

THE ESTABLISHMENT OF P. PINASTER IN THE BANKSIA BUSH COASTAL SANDS.

by D. Lejeune

To understand the opportunity for large scale low coast plantation establishment within approximately 30 - 40 miles of the key market in W.A. one requires an appreciation of the forest type and methods of establishment.

Forest Type

The largest trees are normally Banksias, Sheoaks and Christmas Trees with low density Jarrah and Coastal Blackbutt in scattered areas.

Soil Types

Two soil types are recognised, the Bassendean sands (white) e.g. Gngangara, and the Spearwood sands (yellow) e.g. Yanchep and Moore River. Acceptable Bassendean sands are typified by a shallow water table which compensates for the poor fertility of the soil. Acceptable Spearwood sands are any which are not underlain by shallow limestone. Although the water table is normally deep, they have a far better moisture holding capacity.

The selection of plantable Bassendean sands is now being done by an ecological approach. The occurrence of Jarrah, Marri or dense Blackboys are obvious indicators of water availability. Less well known species of undergrowth also indicate whether a site is too dry, acceptable or too wet.

The selection of plantable Spearwood sands can be done from photos providing they are not on the eastern boundary where there is a transition between the two types. In this zone it is necessary to return again to the ecological approach.

It has been found a definite advantage to select acceptable sites at least 5 years in advance to enable proper planning. A dozed boundary is made and this appears on photos and plans. Areas to be cleared are protected from fire at least four years before chaining to allow the initial burn to run. This probably surprises the southern foresters.

Clearing Procedure

- (1) Removal of millable timber. From the above it is obvious that millable timber is generally absent.
- (2) Initial clearing using two large dozers with chain and pushing or cutting any trees which cannot be chained. This is done entirely by contract and prices have been as low as \$1.00/ac. in bush with no jarrah and

up to \$1.55 in an area with 50% jarrah.

14.

drying
One summer is ample/time for light bush. The initial burn follows.

- (3) Final clearing is done using a dozer with a wide front mounted rake. Rakes up to 26' have been used. Where there is no heavy material, wheel tractors drawing scrub rakes can be used for economy. This work also lends itself to contract. Windrows or heaps are formed and these can be kept burning using a small machine. The only handwork really necessary is picking up the few stumps etc. when heaps do not burn completely. Because of machine planting it is necessary to have the ground much cleaner than in hand planting. Prices have been as low as \$2.20/ac.

Ploughing

Use Fordson 4 x 4 and Chamberlain tractors drawing Chamberlain 14 disc ploughs.

Piecework has proved highly successful with ploughing reducing the time for the job by about 30%. This is due to long hours worked. Piecework is about to be commenced with furrow lining and a similar result is anticipated.

Furrow Lining

Fordson 4 x 4 tractor now pulls four furrow liners attached to a bar spanning four rows. This reduces costs and halves the number of tractors required.

Planting

The above tractors drawing twin two man planting machines. For odd rows, short runs etc., single two man machines are used.

Initial Supering

2 oz. per tree of either super or zinc super is applied as soon as planting is complete. Four rows at a time can be covered using four men with super bins on a specially constructed tractor mounted platform. However, some is still done by each man carrying his supply of super.

Cost does not vary with the method but with need for zinc super.

Possible Reductions in Cost

No great reductions are anticipated. The cost effect of some refinements in clearing will be minimal. There is certainly scope for a big reduction in supering costs and ultimately it is anticipated that super will be applied at time of planting or from the air.

Future Costs of Establishment

Looking ahead for say 10 years and basing costs on today's value of the dollar the following costs might be anticipated as average.

Initial Clearing	\$ 1.20
Final Clearing	\$ 2.60
Ploughing	\$ 1.50
Furrow Lining	\$ 0.50
Planting	\$ 3.50
Applying Fertiliser	<u>\$ 4.50</u>
	<u>\$13.80</u>

These costs include all contracts, wages, plant and materials.