

It is time to consider various means to increase our profile to customers. In the past I have tutored training days for various organisations, such as the Farming and Wildlife Advisory Group, on orchard management. Such courses will continue, but also I have planned a series of RHS Partnership lectures for 2004, to speak directly to keen amateur growers.

CONCLUSION

The success of Thornhayes is a result of a combination of marketing and propagation. Since establishing we have worked to promote and market the company and its products. However, we have never lost sight of the fact that it is the product that counts. We strive to propagate and grow a quality product efficiently, but up to a standard not down to a price. The marketing gets us past the key stage of making the initial contact with the customer or the first sale. From then on the plants do the talking. Customer loyalty, repeat sales, and recommendations come on the back of sound propagation and husbandry of a quality plant, rather than slick marketing.

Work Experience and Nursery Tour in New Zealand®

David Hide

Propagation Department, Royal Horticultural Society Garden, Wisley, Surrey GU23 6QB

WORK EXPERIENCE AT TAUPO NATIVE PLANT NURSERY

Much of my time in New Zealand was spent as a volunteer at Taupo Native Plant Nursery. It has been a nursery for 40 years — for the first 30 years it was run by the Department of Conservation. In 1993 it was privatised but, under its current manager and part owner, Philip Smith, retains its remit to provide native plants for the restoration of scenic reserves, forests, and national parks. Re-vegetation projects are booming thanks to investment by the recently elected government, which is working to reverse the conservation threats to the country's internationally important native plants and wildlife.

As a result of this interest Taupo Native Plant Nursery is expanding rapidly and produces more than 2 million plants on a site of 20 ha with a staff of more than 30. Mr. Smith has structured the nursery with a number of key managers and one or two full-time staff employed to strengthen each team. The remainder of the workforce is casual labour. The teams are: propagation, production, despatch, sales, administration, and garden centre. Considerable thought has gone into organising the structure of the teams and Mr. Smith has concluded that it is best to rotate the staff around departments in order to build up each individual's skills and to maintain motivation.

PROVENANCE

The nursery grows the widest range of native plants in New Zealand, including alpenes, ferns, palms, trees, grasses, and shrubs. Most of this is grown on contract and wherever possible it is propagated from seed collected from the area where it is destined to be replanted, thus conserving local genetic identity. The provenance of the seed is carefully recorded and followed strictly throughout the production process through to despatch. Added to this, all seedlings are grown on to maintain as wide a gene pool as possible.

A lot of time is spent collecting seed from the bush, this process is overseen and very often undertaken by Mr. Smith.

Most crops followed a similar production schedule. All seed was cold stored, some imbibed and some not. Much was sown in spring into wooden boxes, watered in, and placed onto heated benching. In most cases the seed was sown within the leaf litter that lay around the tree or shrub from which the seed had been collected. Although little attention was paid to hygiene, seedlings germinated well and once pricked out produced healthy looking material.

Seed was pricked out into deep, rib-walled cells filled with low nutrient peat, bark, and grit, mixed on site.

Depending on the market the seedlings were pricked either into a large cell and sold as a young plant suitable for growing on or planting out directly, or into a smaller cell and potted on the following year into a 1- or 2-L poly bag. The nursery philosophy is that survival rates of plants produced by this “hard-school” method will be much higher in re-vegetation schemes that receive little or no post planting maintenance.

I spent 2 days in the propagation house. Most of my time was spent taking cuttings of *Muehlenbeckia complexa* and *Hebe stricta*, both very popular for use in re-vegetation work and I had collected both from the wild. For me the most interesting growing environment was that of the *Muehlenbeckia*. We collected this on the coast outside Wellington. It has a smothering habit and grows on cliffs and banks right by the shore and is one of the plants favoured for coastal stabilisation work. I had only ever seen it in the U.K. as a novelty climber.

The nursery is involved in more than just growing and selling natives. It has a well stocked garden centre and a mail-order business — much of which is generated from its website — and throughout the despatch season it tries to keep a planting team on the road. As already mentioned, plant conservation is experiencing a boom in N.Z. and there are a number of re-vegetation projects around Taupo.

