



Cypress for farm forestry

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This Agriculture Note summarises the current information available on the growing, management and utilisation of the exotic cypresses. It outlines how to make the most of mature cypress trees as well as the site requirements for establishing new plantations.

For information on the layout, pruning and thinning of cypress plantations for clearwood production refer to the Agriculture Note AG0807: *Managing cypress for clearwood production.*

The cypress group includes *Cupressus*, *Chamaecyparis*, and several hybrids.

There are many different cypress species and hybrids planted in Victoria including *Cupressus leylandii*, *Cupressus macrocarpa*, and *Cupressus lusitanica*. These all have similar wood properties. Being the more commonly planted cypress species in Victoria, *Cupressus macrocarpa* (Monterey cypress) and *Cupressus lusitanica* (Mexican cypress) are the species referred to in this article.

Natural occurrence

The cypress group is widely distributed throughout the northern hemisphere through the Mediterranean, the Himalayas, China and North America. *Cupressus macrocarpa* originates from California.

Selecting the right species and genetic stock



Figure 1. Pruned Leyland cypress on the Bellarine Peninsula

The cypresses have been planted across Victoria for over 100 years. The branchy, sprawling cypress trees that are largely grown for farm shelter are quite different to those grown in woodlots and timberbelts.

When growing cypress for timber it is essential to purchase seedlings with known genetic traits including fast growth, straightness, a fine horizontal branching habit and absence of stem fluting.

The New Zealand Forest Research Institute (FRI) has been breeding improved cultivars and hybrids of the cypresses since 1982 and have recently established a seed orchard to produce large quantities of genetically superior seed. In Victoria, researchers at the Pastoral and Veterinary Institute (PVI) in Hamilton are undertaking growth and breeding trials of their own using improved seed from New Zealand as well as seed and cutting material from good form local cypresses. The PVI breeding program is only in its infancy so it is probably best to obtain stock grown from improved seed from NZ rather than using seed of unknown parentage.

C. lusitanica usually has better form than *C. macrocarpa* with lighter and more horizontal branching and less stem fluting.

Site requirements

Table 1 is a list of factors that affect species selection for timber production based on research from the PVI Hamilton. ^[1]

Table 1. Factors affecting species selection

Site requirements	<i>C. macrocarpa</i>	<i>C. lusitanica</i>
Preferred rainfall (mm)	800+	750+
Minimum rainfall (mm)	600	500
Preferred position	Lower slope & shelter	Lower slope & shelter
Preferred soil type	Fertile clay-loam	Fertile sandy clay-loam
Prohibitive growth conditions	Fire, deep sand, very wet clay	Fire, wet clay, alkaline soils
Tolerance of heavy soil and poor drainage	Moderate	Low

Table 1.(cont.)

Site requirements	<i>C. macrocarpa</i>	<i>C. lusitanica</i>
Tolerance of salt winds	Moderate	Poor
Tolerance of dry site	Moderate	Low- Mod ^[2 & 3]
Tolerance to exposure	High	Moderate
Form when open grown	Mod-poor	Mod-poor
Culling ratio for good form	Moderate (retain 1 in every 5-8 trees)	Moderate (retain 1 in every 5-8 trees)
Frost resistance	High	High

Note: Planting on very fertile sites will result in heavy branch development that will require intensive pruning.

C. leylandii has similar site requirements to *C. macrocarpa* although it may do better on sites of low fertility or sites prone to drought or cold conditions.^[2 & 3]

Growth rate

There is limited information available on the growth rates of cypress in Victoria although they are generally regarded as being slower than Radiata pine on most sites. Based on New Zealand growth rates, on better sites cypress may take 35-45 years to reach a diameter of 60 cm at breast height over bark.^[4]

Good sites with high soil nitrogen may produce trees with fast growth, but will usually result in heavy branching which requires a lot of pruning.

Management

The cypresses are particularly responsive to good site preparation. Complete weed control in the first 2 years is essential for rapid growth.

The method of site preparation should be determined by the particular characteristics of the site (see Agriculture Note AG0770: *Site preparation for farm forestry*).

NZ experience is that small seedlings handle and transplant best.^[5] Seedlings and cuttings can be planted deeply; up to 5cm of the green stem can be buried in the soil to help improve stability and drought tolerance.^[6]

Fertilising after planting on ex-farm sites is usually not necessary but on poorer soils a high phosphate/low nitrogen fertiliser gives a good response where complete weed control is undertaken.

Prescriptions for layout, design, pruning and thinning of *C. macrocarpa* and *C. lusitanica* plantations are given in the Agriculture Note AG0807: *Managing cypress for clearwood production*.



