

NURSERY PAPERS

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WHAT'S IN A POT?

How container choice affects root development and plant quality



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Pot selection plays a surprisingly big role in how plants grow, roots form and production systems perform. From drainage and media stability to root pruning and freight efficiency, your container choice can drive quality cost and consistency across a crop.

WHY CONTAINER CHOICE MATTERS

Most modern nursery pots are made from 100% recyclable PP5 plastic and come in a wide range of sizes and shapes. Their role is to support growing media, create stable conditions for air and moisture balance and promote strong root development. But different pot designs produce very different outcomes – especially when it comes to water retention, root structure and long-term plant health.

WHY MOST POTS ARE MADE FROM PP5 PLASTIC

Most nursery containers are made from PP5 plastic – short for polypropylene, marked with the recycling code 5.

It's the standard for a reason:

- durable under sun, water and fertiliser
- lightweight but strong
- withstands multiple crop cycles
- compatible with automation and stacking
- cost-effective to manufacture.

PP5 is accepted in some local recycling systems, but not all – check with your local waste facility. All pp5 pots are able to be recycled via the plastics recycling programs available via Australian pot manufacturers.



KNOW YOUR CROP

Some plants prefer a deep root run; others need high drainage or consistent moisture. Understanding your plants' needs helps match them with the right container and media combination.

A HANDY RULE OF THUMB:

The bottom 25–30 mm of any container will hold excess water after free drainage. In general, the taller the pot, the less water it holds after drainage – so depth matters even with the same volume.

POT MATHS – VOLUME, SHAPE AND PERFORMANCE

Pot dimensions affect moisture retention, oxygen availability and how efficiently you use space. Here are a few concepts to keep in mind:

- a tall narrow pot holds less water post-drainage than a short wide one of the same volume
- a small change in pot diameter can significantly impact volume of media required.
- air pruning pots often dry out faster than plain-sided containers
- pots that are too large can lead to overwatering, root rot, and poor root occupancy, while pots that are too small can restrict root growth creating more root defects

- if you expect plants to grow significantly, choose a pot that allows room for the root system to expand and occupy the given volume matched to your production scheduling.

KNOW YOUR MEDIA

Think about how long your growing media needs to last. Crops with longer grow cycles may need more durable media than short-run crops (under 12 months). For long-term crops, choose components with greater structural integrity — and talk with your media supplier about the right mix for your needs. If early breakdown is a concern, consider adding more potting-up stages to your program. This lets you refresh the media volume, manage root development and top up nutrients below the surface. Keep in mind that overwatering is one of the main causes of media breakdown, so irrigation must suit the media, pot type and plant's water requirements.



Tree tube



Squat pot





Container Types – Pros And Cons

TYPE	PROS	CONS
STANDARD NURSERY POTS	Low cost, widely available, suitable for many crops, good moisture retention	Encourage root circling and deflection, less air flow
ROOT-DIRECTING POTS	Help guide roots to reduce circling	Limited choices available, root deflection may need to be addressed
AIR PRUNING POTS	Promote lateral roots, reduce circling and root deflection	Need more regular irrigation in exposed growing systems
OPEN BASE POTS	Can encourage lateral root growth by air pruning main root	Only effective in systems with good air gap under pots
PLANTER BAGS	Cost-effective for larger sizes or final stages	Can cause issues if not used well, most not able to be readily recycled
CUSTOM-BUILT CONTAINERS	Tailored to specific needs	Higher initial costs



Pot with root directing ridges



Plain walled pot



Various styles of air pruning pots



Root growth with root directing ridges



Root growth without directing ridges



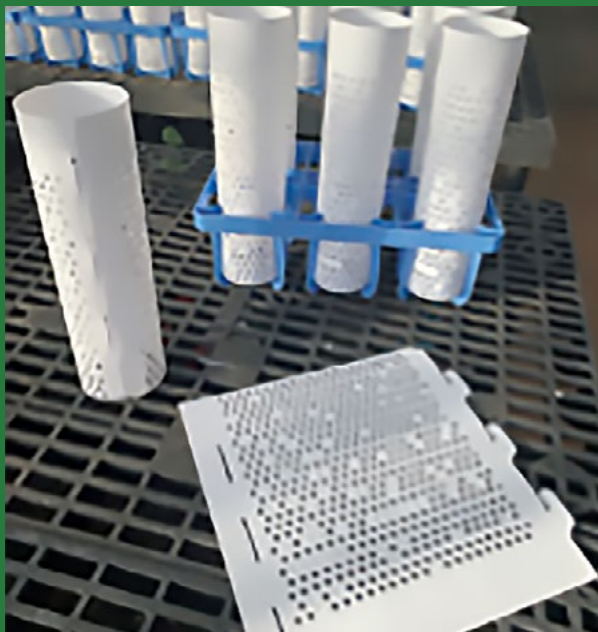
Roots mostly air pruned at the base of open base pot



INNOVATION SPOTLIGHT:

From flat sheet to field

The SheetPot – a roll-up container made from flat plastic sheet – has been trialled overseas in reforestation and restoration projects as a cheap, root-pruning alternative to conventional pots. The design allows for air flow, drainage and better lateral root development, and cuts freight and material costs. While not yet used in mainstream nursery production, it's a reminder that interesting ideas can take root anywhere.



THINK ROOTS, NOT JUST POTS

No one pot is perfect, but the pot you choose does more than hold a plant upright. It shapes roots, controls moisture, affects freight, and helps (or hinders) your crop from day one. Whether you're growing advanced stock or fast-turn annuals, the right container choice can cut losses, improve outcomes and help your media and irrigation perform at their best.

TALK TO YOUR NURSERY EXTENSION OFFICER

Not sure where to start? Your local levy-funded GIA Extension Officer can help you review your setup, growing systems, or container options.

Contact Colin Hunt if you're in NSW or northern Victoria on 0418 667 558 or at colin.hunt@greenlifeindustry.com.au

Find your local levy-funded extension officer at <https://www.greenlifeindustry.com.au/contact-us>



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