



CHAPTER 9 - ECONOMIC ANALYSES

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Prime logs ready for loading.

INTRODUCTION

The economics of growing cypresses are of considerable interest to many. How does the investment in cypress forestry compare with other land uses? As with many economic discussions, it can be summarised by the words “it all depends!”

Published economic studies of cypress forestry have shown a range of values, reporting IRRs (internal rate of return) from 4 to 8%. In comparison, the same studies calculated radiata pine figures range from 4 to 9.9%

However cypress forestry is not as refined as radiata pine forestry, which means that there are more assumptions used in an economic analysis of cypress forestry than with radiate

pine. This means that calculated returns often tend to err on the conservative side. The following is presented as a guide only and should not be used as a basis for any large-scale investment. Seek professional advice before making a significant investment in a cypress forestry project. The values used are based on best estimates, but note that land values have not been included in these calculations.

Using the recommended regime discussed in Chapter 8, the range of log types from MARVL analysis, an estimate of cypress forestry has been conducted. With a rotation length of 35 years, this example estimates an IRR of 8%.

Table 7: Estimated costs used in financial analysis

Operation	Stand age	Cost (\$/ha)
Land cost		0
Land prep	0	40
Tree stocks	0	375
Planting	0	250
Releasing etc	0	235
First prune	6	825
First thin	6	350
Second prune	8	300
Third prune	10	650
Second thin	10	350
Annual costs		60

The estimated costs used for the economic analysis are shown in Table 7. As more experience is gained and larger areas of plantations are established better information on costs will be derived.

Other costs

Management (15% of costs)
 Roading, log, load, and fees \$47/m³



Harvesting operations in progress

Yields

The calculation of yields at rotation age is difficult because of a lack of well-tended stands. Evaluation of MARVL analysis, actual recoverable volumes, data from the national PSP data base, and growth model predictions have been used to estimate recoverable yields.

Total standing volume is estimated as 600 m³/ha. Of this it is estimated that 92% is recoverable volume, resulting in 550 m³ available for utilisation.

This is estimated to be made up of 250 m³ of pruned and 250 m³ of branched sawlog material. Within the pruned component it is estimated 80% is high-quality pruned logs and 20% is lower-grade pruned logs. Within the branched sawlogs, it is estimated that 60% is small-branched logs and 40% is large-branched material. It is estimated that 10% of the branched material is non-sawlog or firewood material.

Revenues

Revenues are based on 250 m³ of prime pruned sawlogs, 150 m³ of second grade pruned sawlogs, 150 m³ of small-branched logs, 100 m³ of large-branched sawlogs, and 50 m³ of firewood. With log values per cubic metre of \$240, \$160, \$90, and \$60/ and \$0, respectively, this provides a total estimated revenue of \$52,000/ha. More data collection and full details of harvested tended cypress stands are required to validate these estimates.

Sensitivity

The base case estimates an IRR of 8%. Sensitivity to changed variables, but keeping everything else consistent, provides an indication of important aspects of the economic analysis. Revenue needs to lift to \$72,000 for this evaluation before IRR reaches 9%. If yield is reduced by 25%, IRR drops from 8% to 7%.

If land cost at \$4,000/ha is included, IRR drops to 5.6%. If seedling costs are doubled IRR is reduced to 7.7%.

As the figures used in this analysis are of a general nature, more detailed site-specific analysis figures evaluated by professional advisers on a case by case basis should be used before investing in cypress forestry .



Macrocarpa logs of variable quality ready for loading.

Key Points

- Analysis of cypress forestry suggests possible IRR of around 8%.
- Improved log prices will mean a significant improvement in IRR.
- Seek professional input before large investment in cypress forestry.

Suggested reading:

Cavanna and Glass 1985

Maclaren 2005

Herbert 1994