

Producing Native Plants for Revegetation — Meeting the Challenges®

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INTRODUCTION

Over the last 26 years the production methods in our nursery have and will continue to change considerably to meet the needs of the revegetation market. My purpose in this paper is to outline these past changes as well as taking a brief look at what still needs to happen in the future.

THE MARKET

Firstly, identify the needs of the revegetation market, which is the market for native plants specifically to restore native vegetation to specified areas.

The market requires:

- Identified and/or specified seed provenance.
- Bulk supply at low cost.
- Consistent grades of healthy, viable plants.
- Ease of handling for contractors.
- To be a serious grower of revegetation native plants and to remain competitive in an increasingly pressurised market we have had to change practices and will continue to change to remain a market player.

SEED COLLECTION

In the early days of the nursery, seed collection was a rather haphazard family affair, with Mark and me collecting seed wherever we found it: parks, gardens, roadsides. This was in the days before the term “ecosourcing” was generated. Our market at that stage didn’t particularly care about the seed origin. We used plastic self-seal bags to collect, carried a lipper lopper (extendable pole cutter to reach higher branches), did minimal cleaning, and stored anything surplus in an old refrigerator. I don’t think we kept any records of the origin of the seed and never thought to have a permit. The demands caused by the “ecosourcing” philosophy have enforced changes and actually added to the cost of seed collection. Today we have more sophisticated systems, some developed ahead of the call for seed from specific sources. Tools used to aid collection today include TUMONZ (The Ultimate Map of New Zealand) internet available software mapping programme, maps of ecological regions and districts, Global Positioning System (GPS), Emergency Position Indicator Radio Beacon (EPIRB) for safety, and standard field recording notebooks. Collecting is now contracted to ecologists. However the lipper lopper or its descendants is still a valuable tool and now we collect mainly in paper bags. We also apply and pay for permits and consult all land owners.

Cleaning and storage has also changed considerably to meet the need to store quantities of seed and to enable machine sowing. Most seed coming in from the field now is cleaned thoroughly, weighed, and stored in coffee bags in a cool store. At

present we have limited assistance from machines (a food processor and air blowers), however, some spinifex (*Spinifex sericeus*) seed is machine threshed. Every batch of seed is colour coded according to the general region it was collected from and is given a specific registration number which follows it through its life in the nursery. All seed information and the details of site, conditions, etc., are entered onto a database so we have information at our fingertips.

In the future I see the use of palm computers in the field so data can be downloaded directly, eliminating the need for a data entry person. Also, seed viability testing for seed batches will become important, especially for machine sowing. There is also room for speeding up the cleaning process with greater use of specialised machinery.

BULK SUPPLY AT LOW COST

As we all know labour is the single biggest cost for a production nursery, and the changing processes and systems in our nursery reflect the need to minimise labour. Traditionally, and up to the very recent past, we have done everything by hand. We are only just moving into the world of mechanisation and the accompanying decrease in the costs of producing bulk lines.

To reduce the need to prick out seedlings we have moved to a needle seeder and plug production. For seeds that can't be direct seeded they are pricked out into plugs rather than the trays or tubes. Colour-coded labels are computer printed. However, I must comment here that there is still hand pricking for blocking up missed cells and for some species, like spinifex (*Spinifex sericeus*), I doubt whether the process will ever be anything but hand pricking.

A move to hard pots and machine potting has just begun but with very pleasing results to date. With one season behind us we have a greater understanding of the organisation and systems required to obtain the maximum output from the machine. It will also take some time to change all revegetation lines to plug production, decreasing the plant preparation time.

Lining out and picking up for dispatch has been made considerably faster by using trays for the 1-L pots, units handled 15 at a time rather than singly.

The Future. Anyone who has seen pictures of or been to see nurseries in operation in the Netherlands will be well aware of the possibilities of using robotics and machinery to cut labour costs on every process. In New Zealand few nurseries have the scale of operation to justify the expenditure on such technology but the future, and higher labour costs may see the amalgamation of smaller operations to gain the necessary scale. For a nursery our size we may not be able to justify a huge increase in the use of mechanisation but we still have a way to go with computer labelling and scanning technology to lessen the need for manual data entry.

QUALITY

Our original nursery set up was on weed mat over grass, sheltered by willow trees and with "clickety clack" irrigation heads. Over the years this has evolved into a far healthier, controlled environment. New areas are now weedmat over 10-cm gravel with hidden drains every 10 m and the newest irrigation layout and technology. Gone are the willow trees, though we still have plantings on banks for aesthetic enhancement and display.

Quality was variable in bygone days. A few years ago, in an endeavour to set some standards in the nursery and for our customers we produced a standard's manual, which, incidentally, has appeared in many tendering documents. The production team endeavours to achieve these standards. We recently introduced mechanical trimming for the liner stage and for appropriate bulk lines in the field. The aim is to have an even batch with sturdy stems and branching form. We have also moved from blanket spraying to targeted spraying using a specialist contractor. Also the introduction of an improved monitoring system by staff has assisted in early detection of problems.

The future challenges for us are to develop standardised procedures for the production of key lines including revegetation lines, support research into matching soil microorganisms with particular crops and so improve growth and health, apply water to crops with greater scientific understanding, and introduce in-field data capture.

HANDLING

The dispatch of plants has also seen considerable change over the years. Our first bulk order from the Tauranga Nursery in 1985 was hand loaded into a cattle truck by the local play-group ladies. For years many of our plants went by rail, necessitating tricky packing into cheap crates and the problems of handling heavy crates and all the excruciating documentation that went with it! The purchase of our own truck and the dislike of all the double handling of plants with hand packing of plants saw us manufacture our own plant trolleys and become the first grower, other than bedding plant growers, to have a containerised transportation system. The advent of the standard nursery trolley saw our rapid adaption of that system, since the new trolleys are lighter and easier to handle. Trolley trailers make the picking up of bulk orders and their delivery exactly to where they are needed in the field a whole lot more efficient.

The use of trays for handling more than one plant at a time by the planting contractor is possible using smaller pots. The biggest change for planting contractors will surely come when the biodegradable pot is widely available at a sensible price. Imagine being able to remove the pot (or not depending on the material), crush it, throw it into the hole, and then plant on top. No rubbish to pick up, decreased landfill, and no problem for the grower of recycling the pots.

CONCLUSION

There is no doubt in my mind that New Zealand will continue to replant large areas of our land with trees. Pressures such as the Resource Management Act and Kyoto Protocol are positives for the nursery industry. But, along with increased demand has come increasing competition, and unless we can produce the right plants, at the right time, and at lower price without sacrificing quality or service, we cannot expect to stay in the market. The challenge for all of us is to constantly review processes and procedures, look for where productivity improvements can be made, and then action them.