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TreeNote

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Harvesting farm-grown trees: three growers' experiences

Tree crops can produce high returns for farmers, especially if stands are managed well and are harvested efficiently. This TreeNote describes the harvesting experiences of three farm foresters in the south-west of Western Australia. The examples provide illustrations of good financial returns from farm forestry and highlight some of the issues faced by growers seeking maximum returns at harvest.

In addition to the many landcare benefits provided by growing trees (and some income from thinning), harvest is the time of major financial returns from the crop.

Nils Sandberg - Greenbushes

"Plant trees to provide income for your retirement". This view is passionately held by Nils Sandberg and was the main reason he planted 70 ha of radiata pine on the Greenbushes property he bought 20 years ago. Now in retirement age, Nils is pleased that this year's harvest sees the fruition of his retirement planning - a concept widely followed in his native Sweden where farmers traditionally plant trees on part of the farm for retirement income. The Sandberg pine plantation is complemented by a further 10 ha in blue gums that are now four and a half years old.

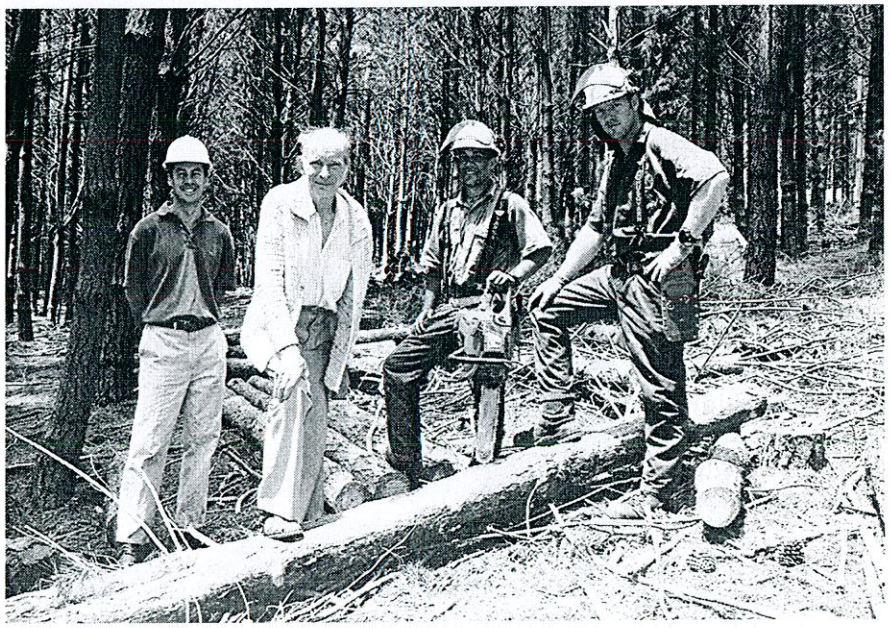
Mr Sandberg sold his pine trees 'standing', that is, he engaged the newly formed Western Timber Cooperative to negotiate a stumpage price which meant he did not have to be concerned with contracting for the falling, or transporting and marketing. The 20 year old pines had been planted in three blocks (two of 20 ha, one of 30 ha) at 1600 trees per hectare and had not been thinned or pruned in the life of the stands.

Prices paid for timber

Stumpage is the price paid to a grower for harvested timber, net of all harvesting and transport costs.

Mill-door price is the price paid for wood delivered to a processor. Growers who negotiate mill-door prices pay the harvesting and transport costs.

One of the 20 ha blocks had trees of superior quality, closer spacing and smaller branches when compared to the other two blocks. Harvesting these pines called for consideration of markets and harvesting methods. Western Timber Coop decided to use hand falling, and to maximise the proportion of round timber for preserving (for posts, rails and strainers), because demand for preservation rounds was high and prices were higher than for case logs and chiplogs.



