SESSION 4
Paper (e)

IMPACT OF HARVESTING ON VALUE RECOVERY**

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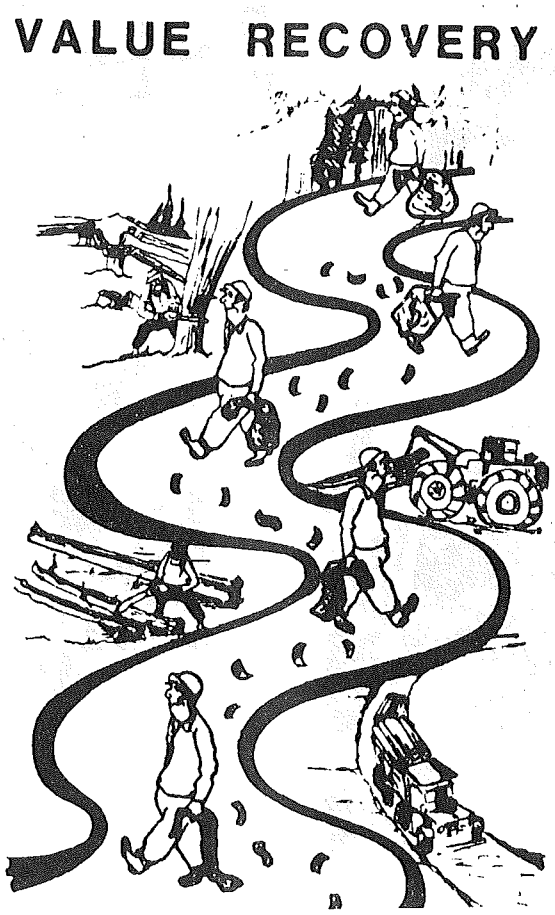
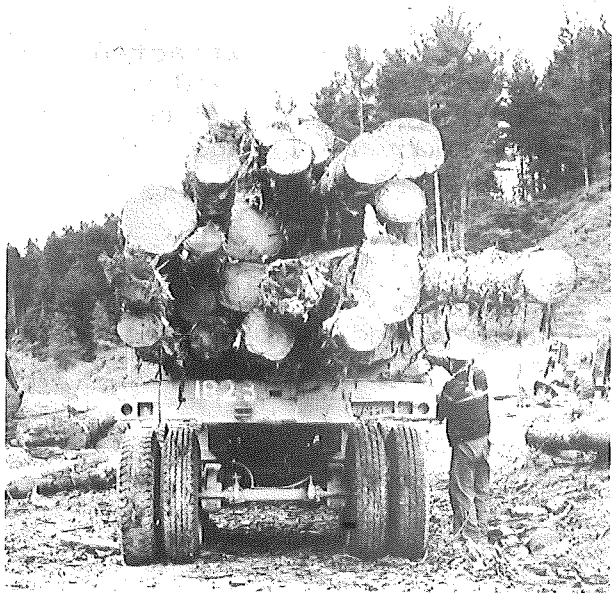


By the time a tree is felled, extracted, processed, and loaded on truck up to 40% or more of its standing value could be lost through poor harvesting techniques. Before I get into the impact of harvesting on value recovery I would like to quickly give you a few examples; some of the impacts will be obvious, others won't.

** Taken from the unedited verbal presentation.



Currently

PRODUCTION

NOT

VALUE ORIENTATED

Our logging industry is currently production not value orientated. This is obvious. Except for one or two exceptions, incentive schemes are based on production. The high production attitude is everywhere. For example, recently I heard of a faller who was skilled enough to fall trees so that they crossed and broke, into many pieces, at about the first green branch. He reckoned it saved him a lot of trimming time and he could get more trees felled in a day that way.

Which is the best option ?

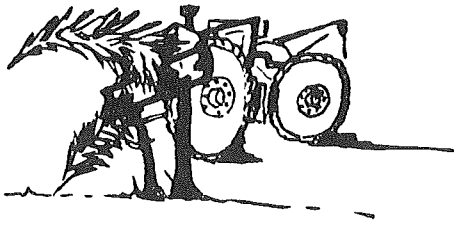
	Option 1	Option 2
Daily Production	280	350
Value Recovered	15	10
Harvesting Cost	8	6
Margin ($/m^3)	7	4

But which is the best option. I have two examples here. Option 1 is a reasonable gang averaging 280 m^3 per day at a cost of $8 per m^3. They aimed at getting the most value out of the stem and could recover wood worth $15 per m^3. Option 2 is a "gung-ho" high producing gang who average 350 m^3 per day at a cost of $6 per m^3 ... but, of course, they don't have the time to "chase" value so they could only recover $10 per m^3. Which do you think is the best option?

Before I start showing value loss figures I must stress that they are based on typical operations and on the best information currently available to me. They will vary with circumstances which are different to those of the data base but should at least be indicative of relative levels. Some operations will be better, others worse.

