

# **ROB STEWART OWNER & OPERATOR STEWART SYSTEMS INC.**





# Today's Discussion

## Grinding and Chipping

- Experiences
- Advantages
- Challenges





# Chipping

Process of making wood chips for pulping.

Made from whole logs, tops and long butts.

Pieces are debarked before they are chipped.

Chips must conform to rigid specifications:

- Less than 1% bark
- 85% within size specs





# Grinding

Process of making hog fuel for power generation, pellet feedstock and bark mulch.

The hammermill smashes material until it is small enough to fit through a screen.

Can be made from logging residue, clean yard waste, construction debris...even paper and cardboard.





# Grinding

Interior hog fuel has a moisture content of 20-30%. Coastal hog fuel is usually 40-60%.

Bark is acceptable in most hog fuel applications.

Contamination is the #1 issue for hog fuel:

- Rocks
- Dirt
- Metal





# Microchipping

Like a hybrid between chipping and grinding.

Produces a smaller, non-pulp quality chip.

Primarily used for wood pellets, briquets and even bio-char.

Small, uniform particle size allows for efficient drying.





# Cooperation is essential!



Picture credit to Wikipedia

# Grinding Advantages

Government is tightening burning regulations to cut carbon emissions.

When grinding there is no need to wait for good venting.





# Grinding Challenges

Planning for secondary harvest chip vans needs to occur in the layout stage.

Chip vans and bin trucks are almost twice as long as log truck with mounted trailer.





# Grinding Challenges

Residue located out in the dispersed part of the cutblock can be too expensive for secondary harvesters to access.

Processing at roadside makes residue accessible and reduces primary harvesters need for debris piling.





# Grinding Challenges

Stigma around waste  
billing and triple  
stumpage.

Concurrent Residual  
Harvest System may  
reduce waste penalties for  
licensees.





# Chipping Experiences

Chipping residue is popular in other parts of the world and is starting to catch on here in BC.

Stewart Systems has chipped poplar plantations for Catalyst and salvage operations on eastern Vancouver Island.





# Chipping Advantages

A higher percentage of overall fibre can be recovered with in-woods residue chipping.

Topping diameter needs to be 4" or greater in order to recover chips.

If tops are 3" or smaller, too much volume is lost in the debarking process.





# Chipping Challenges

Like grinding, road layout with no provision for chip vans can be problematic.

Terrain also needs to be considered as room is needed for the chipper to sit.





# Concurrent Residual Harvest System

Streamlines scaling requirements by reducing the need for stick scaling.

Uses a volume to weight ratio.

A step in the right direction!





# Summary

Waste recovery needs to be part of the plan and treated like a product rather than garbage.

Business to business relationships can help facilitate efficient recovery.

Biomass recovery has tight margins. Minor changes by the primary harvester can make waste recovery a viable option.



Thank you!

If you have further questions  
please contact me at:

[stewartsystemsinc@gmail.com](mailto:stewartsystemsinc@gmail.com)

(604) 483-8094