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TARAWERA PILOT SCHEME

INTRODUCTION OF A NEW FELLING AND DELIMBING TECHNIQUE

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INTRODUCTION

Swedforest Consulting AB and LIRA spent two months in early 1980 developing a work technique for radiata thinnings which would be safer, less arduous, and more efficient than existing techniques. Their recommendations were, that the method for felling and delimbing in radiata thinnings and clear felling in smaller sized conifers, as developed and tested, be introduced on a broad scale.

Due to certain controversial aspects of this technique (the use of a chain brake instead of a mitt and the scarfing/backcutting method) it was decided to test it on a small

scale initially and to monitor reaction. The Tarawera Pilot Scheme was initiated to assess the affect of a change in technique on productivity, and accident frequency of selected radiata thinning crews. Tarawera Forest was chosen for this scheme because of their early pulpwood thinning operations and the previously expressed interest in the technique.

ACKNOWLEDGEMENTS

LIRA wishes to acknowledge the co-operation of contractors R. Crengle, M. Griffiths and A. Stanaway, and Tasman Pulp & Paper Co's, Tarawera Forest staff involved in the pilot scheme.

BACKGROUND

A meeting between Tarawera Forest staff and LIRA was held in mid-1980 to discuss the pilot scheme possibility. The proposal put forward by LIRA was accepted and Tarawera Forest chose five crews to be trained. Only crews who were interested were chosen. The scheme start-up was delayed until early 1981, by which time only four crews remained: three contractors were working in 9, 12 and 15 year old radiata thinnings and one company crew working in 9 year old radiata thinnings. It was also agreed at this stage that LIRA would train one of

Tarawera Forest's supervisors in the technique. He would then be responsible for the majority of follow up.

In January 1981 a meeting was set up between LIRA, Tarawera Forest staff and the contractors to explain the scheme and equipment required. At a further meeting, involving the bushmen participating in the scheme, a video of the technique was shown. A more exhaustive explanation of the technique, equipment requirements, and the reasons for change were given.

A pre-scheme study was carried out. It measured current productivity and the incidence of mistakes by fallers. This was followed by a further study approximately one month after the completion of training. Due to variance in the stands worked, the data was unable to be used for valid comparison.

EQUIPMENT

The following equipment was issued to all fallers : * (Costs as at Feb.1981)

1 Husqvarna felling lever -	\$62.00
1 Chain brake assembly to fit Husqvarna 162 -	\$38.00
1 48 cm (15") or 33 cm (13") bar -	\$25.00
1 Protector Safety Helmet with ear muffs and visor -	\$42.00
1 pair of Nordfor safety trousers -	<u>\$41.00</u>
	<u>\$208.00</u>

The equipment was initially purchased by Tasman and sold to the contractors. A trade-in of \$20.00 was allowed for old helmets. All fallers, except one, had been using Husqvarna 162 chainsaws, and these were fitted with automatic chain brakes. The other faller's saw could not be fitted with the chainbrake.

METHOD OF TRAINING

One day was spent with each faller demonstrating the techniques and giving basic instruction. "Stand over" tactics were used during the initial stages. If an error was made it was corrected immediately by either discussion or demonstration. This was followed by a further full day per gang working between each of the fallers. Although some of those trained had had previous exposure to the technique, training didn't alter.

One drag (approximately 8 trees) was firstly prepared by the instructor. The technique used was then explained with emphasis placed on the following aspects:

(a) Pre-planning and Individual Tree Assessment

The importance to the whole operation good pre-planning has, e.g. its affect on breaking-out time. Individual tree assessment will ensure a tree falls where required.

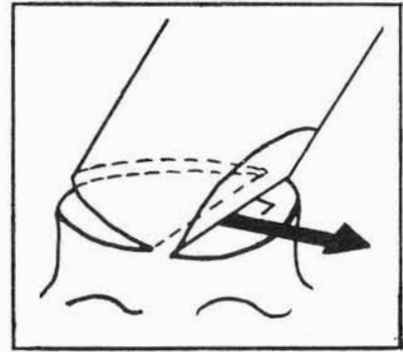
(b) Butt Trimming

The correct technique was demonstrated, i.e. approach the tree holding the saw parallel to the shoulders, with the thumb on the throttle. Using a downward cutting action, work systematically around the tree, and never use the saw above shoulder height. This reduces the possibility of injury from kickback.