A pause in hand falling in Nils Sandberg's 20 year old radiata pine plantation. (From left) Rob Troeth, Western Timber Coop, Nils Sandberg (owner), hand faller Mark Peterson and Vic Bijl, proprietor of Southern Professional Tree Service, Bridgetown.

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A mixture of preservation wood and case logs (radiata pine) await collection at the Sandberg plantation.

Log types

Sawlogs are large logs suitable for milling into sawn timber for framing timber and panelling.

Case logs are smaller logs sawn to produce timber for pallets and other lower value uses.

Chiplogs are smaller and lower quality logs used in reconstituted products such as chipboard and fibreboard.

Preservation rounds are straight small diameter logs suitable for use as posts, rails, and other outdoor uses (such as landscaping), after treatment with preservatives such as CCA.

Getting the best value

Vic Bijl of Bridgetown who undertook the hand falling contract, said relative to machine-falling, his team working with chainsaws were better able (because they stand right next to the log) to scrutinise and maximise the amount of higher value preservation rounds taken from each tree. Vic said his chainsaw falling and cutting techniques (for pines) typically resulted in recovery rates of 75 per cent for preservation rounds, 16 per cent for case logs and 9 per cent for chiplogs. Whereas with machine falling, recovery rates for preservation rounds were often about 1 to 10 per cent, with chiplogs forming the majority of the recovery (in excess of 70 per cent).

Returns

Harvest at Nils Sandberg's (April 1999) had hand falling recovery rates of 90 per cent for preservation rounds, 8 per cent for case logs and 2 per cent for chiplogs. Stumpages offered for his tree crop were $30 per cubic metre for preservation rounds, $20 per cubic metre for case logs and $13 per cubic metre for chiplogs. Subsequently the export price for woodchips fell substantially but overall returns were buoyed by the high proportion of preservation rounds produced relative to chiplogs. Yield of timber was about 250 cubic metres per hectare (clearfelled) and about 125 cubic metres per hectare (50 per cent thinning). These volumes provided a return to the grower of about $7300 per hectare (clearfelled) or $3650 per hectare (thinned).

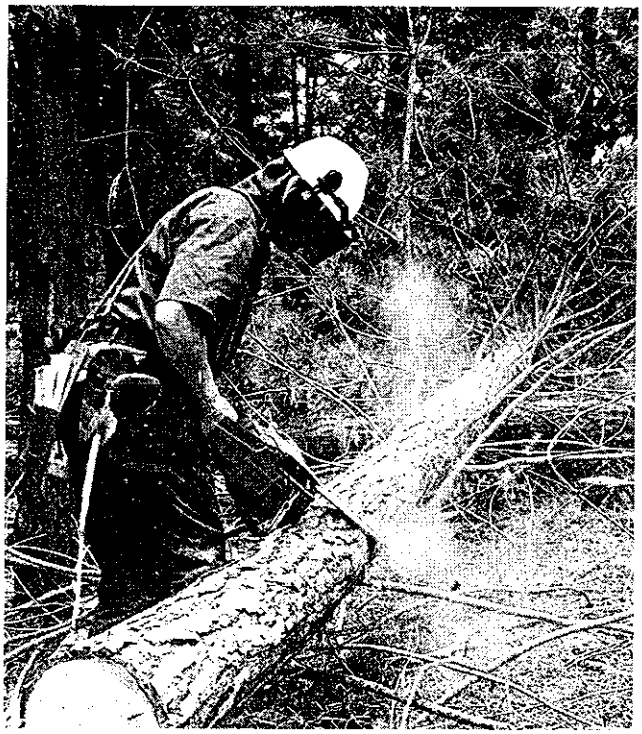
Through the Western Timber Coop contract, preservation rounds were bought by Timber Treaters WA, Bridgetown, case logs by Blackwood Timber Milling, Bridgetown and chiplogs by Whittakers Ltd at Greenbushes.

