Cypress

Info Sheet No. 1 - Overview

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

OVERVIEW

Cypress are coniferous softwoods belonging to the closely related genera of *Cupressus* and *Chamaecyparis*. The genus *Cupressus* (true cypresses) consists of some 19 species, of which *C.macrocarpa* (Macrocarpa) from California and *C.lusitanica* (Lusitanica), predominantly from Mexico, are considered commercial timber species. The genus *Chamaecyparis* (false cypresses) consist of 7 species, the important timber species being *C.lawsoniana* (Lawson cypress) from western USA, *C.nootkatensis* (Nootka cypress) from Canada and Alaska and *C.obtusa* (Hinoki) from Japan.

Hybrids between *Cupressus* and *Chamaecyparis* species, some of which express favourable attributes, have been achieved through cultivation. *X Cupressocyparis leylandii* (Leyland cypress, of which there are several different clones) is a cross between Macrocarpa and Nootka cypress. *X Cupressocyparis ovensii* (Ovens cypress) is a cross between Lusitanica and Nootka cypress.

While most cypress species are grown for amenity and shelter purposes, commercial timber production is likely to be restricted primarily to Macrocarpa and Lusitanica, with smaller plantings of Lawson cypress and the hybrids Leyland and Ovens cypresses.

CYPRESS IN AUSTRALIA AND NEW ZEALAND

Macrocarpa has been planted extensively throughout Tasmania, mainland Australia and New Zealand since the mid 1800's, primarily as a shelter and amenity tree. Although timber production was not a consideration for early plantings, quality timber has been produced from suitable trees. In New Zealand, stumpages for Macrocarpa have usually been about twice those paid for radiata logs of the same quality[1]. Cypress has been planted commercially in New Zealand, with several thousand hectares established, predominantly by private landowners. Forest Research of New Zealand is actively undertaking breeding programs with Cypress to improve tree characteristics for timber production.

GROWTH CHARACTERISTICS

- Cypress can be slow to establish, with a fine surface rooting habit that is particularly susceptible to weed competition.
- Fertilising following planting and release spraying in the first and second years can have a substantial effect on establishment and early growth.
- It has a prolific branching habit which requires an intensive pruning regime.
- Inter-tree competition with high stockings or 'nurse crops' results in lighter branching and improved stem form.
- Rapid occlusion (healing) of pruned branch stubs.
- There is potential for cypress species to attain very high basal areas so that high stocking levels can be maintained (greater than *Pinus radiata*).

WOOD PROPERTIES

- A medium density softwood species with mechanical (strength) properties similar to that of *Pinus radiata*, although surface hardness is less.
- It is relatively easy to saw and dry (including on-farm processing).
- It has low shrinkage when drying.
- The timber has stability greater than *Pinus radiata*.
- The timber has good machining and finishing properties.
- Small green knots (live branches) are not considered a defect for many end uses.
- The heartwood has natural durability for outdoor applications (though not suitable for in-ground use when untreated).
- There is very little variation in timber quality between trees and within trees. Unlike most other timber species, cypress species produce near 'mature' wood at an early age. *Pinus radiata*, for example, initially produces timber with low density, strength and stability. As a new growth ring is produced each year, density, strength and stability of the wood increases. By comparison, Cypress species produce high quality timber from an early age, enabling greater recovery and the utilisation of smaller diameter logs.

END USES

- Interior and exterior furniture and joinery.
- External cladding (weatherboards) and decking.
- Boat building.
- Veneers (clearwood and knotty material).
- General farm timber.

THREATS, PESTS & DISEASES - Canker

The greatest threat to cypress species is Canker, caused by the fungus *Seiridium cardinale* and *Seiridium unicornis*. *C.macrocarpa* is significantly more susceptible to Canker than *C.lusitanica*. Breeding programs include improved resistance to Canker, although these do not eliminate the threat entirely. Trees are most susceptible when under stress due to poor siting or inappropriate management.

Symptoms of Canker include:

- Resin bleeding.
- Bark discolouration.
- Distorted growth of the cambium resulting in cankers.
- Dieback of shoots and branches.
- Tree death in extreme cases.

