

ARE YOUR PLANTS GETTING WHAT THEY NEED?

How understanding fertilisers, water quality and growing media can improve crop performance and reduce wasted inputs

Every nursery uses fertilisers to produce healthy, saleable plants.

Factors like fertiliser type, water quality, growing media and specific crop needs all influence how well plants grow. Nailing your fertiliser program is about more than just apply and forget.

Getting these factors right can improve plant performance, reduce waste and help manage plant health in your nursery production system.





WHY PLANT NUTRITION MATTERS

Container-grown plants have limited access to nutrients. They rely almost entirely on the nutrients supplied through fertilisers.

Too little fertiliser can slow growth and reduce plant quality. Too much can damage roots and foliage, contribute to nutrient losses through leaching, and increase costs. Understanding how fertilisers act in your production system is the first step towards building an efficient nutrition program.

CHOOSING THE RIGHT FERTILISER

Most nursery fertiliser programs rely on one or a combination of three fertiliser types: Controlled Release Fertilisers (CRFs), Slow Release Fertilisers (SRFs), and soluble fertilisers. Of these, most growers utilise CRFs and/or soluble fertilisers to balance consistent nutrition with flexibility throughout their production cycles.

The terms *controlled release* and *slow release* are often used interchangeably. However, they refer to two distinct methods of delivering nutrients into the growing media.

Controlled release fertilisers rely on temperature, moisture, and coating thickness to determine their release rate and longevity. They are relatively easy to apply and safe to use, making them a popular choice in nursery production systems.

Slow release fertilisers are generally less predictable in their nutrient release than CRFs. They rely on microbial activity and chemical breakdown to release nutrients over time. This means that where microbial populations

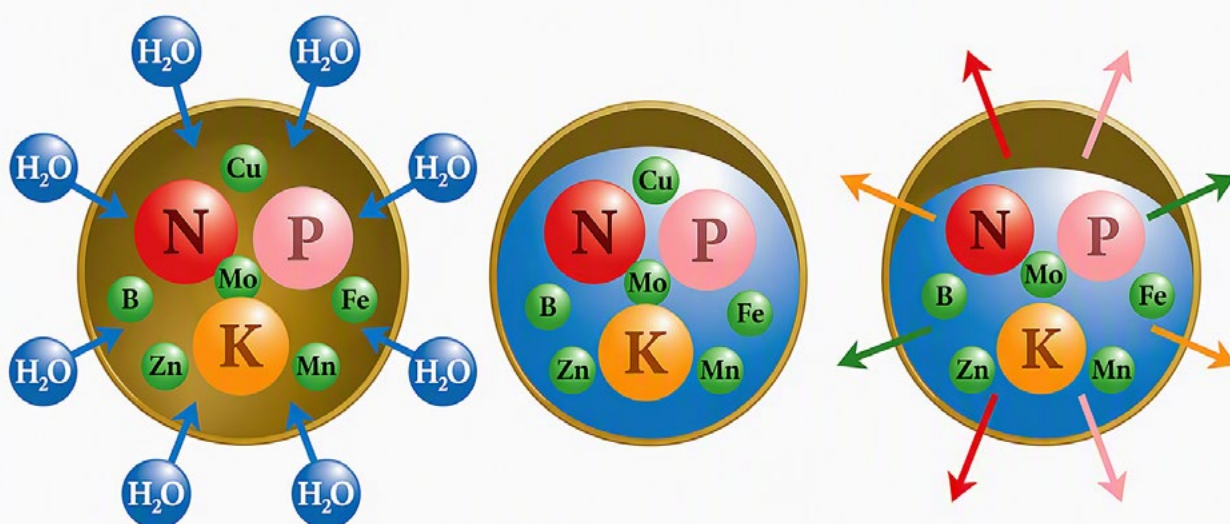
are higher, nutrient release may occur more rapidly. Conversely, nutrient release may be slower where microbial activity is limited.

As most growing media lacks the diversity and level of microbial activity found in soil, SRFs are not commonly used in container nursery production systems.

Soluble fertilisers are either purchased as pre-formulated products or mixed on site. They are typically applied through irrigation systems as part of a fertigation program, or delivered via mobile equipment when crops require a rapid nutrient boost or correction of a nutritional deficiency.

The use of soluble fertilisers provides growers with greater control over crop management during production. They can be incorporated into regular growing programs to accelerate or moderate growth, encourage specific crop characteristics, or address minor nutrient deficiencies.

However, soluble fertilisers generally require more attention, labour, and specialised equipment to ensure they are applied effectively and consistently.



