

## Paphiopedilum culture in Orchiata

Orchiata can be used as a standalone potting mix for all Paphiopedilum without any other components.

### Growing medium

Most multiple ingredient potting mixes used for Paphiopedilum are designed to increase the following properties: water retention, air porosity, wettability, etc. For example, very dry bark is mixed with sphagnum moss to improve the water retention. In the case of Orchiata for Paphiopedilum, multiple mixes are not required. Selecting the correct size of Orchiata is all that is required for the various groups.

With minor exceptions, the diameter of the roots will indicate to the grower which size of Orchiata they need to use:



Paphiopedilum hangianum

Freshly deflasked seedlings and species with thin roots such as Paph. **Barbigerum** will grow better in Classic. Seedlings of **Brachypetalum** and complex hybrids do very well in a mixture of 50/50 Classic and Power.

**Maudiae** are optimally grown in 75/25 Power/Classic. Alternately, if grown in a humid environment, Power is the best grade.

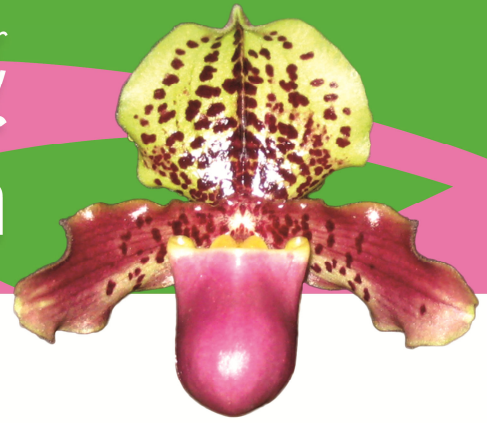
Generally all other species and hybrids can be grown in Power. However, for larger more mature plants, Power+ should be considered.

The size of the Orchiata to use depends on the root diameter, therefore adding a smaller size to your mix will improve the water retention if this is what you require. Precision can be added to Classic, Classic to Power, Power to Power+.

For example the **Maudiae** type's root system prefers Power, but  $\frac{1}{4}$  Classic added will improve the water retention. However for a larger planting, we would use  $\frac{3}{4}$  Power+ and  $\frac{1}{4}$  Power to achieve the same result in a large 20+cm pot.

### Orchiata Grade Sizes

Precision	1/8" - 1/4"
Classic	1/4" - 3/8"
Power	3/8" - 1/2"
Power+	1/2" - 3/4"



## Additives

Orchiata is a standalone potting mix, there is no need to add perlite or sphagnum moss etc.

To improve water retention add the smaller grades to the larger grade, to improve aeration add a larger grade to the most suitable grade currently being used. However, due to Paphiopedilum being more specific compared to most orchids, some additions still may be required.

**Brachypetalums** and some **parvisepalum**, such as **micranthum** and **malipoense** will require additional dolomitic limestone, or even plain lime (calcium carbonate). The rate should be approx. 60g for a 40L bag. This can be applied by adding 2 liters of water to the bag, then mix to get the Orchiata uniformly moist, add the lime and blend again.

Most Paphiopedilum will not require the additional dolomite as this is mixed as a standard practice during our processing.

**Anitum**, and some acid growing species from the Philippines (**ciliolare**), Indonesia (**sangii**) and Papua (**papuanum**) require the Orchiata to be washed, because they prefer a low pH. Alternately specific fertilizer can be used for this type of species.

Generally we do not recommend washing Orchiata as it will remove some of the dolomite that has been added.

## Repotting in Orchiata

When repotting is required, it is recommended for most Paphiopedilum species to spray and drench with mancozeb at 2g/10L of water to prevent any rot. This will also add extra zinc and manganese, which is required by many Paphiopedilum species.

Watering Orchiata is similar to any other potting mix however for wet growing species it is possible to keep the Orchiata wet continuously through sprinklers or sprayers. Generally it will not break down the same as other potting mixes and the growth will be exceptional. Paphiopedilum **sangii**, **mastersianum**, **ciliolare** are just a few that will like this, but **hangianum** and **emersonii** will benefit favorably being kept wet constantly.



Paphiopedilum emersonii



## Fertilizer

Two recommended schedules are as follows:

1. 20-20-20 or similar fertilizers where the ammonium content are equal to, or higher than, the nitrate level. Most urea as a nitrogen source is acceptable, but not all nitrate, at a rate of 0.25g/L for sensitive species and 0.5g/L for more robust species. Ideally adjust the pH to 5.7 also magnesium sulfate can be substituted for the 20-20-20 every 3 months. This simple schedule is used by many growers in Europe. Hard water, pH corrected with phosphoric acid or eventually nitric acid, can also be used. We would recommend to use RO water, then adding tap water to achieve an EC of 100 microsiemens ( EC .1) to start with. This will have a better buffering capacity and avoid too high pH fluctuation at the roots in a non-industrial setup. Mancozeb should be sprayed every 4-6 months at the rate of 2g/10L. If the leaves start to become chlorotic during the culture Kocide can be used at 1g/10L, blended with 3g/10L of calcium carbonate powder (to avoid any phyto toxicity effects resulting from copper), constantly stir during spraying. This will supplement copper in a safe way, and should be carried out every 6 months. It should be noted the rates are extremely low for Mancozeb and Kocide including the calcium carbonate powder mixed with the Kocide. The target is not disease control, but micronutrient supplementation.
2. NaFe EDTA (Iron EDTA) 3mg; MnSO<sub>4</sub>, H<sub>2</sub>O 3mg; ZnSO<sub>4</sub>, 7H<sub>2</sub>O 1mg; CuSO<sub>4</sub>, 5H<sub>2</sub>O 1mg; Na<sub>2</sub>MoO<sub>4</sub> 0.2mg; H<sub>3</sub>BO<sub>3</sub> 1.5mg; NiCl<sub>2</sub> 0.1mg; NH<sub>4</sub>NO<sub>3</sub> 400mg; KNO<sub>3</sub> 150mg; NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> 150mg; MgSO<sub>4</sub>, 7H<sub>2</sub>O 80mg per liter of water. The NiCl<sub>2</sub> can be omitted.

Growth stimulants that do work for Paphiopedilum are seaweed extracts (such as Acadian seaweed or Maxicrop fully soluble powder) at a rate of approx 1-2g/10L of water added to your regular feeding. This improves the gloss and growth of some species dramatically.

The MSU/high nitrate/high calcium fertilizer does not give optimal result overall as there will be a residual pH increase and lockout of some micronutrients. Also some groups of Paphiopedilum seem to prefer ammonium as a nitrogen source, in Orchiata. It must be noted that, in the wild, it is not unusual to see plants with 5-6 generations of old growth which is very rare in culture. As well, healthy plants have a lot of leaves, and the leaves should be a healthy shade of green, usually dark green with some exceptions depending on the amount of light received. Yellow, white, or bleached out plants are symptomatic of a problem in all cases, except due to overexposure of light. If such plants do not darken when exposed to lower light levels, and the temperatures as well as humidity levels are correct, the grower needs to assess his fertilizer schedule.

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[www.besgrow.com](http://www.besgrow.com)

FP 0800 237 476  
T +64 3 359 8230  
F +64 3 359 8240  
E [info@besgrow.com](mailto:info@besgrow.com)

519 Wairakei Road  
PO Box 4334  
Christchurch 8140  
New Zealand

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