing or other staging area, and loaded onto on-highway trucks

• **Key benefit:** No road construction is necessary (i.e. a cost savings)

• Caveats: A loader is required at each end; May not be suitable during wet weather.
Summary

• Narrow profit margins underscore the importance of choosing a good harvest manager/logger

• Some keys to successful woodlot harvests:
  – Harvesting cost control through multi-purpose machines and innovative extraction systems (i.e. two-staging)
  – Understanding what ‘value’ means to the landowner and then optimizing for this value
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