

EARLY THINNING AND PRUNING IN PINUS PINASTER.
by E. R. Hopkins.

In March 1958 a trial was carried out for early thinning and green pruning operations in Pinus pinaster.

The trial is part of a project designed to provide information regarding the adaptability of this species to early heavy thinnings and green pruning. These are necessary adaptations if quality pine timber is to be produced in the minimum rotation under a commercial system where sizes under 6" diameter are undesirable.

The project is established in 6½ year old Leiria at North Kendall block, Gwangara. It was set out on a strip basis to cover all site qualities while permitting costing under conditions normal to gang working.

0.1 acre sample plots have been established outside the trial area to provide subsequent growth and thinnings data. For the present purpose these are only useful insofar as they define the stand characteristics and illustrate the efficiency of tree marking.

Procedure.

Procedure was designed to thin and prune the strip at a minimum cost. The method used was as follows:-

- (1) The best trees were pruned and spaced using the Queensland selection system in which at least one tree in every four is green pruned to 8 ft.

- (2) All unpruned trees were removed from the strip in a combined cleaning and thinning operation.

A crew of three, drawn from the normal pruning gang, were given one day's introduction to the system of marking prior to proceeding on the one acre strip.

Members of the crew worked along separate rows, selecting trees according to the best in 4 count and pruning these selected trees to 8 ft. with an axe. The time taken to completely prune over the trial area was recorded.

On completing the pruning, the three man crew worked back over the area, removing all unpruned trees and competing hardwood stems. The time taken to carry out this combined thinning and cleaning operation was also recorded.

The cost of the operation was calculated using a cost figure for one man hour based on the present wage rate for a pruning crew of six, including an overseer.

Results.

(a) Costing.

Pruning = £4. 7. 0 per acre
 Thinning and clearing = £2. 3. 6 " "
 Total for treatment = £6.10. 6 " "

For comparison an approximate cost for present pruning and clearing operations at Gnangara, as per Manual prescription, is £8.16. 6 per acre.

(b) Selection.

Planting number/acre = 988 (7' x 6' approx.)
 Number actually planted/acre = 825
 Number selected/acre = 370 (11' x 11' approx.)

(c) Plot Data.

Plot No.	Number of Trees				Mean Diameter at B.H.			Pre-dom. Ht. (ft)
	Total	Blanks	Plant-ing No.	Select-ed	Total trees	Select-ed	Not select-ed	
1	91	17	108	46	4.2	4.5	3.9	27.5
2 *	81	15	96	35	3.8	4.1	3.7	26.0
3	81	13	94	46	3.6	3.7	3.4	25.5
4	74	19	93	41	3.6	3.7	3.3	26.5
5	79	15	94	41	3.9	4.3	3.4	27.5
6	78	17	95	39	3.5	3.8	3.1	25.0
7	88	8	96	42	3.2	3.5	2.9	24.0

* Plot 2 selected on the basis of 1 tree in every 5.

Plots 3, 4, 6 and 7 are representative of the trial costing strip.

Discussion.

The main point considered to arise from this trial is that by adapting the Queensland pruning system an easy and practical prescription for early thinning and pruning can be carried out. The system is mechanical, is readily picked up by gang members after a brief tuition period and leads to even spacing and good selection within the stand. This latter point, illustrated in the plot data, is readily observable in the field.

Cost figures are interesting and provide a lead but can by no means be considered as the final answer. Both the gang and trial area can be taken as average for future work of this type. The actual economics of the business however, cannot be stated until returns and costs for the first merchantable thinning (probably at age 15 years) are obtained.

It is felt that the system has merit on the following points:

- (1) All marking is done by gang labour. This will be a definite advantage with large future areas requiring treatment under a shortage of skilled tree markers.
- (2) The early cleaning and thinning offers a solution to producing quality wood for future markets.
- (3) With *P. pinaster* which is planted at 7' x 7' spacing, malformed stems would be removed at an early age when major tree faults have expressed themselves. At present these trees are removed at the first merchantable thinnings.

The trial is being extended to five year old stands with a view to determining cost and selection possibilities at this age.

On observing the trial nine months after establishment, the degree of occlusion of axe pruning scars is surprising and subsequent development could exclude further doubts as to whether axe pruning is too severe on young trees of the size encountered during the trial.

Conclusions.

- (1) Early unmerchantable thinning and green pruning trials have been commenced in *Pinus pinaster*.
- (2) Data obtainable at present indicates that the prescription outlined for the trial offers a satisfactory method of treating young stands (under 8 years of age) to anticipate future log requirements.
- (3) The merit of the Queensland pruning system as practiced generally in Queensland and Kenya is definite. It is considered that it offers a practical approach to marking large areas of pine with a minimum number of men.
- (4) This type of trial needs to be carried out on younger pine with an endeavour to reduce costs. The minimum age to permit final tree selection and to bypass possibilities of scrub competition is the one to aim at.
- (5) Axe pruning, permissible at age 7 years is probably too severe for trees younger than this.

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CONTENTS:

PAGE

Editorial		1.
Jarrah Seedling Plots - Willowdale.	A. C. van Noort	2.
An Unexplained Disorder in Wandoo.	F. D. Podger	9.
Nursery Soil Fertility Studies.	A. B. Hatch	9.
Blackwood as a Karri Forest Understorey.	J. Meachem	13.
Germination Stimulation in Pinus pinaster.	E. R. Hopkins.	13.
Bunning Bros. Occidentale Plantation.	F. D. Podger	19.
Cutting out the Deadwood.	P. J. McNamara.	19.
Early Thinning and Pruning in Pinus pinaster.	E. R. Hopkins.	21.
Eucalyptus crebra Planting on Dieback.	F. D. Podger.	24.
Gang Morale.	D. R. LeJeune.	24.
Pole Thinning in Jarrah Coppice Regrowth.	P. N. Hewett.	25.
High Yield from Prime Karri Forest.	A. C. Harris.	26.
Visit of the Conservator and Party to the Kimberleys.	G. E. Brockway.	26.
Display of Local Timbers at Head Office.	D.W.R. Stewart.	33.
Boil it Down.	W. R. Wallace.	34.