It has sometimes proved difficult to sell plants without offering a planting service and it has fallen to the despatch team to be lead members within the planting teams. This has also been very profitable as it has added at least a dollar to the price of each plant sold, and very often the nursery can choose the mix for each project. Popular natives for revegetation work include *Fuchsia excorticata*, *Hebe stricta*, *Phormium tenax*, *Cortaderia fulvida*, *Leptospermum scoparium*, *Griselinia littoralis*, and *Coprosma robusta*.

Above all else my time spent on the nursery prepared me for the second half of the trip, which was looking at length at New Zealand’s native flora growing in the bush. It provided the perfect grounding. During the day I worked with the flora and at the end of the day I took photos and read about them in textbooks, making many notes. This was only really possible because I was living on site. I was also encouraged in this pursuit by a couple of members of staff and Mr. Smith himself who identified regions of New Zealand where I might see particular plants growing in the wild.

SOME OTHER NURSERIES VISITED IN NEW ZEALAND

Joy Plants. In common with many New Zealand nurseries I visited, Joy Plants is a family run business. The nursery is the inspiration of Terry Hatch, an expatriate from Dagenham, U.K. He has a passion for growing, selecting, seeking out, and

creating new hybrid plants. He produces both field-grown and containerised crops. Over the years he has been interested in many plant groups including, *Phormium*, *Helleborus*, *Nerine*, *Watsonia*, *Clivia*, and *Sarracenia*. He is currently trying to breed a stable, seed-raised black *Phormium*, his best form to-date he is calling 'Chocolate Cookie'.

Lindale Nurseries. Situated just north of Auckland, Lindale is one of two large young plant producers in New Zealand, producing 3 million plants annually, 75% from cuttings, 20% tissue culture, 5% seed. The owner, former I.P.P.S. International President Malcolm Woolmore, was one of two businessmen I came across, the other being Philip Smith. The nursery is impressive, particularly the propagation section, but overall the systems of production currently in place suggest that the cost of staff in New Zealand is much lower than the U.K. To be a success in New Zealand, you need to be able to sell to the Auckland market and many of Mr. Woolmore's customers wish to perpetuate the idea that they live within some kind of subtropical paradise. This has placed the emphasis very much on the production of palms, bananas (*Musa*), *Canna*, bougainvillea (*Bougainvillea*), and so on. Some New Zealand natives, in particular selected forms and cultivars of *Metrosideros*, *Coprosma*, and *Griselinia littoralis* 'Broadway Mint', were grown in large quantities and there was definitely a market for evergreen magnolia and daphne, while almost no one wants deciduous shrubs. The nursery also deals with crops such as gerbera, which it roots into plugs, following micropropagation. It also exports camellia liners to the U.K., something that has been profitable but the type of product demanded by the U.K. market apparently took some getting used to. In New Zealand, camellia is seen more as a tree, while the U.K. demands three breaks in the bottom third of the liner to ensure a well branched, finished shrub.

Pava Plants, Tauranga. This was a return visit to a family-run mail order, young plant producer. Most of the product grown is herbaceous. Since my last visit, 4 years ago, the mix of material had been augmented by a number of succulents including *Echeveria* and *Aloe polyphylla*, a plant grown by many other nurseries visited.

Naturally Natives, Tauranga. The range of natives grown was predominantly for the retail garden centre market but Naturally Natives is also developing its conservation/revegetation lines and has a nursery devoted entirely to the production of *Spinifex sericeus*, which is a grass that is being planted for coastal stabilisation. The quality of the propagation facilities was high. Basal heat in the prop house was from hot water pipes with the heat being distributed via an aluminium sheet. The mist system was computer controlled through measurement of solar energy input. Composts were predominantly wood-based but included 20% 3- to 6-mm pumice. Controlled-release fertiliser was added to the nursery's general potting mix at a rate of 6 kg·m⁻³. The most enjoyable feature of the visit was looking at a range of selected clones of native plants, these included *Pseudowintera colorata* 'Red Leopard' which has golden green foliage with deep red blotchy markings; *Phormium* 'Chocomint', which is a stunning compact flax with green and brown variegation; and *Libertia* 'Goldfinger' with green, red, and orange foliage.

