

PRACTICAL ASPECTS OF PROCESSING LOGS AT THE STUMP

Doug Peacock <sup>N.Z. etc</sup>  
Logging Contractor  
Washington

Definition

Processing - making standing trees into merchantable logs.

Why at the Stump?

In the Northwestern United States 75% of the processing would be for Highlead/Cable logging operations. When planning for the felling and processing operation, the following factors must be considered:

1. Market inventory

- ability to fluctuate flow of logs
- ability to relegate to some degree the species or grade of logs, that are extracted.

2. Manpower

- keep a crew of cutters working steadily without substantial layoff times.
- Seasonal surge resistance, i.e. snowed out in the fall and early or late spring starts.

3. Production

- The decision on bucked logs versus tree length logging is determined by the total length of the tree and the diameter.

In the Northwest we do not have a significant loss of log quality

due to wood laying on the ground between seasons. There is some heat checking during the hot months but this damage is more aesthetic than practical. In New Zealand you do not have a seasonal management problem. That is, you don't have to worry about being snowed out!!

Market Inventory

Ability to Fluctuate Flow of Logs

- With wood on the ground you can double your production by adding yarders.
- Move a yarder to a shotgun setting to provide a surge.
- Cat log to spike the log loader to maintain a flow when the yarder is down or on tough yarding.

Ability to Change Species or Grade

- Tree species can change on different parts of a setting (e.g. heavy cedar in damp draws, heavy to hard wood by creeks, and hemlock higher up the hill). Processing at the stump makes selection of these logs easier during yarding.
- Some log grades change from dry ridges to damp gullies and flats. Again yarding a specific product type is easier in log length.

**Manpower**

are possible. These include:

**Keep a Crew of Cutters Working Steadily**

This is important since they are expensive to train on both falling to save timber and also bucking to quality specifications.

- A steady crew is much safer in habits and generally more productive (dollars - per thousand board feet).
- Many ways to compensate cutters and control production from the basic hourly rate

1. Supplying everything and paying a basic hourly rate. *1/2 in*
  2. Piece rates per tree, per cubic foot or on a percentage basis.
  3. Sub-contracting cutters.
  4. Having the parent company arrange and control all of the cutting.
- Lets look at these options on an advantage-disadvantage to the logging contractor basis.

Basic hourly rate, supply all tools and ride to work.

*↑ attracts new workers (green)*

**ADVANTAGES**

**DISADVANTAGES**

- Lowest cost per hour
- Easy to find employees
- Older hands like it *- see above*
- Easy to move cutters from setting to setting or job to job (i.e. other jobs).

- Highest cost per unit (generally)
- Poor safety record *green (new) workers*
- High supervision needed
- Unknown cost for equipment
- Lower volume of production
- Higher turnover of crew
- Constant training

Piece rate, tools supplied by workers

**ADVANTAGES**

**DISADVANTAGES**

- Good cost/production ratio
- Usually more experienced workers
- High production per man day
- Stable production flow
- High pride in work factor
- Cost of tools gone
- Cutters police themselves
- Can be lowest cost per unit

- Medium supervision to control greed/quality quotient
- More bookkeeping to control advantages against production
- Problems moving cutters because of pay
- Problems when quit/fire comes up

Sub-contract

ADVANTAGES

- Work can be bid
- Penalty clauses for poor work
- Usually the best/most experienced cutters
- Highly productive because you can add cutters when needed
- Minor supervision
- Least amount of bookkeeping
- Can work into good job relationship
- No labor problems to contractor

DISADVANTAGES

- Second highest cost
- Some scheduling problems
- Cutting prices can fluctuate
- Quality can fluctuate if crew is hard to get

Parent Company Cutting

ADVANTAGES

- No problems
- Reduces cash flow/bookkeeping

DISADVANTAGES

- Dependant on company for having wood cut on time
- Less opportunity to manage production

Production of Logs

The single most important reason to process at the stump is higher log production.

Situations where bucking will help production:

1. Small yarder 50' tube
  - short yarding distance 600' with good deflection
  - thick small timber up to 1000' with good deflection
2. Medium tall (90') yarder
  - short yarding up to

*400 HP medium size capacity*

1000' with good deflection

- thick logs
- shotgun settings 1500'

3. Slackline 100'

- any up or down hill yarding with good deflection out at 1500'
- Any setting where a radio controlled carriage can be used to pre-set chokers
- big logs

4. Thinning

- Bucked logs do less damage to residual crop

5. Small Landings

- mid-slope less earth works
- rock ridges, less cost to excavate

Situations where bucking might not help:

1. Small yarder 50'

- mostly where there are 1 to 1-1/2 logs per tree i.e. small timber

2. Medium tall 90' yarder

- small timber on steep ground
- yarding small timber over long distances
- in scattered timber

3. Slackline 100'

- medium (up to 24") timber on steep dangerous ground

How do you process?

1. Before you start, walk the ground to decide yarding limits and cutting lays.

2. Communicate with cutter on the overall picture. Identify:

- setting limits
- production needed
- quality and grade requirements
- safety procedures.

3. Space cutters out in the setting for best efficiency/safety. Use natural boundaries to divide them e.g. ridges, draws, creeks, flats and openings.

4. Make sure cutters are laying wood cross lead to yarding where possible. In gullies, fell the top up stream and then to the draw as you move away from the stream. In general felling

should be across the slope. With very valuable old growth timber, jacking up hill saves the most wood.

5. Lay trees back and forth across slope for the full width of strip, taking advantage of leaves and altering the lead to suit the slope. Be aware of dead spars and dispose of them safely.

6. Low stumps - keep all the wood in the log, not the stump. Low stumps cause less damage to other falling trees.

7. Limb along the top of the tree at least, to make sure log lengths are accurate.

8. Full tree limbing is a management decision and is dependant on the species and the type of operation.

Factors involved in deciding whether to delimb or not include:

- cost of the cutter per hour
- cost of the chaser per hour
- cost of hold up on the landing
- the amount of natural delimiting that occurs during yarding
- damage to log by limbs ripping out
- limbs leaving pig ears which have to be bucked off anyway
- difficulty of yarding with all limbs on

9. Special considerations

- Make sure guyline stumps are marked to be left high enough to use. Remember you need 2 or 3 extra in front.

- Make sure tail trees are marked to ensure they are not cut and instantly fire the dumb cutter who cuts one!

- Corner block stumps should be marked on ridges or anywhere along cutting boundaries.

CONCLUSION

From our point of view, cutting to length at the stump makes a lot of sense and certainly pays off productivity-wise. With due consideration for some of the constraints you people face in terms of sapstain and fungal degrade, I see no reason why at least some of your forest couldn't be processed in the bush.

Safety — less danger than extracting  
tree length  
N. 2. picture

\* Discuss directional felling

