

Orchid Basics for Beginners

Any good gardener can grow orchids. But, as a good gardener knows, evolution has led to all sorts of plants adapting their growth characteristics to suit specific niches in nature. To grow any plant that has developed a specialised growth cycle, we need to have a basic understanding of the environment in which it grows, and the particular adaptations it has made to fit it's environment. Once we understand those fundamentals, we can usually quite easily adjust our backyard culture to suit them.

As you might have guessed from the introduction, orchids are one of those niche plants, and the major thing we need to understand about them is that all the ones we hobbyists grow are epiphytes in nature. That is, instead of growing on the ground in soil, they grow on tree trunks or branches, or sometimes on rock surfaces amongst leaf litter.

The epiphyte adaptation is usually aimed at gaining access to more light, higher in the forest canopy, but the downside of being an epiphyte is that up in the trees they don't have access to the water they would get in the soil below. This means that the roots, stems, and leaves of epiphytes have become modified to cope with their dryer environment.

The leaves for example have a waxy outer surface and have fewer stomata. Furthermore, the ones they do have are usually shut during the day, to prevent water loss.

The roots of epiphytes are also physically different to those of non epiphytes and have evolved to operate in air. As the root grows, the outer layer of cells dies to create an insulating sponge like surface that appears white when it is dry. This layer of empty cells is called velamen and can be from 1 to 8 cells thick. It has two main purposes. First, when dry, the empty cells protect the living cells beneath from evaporation. Secondly, when water is available, the empty cells quickly fill with water like a reservoir, which is then transported by the living cells to the rest of the orchid. The velamen is so absorbent that it will even take up moisture from clouds and mist. When wet, velamen appears to go green in patches, reflecting the chlorophyll in the living cells under the water filled outer cells. The few patches that stay white are specific air pathways that help the roots breathe when wet.



The epiphytic orchid lifestyle is one of alternate cycles of wet and dry. When it rains they get soaked, but when the rain stops, the roots quickly dry off again, at least on the outside. Orchid roots need this airy environment where they can breath. If they are wet too long they rot, and over watering kills more orchids than any other single failure in culture.

As a general rule, don't water an orchid again until just before the medium it is in has dried out from the previous watering. Bear in mind of course, that some types of orchids need more moisture than others and different types of orchids require different wet dry cycles. To get it exactly right for your particular orchid, you might need to ask advice from someone who grows that type well.

From all the above you can see that orchids can NOT be grown in soil. The most common epiphyte potting medium is commercially composted and graded pine bark. It is sold in bags graded as coarse (pieces about 20-30mm), medium (about 15-20mm), and small (about 10mm). There is also a special mix for Cymbidiums which contains a variety of sizes and a proportion of even finer particles to retain more moisture. Professional growers also use many other materials such as peat and perlite, coco peat chunks and many other things, but if you are just starting out, stick to bark and as a general rule, use as large a size as is practical depending on the nature of the roots. In general, for thick, coarse rooted plants like Cattleyas and Laelias, – use coarse bark or a mix of coarse and medium. For fine rooted orchids like Maxillarias and Miltonias (which have roots around 1 or 2mm diameter), use fine bark. For those in between use medium bark.

The other two common requirements for growing epiphytic orchids are **shade**, and **air movement**.

Although epiphytic orchids have colonised treetops to get access to light, very few grow in full sun. If you are looking to grow them under trees in your backyard, choose a tree with a light and open canopy but if you choose a deciduous tree like a Jacaranda, you will need to move the orchid elsewhere once it starts to lose its leaves. If they are going to get any direct sun at all, it has to be only very early in the morning before the day heats up. There are quite a number of orchids that can be grown quite successfully in such an open, backyard environment, but really, even they will do better in a structure with a shade cloth cover. For most orchids, 50% shadecloth provides just about the right amount of light, assuming it isn't set up under the additional shade of overhanging trees etc. One exception worth particular mention however, is the very popular Cymbidium orchid which does better under a little brighter conditions such as 30% shadecloth.

In regard to air movement, naturally the air flow up in the tree tops is higher than down on the ground, but that is not the full extent of the issue. Orchids always seem to favour trees and other growing habitats in locations where the air flow is highest. It might not sound like a major issue but there is no doubt at all that orchids in your backyard environment will grow better if you can install a fan in your shadehouse or greenhouse. Especially if you build a closed, shadecloth covered greenhouse to keep the bugs out.

Orchids are a very diverse group. Different genera and species have colonised an amazing range of habitats with substantially different climatic conditions. To grow any particular type really well, you need to understand the requirements of the type you want to grow and then fine tune the growing medium, the watering cycle, the amount of shade, fertilising, and air movement. However, most of the epiphytes are fairly hardy and adaptable little devils and will grow quite well provided that you :

- water regularly, just before they dry out and not before,
- provide $\frac{1}{2}$ strength fertiliser (in water) on a regularly basis (ie. "weakly weekly")
- grow under about 50% shadecloth.
- ensure there is reasonable air movement around them and don't jam too many together in a restricted space.

Orchids are a fascinating group of plants to grow and the variation of form between them is truly amazing. There are orchids with bulbs smaller than match heads and others that can be metres tall. Flowers can also range from millimetres to nearly a foot across. There are even leafless orchids where the chlorophyll in the roots does all the photosynthesis.

This brief article has only been aimed at providing a rough insight into the group, a starting point upon which you might build. There are many orchid growers who are quite happy to pass on their knowledge and experience, and the many orchid societies in Sydney are the perfect avenue for doing this. They usually meet on one night each month to show off the plants that are in flower, hear a guest speaker on some orchid topic, and socialise over a cup of tea or coffee. Many clubs also run classes for beginners.

If you would like to learn more about orchids, I strongly recommend that you go along to one or two societies meetings to see if you find it interesting. Visitors are always welcome and there is no need to join until you think it might be worthwhile.

The Ku-Ring-Gai Orchid Society is where I started over 30 years ago and I naturally offer a strong recommendation that you visit them. They meet on the third Monday each month at the Lindfield Community Centre on the corner of Bradfield Rd and Moore Avenue, West Lindfield. However, to find other orchid societies near you, or one whose meeting night might better suit your availability, the details of every club in NSW are listed on the Orchid Society of NSW website at : www.orchidsocietynsw.com.au/ under the "Affiliated Societies" tab.