

## Growing Plants in the Roaring Forties

Jill Reader

Lincoln University, P O Box 85084, Lincoln 7647, Christchurch, New Zealand

[Jill.Reader@lincoln.ac.nz](mailto:Jill.Reader@lincoln.ac.nz)

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### Abstract

New Zealand's first nurseries were established in the 1840s, at a time when there was both an influx of immigrants to the young colony and a worldwide thirst for new and exotic plants. By the 1880s many nurseries were importing large numbers of plants as well as producing their own stock, and there was a thriving trade in the export of native plants.

Few of those early nurseries remain. At present there are over 600 nurseries to cater for New Zealand's population of 4.7 million. Import and export of plants has almost halted. There have been a number of ongoing and recent challenges to the industry, including the ever-present threat of pest and disease incursions. Nevertheless, the nursery industry has a positive future, and growers have an important role to play in New Zealand's horticultural legacy.

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### INTRODUCTION

New Zealand is a country approximately the size of the United Kingdom, tucked into an isolated spot in the south west of the Pacific Ocean with its closest neighbour Australia lying over 1,700 km away. Much of the country lies within the 40s latitude, with the capital Wellington at 41°S. The term 'roaring forties' was coined by sailors in the 1800s who voyaged to the southern hemisphere and sailed into the roaring forties to catch the strong trade winds heading east.

New Zealand was the last habitable land mass to be settled, first by Maori in approximately the 1200s, followed by European colonization from the early 1800s onwards. Immigration by Europeans in earnest started in the 1840s, when advertisements to potential immigrants portrayed the country as "a veritable Garden of Eden, a place teeming with abundance and capable of further abundance under the improving hand of the settler" (Bradbury, 1995).

The 1840s in England became known as the ‘Hungry Forties’ due to large scale unemployment, so it is not surprising that many people were attracted by the prospect of a new life in New Zealand. Between 1840 and 1855 thirty thousand immigrants boarded sailing ships for a perilous voyage to the other side of the world to make a new life for themselves and their families in New Zealand.

Around the same time as these thirty thousand immigrants were settling into their new lives, an interest in exotic plants was sweeping the world. Plant hunters were introducing large numbers of plants into cultivation from many corners of the globe. This time was one of the greatest floods of plant introductions in history, an international event which carried on well into the twentieth century, and New Zealand was a participant in this event (Bradbury, 1995).

The English had already had a “heads up” many years before about the unfamiliar nature of New Zealand’s native plants. When James Cook sailed the Endeavour to New Zealand in 1769 he was accompanied by Joseph Banks, who had paid the astronomical sum of £10,000 (as a comparison, the Endeavour cost under £4,000 to build) to be allowed to join the expedition and collect plant specimens. Banks had his good friend Daniel Solander, a top student of Carl Linnaeus, accompany him to help with the plant collecting. They returned to England and to Kew with hundreds of dried plant specimens, plus many notes and drawings.

## **NEW ZEALAND’S FLEDGLING NURSERY INDUSTRY**

The first nurserymen arriving in New Zealand were part of the early wave of immigrants in the 1840s. Most had developed their skills through apprenticeships as gardeners on large English estates and were keen to try their skills in a new country. At that stage New Zealand was a young colony, and in many areas of the country there was a need

for immigrants to establish a vegetable garden or risk going hungry. However, it was the nurserymen who were skilled in grafting fruit trees, and since New Zealand’s native flora lacked edible plants, fruit trees were one of the main crops that helped establish nurseries. Shelter belt trees were also grown as soon as seed was available, particularly for the windy Canterbury Plains. Gorse (*Ulex europaeus*) seed was imported and grown in vast numbers for fences. Unfortunately, the gorse grew so well that it is now the worst pest plant in New Zealand.

Until 1880 New Zealand was a struggling colony, but with both a gold rush and the advent of refrigerated shipping its fortunes grew. Once there was more cash flowing through the economy, many businesses grew. This was true for the many of the nurseries, and with faster shipping there was a good trade importing plants – and having them arrive in good condition. Plants were imported from Australia, England, Europe and Asia on a regular basis.

In his book ‘Pioneer Nurserymen of New Zealand’ Allen Hale describes the huge range of exotic plants the nurseryman Thomas Mason grew in his garden by the 1870s: “250 named rhododendrons, 60 named camellias, hundreds of azaleas, while his collection of Japanese maples and tree peonies is unsurpassed” (Hale, 1955). For people who had the funds to spend, there was a vast range of exotic plants to choose from, and the temperate climate meant that most species thrived. It followed that by default New Zealand’s isolation led to it becoming a repository for some rare or endangered exotic plants.

Around 80% of New Zealand’s 2,500 native plants are endemic at the species level, increasing to 93% endemism for alpine species (Mark, 2012). Because these plants were a little different, overseas plant collectors were keen to add some to their collections. Many thousands were exported; hebes,

pittosporums, dodonaeas, flaxes and tree ferns were especially popular.

Duncan and Davies Nursery in New Plymouth, the biggest nursery in the Southern Hemisphere by the 1940s, exported both native and exotic plants. The rich volcanic soils and good rainfall in Taranaki were ideal conditions for species such as rhododendrons to thrive, and in the 1930s the nursery was exporting species such as magnolias, rhododendrons and viburnums to Australia (Jellyman, 2011). They also grew a huge range of plants for the domestic market. There were many other smaller nurseries, mostly growing exotic plants. However, over time there developed a big demand for native plants. Revegetation contracts, lifestyle block numbers increasing, and farm riparian plantings saw growers specialize in eco-sourced plants, with most sold as liners.

