

# COMMERCIAL CYPRESS

Cypress is a highly sought-after timber, nationally and internationally. From Scion's breeding programme, hybrid cypress clones with high durability and disease resistance have been developed.

## ECONOMIC POTENTIAL

A large number of cypress species have been introduced into New Zealand. Approximately 10,400 hectares are currently planted, the majority of which is on the West Coast of the South Island.

The wood and processing properties of cypresses make them attractive to end users and growers alike. Scion is currently developing superior lines of *Cupressus macrocarpa* and *Cupressus lusitanica*. Other species of interest include:

- *Chamaecyparis lawsoniana* (Lawson cypress)
- *Chamaecyparis nootkatensis*
- *Cupressus guadalupensis*.

There are two commonly known hybrids, Leyland (*C. macrocarpa* x *Ch. nootkatensis*), and Owensii (*C. lusitanica* x *Ch. nootkatensis*).

**Genetics.** A focused breeding programme has seen the production of new hybrid clones, some of which are similar to the Owensii hybrid. These are currently being tested in forests and are ready for semi-commercial plantings.

Hybrids have also been bred for wood durability and canker resistance. The highly durable *Ch. nootkatensis* will be integrated into the programme as second-generation improved pollen from the British Columbia improvement programme.

New canker resistant selections have seen the development of a *C. macrocarpa* breeding orchard, and selected *C. lusitanica* will be introduced into a thinned *C. lusitanica* orchard.

The best breeding stock has been established in a cypress hybridising orchard and will be used to develop the next generation of cypress hybrid stock. These are the best available hybrids for New Zealand conditions.

**Site productivity and growth models.** The relationships between temperature, potential root depth, number of frost days in summer, establishment date and vegetation cover with cypress growth have been evaluated. These data have been used to develop a growth map for cypress across New Zealand.





*Cupressus lusitanica*

This indicates cypress grow best in warm, fertile areas with adequate root depth. (Map available on [www.nzffa.org.nz](http://www.nzffa.org.nz), [www.ffr.co.nz](http://www.ffr.co.nz) and published in *Forest Ecology and Management*).

An online cypress calculator developed by Scion (available on [www.ffr.co.nz](http://www.ffr.co.nz)) provides a financial assessment for growing cypress based on growth models for *C. macrocarpa* and *C. lusitanica*. Users can adjust parameters such as tree height, and predict harvest times and volume for maximum profit.

**Silvicultural practices.** Clear heartwood commands top price (at least \$300 per cubic metre of log), and pruning is essential to achieve this. Aggressive pruning - leaving less than four metres of green crown - will affect diameter growth, but the trees recover quickly.

Cypresses are more shade tolerant than radiata pine and can support higher stockings. Spacing trials are too young at this stage to identify optimal spacing, however 400 stems per hectare is recommended.

Lower stocking can improve diameter growth and enable an earlier harvest, but will result in a considerable loss of volume. Holding a high stocking until age 15-20 years will yield sawlogs in a production thin, but the wood produced is lower value knotty panelling or structural. Holding a high stocking will result in shorter green crowns and a slowdown in volume production.

**Wood quality.** Cypresses are generally medium-to-low density with little variation pith-to-bark and high dimensional stability. Average wood density is about 400kg/m<sup>3</sup>.

Heartwood durability is high for a number of species but its inconsistency across all species means it is accepted by regulatory authorities for use as outdoor cladding, but not for decking. The most durable heartwood is from *Ch. nootkatensis*; the least from *C. lusitanica*.

Recent durability screening studies have shown that the new clones of *C. lusitanica* and *C. macrocarpa* could potentially have a better rating than class 3.



*Chamaecyparis nootkatensis*

Further studies, including field testing, are required to confirm durability classifications.

**Markets.** Cypress is a sought-after timber in New Zealand for internal and external furniture and cladding. Asian markets like cypress timber due to its aromatic qualities.

**A new research programme.** Our research shows that cypress canker is more aggressive with increasing temperature, and trees under stress have less resistance. If canker is present in the stand, it can gain entry through the stubs of pruned branches.

New research will focus on the development and deployment of new hybrid cypresses, and the development of tree stocks with good wood durability and resistance to canker. New methods to screen for durability will be developed, to segregate sawn timber and ensure market confidence.

## ABOUT SCION

Scion is a Crown Research Institute that specialises in research, science and technology development for the forestry, wood product and wood-derived materials and other biomaterial sectors. Scion's purpose is to create economic value and contribute to beneficial environmental and social outcomes for New Zealand.

We offer research and development services across the entire forestry value chain, including forest and climate change, forest health and biosecurity, rural fire research, forest management and tree improvement.

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