

WOOD PRESERVATION TECHNIQUES - TASMAN CENTRAL

(Easter windthrow 1982 - Tauhara Forest)

G. SPERRY  
TASMAN CENTRAL

Introduction

To recap briefly our production situation prior to the windblow and during salvage operations. (Average productions)

<u>Normal Production</u>			<u>Salvage Production</u>		
(loads per day)					
<u>Export</u>	<u>Sawlogs</u>	<u>Pulp</u>	<u>Export</u>	<u>Sawlogs</u>	<u>Pulp</u>
10	8	6	35	20	30
Peak productions (first 4 months)			70	50	40

Major Constraints

- (a) Biological time limit. (Various opinions ranged from 4 months (us) to 8 months (NZFS) before significant value loss occurred.
- (b) The local and overseas markets ability to absorb extra production. (Both limited).
- (c) Manpower and administration.

Strategy

Salvage highest value/highest volume/ highest production level stands first and have these completed by September 1982. Explore local market and satisfy then explore overseas market and sell surplus.

Resulting Action

We were able to find markets for 35 loads per day of sawlogs initially but after the first 3 months this began to drop steadily. In any case, we still had 15 loads per day of sawlogs surplus, as well as 10 loads per day of export. 5 of these 10 export loads were sent to the port regardless, and our marketing people eventually sold this to Korea after some considerable trauma. Our problem therefore was to preserve the surplus sawlogs and export logs in a state where their respective values could be realised. Pulp outlets were glutted from the outset. The wood was preserved in two ways:-

A. Sawlogs

I had a strong feeling that we would have problems right at Easter and had two hectares of cutover cleared into a

storage area adjacent to a stream in the forest 5 kilometres from the weighbridge. With valuable advice from Norm Clifton (N.Z.F.S. Christchurch) we set about establishing a wet spray log storage system. The early stages of this sprinkler set-up were based on nursery irrigation nozzles and a mixture of aluminium pipe and fire hose. Fire pumps proved inadequate as did farm tractor P.T.O. driven pumps and diesel driven pumps. Eventually two surplus electric pumps ex the N.Z.F.S. Canterbury sprinkler yards were purchased. The Taupo Electricity Board very kindly and very efficiently built a powerline from the weighbridge into the water supply. The Waikato Valley Authority was also co-operative in advice and assistance concerning run-off problems.

- Pump Specifications: Electric 45hp Ajax  
350 gallons per minute output  
Centrifugal type
- Nozzles: 12 gallon per minute per nozzle  
Full rotation "Naan" general purpose  
sprinkler.
- Pipes: Aluminium 5" main. 4" & 3" branches.  
Permanent couplings preferred as the  
push-in half-turn type couplings jarred  
undone with any movement.  
Manufactured by "Grasslands" of Hastings  
(Alkathene may be a better alternative)
- Hoses: Feeder fire hose to nozzles on top of  
stacks. Cotton hose deteriorates  
rapidly. Synthetic hose is o.k.
- Water run-off: 20mm per day rainfall equivalent for  
15,000 tonne average stock level.  
Unsheduled thunderstorms cause severe  
run-off problems. Excess run-off was  
channelled via a ditch into one small  
and two large settling ponds constructed  
in-line. Water soaked away only, no  
direct flow into stream, and during major  
storm flows two fire pumps were used to  
pump excess runoff away to yet another  
area amongst trees.
- Power Cost: Approx \$350.00 per week for 15,000 tonne  
coverage.
- Access: Some metal and culverts required to permit  
truck access 15 hours a day in wet  
conditions.
- Wind: 20 feet overlap of nozzle spray was  
necessary to ensure complete coverage  
during windy periods.

Nozzles: (7mm) Had to be large for two reasons,  
a) to prevent icing up.  
b) to allow some pumice which got through pump intake filters to pass through.

