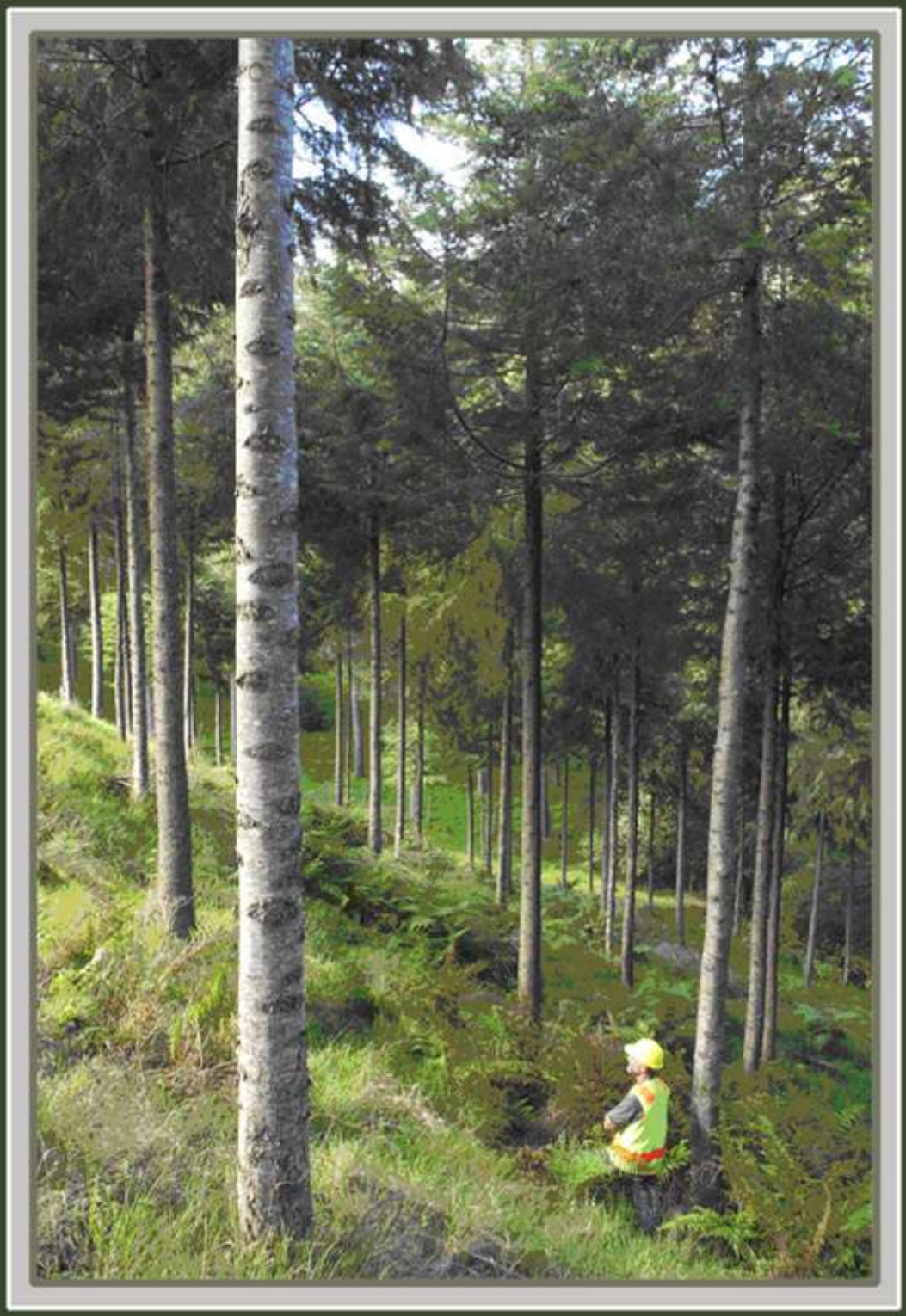
Best Practice with Farm Forestry Timber Species

No. 1: CYPRESSES



NZFFA Electronic Handbook Series

Ian Nicholas (Editor)

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Best Practice with Farm Forestry Timber Species