THINNING DAMAGE

1 to 2 %

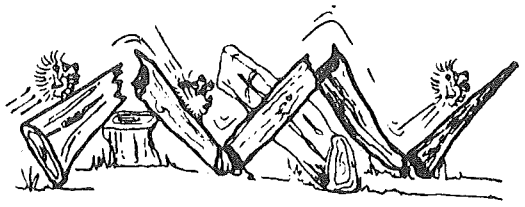


CARE

The first area where harvesting can cause value losses is from thinning damage. Thinning damage may result in value losses of 1 to 2%. About the only thing we can do about it is make the machinery operators aware of what their mistakes may cost and get them to take more care.

FELLING DAMAGE

4 to 7 %



Avoid gullies

Keep stems parellel

Breakage in the top portion of the tree will lose another 4 to 7% of the standing tree value. Although we can't eliminate breakage it is possible to reduce it. Avoiding falling across gullies or sharp ridges and keeping stems parallel are two good ways of reducing breakage.

FELLING DAMAGE

4 to 5 %

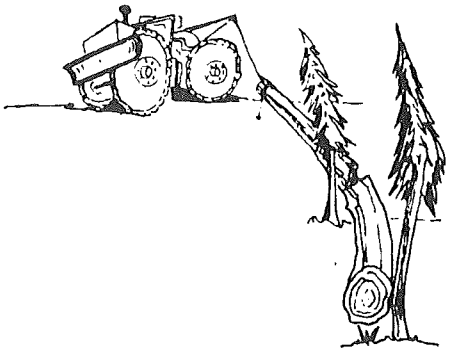
Keep stumps low

Use best saw cuts

High stumps and butt damage in the form of slabbing, side-splitting, and draw-wood lose another 4 to 5% of the tree's value. What we are after here is not barber chair type stumps, but "short back and sides".

Making a point of keeping stumps low (even to the point of digging down through the duff to get scarfs as low as possible) and using the most appropriate saw cuts, are ways of reducing value loss in the butt portion of the tree. John Gaskin from LIRA and Sam Papa and Jerry Pomare from N.Z. Forest Products Ltd have recently been developing techniques to reduce butt damage.

EXTRACTION LOSSES



1 to 2 %

Falling parellel and towards the landing

Butt-pulling

Care in positioning logs and machinery

Breakage during extraction only accounts for another 1 to 2% in lost value but it can be avoided. Falling parallel and inlead so that stems don't have to be turned sharp angles out of a tangled mess is probably the most important value saving method here. Less breakage occurs with butt-pulling than tip-pulling so this should be encouraged. Care should also be taken in positioning the logs and the machine for breaking-out.

PROCESSING LOSSES

20 to 25 %

Awareness

Machine pressure off

Measuring tools

By far the biggest cause of value loss occurs on the landing by cutting the wrong products out of each tree. For example, the new logger above was told by his boss to cut a peeler out of the butt-log; unfortunately he had a different idea to his boss of what a peeler looked like.

Alastair Twaddle from the FRI Harvest Planning Group recently found that 20 to 25% of the tree's value may be lost through the skid workers incorrectly recognising the products in the pieces arriving at the landing. He also showed, however, that a big chunk, 10 to 15%, of the value loss can be easily regained.

The first and most important thing he did was make the skid workers aware of the effect of their actions on value recovery and thinking about log specifications and qualities.

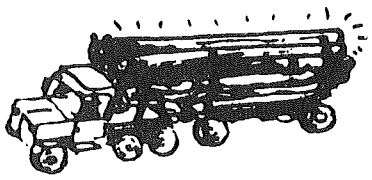
Secondly, a small amount of the machine pressure was taken off the skid workers, i.e. the tractor operator had to wait for the skid workers to finish processing their logs before he could bring the next lot of logs onto the landing.

And, thirdly, the skid workers were provided with a spring loaded tape (to speed up the length measuring) and a pair of calipers for measuring log small end diameters.

Right logs

to

Right destination !



The last source of value loss is a bit harder to quantify at this stage. That is the loss that occurs when the right logs don't make it to the right destination. I think many logging managers have seen the times when a few peeler or sawlogs have been thrown onto the back of a pulp truck to quickly make up a load. The only thing that can be done here is to make the loader driver aware of how much that action is costing the wood owner.

TRAINING

MOTIVATION

TOOLS

We will never be able to completely eliminate the value losses caused during harvesting, but we can do something about reducing these losses. To do this though will require a change of attitude within the industry. It will mean, firstly, training loggers to be aware of the effect of their actions on value recovery and which techniques will ensure the greatest value return.

Secondly, it will mean motivating the loggers in a way that compensates them for chasing value as well as production.

And, lastly, they must be provided with the most appropriate tools for the job - whether those tools be a wedge and maul for directionally felling trees, or a set of calipers so that small end diameters can be accurately measured.

It is the role of research and development to quantify value losses under varying conditions and to identify the most appropriate tools and techniques to reduce these value losses at the least possible cost.