

A guide to successful young plant production

An issue that causes some uncertainty throughout the horticulture industry is to do with knowing the best strategy for the production of young plants. Scotts Greg Neighbour offers some helpful guides.

It won't come as a shock to learn that there is no one particular product or method that is better than another for successful young plant production. Rather, due to such variables as soil type, climate, water quality, crop type and production systems, growers should in fact seek specialist advice to tailor a set of products and processes that are best suited to their situation.

Greg Neighbour, Scotts Technical Director, offers some knowledgeable advice on young plant production.

"There is no single product that makes young plant production easy and fool-proof," says Greg. "Scotts has 10 – 15 such products. You need to talk with someone like Scotts to use our expertise and history in high performance management of plant systems to work out which combination of products will work for you.

"For example, Lyndale Nursery in NZ consulted with Nicole Rochester from Scotts to work out their growing strategy. Lyndale might have 250 different species in bulk trays and they wanted a fertilising program that worked for all their cuttings species, one that also provided a timed-to-market approach.

"On the other hand, Woodlea in Tasmania is mono-cropping, literally hundreds of thousands of one tree species growing from seed. They needed a different growing program.

"But the thing is, it's still young plant production for both nurseries. And they are both getting excellent results with their own Scotts tailored program."



Key nutritional variables for young plants		
Variable	Issue	Possible nutrition response
Water Quality (Analysis at least twice a year)	High pH	Use Peters Excel Acidifier
	Low pH	Use Peters Excel Cal Mag
	High EC	Use more CRF, less WSF Incorporate gypsum if Na or Cl present
Light Levels	Low light	Watch Petunia and Pansy for blindness Use Peters Peat Lite Hi N at low rates
	High light	Lower N, raise Fe Use Peters Excel Cal Mag Hi K
Season	Summer	Use Peters Excel Cal Mag or Peat Lite Special Hi K Raise Fe, Ca, Mg
	Winter	Peters Peat Lite Special Hi N for high nitrate. Raise Ca, Mg
	Spring	Peters Excel Cal Mag Balanced for high nitrate, Ca, Mg and T.E.
Growth control, fast turnover	Need to hold crop	Less CRF or SRF and more WSF
	Optimum production	More CRF or SRF and less WSF

Where do you begin?

There are five key areas around which recommendations are based for young plant production.

Water quality, Light levels, Season, Growth control, Crop.

Each of these areas has a different set of attributes that define its broad requirements, to the extent that, in Scotts view, each area is specialised requiring specific expertise.

"From reading the chart below, while broad-based, you can see how each area has different fertilising requirements," says Greg.

Requirement	Scotts product	Analysis	Longevity at 21°C	Technology
Suitable for containers under 60cc	Osmocote Exact Mini Osmocote Start	16+3.5+9.1+TE 12+4.8+14.1+1.2Mg	3-4 mths 2 mths	Controlled Release Fertiliser Controlled Release Fertiliser
Suited to container <60cc for summer and heat bed production	Osmoform Premix	18+2.2+11+TE	3-4 mths	Slow Release Fertiliser
Fine powder for plug production	Peters Unimix Plus III	10+2.2+8.3+TE and Wetting Agent	2 mths	Slow Release Fertiliser
Includes 5% Ca to improve seedling quality	Peters Excel Cal Mag	Std 15+2+12+5Ca Hi K 13+2+17+5Ca		Water Soluble Fertiliser
Acidifies high pH water without acid injection	Peters Excel Acidifier	Std 18+4+15		Water Soluble Fertiliser
High quality, low salinity water soluble fertiliser	Peters Professional (Refer to Peters brochure for full product listing)	Plant Starter Peat Lite Special Hi N Peat Lite Special Hi K Hydrosol		
Soluble trace element mix additive for control	Peters STEM	STEM (Full Soluble Trace Element Mix)		Water Soluble Fertiliser
To add complete trace elements to potting mixes	Micromax	Granular Trace Element	12 mths	Slow Release Fertiliser
Convenient to incorporate in potting soil	Hydraflo 2	Granular Wetting Agent	8 mths	Wetting Agent
Post plant drench	Hydraflo L	Liquid Wetting Agent	12 mths	Wetting Agent
Broad-spectrum prevention and control of root rot	Banrot	400WP Wettable Powder 80G Granular	8 weeks	Plant Protection

“Now throw into the mix the fact that there is a wide range of seedling production systems used by the young plant industry. They range from direct seeded punnets or tubes placed on the ground with overhead fixed irrigation, to highly sophisticated environment controlled moving roof greenhouses, ebb and flow or gantry irrigation systems and rolling benches.

“My best advice is to ask your Scotts Regional Sales Manager for recommendations that can apply to your environment.

“However, a piece of critical advise I give to everyone is to not compromise on the quality of the potting media used.”

Nutritional systems

There are two philosophies applied to the nutrient inputs to young plant production:

The first is 100% Water Soluble Fertilisers applied at each irrigation. This allows ‘control’ of the seedlings at all stages of production. High nitrogen (N) to start, high potassium (K) to finish and little nutrition during the hardening off stage.

It has the negative though that nutrients can be quickly leached from the pot with rain, and if rain continues, nutrients cannot be applied, causing deficiencies.

The second method, which Greg Neighbour favours, is to incorporate up to 70% of the required nutrition in the pot using Osmocote Exact Mini 3-4 month or Osmocote Start – a mini prill that produces good and even distribution in small containers. This method will control growth using water solubles on a bi-weekly or weekly basis, and allows continuous feeding from the Osmocote irrespective of the amount of rain or irrigation received.

See website for Scotts Technical Bulletins www.scottsasiapacific.com/nursery/html/nursery_tech.htm

Every nursery needs its own growth program

Whether the nursery is in forestry seedling production, in punnets, cells and vegetable trays or working from hardwood propagation, it needs a young plant production program that suits its situation.

There are, of course, constants to every program. Most nutritional recommendations assume an Air Filled Porosity¹ of 14% to 16% and being composted (if pine bark) with a Nitrogen Drawdown Index² (NDI) of >0.7. The pH needs to be adjusted using a combination of fine lime and dolomite in the ratio 1:3 to a final pH of 5.8 to 6.2.

Another constant is that a selection of Water Soluble Fertilisers (WSF), Slow Release Fertilisers (SRF), Controlled Release Fertilisers (CRF), root rot fungicide, wetting agents and micronutrient packages will form some part of a program.

“The main constant is Scotts,” says Greg. “Use our expertise by drawing on the experience of our Regional Sales Managers. Ask them how Scotts GROE computer program can help you create your own successful young plant production.”

“Essentially every nursery in young plant production is doing the same thing, but just a bit differently. And that little difference can make a big difference to your business.”

¹ Air Filled Porosity - The percentage of air, by volume, in a potting mix after it has been watered and drained under standard conditions. (definition from AS 3743-2003 “Potting Mixes”, Standards Australia, 2003). ² Nitrogen Drawdown Index - Potting mixes containing bark or sawdust have the potential to use nitrogen at the expense of the plant. This is known as nitrogen drawdown.