

## Sapstain Management Part Two

# MINIMISING SAPSTAIN IN HAULER OPERATIONS

### - A Case Study

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#### **SUMMARY**

*New Zealand wood exporters are trying to open new, higher value markets for radiata pine logs. Buyers in these markets are imposing restrictions on sapstain. Logging and trucking systems, which reduce the time between felling and anti-sapstain treatment, assist in reducing the risk of sapstain in radiata logs.*

*Fletcher Challenge Forests in the Nelson District obtained an export order for a small volume of one grade in 6.1, 5.5 and 3.7 m lengths. To meet the specification, the time from felling to debarking and anti-fungal spraying had to be less than 72 hours. One ground-based and two hauler contractors were asked to fulfil the order.*

*The hauler operation described in this report used the highlead system to extract a setting segment by segment. The operation moved from one part of the setting to another to keep just a one day buffer between felling and extraction activities. Felling for extraction on Monday was routinely undertaken on Sunday, rather than Friday, to avoid the usual 48-hour weekend delay between felling and extraction.*

*The crew were able to meet the 72-hour specification and maintain production at a level acceptable to both company and contractor, without compromising normal operational standards.*

#### **INTRODUCTION**

Fletcher Challenge Forests in the Nelson District obtained an export order for a small volume of one grade in 6.1, 5.5 and 3.7 m lengths. To meet the buyer's requirements, the forest owner specified that the time from felling to debarking and anti-fungal spraying had to be less than 72 hours. One ground-based and two hauler contractors were asked to fulfil the order. Other instructions to the contractors were:

- Keep slovens on logs so that log ends could be manually sprayed in the stacks with an aerosol can anti-sapstain spray within 30 minutes of cutting to length. In practice, the spray was unpleasant to use so spraying was stopped. Practical safety equipment will be sourced before spraying is used again.
- Keep tree lengths and log ends away from mud and puddles by using bearers.

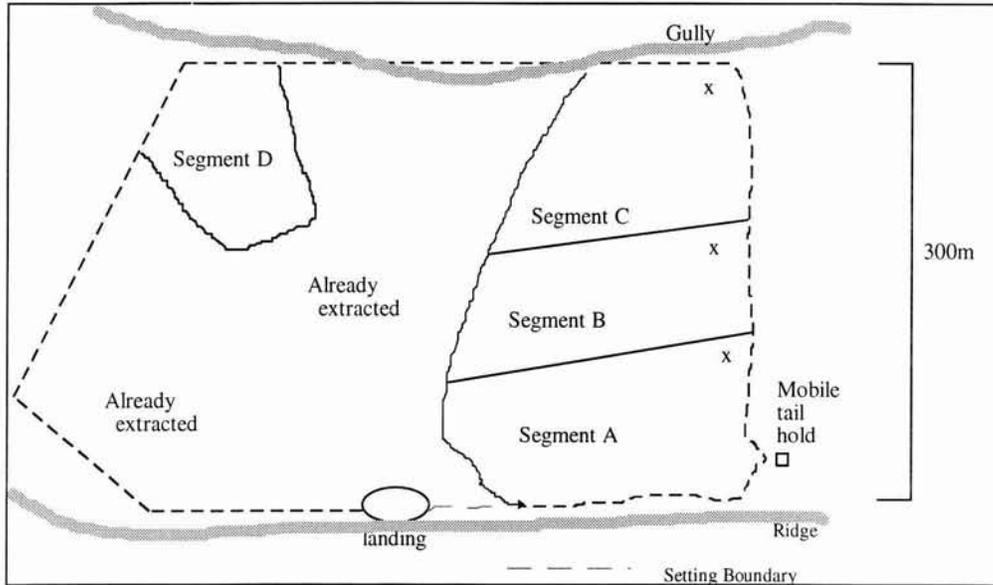


Figure 1- Plan of setting

Fletcher Challenge Forests gave no instructions as to extraction method, but offered a financial incentive across all grades to encourage contractors to use their initiative and develop suitable systems. All normal safety, operational and environmental standards were to be met as well as the 72-hour turnover for the special order.

### OPERATION DESCRIPTION

The contractor visited was Pinus Logging Company who were in the process of logging a complete setting in segments (Figure 1). They moved from one part of the setting to another to keep just a one-day buffer between felling and extraction activities.

