

Nutritional Guide For Healthy Gardens

There are a large number of issues that can affect a garden's health. The correct use of fertilizers helps provide a balance of nutrients to garden plants and help to prevent and remedy many common gardening problems.

The following tips on gardening may be useful. They are the product of Paton's one hundred years of experience in working with Australian gardeners and commercial growers.

- [What Do Fertilizers Do?](#)
- [What Makes Plants Grow?](#)
- [Checklist for Fertilizer Selection](#)
- [General Hints on Fertilizer Use](#)

Name	Uses	When?	How Much?
<u>Azalea & Camellia Food</u>	Azaleas, Camellias, Daphnes & Gardenias	Aug - Oct Dec - Mar	Young plants 25-50g/m ² , 3-4 times per year. Established shrubs 50-75g/m ² , 3-4 times per year.
<u>Banana Special</u>	Vegetables, Flowers, Fruit trees	Before sowing Oct - Dec - Mar Oct - Dec - Mar	50-100g/m ² 25-50g/m ² 25-50g/m ²
<u>Blood & Bone</u>	Vegetables, Flowers, Fruit trees	Before sowing Before planting Before planting	75-100g/m ² 50-75g/m ² 75-100g/m ²
<u>Blood & Bone Plus K</u>	General purpose garden fertilizer for flowering and/or fruiting plants	Jul / Aug / Sept Jan / Feb / Mar	Refer to brochure for more specific advice.
	Ideal for all	Aug, Oct, Dec,	Young trees 50-

<u>Fruit and flowering Food</u>	types of citrus.	Mar	75g/m ² , 3-4 times per year. Established trees 100-150g/m ² , 3-4 times per year.
	Ideal for Standards Floribunda Miniature & Climbing	July Jan - Feb	Young 50-75g/m ² Mature 100-150g/m ² 60-130g/m ²
<u>No. 17 Lawn Food</u>	Lawns: Kikuyu, Couch	Aug / Sept, Jan / Feb and again in March	25-40g/m ² 25-40g/m ²
<u>Native Plant Food</u>	Banksias, Bottlebrush Grevilleas Waratahs	Aug / Sept January April	50-75g/m ² 75-100g/m ² 75-100g/m ²
<u>Natural Gypsum</u>	For loosening heavy or clay soil. Will improve water penetration and drainage.	Anytime	Refer to brochure for more specific advice.

What Do Fertilizers Do?

The following table summarises the effect of each element and provides a guide to identifying deficiencies.

Chemical Element	Plant Function Most Affected	Symptoms of Deficiency
Nitrogen (N)	Affects cell structure and promotes leaf growth.	Stunted, pale green or yellowing of the leaves often with reddish tints.
Phosphorus (P)	Promotes seedling development, root growth, and the formation of flowers, fruits and seeds.	Poor root development and stunting of seedlings. Often a purple discolouration in the leaves.
Potassium (K)	Promotes cell strength and water movement within the plant. Affects the growth and quality of flowers and fruit. It also assists the plant resist stress from pests, disease and climatic extremes.	Weak stems and floppy leaves especially the older ones, with yellow/brown spots and fewer or smaller flowers.
Calcium (Ca)	Cell wall construction. Promotes healthy growing tissue including root tips.	Weak stems, dark brown or black leaf tip discolouration, particularly on older leaves.
Sulphur (S)	Assists in the formation of many plant proteins and chlorophyll.	Yellowing of leaves and stunting of roots.
Magnesium (Mg)	Essential in photosynthesis.	Yellowing of the leaf edges most noticeably on the

		older leaves.
Trace Elements	Although essential they are only needed in very small quantities, to regulate plant growth and assist in the building of compounds within the plant.	Varies depending on the severity of the deficiency and the particular plant.

What Makes Plants Grow?

There are about 16 or so chemical elements essential for healthy plant growth, including Carbon (C), Hydrogen (H) and Oxygen (O), which the plant extracts from the surrounding environment (air and water).

In addition to these, there are 13 other nutrients, essential in varying degrees, which are predominantly absorbed via the root system. These other nutrients are more often supplied by fertilizers, manures or organic matter and can be divided into three groups:

- Major Elements - Nitrogen (N), Phosphorous (P) and Potassium (K)
- Secondary Elements, and
- Trace Elements.

