EXTRA-HIGH PRUNING AT ASHLEY FOREST

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SYNOPSIS

Trials to find the best method of extra-high pruning of radiata pine at Ashley Forest are described. A standard practice has been evolved in a 19-year-old stand in pruning 50 stems per acre from 18 ft to a minimum height of 32 ft, at a contract cost of three shillings per tree.

Introduction

Pruning, especially of radiata pine, to heights greater than the normal 18 ft has long been considered desirable, silviculturally as well as commercially. Expected costs, and, in many cases, arrears of primary silvicultural work, have combined to prevent it growing to a fully fledged and accepted operation in most forests.

As a result of trials the pruning of 40 to 50 trees per acre to a minimum height of 32 ft is now a standard routine at Ashley Forest. Proposals for the treatment of 650 acres in five years have been accepted for a forthcoming revision of the working plan.

While the author considers that the ultimate in technique and procedure has not yet been evolved he feels that the following may be of assistance to those about to embark on a similar operation or who are already in the throes of experiment.

Trials

Trials were begun in the summer of 1958. Thought was given to the use of "Swiss bicycles", or similar appliances, but it became clear that the basic item of equipment would have to be the ladder, both from the practical as well as the safety angle. For this purpose the Swedish sectional tree-climbing ladder was ideal, being both extremely light and strong. Other equipment used, and still being used, as no substitutes have been found, is as follows:

1. Curved pruning saws, 5 to 6 teeth to 1 in., attached to 4-ft adze handles.
2. Safety belts and the inevitable safety helmet.

The saws have tied to the handle a light, strong, cord which in turn is attached to the safety belt by a spring clip.

Progress for the first four to five days was poor, only 15 to 20 trees daily being treated by each pair of workers. The main fault lay in operators failing to take full advantage of safety belts, in not relying on them for support while sawing. The sight of men grimly hugging the bole with one arm and trying to manoeuvre a saw with the other was reminiscent of the oft-quoted one-armed paperhanger.

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However, as the trials progressed the workers' confidence and, naturally, their skill and technique improved, as was clearly demonstrated when towards the end of a fortnight the number of trees pruned per day rose to 35. The pruning operation was then, and still is, on broken terrain, with slopes of 30 degrees and with movement between trees considerably hampered by an abundance of debris and slash from past thinnings.
**Trial Costs**

Total costs, from the pruning of 380 trees over 6 acres, amounted to 3s. 3d. per tree (inclusive of salary, wages, and fleet, but exclusive of overheads).

**Present Practice**

The following basic equipment and operating technique is now standard, as a result of the trials and after 12 months' experience.

- **Operators** — two, equipped with safety belts.
- **Saws** — as described above.
- **Swedish ladders** — two sets of two sections, i.e., 20 ft each
  one single length, i.e., 10 ft.

The success of the operation depends on the elimination of waste time and movement. The following, while not perfect, has achieved these to a considerable degree:

**Operational Procedure**

Operators = A and B. A attaches one double length of ladder to a tree, and begins pruning, while B fixes the second double length to another tree. B then returns and hands to A the single length when required. A completes pruning to 32 ft minimum, then hands down the single length to B, who then begins to prune the second tree.

The procedure is then repeated.

**Prescriptions**

Prescriptions aim at treating 50–60 trees per acre, only those of the best form and vigour being selected. The token system is used, markers attaching brass tags when selecting trees. The minimum height to be pruned is 32 ft, the average normally 36 ft.

**Stand under Treatment**

At present, 1939 and 1940 stands, with an average stocking of 450 stems per acre, are being treated; they were completely low-pruned to 8 ft at eight years, and a further high pruning to 18 ft of 180 stems was carried out at 14–16 years shortly before a first thinning to 400–450 stems per acre. These stands are now at a critical age and state, but fortunately the top prunings of most of the trees are green, which means that bark-encased and dry knots will be few. A random analysis of 50 pruned trees showed that diameters at breast height range from 9.8 in. to 14.3 in. with an average of 11.7 in., while diameters at 32 ft range from 6.5 in. to 9.5 in., with a mean of 7.9 in. A second thinning to 160–190 stems per acre is following extra-high pruning.

**Present Costs**

At the time of writing, all extra-high pruning is done by men on piece work at the rate of 3s. per tree. This includes the pruning from
the ground of one whorl at a height of 18–20 feet to allow the double ladder to be erected. Each pair of workers treats an average of 50 trees daily, and sometimes, where terrain is level and with little debris and slash, up to 80.

**Profitability**

What profit each tree or acre will return, through this treatment, is a source for argument and conjecture, and will probably remain so.

It would seem however that 40 or so of the trees treated will remain part of the final crop. On a rotation of 45 years each of these trees could yield additional clear timber as contained in a log 16 ft long of estimated 21 in. mid-diameter, with a knotty core averaging 10 in. The value of this timber as compared with that of an unpruned length containing bark-encased knots and cone-stem holes is likely to make the £3. pruning cost a very paltry sum.

**NOTES**

**HURRICANE DAMAGE IN NORTHLAND**

**M. J. CONWAY**

An extract from the N.Z. Gazette 1959, No. 23, page 535 reads as follows:

A tropical cyclone which passed close to North Cape on the evening of 14 March 1959 caused widespread damage over the northern half of Northland. At Cape Reinga lighthouse the barometer fell to 963 millibars—the lowest ever recorded in the North Island. Winds from the north-east reached hurricane force, and a gust of 110 mile/h was recorded at Kaitaia aerodrome. Many buildings, including five churches and three halls, were destroyed by the wind, and power and telephone services were completely disrupted over a wide area. In the Kerikeri district much of the tree-tomato and citrus crop was destroyed.

The highest wind ever recorded in New Zealand was one of 126 mile/h. Fortunately the cyclone of 14 March passed west of the coast and wind strengths decreased to the south and east where the forests are located. Synoptic observations (namely, average of readings over a ten-minute period, in knots) show this general pattern:

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<th>1200 hours</th>
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