



This series on Cypress has three parts. Each part can be read individually or as part of the series.

1. Overview
2. **Management Regime**
3. Pruning Regime

### MANAGEMENT REGIME

While there are a number of regimes that could be applied to the growing of cypress species for timber production, an intensive management regime is considered by many to be the most appropriate. The following is one possible regime based upon experience in New Zealand.

- Relatively high initial stockings at establishment.
- (Eg: 3m x 3m spacing for 1,111 stems/ha)
- Weed control prior to planting.
- Fertilise following planting.
- Release spray for the first two seasons.
- Form pruning in years 1 and 2 to increase selection.
- Commence clearwood pruning when trees are 1.5m - 2.0m tall.
- Regular variable lift pruning with 0.5 to 1.0m lifts.
- Pruned stocking of 300-400 stems/ha.
- Non-commercial thinning to 600-800 stems/ha by age 6-10. (Trees of poor form are culled).
- Mid-rotation commercial thinning to 300-400 stems/ha.
- Clearfell at age 30-40.

### STOCKING & ROTATION AGE

#### High quality sites

(Eg: basalt soil, high rainfall and mild to warm low elevation sites).

A 25-35 year rotation with a final pruned stocking of ~400 stems/ha is anticipated.

Commercial thinning of the unpruned trees at age 15-20 for small diameter knotty sawlogs is a possibility.

#### Low quality sites

(Eg: low fertility soil, low rainfall and colder, higher elevation sites).

A longer rotation of 35-45 years with a final pruned stocking of 300 stems/ha or less is anticipated.

Commercial thinning of unpruned trees at age 20-25 may be possible.

The following labour estimates are based upon an intensive management regime, as outlined previously. Estimates are for a 1 ha site planted at 3.0m x 3.0m (1111 stems/ha) and a final pruned stocking of 400 stems/ha, pruned to 6.4m.

**Table 1:**

Activity	Year	Month(s)	Labour (hrs)
<b>Establishment</b> ( <i>Seedlings, planting, weed control &amp; browsing control</i> )			
Order Seedlings	-1	Spring	-
Weed Control (1) <sup>1</sup>	-1	Summer	0-5
Plantation Layout <sup>2</sup>	-1	Autumn	1-3
Weed Control (2) <sup>3</sup>	-1	Autumn	8-12
Fencing (browsing control) <sup>4</sup>	-1	Autumn	10-15
Planting <sup>5</sup>	0	Winter	15-20
Fertilising <sup>6</sup>	0	Spring	4-5
Weed Control (3) <sup>7</sup>	0	Summer	10-15
Weed Control (4) <sup>8</sup>	1	Spring	0-15
<b>TOTAL - Cypress Establishment</b>			<b>48 - 90</b>
<b>Management</b> ( <i>Pruning &amp; Thinning<sup>9</sup></i> )			
Form & Clearwood Pruning	2-10	Spring	85-128
Thinning (non-commercial)	6-10		10-15
Thinning (commercial)	~15		-
<b>TOTAL - Pruning &amp; Thinning</b>			<b>95-143</b>
<b>TOTAL - Establishment &amp; Management</b>			<b>143-233</b>

**Important Note:** Estimates are a guide only and may vary depending upon a number of factors. Time required for silvicultural operations will vary between landowners, depending upon experience and site conditions. Other management costs can vary considerably, depending upon the area established.

**Virtually all operations can be undertaken by landowners with basic training in silvicultural techniques.**

1. Conducted 6-12 months pre-planting to control woody weeds (not required all sites).
2. Marking of planting lines / groups (where cultivation is not undertaken).
3. Knockdown and residual herbicides applied to planting areas with strip or spot application, depending on location and conditions.
4. Cost and labour requirements associated with fencing can vary considerably, depending upon browsing animals to be excluded, fence construction, terrain and perimeter to area ratio.
5. Small areas planted without cultivation. Planting rate based upon planting ~60 seedlings/hour.
6. 100g Diammonium Phosphate/tree 1-2 months post-planting. Ensure adequate weed control prior to the application of fertiliser.
7. Release spraying ~9 months after weed control (2). Labour rate based upon ~90 seedlings released /hour.
8. May not be required, depending upon initial growth but if required, undertaken ~9 months after weed control (3).
9. Refer to **Information Sheet No 3. Cypress - Pruning.**

## CULTIVATION OF PLANTING LINES

If ripping and mounding is undertaken, ensure there is sufficient rain and time for settling of the mounds prior to planting. Planting into loosely mounded soil may result in tree instability.