Major Elements

These compounds are used in large amounts by plants and need to be available in sufficient quantities during active growth to avoid plant health problems. Although these major elements all need to be generally available, the ratio of their use within the plant varies throughout the year because they affect the various plant functions differently.

Phosphorus (P) is for reproduction and photosynthesis:

Phosphorus is an important component of any starter or pre-planting fertilizer, as it stimulates root growth. Phosphorus is also needed for seedling development and during active growth phases, like spring, for new root and shoot growth.

Nitrogen (N) is for protein and chlorophyll production:

Nitrogen has its greatest impact on the growth and development of leaf tissue and is needed in larger amounts during growth phases. Care should be taken not to over supply Nitrogen as this will create an abnormal flush of growth, weakening the plant.

Potassium (K) is for general plant growth:

Potassium is primarily responsible for the quality and quantity of flowers and fruit so is needed in larger amounts as the plant enters into reproductive phases of growth.

Secondary Elements

The Secondary Elements - Sulphur (S), Calcium (Ca) and Magnesium (Mg), generally assist plant growth and chlorophyll production. Although important, these elements are required in smaller amounts by plants than the major elements.

Trace Elements

Trace Elements - Iron (Fe), Manganese (Mn), Copper (Cu), Zinc (Zn), Boron (B), Chlorine (Cl) and Molybdenum (Mo) only need to be available in very small amounts within the soil and do not affect plant growth unless they fall to extremely low levels.

Each bag of Amgrow Specialty fertilizer details the contents in terms of all these essential elements for your convenience

Checklist for Fertilizer Selection

It is often difficult to decide what different fertilizers are needed or indeed what they are worth, given that there are numerous brands, pack sizes and different formulations that fill the shelves of garden centres, hardware stores etc

So what should you look for:

- 1) First have some idea of what you need (fertilizer type, NPK ratio, etc). Your requirements will vary depending on the plant, soil pH, soil structure and the stage of plant growth.
- 2) When comparing values of different fertilizers, look closely at the analyses to decide if they are similar, that is:

- Potassium(K) as Sulphate is very different to a high salt Potassium source like Potassium Chloride which is less desirable for most soils and plant types. High salt fertilizers create a saline environment, inhibiting the root's ability to take up water from the soil.
- Similarly, Nitrogen(N) available in the Ammonia form, is more acidifying than other forms. Organic Nitrogen is less freely available than Nitrate Nitrogen.

General Hints on Fertilizer Use

- Plants respond and grow better if fed regularly. Regular feeding reduces growth surges and helps nurture a healthier garden.
- Feeding in the spring assists root and shoot growth.
- Feeding in the summer maintains nutritional levels depleted during the active growth in spring.
- Feeding in autumn builds up plants to help cope with tougher winter conditions.
- Always water fertilizers in thoroughly after application, unless specifically advised otherwise on the product label.
- Water plants on the ground as plants absorb most of their needs through their roots.
- Never apply fertilizers to dry or wilting plants as it may burn or increase stress levels.
- Wherever possible, water prior to applying fertilizer and again following application.
- When mulches are applied to your garden they will slowly start to decompose. The decomposition process removes Nitrogen from the soil, leaving plants hungry. To compensate for this, apply a light dressing of fertilizer prior to mulching, which will ensure that adequate nitrogen levels are maintained.

- If your plants are thirsty, wilting and looking stressed, WATER THEM regardless of the time of day.
- If you are using a chemical spray to remove weeds from your lawn, fertilize your lawn two weeks prior to spraying as the herbicide will be much more effective on actively growing weeds.
- Raising the cutting height and keeping blades of the mower sharp will help maintain a strong, dense lawn and minimize weed growth.
- Prior to seeding or laying turf, evenly spread the required amount of fertilizer onto the soil surface, rake into the soil to a depth of approx 5 cm (2 inches), and water in well.
- Apply fertilizer sparingly on potted plants as an excess of plant food can easily cause burning. It is much safer to apply smaller amounts on a regular basis.
- To achieve a uniform spread of fertilizer, go over the area at least twice in different directions (one at a right angle to the other).

N.B. One adult handful is approx 50 grams. One matchbox holds approx 30 grams.