New Zealand Flax Hybridisers Ltd. This is an export company that concentrates on developing new phormium hybrids. The company has recently been sold to David King but most of the work to date has been undertaken by the previous

owner, Margaret Jones. She has been responsible for 18 new cultivars in 20 years. *Phormiums* 'Jester', 'Tango', 'Dark Delight', 'Crimson Devil' and 'Margaret Jones' are some of their newer hybrids. They are currently looking to develop a black *P. tenax* to rival 'Platt's Black', a *P. cookianum* hybrid. The nursery concentrates on producing a heavy root system and small top as the liners are exported soilless, arriving in the northern hemisphere in time for the potting season. The heavier root systems ensure that the young plants, once potted, establish well.

John Keynon's Vireya Rhododendron Nursery. On our return to this nursery it was interesting to see that John has now decided to grow and sell only Vireya hybrids. The hybrids included: 'Miss Muffet' (scented pink), 'Ice Primrose', 'Red Rascal', 'Baby Bells (red)', 'Littlest Angel', 'Raspberry Truffle', 'Floss (yellow centre with pink outer)', 'Peach Melba', and 'Rita'.

Penns Nursery, Tauranga. This is a wholesale nursery, recently set up on a green field site, specialising in plants for the garden centre market. All the advantages a new site brings were noticeable. Crops grown include pot bedding, alpines, herbaceous, and choice shrubs. Plants that caught the eye included *Lavandula stoechas* 'Pukehou', a New Zealand hybrid with large purple flower spikes and *L. 'Major'*, a compact free-flowering cultivar with deep purple flowers. Both are *L. stoechas* hybrids, now available in the U.K. This is an uncomplicated nursery, growing plants that people want, to a high standard, using simple production techniques with the finished product being backed up by good marketing. Most plants are grown-on from bought-in plugs and rooted cuttings. Succulents are propagated in-house, and simple but effective polytents plus mist lines are used to create high levels of humidity. This also provides flexibility once rooted, as mist lines double up as irrigation.

Growing Spectrum, Hamilton. This is a tree and shrub nursery that concentrates on producing first class stock for the garden centre trade. The nursery is currently producing many standard and bush forms of a range of plants, to add value to their stock, including: *Coprosma* ('Evening Glow', 'Karo Red', and *C. ×kirkii* 'Kirkii Variegata'), *Rosmarinus officinalis* ('Blue Lagoon' and 'Lockwood de Forest'), *Lavandula* 'Major', and *Genista* 'Yellow Imp'.

Bruntwood Nurseries, Hamilton. This nursery grows a similar plant range to Growing Spectrum and is only a few miles away from it. Bruntwood grows excellent *Astelia chathamica* (silver sword) and also has an interesting range of *Phormium*. *Phormium* 'Alison Blackman' is produced in large numbers and exported, mainly to the U.K. The plugs are grown in individual plastic cells for more flexible handling.

Peter Cave Nursery and Garden. Peter Cave grows an outstanding range of woody plants and is another in the long tradition of New Zealand's 'back garden propagators' who appear to make a living out of their passion. The nursery has many well grown plants and among those that looked particularly interesting were *Magnolia rostrata* and *M. delavayi* that exhibited pink foliage in spring.

Appleton's Tree Nursery and Arboretum. New Zealand is full of pioneering spirits and nowhere is this spirit more evident than at Appleton's Tree Nursery. Eric Appleton was born in 1934 in Middlesbrough. On completing his national service, forestry work experience, and college, he decided to emigrate to New Zealand in 1956. Today the business is run jointly by father Eric and son Robert and

includes a seedling transplant nursery, a forestry nursery raising mainly *Pinus radiata*, and an arboretum of some 400 acres of hillside that Robert manages as a form of relaxation. In less than 10 years he has planted more than 5000 trees from more than 1000 species. The arboretum is divided into geographical zones and habitats are researched before planting to provide species with the best chance of surviving what is a rather harsh environment. In places trees are being planted in what is almost bare rock, while those requiring greater moisture are planted nearer to the side of gullies where more water is present.