### Breakdowns

It is very important that logs are fresh when placed in the yard (i.e. no sapstain present) and that they are kept wet until sold. Thus, 24 hour monitoring of pumps is essential. This was achieved through an alarm system developed by P. Hancock (our Communications Officer) incorporating the use of our V.H.F. radio channel over which an alarm signal was sent to alert a duty officer via his portable radio. The signal was generated via a pressure switch at the water pump which activated a timer and tone generator connected to a radio transmitter.

### Sorting & Stacking

Norm Clifton's recommendation was that logs be stacked in high rows and each row butted up to the next. This necessitated sorting by log length to eliminate as far as possible any large gaps in middle of stack. We found that any input rate exceeding 400 tonne per day required two loaders to unload trucks, sort and stack efficiently. Due to expected fungal and water staining of log ends, logs destined for the sprinkler yard had an extra 12 inches of trim allowance.

### Log Condition

After 5 months in storage the logs were in very good condition. There was some gain in weight (moisture content) but sawmillers commented that they were actually easier to cut than normal green logs. We found them readily saleable.

### Pitfalls

1. Good filtration of water is essential to avoid even one nozzle blocking up undetected.
2. Diesel or other mechanical pump powering systems less reliable and more expensive than electricity.
3. Good drainage essential.
4. Very good quality control of logs being input essential if money is not to be wasted storing pulp logs. In particular, hairline splits almost undetectable when windblown tree is salvaged tend to open up during water storage or drying out.
5. A log which is marginal in eyeball appearance as a sawlog when logged green will look absolutely horrible when black and slimy after water storage.

6. Storage yard needs to be as close as possible to both weighbridge and maintenance facilities.
  - a) to minimise cartage
  - b) to minimise breakdowns.
7. Extra costs incurred come right off stumpage values. Many hidden costs. We estimate at least \$6.00 extra costs per tonne including cartage, load and unload and stack, power and wages, equipment and administration.

B. Export Sawlogs

Export logs could not be preserved by use of water sprays because of expected rapid deterioration during shipping (3 weeks in ships hold). The method we decided to try was essentially the same as any post and pole operator uses to debark, stack and dry his produce. To achieve this we contracted the debarking (not peeling) to a private contractor who erected a 40 inch Morbank debarker on land adjacent to our forest. The contract was to debark, anti-sapstain spray, and stack to air dry 12 metre and 8 metre export logs. The operation was successful but needs refinements to ensure its future viability.

These are:

Logs need to be straight. Normal sweep tolerances of export logs were not acceptable as the debarker could not spin them properly and damaged the logs.

Logs over 60cm butt were too heavy for the debarker in 12 and 8 metre lengths.

No sapstain permissible prior to debarking because anti-sapstain chemicals do not arrest sapstain once in the log.

Bearers for stacked logs must be either hardwood or other non fungus susceptible material.

Anti-sapstain application via nozzles on out-feed are susceptible to blockage by bark etc. Good filtration and pumps and nozzles required. A dip may be more satisfactory.

Two anti-sapstain chemicals were tried.

- (a) 8 litres of Sapco plus 2kg Sabor per 100 litres water. Difficult to mix. Incompatible with dye due to PH of soln. Nozzles kept blocking and larger nozzles used too much chemical.
- (b) Hypen 5F, 6 litres per 100 litres water. Expensive, but no mixing problems and generally more satisfactory to use. Usage was 6 litres of mix per tonne. Flow rates of chemical are critical due to its high cost.

Hydraulic kickers on in feed and out feed desirable to maintain good production rate.

Very competent loader drivers required to avoid damage to logs when unloading trucks, building and dismantling stacks.

Reliable equipment and backup services essential if scheduled log deliveries etc are not to be disrupted.

Accurate recording of date of debarking, spraying, number of logs, scale volume etc per stack.

Regular monitoring of success of anti sapstain coverage and its effectiveness.

Tune log input to debarker production so that logs are not left either on bush or debarker skids.

Costs:- these involve extra cartage, weighing handling and documentation. Around \$10.00/m<sup>3</sup>.

Benefits:- excess of 20% weight loss plus bark loss.

### Conclusions

Both methods of log preservation were successful in their respective applications and I believe could be both scaled up and improved without much difficulty should a similar situation arise again.