

To

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8 pages from Mario Lanthier

TOUR OF AIR POTS IN EUROPEAN NURSERIES



A tour of European nurseries using Air-Pots was organized in July 2014 by Caledonian Tree Co. Ltd., the product manufacturer.

Eight persons participated, including 2 from Canada. Participants paid air fare, transport and accommodation, the manufacturer provided arrangements and evening meals.

This report covers 2 days of visits in Scotland and England. The tour continued for 3 days in Italy and Holland.

About Air-Pots

These plastic containers, for use in plant nurseries, are designed to promote root development and prevent the formation of circling roots.

Air-Pots are moulded with regular openings on all sides and the bottom. Root tips are burned in contact with the air coming through the openings, stimulating regrowth of multiple roots. The result is a root system with a larger root mass of fibre roots.

Circling roots are a major concern in tree production. Circling roots eventually become girdling roots and are likely an important contributor to early decline and mortality in the landscape.

More information about air-pots is found at the website <http://air-pot.com/>. The product is carried in Western North America by Grower's Nursery Supply, Inc. in Salem Oregon.

See page 8 of this report for other commercial products that offer similar results.

ADVANTAGES OF AIR-POTS

Root development



Left: Air holes trigger a larger mass of fibrous roots and prevent the formation of circling roots. Growers visited report better roots and faster growth with air-pots (1 to 2 years faster for larger trees).

Right: Inside the London Heathrow Terminal 5, all trees were grown in air-pots before planting.

All growers report less mortality and better rooting out after replanting on trees grown air-pots.

Tap roots



Above: Propagation of *Quercus* in air-pots

Left: On plants prone to tap root development, air holes at the bottom burn the root tip.

Right: The result is the growth of roots along the root stem, for better transplant establishment.

Disadvantages

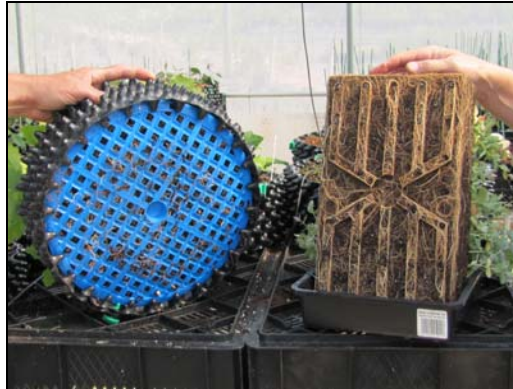


Left: Weed growth in the air openings on the sides of containers likely kept too long.

Right: Storage of containers (cannot be stacked) and raw materials (long sheets that are not sturdy).

PROGRAMS WITH AIR POTS: PROPAGATION

Propagation tray



Left: The air-pot is cut shorter to form a circular container.

Right: Bottom of tray for air-pot compared to standard propagation tray.

The air-pot does not allow the formation of descending roots or circling roots at the bottom of the tray.

U-tubs



Left: The air-pot is folded along the length to form a propagation container (or flower planter).

Right: U-system used for commercial propagation in The Netherlands.

Video on the mechanization method at <http://air-pot.com/the-experts/nurseries/> (bottom of page).

Standard containers



Left: Cuttings are rooted inside a greenhouse in 1 or 2-gallon capacity containers.

Right: Conifer seedlings placed in air-pot container.

PROGRAMS WITH AIR POTS: LARGE TREES

Growing



Above: At the time of potting, the wall is doubled to make a smaller size container. After 2 years, the container is made wider and media is added, which allows another 2 years of growth.

Staking



Above: Trees must be tied to a supporting system after potting as the container is not sturdy enough.

Shipping



Left: Some nurseries use the air-pot system to produce large-size trees (up to 1000 gallon capacity). Right: For shipping, the air-pot is removed and the tree is packaged ball-and-burlap.

More about shipping large trees at the webpage <http://www.deepdale-trees.co.uk/trees/in-action.html>

EUROPEAN NURSERIES USING AIR POTS



Above left: The Royal Botanical Gardens Kew (in London) makes extensive use of air-pots. The head of Arboretum explains it on YouTube at <https://www.youtube.com/watch?v=gRvDWmirfgk>. Right: The nursery “Stairway Trees” near Glasgow, Scotland (www.stairwaytrees.co.uk).