Figure 2. Pruned and unpruned cypress on the Bellarine Peninsula

Pests and diseases risks

The only real threat to the cypresses is the fungal disease, cypress canker, which affects the cambium layer of twigs, branches and stems. If the main stem on young trees is affected then branches further up the tree will probably die, resulting in the dieback of the crown and possibly the whole tree.

Symptoms of cypress canker include cracks, dark patches, sunken bark and resin bleed and eventual browning off of affected limbs.

C. macrocarpa and *C. leylandii* are quite susceptible to canker whereas *C. lusitanica* is relatively resistant, except on very wet sites.

Canker is probably present in most stands of cypress. Outbreaks of canker seem to come and go, varying in the extent of damage that they cause to individual trees and plantations. In areas where canker is likely to be a problem it is probably best to grow *C. lusitanica* in preference to *C. macrocarpa*.^[1 & 5]

Whatever species is selected, canker damage can be minimised by ensuring trees are well sited and well managed. Weaker trees are more susceptible to the disease and can be removed as a preventive measure. Avoid growing cypress on soils which have particularly high levels of nitrogen, and avoid over pruning. The new approach to pruning cypress, pruning early and hard, is aimed at removing twiglets from the lower stem. Canker seems to invade the stem through these twigs.^[7]

Canker affected branches should be completely removed. Where canker is present on the main stem and killing whole branches or the leading shoot, coppicing or pollarding below the canker site is the only treatment.^[8] Removal of affected limbs from the site is also recommended.

Individual trees can be treated for canker with fungicides but this would not be feasible in a larger plantation situation.

Uses

Better form stems from mature cypress trees are currently being milled for a variety of uses in Victoria including: weatherboards, pergolas, decking, boat building, furniture, window frames, internal joinery and panelling. Cypress timber is moderately durable, stable and has fungus-resisting qualities making it an ideal substitute for Western red cedar and other valuable timbers.

Unfortunately, the cypresses have not yet been rated for their strength or in-ground durability in Australia, although it is an approved building timber in New Zealand

Table 1. Acceptability of cypresses for various end uses in New Zealand.^[9]

Furniture	*	Handles	*
Cabinet-making	**	Knobs	**
Veneers	*	Engineering	*
Panelling	***	Firewood	**
Turnery	**	Exterior joinery	***
Carving	-	Weatherboards	***
Gun Stocks	-	Flooring (decorative)	-

- not suitable

* suitable but not preferred

** moderately suitable

*** highly suitable

Wood quality

The wood of all the cypress species is similar. They have tan to pink coloured wood of fine even texture and when quarter sawn, the rays give the wood a lustrous appearance similar to that of Kauri pine. The wood is quite soft and easy to work. Cypress wood has a decorative straight grain with a characteristic spicy odour. The wood of cypress is classed as being of medium to low density: around 820 and 400 kg/m³ (green and air dried to 12% moisture content, respectively), which is slightly below that of Radiata pine.^[9]

Most of the cypresses are similar to Radiata pine in all mechanical properties except for surface hardness values, which are lower in the cypresses. All the cypresses have low shrinkage. The shrinkages from green to 12% m.c. for *C. macrocarpa* are 3.3% (tangential) and 1.6% (radial). The two cypresses that have been tested for dimensional stability, *C. macrocarpa* and *C. lusitanica*, are both very stable, having a better short and long-term dimensional stability than Radiata pine.^[9]

The cypresses do not have growth stresses and are generally easy to saw with the same saws and cutting patterns that are used for Radiata pine. Cypress can be milled at a young age because there is a virtual absence of pith, leading to good yields from small diameter logs.^[11] Sawn recovery is largely dependent upon the type of trees from which they were cut, for example, logs from old shelter belt trees are typically fluted with large branches and intergrown knots. Plantation-grown cypresses will

yield a greater proportion of sawlogs and clearwood suitable for the high quality timber and veneer market.

The heartwood of the cypresses is generally of moderate durability with an expected life of 10-15 years in ground contact situations, and well over 15 years in above ground situations. The sapwood is not durable. The cypresses are resistant to the common house borer.^[9]

Drying characteristics

In New Zealand, the general recommended drying regime procedure for the old shelterbelt cypresses is to air dry wood to 30% moisture content in sheltered stacks, followed by final kiln-drying or dehumidification-drying. Plantation-grown material seems to be less susceptible to degrade, than wood from over-mature shelterbelts and may be kiln-dried from green at low temperatures.

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