Chipping vs Grinding
Experiences from Sweden

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Primary forest fuels

Primary Forest fuels by source (TWh, 2014):

- 20.1 TWh 2013
  (7.6 million tonnes @40% M)
- 18 TWh 2014
  (6.8 million tonnes @40% M)
Market situation – Primary fuels

- Low prices
- Increased use of other fuels
- Low demand (mild winters)
Operational costs

- Residues
- Small trees
- Defect wood

CAD/MWh

- Administrative
- Transport
- Comminution
- Harvesting
Operational costs

Low utilization
• Scheduled hours/year
• During scheduled time

High investments
Effects on transport economy

15 - 25 %, loads 18-25 tonnes

25 - 45 %

35 - 40 %, loads 28-34 tonnes

50 - 65 %, loads > 35 tonnes
Landings

• Limited space
• Other vehicles
• Road quality
Space
- Stacked material
- Chips, containers or Chip trucks
- Chipper
- Possible to turn trucks

Avoid interactions
Access the material
Landings

- Accessible material – if possible at roadside
- Right side of the road
- DRYING
Efficient operations

- Planning and selection of landings
- Adequate hauling capacity
- Selecting suitable Grinders or Chippers for the work task
Reduce the distance from stack to reloading point
Interactions

Chipper + 3 trucks

Cost

Distance km
Comminution
Where?
Grinders vs Chippers

Grinders

Chippers
Grinders vs Chippers

Grinders are
- Less sensitive to contamination
- Handle all materials
- Needs a separate loader

Chippers are
- Smaller
- Often integrated
- Fuel efficient
System options
Conclusions

We chip clean fuels – contaminated fuels are ground
We comminuite

• Residues, small trees and stumps on the landing
• Round wood, tree sections and stumps at terminal or end user

Transports are vital for efficient operations
Thanks

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