The operation consisted of:

- Washington 127 two drum hauler Highlead system  
28 m tower with 7 guys  
Mainrope 650m 28mm swaged  
Tailrope 1200m 21mm swaged
- Bell Ultralogger and Bell static delimeter clearing the chute and delimiting the 50% of pieces small enough to mechanically delimb

- Caterpillar 950F rubber-tyred loader
- Ten crew members
- Tractor tailhold

### SETTING

The setting comprised a slope reaching from ridgeline to gully. Spurs running from ridge to gully formed setting boundaries on both left and right sides. Another spur reached from the landing to the gully in the centre part of the setting. The whole setting had been logged in segments and when visited had about a quarter left to log.

### FELLING AND EXTRACTION

Careful planning was necessary to ensure that the fallers did not get more than two days ahead of the extraction operation. A system of segmented felling was used where small sections of a setting were felled at a time. A description of this system in practise follows. The order of felling and then extraction was 'segment A' first, then 'D', 'B', and 'C' in that order.

Instead of felling a swath from the landing to the gully, in this case a distance of over

300 m, the fallers felled the area marked 'segment A'. This would have been about 1.5 days work for the extraction system. After felling 'segment A' on Tuesday, extraction began on Wednesday morning and would have continued to about the first break on Thursday. Extraction, using the mobile tailhold and stumps, started at the top of 'segment A' and worked downhill.

While 'segment A' was being extracted, the fallers felled 'segment D' and later started opening up 'segment B', at the position marked 'x' (Figure 1) and working across and up the hill towards the previously felled trees in 'segment A'. When the distance between the fallers and the working ropes narrowed to two tree lengths, or the fallers found the heads of the 'segment A' trees obstructing them, they stopped until the extraction activities moved to 'segment D'. Strawline had been left laid out to 'segment D' to facilitate a line shift to extract that area. These frequent changes meant that in some instances, trees could be felled and extracted on the same day.

One of the disadvantages of this system is that the fallers had to open up felling faces (at points marked 'x' on Figure 1) three times instead of just once. For fallers, opening up a stand is a difficult task. This problem increases with stand density. Tree heads from the segment above could also complicate the felling task in this system.

Each setting was walked in advance to plan the felling pattern. Decisions as to felling and extraction movement, and timing, were made virtually hour by hour. Because the buffer between fallers and extraction is so short, such an operation can be disrupted by wind strong enough to halt felling.

There was usually no felling carried out on Fridays, to minimise the amount of wood down over the weekend. In some cases, the hauler would work on a Saturday if

there was wood left on the ground on Friday afternoon. Two fallers would work a few hours each Sunday to fell wood for extraction on Monday. There were five members of the crew able to fell, so they would only need to take a Friday/Saturday weekend about once every three weeks.

It is clear that the frequent rope shifts and the work involved in keeping such a small buffer between the fallers and the extraction system will have an effect on production. However, Sunday felling and pre-rigging and line shifting out-of-shift where possible enabled production to be maintained at a high level. Safety and environmental standards were not compromised to achieve this performance.

## **LANDING**

On arriving at the landing, the felling date of each log was identified by the area from which the wood was being extracted. The time between felling and extraction was so short that this was a simple process. Sometimes fallers would date trees along a boundary between two segments to assist skid workers. Ninety per cent of the trees arriving at the landing could have one of the special order logs taken from them if within the time limit. If any logs arrived on the landing which could not get peeled and treated within 72 hours, an alternative product was cut. After logmaking, the felling date was marked on the butt of the log.

The operation was visited on a Wednesday. Of the 32 logs waiting for transport on the landing, 16 had been felled on the Tuesday and 18 had been felled on that day.

On Monday morning, to 10 a.m., some of the previous week's wood had been pulled and cut to alternative products. For the rest of Monday, wood felled on the Sunday was extracted. On Tuesday and Wednesday, wood was extracted within 24 hours of felling.

## TRANSPORT

This order had a high priority for transport. Trucks were called as soon as a load of the special order was ready. Mixed lengths could also be transported in the same load. Volume was such that at least two truck loads per day of the order were transported from this crew.

## DISCUSSION

This case study shows that the segmented felling system can work and be managed in a way which does not compromise normal operational standards. This crew also managed to fell, extract and process within 48 hours. It was not possible, however, to do this for every log in the setting with such a small buffer between felling and extraction, so fallback grades need to be provided.

In ridge to ridge settings, this crew would normally use a mobile tailhold and scab across the gully. With a 72-hour limit requiring the felling of small segments, the setting on the near side of the gully would first be extracted using the highlead system and stumps as tailholds. The far side of the setting would then be logged using the mobile tailhold and a scab system. This involves more work and more highleading than would be normal and would slow production.

Fletcher Challenge Forests (Nelson region) provided an incentive for the contractor to innovate, and ensured that the logs produced had a high priority for trucking. Pinus Logging Company exhibited very good planning and management skills.

## ACKNOWLEDGEMENTS

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