Instability

Fast growth rates on fertile sites have resulted in toppling in light volcanic soils in New Zealand. Lusitanica is particularly susceptible due to its shallow root system. Early pruning to reduce the sail area (canopy) is effective at reducing this risk. This may not be a problem on suitable sites in Tasmania due to different soil types. Windthrow following thinning may be of concern if thinned too heavily.

SPECIES SELECTION & SITE REQUIREMENTS

Cupressus macrocarpa

- Tolerant of exposure - responds well to shelter.
- Moderate tolerance of poorly drained soils.
- 500 – 2,000 mm rainfall.
- Ground frosts to -10ºC.
- Relatively susceptible to Canker.
- Cool climates preferable (warm, moist climate increases the probability of Canker).
- Tolerant of salt winds.
- Tolerant of less fertile sites.
- Some tendency for fluting in the lower stem, reducing recoverable wood volume.
- High, consistent heartwood percentage.

Cupressus lusitanica

- Relatively intolerant of exposure.
- Requires well drained soil.
- 1,000 – 2,000 mm rainfall.
- Ground frosts to -5ºC.
- Less susceptible to Canker than *C.macrocarpa.*
- Warmer, moist climates preferred.
- Intolerant of salt winds (avoid coastal sites).
- Requires more fertile sites than *C.macrocarpa, g*enerally of better form than Macrocarpa with little incidence of stem fluting variable heartwood percentage*

** With a variable heartwood percentage (as low as 50% in some trees), C.lusitanica produces a lower output of desired heartwood with natural durability. The sapwood of this species can be utilised for interior purposes where durability against the elements is not required.*

The Hybrids

As the hybrid species are clones, all trees of a particular hybrid have identical genetics. This results in very uniform growth characteristics. They are also rather expensive in NZ. For these reasons, the hybrids are planted at the final desired stocking level, often with a nurse crop for branch control and shelter.

***X Cupressocyparis leylandii* (Leyland cypress)**

Several different clones have been developed, many of which are not available in Australia. Growth rates are not as fast as *C.macrocarpa*, except on very dry or very cold sites. As these hybrids are a cross with *C.macrocarpa*, site requirements are generally similar to true *C.macrocarpa*.

Leighton Green is available in small numbers in Tasmania. This clone tends to have prolific branching, with very heavy branch development if left unpruned. Canker has been recorded on this clone.

Ferndown has only recently been propagated in Australia and is not yet available in Tasmania. Tolerates dry to moist sites.

Stapehill is not yet available in Australia. It may be an excellent choice for high elevation sites if and when available, as it tolerates considerable exposure and snow.

Castlewellan Gold has been available in Tasmania for some time. This is commonly planted as a windbreak species and is not suited to commercial timber production due to slow growth rates.

***X Cupressocyparis ovensii* (Ovens cypress or Ovensii)**

Ovensii has only recently been propagated in Australia and is not yet available in Tasmania. If and when available, it is likely to be an excellent choice for suitable sites. As this hybrid is a cross with *C.lusitanica*, site requirements are generally similar, with warm, moist sites desirable. It does not tolerate exposed sites. Ovensii has a low incidence of branching compared to all other cypress species and hybrids, with a near horizontal branching habit. From a pruning perspective, this is the easiest and cheapest cypress to prune. Growth rates are reasonable, although perhaps a little slower than other species and hybrids. It has a high heartwood percentage.

RECOMMENDED SEED SOURCE (*C.macrocarpa* & *C.lusitanica*)

It is highly recommended that improved seed from Forest Research of New Zealand, or seedlings grown from this seed source, be used for any planting program. Breeding programs are targeting seed from superior trees for improvements in characteristics such as height and diameter growth, tree form, branch number and angle, canker resistance and stem fluting.

Seedlings grown from improved seedlots are currently available in Tasmania through Woodlea Nursery, Scottsdale.

Macrocarpa – **Strathallan** seedlots from NZ breeding programs.

Lusitanica - **Gwavas** seedlots from NZ breeding programs.

FURTHER READING

Brailsford, S., (1996). The Cypress Growers Handbook - Options for Growing Quality Timber.