

- The size and shape will comfortably accommodate the 4 to 12 months root growth we require without disfiguration or repotting the plant.

Why the individual unit? One very good reason—quality and uniformity is the number one requirement from our customers! Grading, therefore, is the most essential part of our operation from collecting cutting material to dispatch. Our customers expect plants within the batch received to be consistently the same and do not want to pay freight on empty units or receive uneven batches of plants. This is what Lyndale Nurseries is endeavoring to achieve.

Rootainers: A Nurseryman's Perspective

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INTRODUCTION

Morgans Road Nursery in Blenheim, specializes very much in Rootainers for almost all of its approximately 300,000 annual stem production. The product range is quite diverse with *Eucalyptus*, *Cupressus*, *Acacia*, and other commercial type species grown in a small (Hilson) Rootainer. An increasing range of New Zealand natives, a smaller range of exotic amenity species, and a selection of perennials and garden plants are grown in a large (Tinus) Rootainer. The Rootainer system has been around for a considerable time, being first patented in New Zealand some 18 years ago. The patent has since expired opening up production to a larger number of manufacturers.

Whilst the system carries the label of Rootainer, the root-training principle is certainly not limited to this system. The principle is incorporated in many container types now in use, though some manufacturers do not have a good understanding of the principles involved. The use of this root-training principle, I believe, is most important and will see the phasing out of some container types. There are a number of different methods to attain root training. These include, as in Rootainers, the use of sharp ridges (sharpness being the critical element) over which the soft emerging tips of the roots will not cross. Others are the use of gaps in the growing container (as in sideslit trays) and the use of root-permeable material (as in paper pots). A common feature of these systems is the use of air pruning to limit root length and promote additional root formation. In Rootainers this is facilitated by packing them in wire frames which hold them off the ground to allow a space of dry air underneath. Most of my plants are grown on concrete pads which aid this process.

I chose Rootainers because at the time I perceived them to be ahead of other systems available. Whilst there is more choice now they are still a strong competitor in the market place.

THE STRENGTHS AND WEAKNESSES OF ROOTAINERS

The root-training principle has wide and strengthening recognition. The emphasis on root development is a strength not fully appreciated by the public.

The hinged nature of the container allows both grower and buyer to check on root development though the hinges of the Roottrainer tend to be a structural weak point. A cavity takes up very little surface area compared to its depth.

This is a strength in that it:

- Allows for intensive use of growing area in the nursery.
- Allows for the ability to be freighted economically.
- Allows for an adequate root depth which aids establishment in the field.
- Allows for economical though adequate use of potting media.

It is a weakness in that it:

- Means that top watering is difficult making flood pads a virtual necessity for efficient system use.
- Allows little space for stem and branch development. This can largely be overcome but requires intensive management to do so in some instances.
- Comes up against a common public perception that “bigger is better”.
- Is difficult to insert rooted cuttings in such a narrow area.

The limited life of the container is perhaps not environmentally sensitive. But for mail order systems, where recycling and in particular container deposits are difficult, it is ideal in that we do not particularly care if the container does not come back. The downside is that it often rules out the recycling option should it otherwise be available.

Having four cavities in a book aids storage and holding, but is retailer unfriendly and gives rise to root migration between cavities. Recent discussion with the manufacturers should lead to the elimination of this latter problem.

The Roottrainer hinging system, whilst allowing monitoring of root development, means the container can open if not tightly stacked and expose the roots to the air. This is a problem to the nurseryman and retailer alike.

PRICE

At a bulk user price of 11¢ a cavity, giving due regard to the flimsiness of its nature, in comparison with 10-cm tubes, the cavity could appear to be expensive. It is my understanding that this is also being addressed, at least to larger users.

The capital structure to efficiently use the root-trainer system is dedicated, particularly if wire frames are included. The strength is that this dedication (or specialization) is the very thing that allows for efficiency. The weakness is that it can make diversification difficult and wasteful.

The manufacturers are New Zealand based which allows for dialogue on product.

They do, however, have a much larger product range than Roottrainers so there does appear to be a tendency to downgrade the priority of manufacture. Customer service increased dramatically when the patent expired allowing competition.

I personally see continued strong use of the larger Roottrainer but alternative systems will decrease the use of smaller cavities.

The different container systems you are hearing of this morning all have strengths and weaknesses, none more so than the ability of the nurseryman to use them. A well-grown plant in a given container will always be superior to a poorly grown plant regardless of the container used. The message is—“know about and learn to use your chosen system well.”