

# New Zealand horticulture and lean manufacturing at Ardmore Nurseries<sup>©</sup>

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Ardmore Nurseries, 230 Clevedon-Takanini Road, Clevedon, Ardmore 2582, New Zealand.

## **WESTERN REGION/NEW ZEALAND EXCHANGE PROGRAM**

During my time on the Western Region/New Zealand exchange program in the Western USA, my wonderful hosts, Jim and Andi Conner of Alta Nursery, showed me all around San Diego County, including nurseries such as Hines Growers, Village Nurseries, Armstrong Growers, EuroAmerican Propagators, First Step Greenhouses, Tree of Life Nursery, Olive Hill Greenhouses, and of course, Alta Nursery. I have had a very good insight into the IPPS Western Region, which has been most impressive.

I would like to provide an introduction to New Zealand horticulture and Ardmore Nurseries, where I work. I will then discuss lean manufacturing in nurseries, which my nursery has been involved with for the past 12 months.

## **NEW ZEALANDERS AND NEW ZEALAND HORTICULTURE**

Typical New Zealanders are mostly Hobbits, such as myself, and the rest are Wizards, Dwarves, and Treefolk. Being Hobbits, we would rather identify ourselves as kiwis, which are much cuter creatures. However, I have noticed this can be confusing. Are we talking about the native bird or the fruit? That's why we call them kiwifruit to make that distinction. In America, they are just called kiwis, so just as a suggestion, you too could call them kiwifruit to avoid any confusion.

There are 4.7 million kiwis (the Hobbit variety) in New Zealand. 1.5 million of these live in Auckland. If you compare that to the population of San Diego, Phoenix, and Los Angeles, which includes 30 million people, you can see that, relatively, our domestic market is very small.

In terms of land area, New Zealand is a little smaller than Arizona, but it is a long and narrow country, 1000 miles long, so there is a lot of geographical variation from north to south, the north obviously being warmer. It is normal, even in the south, for summer temperatures to reach 90°F, but the averages are well below those of California and Arizona; they are more in line with Oregon, Washington, and British Columbia.

The combined horticultural exports of New Zealand total US\$3.1 billion. Ornamental horticulture contributes virtually nothing to that total, as our export markets are out of reach to compete in that part of the industry. Our export products are mostly food crops. America contributes 15% to that revenue, importing mostly wine, apples, kiwifruit, and honey. Asia is our largest market (33%), followed by Australia (19%).

One misconception is that New Zealand and Australia are quite far away from each other. Yes, we have a friendly rivalry, like that between the USA and Canada. You may even think of us as Australia's Canada, but the distance between the two countries is, in fact, about 1,300 miles – not exactly paddling distance. Just a few years ago, there were a couple of Aussie kayakers who did just that. It took them 60 days and almost killed them.

## **ARDMORE NURSERIES**

Ardmore Nurseries is where I work. We have a plane on our logo, because of a small commercial airport operating nearby. Students at the flight school often do stall-starts above us at frighteningly low altitudes. They keep us on our toes and entertained.

The nursery is 35 acres, which is quite large for New Zealand. Most of that land is used to grow plants in the ground. Our larger lines are planted close together, and every second one is dug out and containerized after 1 year. Those that remain are balled and burlapped,

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then sold as a second-year grade.

We also have container crops, including native species which you will be familiar with, like *Leptospermum scoparium*, which is one of my favorite plants, the source of Manuka honey, and famous for its health benefits.

Propagation has been my main role at Ardmore. We propagate about 200 taxa and grow on at least 200 additional taxa. Sizes range from 15-ft trees to groundcovers.

We sell 80% of our stock to landscapers and 20% to retailers. Our nursery is a one-stop shop for landscapers. They can drive around, pick their own plants, and hopefully visit the office on the way out.

An alliance of New Zealand nurseries shares trolleys on a swap system. Trolleys full of plants can be offloaded at a nursery destination and empty ones taken back, making the delivery process a lot quicker.

Ardmore Nurseries has four plastic tunnel houses. Only one house has bottom heat. With limited bottom heat, it can be tricky managing cuttings as they overwinter. Most woody shrubs can be held fairly easily. Also, because of limited space, we can only use the direct-stick method for short-term crops. Most cuttings crops are done in a community flat with a pumice and coconut coir medium.

I use sodium bicarbonate as a tool to spot treat liverwort around the nursery. It is also good for treating areas prone to slime and algae growth.

### **LEAN MANUFACTURING AT ARDMORE NURSERIES**

Lean manufacturing is a model for eliminating waste and encouraging efficiency and innovation. The term was coined in 1988 to describe the Toyota production system, but the basic theories and principles of lean manufacturing stem from the Industrial Revolution. It is now used widely in the manufacturing industry.

It is interesting to apply lean manufacturing to horticulture because it is not nuts-and-bolts manufacturing. It has been useful in identifying major kinks in production. It has changed the way staff think and gets them involved. For me, thinking about improvements and ideas is not something that happens serendipitously anymore, it is something that I have time set aside for.

Visual management is a key aspect of how I assist the lean process. I create step-by-step guides and standards for various procedures. They seem a little bit like “how to suck eggs” visual aids, but they are great for setting benchmark times and showing new employees a great starting point. An important feature of the image is the inclusion of a suggestion box, so people can propose an improvement to the method.

The whiteboard is another important visual management tool. The idea is to use the whiteboard to identify problems and show anyone who looks at it the current state of affairs. It should not be used like a giant notepad that gets scribbled on and ignored. It should be structured. Examples of features on my whiteboard are a task checklist, targets (annual, monthly, weekly, and daily), health and safety notes, team responsibility checklist, ideas, upskilling material, and a record of recent successes and failures.

I like the theory of lean manufacturing, but I am skeptical of consultants that apply the theory to nurseries when they have no nursery background. I would advise you to help them understand the nursery processes, and be clear about what you want to achieve with lean manufacturing.

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