

## WHAT FERTILISER SHOULD I USE?

by Brian Milligan

New growers are quick to believe that success in cultivating orchids depends primarily on the type and amount of fertiliser used. Not so, in my opinion! In comparison with many plants, most orchids require little fertiliser and success in growing them depends more on providing them with optimal amounts of light, water, warmth and fresh air than with large amounts of fertiliser.

Fertilisers can be divided into several different types. Liquid fertilisers (which are usually solids!) are so called because they are dissolved in water before application. Their nutrients immediately become available to the plant *via* the roots, and in some cases also *via* the leaves. Slow release is the term generally used to describe fertiliser granules or droplets with polymeric coatings, which are essentially small plastic capsules of soluble fertiliser. These slow-release fertilisers should be incorporated in the potting mix. Their nutrients are slowly released during watering, especially in warm weather. Other fertilisers, such as Magamp®, Hoof-and-Horn® and Blood-and-Bone, also release their nutrients over a long period as they dissolve or are degraded by bacteria present in the potting mix.

Liquid Fertilisers contain major amounts of nitrogen (N), phosphorus (P) and potassium (K) in their chemical make-up. Smaller amounts of magnesium, calcium, sulphur and other elements needed for plant growth are also present. Magnesium is important because it is a constituent of chlorophyll, the pigment responsible for the green colour of plants. Chlorophyll catalyses photosynthesis, the primary step in the manufacture of cellulose, the structural material of plant tissue. Fertilisers containing a high proportion of nitrogen stimulate plants to produce leaf growth at the expense of flowers, whereas those containing relatively high proportions of phosphorus and especially potassium promote flowering. Thus fertilisers with different proportions of these elements (usually referred to as the NPK ratio) will have differing effects on plant growth and flowering. An alternative is to use a 'balanced' fertiliser in which the ratio of nutrients is such as to provide optimal orchid growth during the whole year. Other liquid fertilisers used successfully with orchids include Aquasol®, Thrive®, and Maxicrop®.

Orchid growers with large collections usually fertilise nearly every time they water by using a proportioning pump which adds a concentrated fertiliser solution to the water feeding the sprinkler system. A system sold for home use dilutes concentrated fertiliser solution approximately 20-fold with tap-water as it is applied by the garden hose. If applying fertiliser regularly in this way, the final concentration should be only 10% of the manufacturer's recommendation. However, when applying liquid fertilisers at weekly or fortnightly intervals, concentrations up to 50% of the manufacturer's recommendation can be used.

Slow Release Fertilisers are valued by the lazy grower and I use them extensively on my cymbidiums and zygopetalums! Osmocote®, Osmocote-Plus® and Nutricote® are three of the best known brands. I apply one or two tablespoons of Osmocote-Plus® to my 8-inch pots in October, together with smaller amounts of Magamp® and Hoof-and-Horn®. Often I add a little more in January. Slow-release fertilisers function by allowing their nutrients to diffuse slowly through their polymeric coating. Little fertiliser is released in cold weather, but the rate of release increases as the pot temperature reaches 20°C, coinciding with rapid plant growth. Some growers have excellent success using pelletised animal manures such as Dynamic Lifter®, which is essentially pelletised fowl manure. Some use it as a mulch on the top of the potting mix but others believe that it accelerates the breakdown of pine bark.

The above discussion applies primarily to fertilising cymbidiums and zygopetalums, which are regarded as 'heavy feeders'. I suggest caution when using slow-release fertilisers or animal manures on other orchids. It is safer to use liquid fertilisers at low concentrations and to apply them only to plants in active growth.