Above: The nursery Deepdale Trees Ltd. near London (www.deepdale-trees.co.uk). Air-pots are used exclusively on the 160 acres of tree production. Picture to right: Tilia on trellis.



Above left: Van den Berk Nurseries, with 500 hectares in production in The Netherlands and Germany. The nursery supplied air-pot trees for the London 2012 Olympic (<http://www.vdberk.co.uk/references>) Right: The 2015 Expo in Milan will be 90% planted with air-pot grown trees (<http://www.expo2015news.org/expo2015-il-progetto/1745/milan-becomes-green/>, bottom of page).

USING THE AIR-POTS

Filling the container



Left: The top cone does not have air holes to prevent water loss during irrigation.
Right: The bottom part should be placed 3 rows up to prevent roots growing into the ground soil.
Container to left: bottom placed too low, roots grew out. Container to right: correct placement.

Changes in growing practices



The growers mentioned that critical changes must be made for the product to be successful.

Left: The most important change is irrigation scheduling.

The growing media dries faster because of air openings and faster root development.

Right: The growing media must be finer to retain more water and fill the cones without plugging.
Coir is used extensively in England where peat moss is considered unacceptable.



Left: Display at a garden centre to educate the customers on the value of the product.

Right: Higher water use will result in faster depletion of fertilizers in the growing media.

ABOUT THE PRODUCT

The manufacturer



Left: Manufacturing plant of Caledonian Tree Co. Ltd. near Edinburgh, Scotland.
The company sells 200,000 to 500,000 units per year, 90% of which is exported out-of-country.
Right: Raw ingredient is primarily from recycled plastics.

Containers



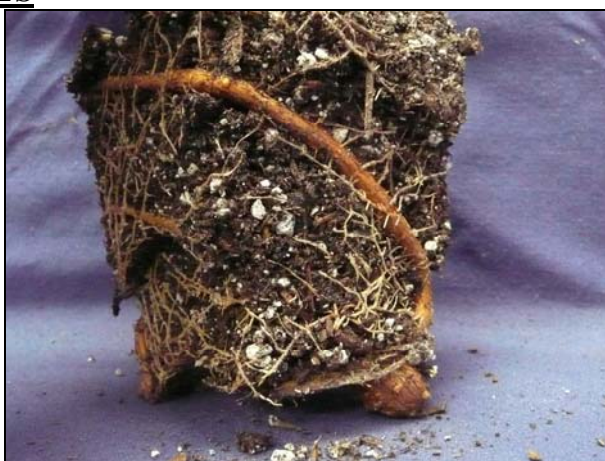
Above left: The finished product is a long sheet cut to various lengths.
The sheet is rolled and tied to make a container.
Right: The bottom component for the container. Colours indicate the container size.

Securing the wall



Above: The side wall is secured with one screw (left) or a plastic tie (right).

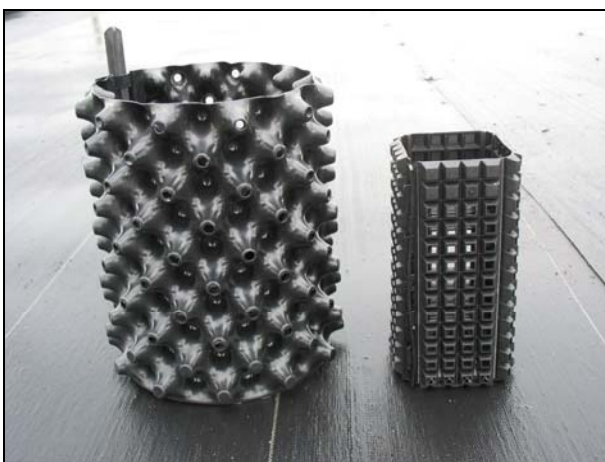
SIMILAR COMMERCIAL PRODUCTS



Above: RootMaker container from Alabama USA (www.rootmaker.com)

Going downward, each layer is thinner with air openings.

Right: A circling root developed from an Aesculus plant left too long in a RootMaker container.



Left: Pioneer Pot from California USA (<http://pioneerpot.com/>)

Right: Rocket Pot from Australia (www.rocketpot.com.au)



Above: RediRoot containers (<http://nursery-source.com/rediroot/>)

Used extensively at J.F. Schmidt Nursery in Oregon. (www.jfschmidt.com/pdfs/jfs_rediroot.pdf)

Right: RediRoot containers at the nursery for propagation.