Controlled Release diagram.



Understanding the nutrients your plants need

Not all nutrients are required in the same amounts.

Plants need larger quantities of the macronutrients Nitrogen (N), Phosphorus (P), Potassium (K), Calcium (C), Magnesium (Mg), and Sulphur (S) to be available in the growing media for active growth.

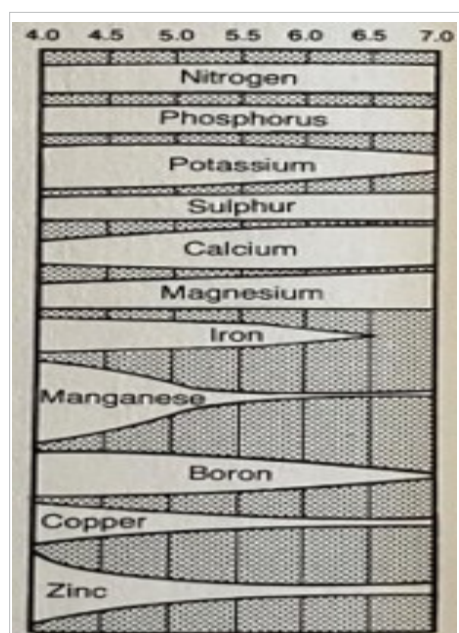
Although required in lower quantities, the micronutrients Iron (Fe), Zinc (Zn), Boron (B), Manganese (Mn), Copper (Cu), Chlorine (Cl), and Molybdenum (Mo), remain essential for healthy plant growth and deficiencies or toxicities in these can also adversely affect crop quality.

The familiar N-P-K numbers shown on fertiliser bags provide a useful guide.

Generally speaking:

- A higher nitrogen ratio encourages faster, softer growth.
- While a nitrogen-to-potassium ratio that is closer can promote slower, stronger growth and improved plant structure.

While this is a useful rule of thumb, the best fertiliser program always depends on your crop, growing media, irrigation, and production system.



How potting media pH affects availability of plant nutrients.

Every crop is different

Plant nutritional needs change throughout the production cycle.

Some species have higher nutrient requirements at particular stages of growth. For example, spring-flowering plants such as *Gardenia* benefit from additional Magnesium to support flowering and healthy foliage.

Some plug suppliers provide recommended nutrition programs for their stock. These should be viewed as a starting point, with your local growing conditions, irrigation water and growing media taken into account to achieve the best results.

Water and growing media matter just as much

Even the best fertiliser program can underperform if your water quality or growing media are limiting nutrient availability or retention.

Regular water testing helps identify nutrients already present in your irrigation supply and can highlight potential issues before they affect crop performance. It may also identify opportunities to reduce fertiliser inputs.

Routine monitoring of growing media, including pH and electrical conductivity (EC), helps ensure nutrients remain available to plants throughout production. For example, iron becomes less available in growing media as pH approaches 6.5, increasing the risk of deficiency.

Growing media makeup also influences how nutrients are likely retained and released.

Your nutrition program to your production system

There is no single fertiliser program that suits every nursery or crop.

Short production cycle crops, such as seedlings and potted colour, may rely almost entirely on fertigation.

Longer production cycles often benefit from controlled release fertilisers incorporated during potting, with supplementary feeding as required.

Planning potting-up schedules can also improve nutrient management by introducing fresh growing media and renewing controlled release fertiliser while providing an opportunity to inspect root development.

Selecting the right fertiliser longevity at potting can also reduce the need for costly topdressing later in production.



Propagation equipment



Practical steps you can take now

Improving plant nutrition does not always require changing fertiliser products. Often, small adjustments to your production system deliver the biggest benefits.

CONSIDER:

- Matching fertiliser type to your crop and production cycle.
- Testing irrigation water regularly to understand quality and existing nutrient levels.
- Monitoring growing media pH and EC throughout production.
- Reviewing fertiliser longevity before potting to reduce topdressing later.
- Adjusting nutrition programs to suit seasonal growth patterns and crop requirements.
- Using supplier recommendations as a guide but fine-tune them to your nursery conditions.

LOOKING AHEAD

A successful nutrition program is about more than applying fertiliser.

Understanding how fertilisers, water quality, growing media and crop requirements interact allows growers to improve nutrient efficiency, produce higher-quality plants and reduce unnecessary input costs.

Regular monitoring and small adjustments throughout the production cycle can deliver significant improvements in both plant performance and business efficiency.

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FURTHER INFORMATION

- Past nursery papers are available via the *Greenlife Industry Australia* website.

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