

## Year-round Production and Marketing of Semi-mature Trees at SAP Nurseries<sup>©</sup>

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**Semi-mature trees conjure up different images for different people. For the purpose of this paper semi-mature trees are those that are 18 cm or greater in girth measured at 1 m above the ground. Traditionally these trees have been produced in the open-ground and sold rootballed in the dormant season. More recently nurseries have been potting large trees into plastic containers and growing them for two seasons to sell during late spring and summer. The most recent innovation in the production of semi-mature trees is the introduction of the Superroots Air Pots™. This system is similar to container growing but can produce a “ready to go” tree in one growing season with a superior root system.**

### INTRODUCTION

Tree production implies hard work in inclement conditions in a business that is very seasonal in nature. Conventional tree nurseries must have very understanding bank managers to secure short-term finance for the busy months of production in the summer when no sales take place. However, advances in plastics and in plant production have led to the development of techniques that allow growers to produce and sell trees in containers all year round.

### CONTAINER PRODUCTION SYSTEMS

Container-grown trees are becoming increasingly prevalent because of the convenience and flexibility it offers to nurseries and the landscape trade. There are a number of container production systems in use; here we look at three of them.

**Black Plastic Pots.** Familiar black plastic pots (Fig. 1) offer the usual advantages of container production in extending the sales season but, in my opinion, the disadvantages outweigh the advantages. The black colour attracts heat and root damage can occur if the substrate temperature rises above 38 °C. Typically they force the lateral roots to spiral, forming a dense matted root system. When the tree is planted, the roots start to thicken and the knots tighten causing the root system to constrict. Poor root anchorage and stunted growth often lead to a decline in vigour and eventual failure of the tree.

**White Woven Pots.** White woven pots were developed in Australia and are sold under the brand name Easy-Lift™ (Fig. 2). Tree performance in these pots differs from that in standard black ones in that roots are phototropic and so grow away from the light which they find at the edges of a white bag. The colour also reflects light and heat so substrate temperature does not rise as quickly as in the black pot. It is claimed that the root systems do not spiral although I have no experience of this. Figure 3 compares the root systems of trees grown in the two container types.

In the GB&I Region of I.P.P.S., the best-known nursery using white woven pots is Barcham Trees in Cambridgeshire. They have been using this method for more



Figure 1. Black plastic containers.



Figure 2. Trees in white woven pots at Barcham trees.



Figure 3. Roots from a black pot. Roots from white pots.



Figure 4. Semi-mature trees in Superroots Air-Pots.

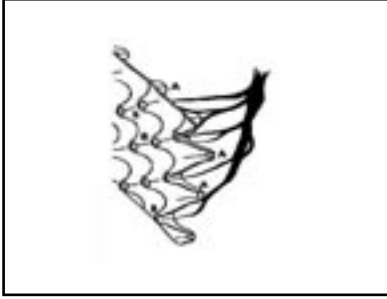


Figure 5. Roots guided to open cones in the Air-pot.



Figure 6. Fibrous roots system generated by the Air-pot.

than 10 years and have developed the pot to improve root performance. Their new pot has perforated sides. This allows more oxygen into the root area, which stimulates a more fibrous root structure thus reducing the risk of spiralling.

**Superoots Air-Pot™.** The Air-Pot, formerly known as Spring Rings, is the most recent advance in container tree production (Fig. 4). This pot type produces non-spiralling root systems. When we decided to invest in the production of large containerised trees at SAP Nurseries, we chose this system as it offers many advantages over traditional container production. Trees root more quickly, there is no root girdling, the root system is extremely fibrous, the trees are ready for sale earlier, the trees can stay in the pots longer without root damage, the pots can be reused as they are not delivered with the tree and subsequent establishment is excellent.

The main disadvantage is that the cost of production is higher, as the trees are root-balled prior to dispatch rather than being sent out containerised.

**How the Air-Pots Work.** Superoots Air-Pots have unusual cusped walls with air slits that cause three dimensional root pruning. Three dimensional air pruning is the action of the conically shaped wall, inside and out: the inside cones guide all emerging roots to an air hole at the end (Fig. 5). Primary roots grow out and are guided to the open cones in the sidewall where the air density in the soil is too great. The apical cells, at the very tip of the root dehydrate and the root is pruned. This continuous pruning process prevents any possibility of root circling and dramatically increases the amount of root in the ball.

For each root pruned many more branch behind the pruning to compensate, and more importantly the pruning also encourages new development from the base of the stem. This continuous process root-balls the substrate in a dramatically reduced time.

The result is a remarkable radial root system with a vast number of active, white-tipped roots that promote vigorous top-growth of the plant (Fig. 6).

## MARKETING YEAR-ROUND TREES

We have found that once a client plants trees grown in Air-Pots they will continue to use the product. The trick is to get that first sale. Our target markets for semi-mature Air-Pot trees are landscape architects, landscape contractors, and the public authorities. The aim of promotions to this group is to highlight the advantages

of planting out of season. These are better soil conditions, instant impact, better establishment, ease of handling, and no failures

## CONCLUSION

The market for semi-mature trees is well established but people still associate tree planting with the dormant season. There is a lot of work to be done to market the concept of year round planting but I believe that over the next few years more trees will be planted "out of season".

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# Ten Years' Experience of Grafting Using the Hot-Pipe Callusing Technique®

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## INTRODUCTION

During the past 10 years hot-pipe callusing has been used and developed as an integral part of the production system at Coilóg Nurseries. The details outlined in this paper are the principles of propagation using the system as we have experienced it during that time.

The system is not the answer to your entire bench-grafting problems. However it has helped us to streamline and organise production. It has also reduced the number of failures in the grafting programme.

## MAXIMISING THE BENEFITS FROM HOT-PIPE CALLUSING

The technique provides each new graft with the environmental conditions most favourable to callus formation. The objective is to direct heat to the point of union, while maintaining a cold atmosphere at the root and at the remainder of the scion. The system needs to be viewed in the context of overall production and it is important to ensure all the preceding and following production procedures are undertaken according to best practice:

- Selection of compatible rootstock and scion.
- Selection of correct strength of rootstock.
- Treatment and preparation of rootstock.
- Timing of the grafting process.
- Selection of good quality scion wood.
- Preparation of the scion wood.
- Use of fungicides in the grafting process where necessary.
- Use of a high-quality wax and perfectionism in the waxing process leaving no exposed surfaces, no pinholes at the graft union and all tips covered in wax.
- Employment of skilled staff who are capable of using a grafting knife with competence, accurately matching cambium layers, tying effectively and carrying out the work to a high standard at an economical speed.