

Basic Orchid Culture

Knowing which orchid you are trying to grow is your key to its cultural requirements. Orchids, like all plants, need a balance of light, air, water, growing medium, and fertilizer to grow and flower well. Let's examine each of these elements.

Light

It's important to understand that plants are living solar panels, and orchids are no exception! All the energy that they need to grow and bloom comes from the energy of light. Plants harvest light energy through photosynthesis – which results in the energy being captured into sugar molecules. The plants then consume the sugars that they produce to grow. The more light your plant gets, the more growth you will get.



ABOVE: Two Cattleya plants grown under different lighting conditions. The plant on the left was grown in sufficient light to produce abundant flowers. The plant on the right was grown under too little light to flower. The dark green leaf color of the non-flowering Cattleya indicates too little light.

Without enough light, orchids may produce lush looking growths but no flowers. Not giving your plants enough light is the most common reason for your orchids to fail to bloom. The old notion and myth of orchids being low light plants because they grow in dark jungles still persists. However, most orchids have evolved to be epiphytes (live on the sides of trees) where they are exposed to some direct tropical sun in the upper forest canopy.

How much light is enough for my orchids? The answer to this seemingly simple question is "as much as they will take without burning." Orchids grown under sufficient light will have lighter, somewhat chartreuse (yellow-green) foliage and strong upright growths. Many Phalaenopsis (grocery store orchids) tend to be a darker green when getting enough light. Don't be fooled by marketing terms like "low light", "bright indirect light", and so on! Those are just made up terms and are not quantifiable – you just can't measure them! The best way to know how much light you have is to count the number of hours of direct sun that your space gets where the plant will live. All other forms of light are ambient light, and

there's no real way to quantify that without a light meter. As a failsafe, most orchids will do well enough indoors with 1-4 hours of direct sun. If you do not know which orchid you have, giving them one to four hours of direct sun will suffice. If you live above the 38th parallel (or north of the northern Oklahoma border), then you don't have to worry about burning your plants from the direct sun indoors (with few exceptions). Generally, it's the heat from the plant touching the glass, not the light level that's burning the plant.

Water / Airflow / Humidity

With the exception of a few terrestrial varieties, orchids do not grow in soil. Often times, orchids are sold in pure sphagnum moss which retains a lot of water, but this is not ideal for indoor conditions. It may be ideal for greenhouse conditions where the extra moisture is needed. In greenhouses, it gets so hot that smaller pots will dry quickly. Otherwise, under most circumstances, orchid potting media should be somewhat to fairly coarse, with good drainage, yet capable of holding sufficient moisture to support the plant's needs. Orchid roots are intolerant of sitting water or media that stays wet for more than a few days.

Indoor conditions dry fairly quickly, so you don't really need to provide airflow. However, in a greenhouse, gentle air movement must be provided at all times to keep fungal populations from increasing. You can do this with a fan that does not blow directly on the plants.

Humidity is often discussed on plant forums, and for most plants does not matter. For some orchids, this is the case. However, most orchids do indeed need elevated levels of humidity – especially tinier plants or cloud-forest species. In most cases, you can get away with lower humidity levels if you water the plants more frequently. Mounted plants absolutely must have elevated humidity levels of at or above 60%.

More orchids are killed by incorrect watering than by any other reason. Proper watering consists of two separate components – quantity of water and frequency of waterings. Orchids should be watered as soon as they dry out. There's unfortunately no magic formula such as “*water a plant in a 6 inch pot every 7 days and you'll be trouble free*”. This is because the factors that dry out your plants will be different based on your space, your potting media, the time of year, humidity levels, and the exposure to heat and light. There are several ways to determine when a potted orchid is almost dry:

- the surface of the potting mix will appear dry
- dry pots will feel lighter
- clay pots feel dry to the touch
- a wooden stake or skewer inserted into the potting mix will come out almost dry

If in doubt, a finger inserted into the potting mix is perhaps the best tool to determine the moisture content of the potting mix. It will cause no harm to the plant. Feeling the potting mix for dryness is the best way to determine if your plant needs water. Only add water when the media has dried out.

When orchids are watered, they should be watered copiously. Water should be provided until it runs freely from the drainage holes, and continued for a few minutes to completely saturate the potting mix. Not only does this soak the potting mix, but it also flushes salts that naturally accumulate.

Watering frequency can be controlled by the choice of pot. For those who really like to water their plants or live in humid, rainy areas, clay pots, especially slotted pots are a good choice. Growers in drier climates or indoor growers or those who tend not to water often enough might want to use plastic pots to hold moisture longer.

When an orchid is overwatered (which really means that it's not drying out fast enough), root loss is the result. Without roots an orchid cannot take up water or nutrients and eventually, will get weak and die. The symptoms for overwatering and underwatering in orchids is the same, so inspect your roots to be sure which is which!

Fertilizer

Orchids will grow and flower, given that their other requirements are met, for fairly long periods without fertilizer but you'll get better results with some level of feeding. Typically plants are fertilized once a week during the summer and every two weeks in the fall and winter. Beware – some orchids that need a winter rest should not be fertilized at all during the winter. This is a common cause of failure to bloom, or blank sheaths where buds should be. Regardless of the fertilizer that you chose to use, most experienced growers use no more than ½ the label-recommended strength. Oh, and by the way, it's best to water first to wet the potting medium before you fertilize.

Fertilizers used on orchids should contain little or no urea. This is because soil organisms must first convert the nitrogen in urea to a form usable by plants, and since orchids do not grow in soil, this conversion does not occur efficiently. High nitrogen fertilizers aren't necessary. For a more detailed discussion of fertilizer and its dependence on water quality see the June 2003 and February 2008 issues of Orchids magazine or view copies of pertinent articles online here at www.aos.org.

Growing Medium

Orchids will require different growing media based on the plants' needs in relation to your growing space. For example, if you are growing indoors under a sunny south-facing window, you'll want a mix that's higher in sphagnum and tree fern fiber and less on coarse bark. If you are growing in a high humidity terrarium or vivarium or greenhouse, then you might only use coarse orchid bark mix. It's a little bit of a guessing game until you know your own watering habits and conditions well enough to get the mix right.

Additionally, a few collectors species (particularly some Paphiopedilum and Dendrobium species) are calcareous growers – meaning that they need horticultural-grade oyster shells mixed into the potting mix

to raise the pH and give the plants the calcium they would have gotten from the limestone environments that they come from.

Most experienced growers will agree that observation is the most important key to growing orchids well. Examining your plants on a regular basis will allow you to adjust and correct any problems before they become severe. In subsequent articles we will examine in more detail these four elements of culture and the orchid genera more commonly found in the marketplace.