## **MAJOR CHALLENGES IN THE PAST TWENTY YEARS**

Some of the challenges listed below have been around for more than twenty years. In particular, the lack of interest in horticulture as a career has been an ongoing problem both in New Zealand and overseas. Thirty years ago an article published in *Commercial Horticulture* quoted a visiting University of New Hampshire Professor:

“The greatest concern, however, is the falling numbers of horticultural students at universities. Students are no longer interested in horticulture and agriculture because of poor Press and low perception of the trade. They are more interested in business and management courses and becoming quickly solvent after completing their education. A student can work for McDonald’s (hamburgers) and command \$6–7 per hour whereas the nursery industry can only offer \$3.20. That is the real problem that faces the nursery industry today” (Routley, 1988).

Major challenges:

- Expansion of the two box stores, which now control around 60% of the market. The plant range in these stores is limited, and specialist growers are hurting.
- The spread of cities and towns and high real estate prices means it can be uneconomic to use land for nurseries or garden centers.
- A lack of demand for established nursery businesses when they come up for sale.
- A lack of interest by new generations in established family businesses.
- A lack of interest in horticulture as a career. Few high schools promote horticulture as a career, and there is a limited range of horticultural qualifications available in New Zealand.
- A lack of skilled labour.
- A diminishing pool of expertise in scientific/academic areas. As people are retiring it is becoming increasingly difficult to find young qualified staff to replace them.

In addition, New Zealand has a major challenge to industry growth due to limitations with the Plants Biosecurity Index (PBI), a database that is used as a reference for plant importation. The PBI has two Acts of Parliament governing it, the Biosecurity Act 1993 and the Hazardous Substances and New Organisms Act 1996 and is used as a working index for import standards for ‘Seeds for Sowing’ and ‘Nursery Stock’. Unfortunately, the major challenge is due to there being an estimated 10,000 species present in New Zealand in July 1998 that were omitted from the list. Historically New Zealanders have imported many plants, and there are more exotic species in New Zealand than native species. Unfortunately, many of these historical imports were recorded at the genus level only, and so would not be

included in the PBI due to a lack of species information.

As a result, for the past twenty years growers and plant breeders have been unable to import a plant not on the list without an extensive environmental risk assessment costing approximately \$30,000 per species. Amendments can be made to the PBI if the plant species is proven beyond doubt to be present in New Zealand but instances of this are rare, and the onus and cost lie with the person or company applying for the addition to the PBI.

### NURSERY NUMBERS IN 2018

Few of the early nurseries remain. 2018 figures for established/recognized growers are:

- 245 wholesale nurseries
- 391 wholesale and retail nurseries

These 645 nurseries account for more than 80% of all production (Snell, pers. com.) In addition, many private or open gardens grow their own specialty lines, and there is an increasing trend for landscapers to grow for their own use. Small growers selling through markets and Trade Me (New Zealand's equivalent of eBay) are ubiquitous and seem to be increasing in number and volume.

Nursery size is known for 407 of the established growers. Sixty nurseries are based on less than 1 hectare, with the large majority (259) on between 1 and 5 hectares. Sixty-eight growers have nurseries between 5 and 19 hectares, while 15 have a nursery size between 20 and 50 hectares. Five nurseries cover more than 90 hectares.

## INTO THE FUTURE

### Biosecurity

In 2016 New Zealand Plant Producers Incorporated (NZPPI) was formed. This industry body incorporates the sectors of horticulture, viticulture, forestry, retail, amenity, landscape and revegetation, providing a platform for R&D plus a united voice for the increasing horticultural biosecurity issues New Zealand is facing. Biosecurity problems at present include:

- Myrtle rust, first found in New Zealand 2016, and despite an initial intensive eradication effort by MPI (Ministry of Primary Industries) measures have since been moved to a control plan rather than eradication. New Zealand's iconic Christmas tree, the pohutukawa, is in the Myrtaceae family and is a host. Department of Conservation staff have been collecting seeds and seedbanking from all native plants in the Myrtaceae family as a precaution.
- *Xylella fastidiosa*. The escalated threat of this disease has led to increased border security measures. It has a wide host range of over 300 species, and apart from potentially devastating many ornamentals here it is a big threat to New Zealand's thriving wine industry.
- Pests such as the brown marmorated stink bug and fruit flies. These are not directly an issue with ornamentals; however New Zealand's economy is reliant on its primary industries and clean, green image. Tighter border security has meant increased difficulty importing plant material.

## A positive outlook

While the challenges and biosecurity threats outlined above paint a negative picture, there is a positive spirit within the industry here which bodes well for the future. The box stores may control much of the market, but their garden centres are busy. Nurseries growing native plants for riparian

plantings and lifestyle blocks find it hard to keep up with the demand. Many nurseries offering online sales to the public are finding that this portion of their business is increasing each year. Nurseries that have a wide customer base and a diverse range of plants are generally doing well.



Figure 1. The retail area at Southern Woods Nursery.

Southern Woods Nursery, just south of Christchurch, is an example of a business that has found its niche market. They produce most of their own stock, supply plants and information to local lifestyle block owners, have a retail area with a large selection of native and exotic plants, and have an online sales option. While online sales have equated to 15% of their business this year, this figure is expected to rise to about 20% next year (Mannall, pers. com.)

Finally, a discussion about New Zealand's nursery industry would not be complete without mentioning the important role the IPPS has contributed. New Zealand became a Region almost 50 years ago (the 50<sup>th</sup> celebration is coming up in 2021). Its 220 members are enthusiastic, conferences and field days are well attended, and the society's motto of 'Seek and Share' is evident at every event. It has truly been an integral part of the industry here.

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