John and Rene Highet - Bridgetown

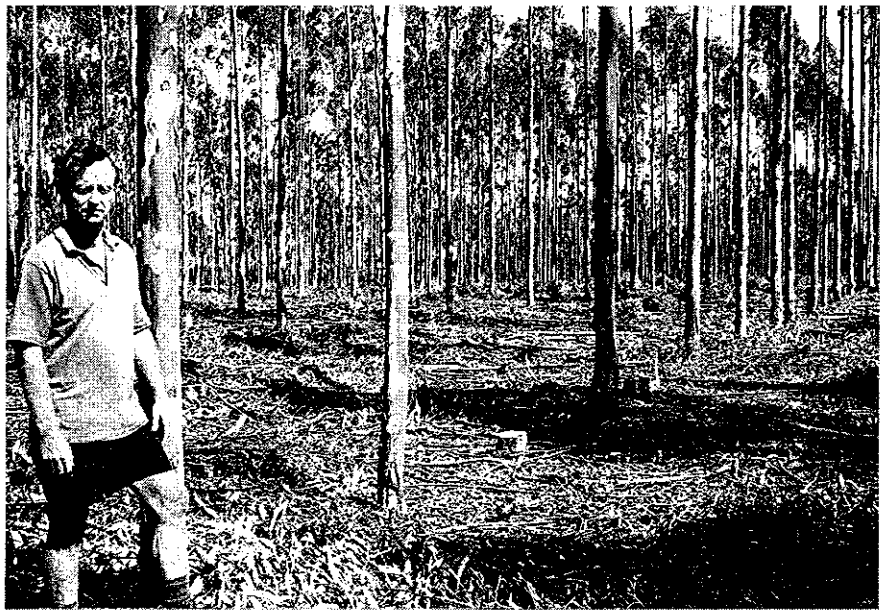
John and Rene's first experience in farm forestry was in the wheatbelt in the early 1980s, planting eucalypts and casuarina to control a rising watertable. Then, as background to this harvesting story, they bought a small property at Yornup, south-east of Bridgetown in 1994 that had an 8 ha plantation of six year old Tasmanian blue gum (*Eucalyptus globulus*) and Sydney blue gum (*E. saligna*). These species were planted in alternate rows at 1600 trees per hectare. John believed the original owners had chosen this pattern so they could harvest the *E. globulus* for chiplogs and retain the *E. saligna* for sawlogs.

Thinning

In November 1998, with the trees then 10 years old, John decided it was an opportune time to thin the plantation. This was done by contract for thinning and cartage and a mill-door price was negotiated with Bunnings Treefarms. In this pricing, the *E. globulus* was more attractively priced ($3 more per tonne than the *E. saligna*), that is $47 per tonne and $44 per tonne respectively. On this basis John decided to harvest all the *E. globulus* rows first, then remove some of the poorer



Vic Bijl demonstrates high speed de-limbing which is followed by measuring and cutting of the log to recover the highest proportion of high value preservation wood.



John Highet in his 8 ha block of 10 year old Sydney blue gum (E. saligna) *following harvest of Tasmanian blue gum* (E. globulus) *from alternate rows and some* E. saligna *three months earlier. These trees will be grown on for sawlogs. Note the stump within the row in mid ground from thinning the poorer specimens of* E. saligna.

E. saligna trees and grow the remaining ones on for future sawlogs. After deducting harvesting costs of $18.37 per tonne and $5.43 for cartage, (34 km to the Diamond chip mill near Manjimup) the stumpages received were approximately $23 per tonne for the *E. globulus* and $20 per tonne for the *E. saligna*.

The yield from the 8 ha block was 1150 tonnes of *E. globulus* and 150 tonnes of *E. saligna*, giving a total of 1300 tonnes of wood product. The stumpage received from these thinnings was equivalent to a gross annual return starting at $269 per hectare, compounding at 7 per cent for 10 years. Further returns are expected when the remaining trees are sold as sawlogs.