No. 1: CYPRESSES

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FOREWORD

Ian Nicholas

Following the success of the blackwood handbook, several NZFFA (New Zealand Farm Forestry Association) Action groups expressed an interest in producing similar handbooks for their species/genus of interest. After discussion with the groups, it was considered most appropriate to prepare an electronic handbook series. The advantage of this is that as new research results come to hand, relevant portions of the handbooks can be updated. This is important because some of the management systems of these species are still being evaluated and could change within a few years. This electronic handbook series on cypresses, eucalypts, and revised blackwood and redwood has been initiated thanks to the support of the MAF Sustainable Farming Fund with additional support from NZFFA, Ensis, PROSEED, Environment Bay of Plenty, Horizons Regional Council, Rarefind Timbers, The Plantation Management Cooperative and the relevant NZFFA Action Groups. The handbooks have been compiled with the help of farm foresters, or researchers with experience in specific areas, in contributing draft chapters. These have been modified by the editor with assistance from reviewers, to capture the best available knowledge from researchers, farm foresters and land managers.

Visit the farm forestry web site (www.nzffa.org.nz) for the most up to date information available.

Throughout the handbook, text in boxes is used to highlight important information relevant to the chapter. At the end of each chapter, key points are used to summarise the information, along with any suggested reading. A full reference list is provided at the end of the handbook.

For ease of reading, the colloquial name of individual species has been used throughout the handbook in preference to full scientific names, i.e.:

macrocarpa = *Cupressus macrocarpa* Gordon.

lusitanica = *Cupressus lusitanica* Mill.

Leyland cypress = x *Cupressocyparis leylandii (*Jacks. & Dall.) Dall.

ovensii = x *Cupressocyparis ovensii* (A.F.Mitchell)

Lawson cypress = *Chamaecyparis lawsoniana* (A. Murray bis) Parl.

The handbook concentrates on macrocarpa and lusitanica, along with the main hybrids Leyland cypress and ovensii, because of their importance in New Zealand farm forestry,

Grateful acknowledgement is given to the contributing authors who made this handbook possible, the reviewers for their valuable input, Jacqui Aimers for her editing assistance, and to Teresa McConchie and Sally Garner for final formatting and Rina Joy for the web site preparation.

Comments on this handbook and suggested areas for revision, should be sent to the NZFFA Cypress Action Group (see the NZFFA web site for contact details).

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CHAPTER 1 - INTRODUCTION

Cypresses are an integral part of New Zealand's exotic tree landscape.

Cypress timbers from old untended stands/shelterbelts have generated a strong market for the timber.

Plantation cypress timber is now being sought after.

CHAPTER 2 - TIMBER PROPERTIES AND MARKET

Cypress timber is developing a strong market profile.

Cypress processors are concerned about the lack of resource.

Cypress timber has both domestic and export potential.

Cypress timber is often marketed as one line and not treated as individual species in the market.

CHAPTER 3 - SITING AND LAND USE OPTIONS

Cypresses require fertile sites.

Lusitanica is preferred where cypress canker is a risk. This generally means that macrocarpa should be restricted to cooler sites in the South Island, or should be sited on cool, south-facing slopes elsewhere.

Beware of abortion in cattle from ingesting cypress foliage.

Cypress species can be liable to animal damage. Damaged trees are subsequently vulnerable to disease and insect damage.

CHAPTER 4 - HEALTH

Cypress canker is the most important disease of cypresses in New Zealand, causing growth loss, malformation and mortality.

Incidence and impact from cypress canker is greatest in the warmer northern parts of the North Island.

Resistance varies between species; macrocarpa and Lawson cypress are particularly affected. Leyland cypress is also susceptible, but not to the same degree. Lusitanica is largely resistant and the ovensii hybrid appears to have some resistance.

Breeding for resistance to cypress canker has been under way for some time.

Management options can reduce the impact of cypress canker.

Care must be taken to avoid damage to cypress trees, including animal damage.

Larvae of the huhu beetle and the two-toothed longhorn beetle can cause damage to standing trees.

CHAPTER 5 - SEED SOURCE, BREEDING AND PROPAGATION

Improved seed is currently available for macrocarpa and lusitanica, but is in short supply.