## WEED CONTROL

Cypresses can be slow to establish, with a fine surface rooting habit that is particularly susceptible to weed competition. Knockdown and residual herbicides should be applied prior to planting. Release spraying in the first and second growing seasons may be required.

- Control woody weeds such as blackberry 6-12 months before planting.
- Spot or strip spray with glyphosate for knockdown of established weeds.
- Spot or strip spray with simazine for residual weed control prior to planting. At this stage, little information is available on the impact of other residual chemicals upon cypress species. Hexazinone commonly used for residual weed control for *Pinus radiata* will often kill cypress species.
- Utilise a spray shield to protect seedlings when post-planting release spraying with glyphosate.

## BROWSING CONTROL

*C.macrocarpa* is relatively unpalatable to wallabies and possums. *C.lusitanica* may be more susceptible to browsing damage, with reports from NZ that this species is prone to possum damage. Rabbits and hares can be responsible for snipping off seedlings at or near the base. Fencing to exclude stock and browsing animals is generally required. Tree guards are not recommended, as there are reports of tree instability and windthrow following removal of the guards.

Browsing control can be undertaken by:

- Maintaining strips of pasture between the planting lines, or undertaking spot weed control, retains an alternative food source.
- Poisoning, shooting and trapping may be used individually or in combination. A permit from the Parks and Wildlife Service is required for these activities.
- Using stock-proof fencing to exclude cattle and sheep. Stock may browse young trees or cause bark stripping. Cattle can cause physical damage by pushing trees over.
- Although expensive, wildlife-proof fencing to exclude native animals is recommended where browsing pressure is high. Wire netting with an electric outrigger to exclude possums or electric fences with multiple hot-wires can be used.

## MIXED SPECIES PLANTATIONS

*C.macrocarpa* and *C.lusitanica* have been shown to be silviculturally compatible when planted together in NZ. *P.radiata* will outgrow and suppress both species over a 10-15 year period, depending upon the stocking. Cypress species, have a relatively high degree of shade tolerance and tend to compete well with open-crowned eucalypts for at least 15-20 years. Thus, there appears to be scope for growing cypress with an appropriate nurse crop species.<sup>2</sup> If utilising a nurse crop, it is desirable to retain the nurse species until the completion of pruning to reduce branch size and pruning inputs. A nurse crop will also provide additional wind shelter, increasing the height growth and form of the cypress.

## Shelter

It is recommended that a faster growing shelter species such as *Pinus radiata* be planted around the perimeter of cypress plantations. Wind exposure can significantly reduce height growth and may increase susceptibility to canker infestation.

## SUMMARY

- Cypresses can be grown on a wide range of sites.
- Form and growth rates are affected by genetics, environment and management.
- High quality, durable and stable timber is produced from an early age.

- Improved seedlings/cuttings are available.
- Pruning and thinning is required to produce high quality trees.
- High stockings can be maintained with the possibility of commercial thinning.
- On suitable sites 50-60cm diameter trees can be produced within 30-40 years.
- Markets currently exist for clearwood and quality knotty material.

### Canker

Is a risk that can be partially managed by correct species selection, siting and management. With increasing areas planted to *C.macrocarpa* in NZ, canker has become more prevalent. Many New Zealand growers, particularly those in warmer regions, no longer consider planting *C.macrocarpa* due to the risks involved. Canker is currently not as prevalent in Tasmania. If considering planting *C.macrocarpa*, then small planting areas, multiple cypress species or mixed species plantations may be a means of reducing the risk involved.

### FURTHER READING

Brailsford, S., (1996). The Cypress Growers Handbook - Options for growing quality timber.

Miller J.T. & Knowles, F.B., (1996). Introduced Forest Trees in New Zealand: Recognition, Role and Seed Source (9) - The Cypresses, FRI Bulletin 124.



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