Hypothetical returns from a blue gum plantation

John estimated that his 8 ha block would have yielded about 2000 tonnes after 10 years had it all been planted in *E. globulus*. Clearfelling at age 10 would have realised (mill-door price at November 1998) about $94,000 or a stumpage of $54,000. This stumpage would be equivalent to a gross annual return starting at $489 per hectare, compounding at an interest rate of 7 per cent over the full rotation. Note, harvesting costs are lower when clearfelling, and a more generous stumpage results than in the actual harvest described in this TreeNote, with selective extraction of *E. globulus* and some *E. saligna*.

Future

In future management of the block, John will spray out coppice regrowth, apply fertiliser, and he expects to carry out a further light thinning of the remaining *E. saligna* in five to six years. Although markets for these sawlogs are not yet well developed, there is likely to be strong demand for plantation grown sawlogs in future. In the meantime John sees the trees as continuing to provide pleasing aesthetics and good environmental effects including shelter.

Graeme and Libby Olsen - Waroona

Graeme and Libby became owners of a 31 ha pine plantation when they bought a property in the Darling Ranges north-east of Waroona. The pines, which were planted in 1971 on steep, freshly cleared land, had been low-pruned and thinned to 400 to 500 trees per hectare, but had no further management.

The trees planted on deeper soils had grown reasonably well – they were 25 m tall and had diameters of 30 to 40 cm at breast height. However, trees planted on steeper, rocky country had performed poorly, suffering from water and

Graeme Olsen checks diameter of pine saw logs from his January 1999 harvest of 28 year old trees. These sawlogs were transported to Wespine's mill at Dardanup.

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Mechanical harvesting of radiata pine at Olsens'. Harvesting was not possible in some parts of the plantation owing to steep and difficult terrain.

nutrient stress, as well as competition from marri and jarrah regrowth.

Most of the plantation was *Pinus radiata*, but one patch of deep valley soil had been planted to *P. pinaster*. These trees grew well, but many had little commercial value because of bent or forked trunks, and large side branches. Note: The form of *P. pinaster* available today has been improved by tree breeding.

Harvesting

Harvesting the pines produced some handy income, and also provided an opportunity to change the way the property is managed. Some areas were clearfelled to make way for a second rotation of commercial trees, some areas will return to native forest after harvesting, while other areas were thinned heavily to about 100 trees per hectare to allow the remaining trees to produce sawlogs in 10 to 15 years.

Pacific Forest Corporation Limited organised the sale of the timber and contracted Plantation Logging to do the harvesting and transport. Because of the steep terrain and poor access, much of the wood had to be carted long distances by forwarder to a log landing on a neighbour's property, incurring higher extraction costs.

Volumes and returns

About 15 ha were clearfelled, and a further 4 ha were thinned in March 1998 and January 1999. Twelve hectares were inaccessible, or had insufficient saleable timber to justify harvesting.

A total of 2222 cubic metres of chiplogs, 857 cubic metres of sawlogs (most in the 250 to 350 mm diameter range), and 43 cubic metres of preservation rounds were extracted from the plantation. Sawlogs were sold to Wespine, woodchips went to Wesfi, and preservation rounds went to Koppers, all near Bunbury, about 80 km from the plantation. A local joinery firm bought 50 cubic metres of sawlogs to mill using a portable sawmill.

Gross returns to the grower were $48,000, based on average stumpages of $10.50 per cubic metre for chiplogs, $28 per cubic metre for sawlogs, and $25 per cubic metre for preservation rounds. After deducting extra costs for extraction and roading (grading and water binding), net returns were about $40,000.

Conclusion

If the initial investment and long growing period are taken into account, the returns from this plantation were poor. However, commercial harvesting provided a profitable way for the present owners to clear the pines from areas where they were unproductive and thin some of the better areas to produce higher economic returns in the future. The returns per hectare could have been much greater if pines had been planted only in the best areas, and if they had been fertilised and thinned on time.

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