Both the tree nursery and arboretum are managed to a high standard and I felt I was picking up new ideas for much of the time.

Points of interest.

- The nursery has positioned itself in the market as a young plant producer. Much of the product is field grown; all is still sown by hand. Almost all of the stock is one-year-old plants. The nursery has decided to specialise in this grade of plant material to allow its customers to do the growing on.
- Appletons are great believers in the incorporation of organic matter into their nursery beds. They top up beds with composted barks and also produce much of their compost requirements themselves.
- While seed sowing, pine sawdust is incorporated to prevent capping and to eliminate damping off.
- A number of hardwood cuttings are grown and it was good to see that it is not just the RHS that likes plant material all facing the same way, all hardwood cuttings are planted so that the buds all face into the beds.
- Beds are not for walking on and to instil this principal Eric suggests to staff that they would not 'walk over their honeymoon bed in their work boots'.
- The nursery is weed free.
- Plugs are becoming a larger part of the business and all pricked out seedlings or plants that are direct sown, are mulched using a coarse grit, it has been the only thing that has prevented the spread of liverwort.

CONCLUSION

Did I meet the objectives I set myself before I left for New Zealand? I certainly didn't meet all of them, for example, the travelling time between centres of population and horticulture were such that, even within a 10-week time frame, I was unable to visit all the people, nurseries, and gardens that I had wanted to see at the outset.

I returned to the U.K. with a renewed interest in our own native flora, something I have always been interested in but I have now realised how well a native flora can be integrated into mainstream gardening. It was the interest in native species as garden plants that really kick started the New Zealand public's interest in plant conservation and re-vegetation. It is only on my return that I can link in my own mind all the many woodland projects going on right across the British Isles at this very moment and look at them as plant conservation. This is an area that has made me question my attitude to ornamental horticulture to the extent of asking myself, how far does it matter?

What was very positive for me was just how much I enjoyed working with and learning about a new flora. As a propagator working within the RHS garden at Wisley, I have found it very difficult to enjoy working simply with the plants in their own right as we are always looking at ways of producing them more quickly, efficiently, to a higher standard, with the use of less pesticide, and in the most environmentally neutral compost possible. It was, therefore good to have the chance to remind myself just why I am involved in horticulture.

I did score very well on my objective of learning about and seeing a new flora, this actually became my passion and I am sure it will stay with me long after much of my trip has been forgotten. To all of you who are thinking of taking some time out from work, to undertake study overseas, I say, go on, give it a go.

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Results From Some Research on Spectral Filters in the United Kingdom[©]

Les Lane

Devonshire Lavenders & Herbs, Exmouth Road, West Hill, Ottery St. Mary, Devon, EX11 1JZ

INTRODUCTION

There has been a vast body of research on spectral filters, using small-scale trials, going back many years, some of which is listed in Table 1 (Table 1 with acknowledgement to Leigh Morris). However, it is only in recent years that the technology has become available to incorporate these spectral filters into commercially produced PE films for cladding horticultural structures. Most of the work reviewed in this paper uses films developed by the author and the manufacturer Plastika Kritis, together with some films from other suppliers. The key point for the grower is the spectral transmission of the film, not who makes it. The paper reviews three main areas of research:

- 1) **Pest and Disease Control.** How to Use spectral filters to control whitefly, which is the vector for tobacco mosaic virus, and aphids without using pesticides. (XL Horticulture has copyright on, the term "photological control" to describe this property of its films).
- 2) **In Micropropagation.** Altering plant growth by using spectral filters in the tissue culture laboratory.
- 3) **In Conventional Propagation.** Spectral filters can improve both the viability of the cutting material and also the rooting of the cuttings through photological control of *Botrytis*.

PEST CONTROL

Whitefly. The research on whitefly was undertaken by Dimitri Doukas, a Greek research student at Reading University, who was looking at the potential of spectral filters to control whitefly and whether they also affected the whitefly biological control predator, *Encarsia formosa*. The research paper he produced formed part of his final for the degree of MSc in Horticulture.