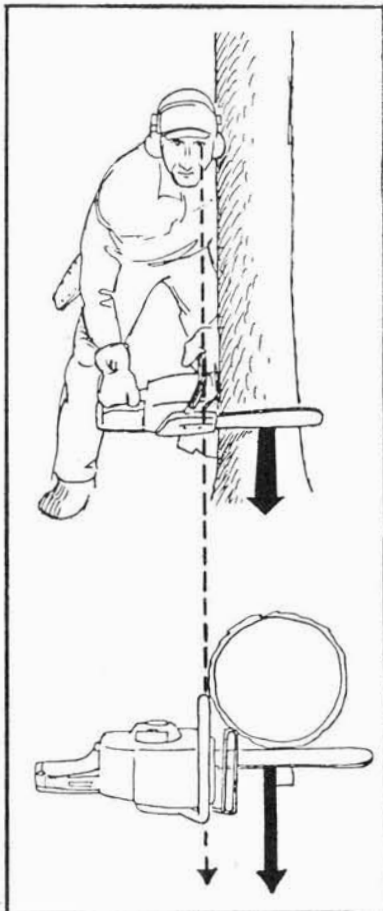
* The use of trade names does not mean than LIRA endorses these products.

(c) Scarfing

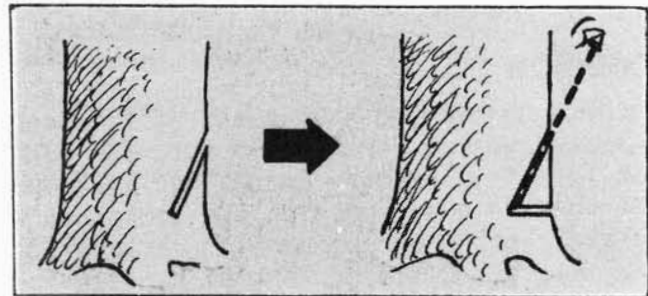
The following points were emphasised:
scarf determines felling direction;
use of saw sights;
advantages of a wide open scarf;
placing the top scarf cut first.



Tree will fall at right angles to the scarf cut



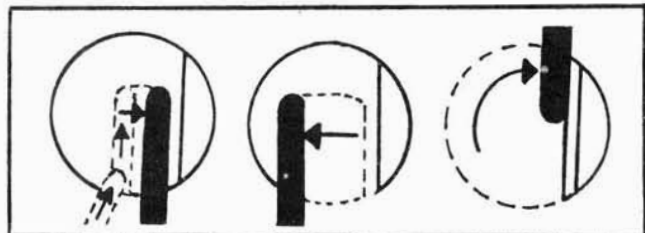
Align the front handle along the proposed felling direction



Make the top scarf cut first, then look through the kerf as the bottom cut is made

(d) Backcutting

Three backcutting techniques based on the use of a short bar were demonstrated. Points such as the need to establish good even holding wood were emphasised.



Backcutting technique for trees which a guide bar of twice the length can pass through

(e) Felling Lever

The use of the felling lever for tipping trees against their lean and for freeing hang-ups was demonstrated. Training incorporated specific back-cutting techniques for the use of the lever.

(f) Delimbing

The delimbing method, which is designed to allow a high quality, productive, and safe trim, was explained. This was demonstrated on a trimmed log without the saw running. The pertinent points were: use the flat of bar; rest saw on thigh or log; position the log at good working height; move the saw freely at all times. The importance of delimbing the underside branches from the same side as the operator was stressed, as well as the reasons for using a short bar and chainbrake.

(g) Maintenance

The importance of correct maintenance and adjustment of chainbrakes was explained.

At the completion of training each gang was given a copy of the Swedish manual* "Chainsaw Use and Maintenance", to which they could refer if any problems arose.

A vital aspect of this method of training is that follow-up must be maintained after the initial training is completed, as people find it very easy to fall back into old habits unless constantly reminded. The follow-up required one person to visit each gang once a week for two or three months, spending a day moving between fallers to check their technique and correct any mistakes.

DISCUSSION

The scheme culminated at the end of four months with an in-field meeting between representatives of Tarawera Forest, the Department of Labour, the Logging and Forest Industry Training Board, and LIRA. All the crews were visited and individual fallers questioned on the technique and its associated equipment. Most found the shorter bar no problem, however, opinion on the chainbrake as opposed to the mitt was divided. The protective equipment issued, trousers and helmets, were unanimously accepted, but concern was expressed at the possible price of the safety trousers. All felt that the trousers were no hotter than other long trousers and easier to wear.

From this short training exercise several points became apparent. To train bushmen in a totally new technique, it would be easier if the initial theory could be explained in a classroom situation, followed up by intensive field training. It is also essential that good follow up is maintained for a reasonable period after the initial field training. Introduction on a wider scale would require a number of well trained and motivated trainers, with access to any aids they may require, such as video, manuals, etc.

CONCLUSIONS

The Tarawera Pilot Scheme was used to introduce a total system involving a new felling and delimbing technique, new and different equipment, and the use of protective clothing. The success can best be judged by Tarawera Forest's determination to expand the scheme and the fact that the majority of the fallers say they will continue with it. The presentation of wood to the mill is of a very high standard. Although the technique is a little slower than the conventional (possibly because a better job is done) there is no apparent loss of production.

The method has proved as safe as most commonly used methods for felling and delimbing radiata thinnings.

* Reference : The National Board of Forestry, Sweden - The Chainsaw Use and Maintenance - 1979, 67 pp.