Lusitanica has become more important in the last couple of decades due to its greater resistance to cypress canker.

There have been some big disappointments from cypress clones that were susceptible to cypress canker or whose growth was disappointing.

Growers should ensure they plant quality planting stock, which is appropriate for the site.

Growers should be aware of the risks associated with extensive planting of single clones.

Screening of genotypes for resistance to cypress canker is under way.

KEY POINTS

CHAPTER 6 - ESTABLISHMENT AND MANAGEMENT OPTIONS

Cypresses require care in siting and establishment.

Plantations require pruning and thinning to produce the best logs.

Mixtures can be successfully established but need care in management.

CHAPTER 7 - PRUNING AND THINNING

Cypresses need pruning for clearwood production.

Prune below 12 cm stem diameter.

Leave 5 m green crown when pruning.

Early pruning can help with reducing toppling.

Thin to 300 stems/ha by age 10 years.

Cypresses can offer production thinning options.

CHAPTER 8 - CYPRESS GROWTH MODEL AND EXAMPLE REGIMES

Current regimes suggest final crop stocking of 300 stems/ha, pruned to 6 m.

The cypress growth model can be used to design regimes that match the owner's objectives, such as finding the optimal stocking for a given rotation length and target tree size.

Final crop stocking has a major influence on volume production and average tree diameter development.

Site quality also has a major influence on volume production and average tree diameter development.

CHAPTER 9 - ECONOMIC ANALYSES

Analysis of cypress forestry suggests possible IRRs of around 8%.

Improved log prices will mean a significant improvement in IRR.

Seek professional input before large investment in cypress forestry.

CHAPTER 10 – UTILISATION

No major utilisation problems.

Heartwood percentage is related to age.

Sawing conversions range from 40 to 60%.

Drying schedules are available

CHAPTER 11 - SUMMARY

Cypresses are poised to be the third most important genus in New Zealand plantation forestry. They already have excellent market acceptance, with a substantial price advantage over radiata pine and a major premium for quality. Export prospects for eastern Asia are very promising, but currently the domestic market remains under-supplied.

CHAPTER 12 – REFERENCES AND WEB LINKS

CHAPTER 1 -INTRODUCTION

An example of the new cypress plantations: well tended 11-year-old macrocarpa near Balclutha

Cypresses have been an integral part of the New Zealand landscape. They were planted as early as the 1860s by settlers. Early plantings occurred at Mount Peel in South Canterbury (1864-65), Mount Eden, Auckland (1866) and Wanganui (1867). The main species planted have been macrocarpa and lusitanica. Other species planted have been *Cupressus arizonica*, *C. sempervirens*, and *C. torulosa*. In the early 1950s, it was estimated that there were about 360 ha of pure plantations in State forests, 255 in mixtures and another 405 ha in private plantations.

In recent times well managed plantations of both macrocarpa and lusitanica are being established, although many early plantings were shelter for homesteads and farm stock.

There has also been interest in planting the the Leyland cypress, which is a hybrid between macrocarpa and *Chamaecyparis nootkatensis*.

Lusitanica planted at Greytown on Arbor day 1890

Old macrocarpa planted for homestead shelter

The early utilisation of cypresses (mostly macrocarpa) has come from these old untended shelterbelts. However, cypress timbers currently make up the third most commonly utilised exotic timber species in New Zealand, with approximately 20 000 m^3 cut per year.

With the reduction in utilisation of native species, particularly rimu, cypresses have become important substitutes. Sawmillers are now moving from the old cypress plantings into plantations, with lusitanica also becoming prominent, especially in the North Island. Also relatively new in the market is Leyland cypress. The utilisation of old shelterbelts for firewood is less common as sawmillers will utilise old shelterbelts for sawn timber.

Typical poor form “Old man macrocarpa”

Typical demise of old cypress shelterbelts - a pile of firewood!

Key Points

- Cypresses are an integral part of New Zealand's exotic tree landscape.
- Cypress timbers from old untended stands/shelterbelts have generated a strong market for the timber.
- Plantation cypress timber is now being sought after.

Suggested reading:

Weston 1957

Mortimer 1984

NZFFA 2006

Miller and Knowles 1996