

# The art of watering



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# DEBORAH DILLON-TOWNES discusses one of the hardest techniques to master in successful orchid growing



Soak pots to rehydrate orchids that have gone too long between waterings. Use warm water and let the pots soak for 10-30 minutes.



Pot type is important. Here, the *Dendrobium* mounted on wood will dry out first, followed by the *Cattleya* in the basket, then the *Bulbophyllum* in the clay pot. The *Cattleya* in the plastic pot will stay wet for longest.

**H**OW OFTEN SHOULD I water my orchids? is a simple question frequently asked by new growers. They are often frustrated when they do not receive a simple answer, such as, 'once a week', or, 'every other day'. The question may be simple, but the answer is decidedly complicated, depending on a multitude of factors. That is the reason why the watering of orchids, like the practice of medicine, is an art, not a science.

One reason why watering orchids in bark is more complicated than watering other potted plants is the relative lack of visual clues to tell a grower when an orchid needs water. Most experienced growers of potted plants need only to look at the top layer of soil to determine whether or not the plant needs watering. Pale, dry-looking soil or soil that has shrunk away from the sides of the pot indicates a need for water. But bark does not change significantly in colour, and touching the top surface gives no indication of the moisture content inside the pot. Nevertheless, correct and appropriate watering practices are crucial to the survival of orchids.

The need for water depends on many factors – the size and type of pot, the ambient temperature and humidity, light levels, the type and age of the potting media, the size and maturity of the orchid, air flow, and rainfall patterns in the orchid's natural habitat. Moreover, these factors are not constant but change continuously – a week of wet, cold, cloudy weather reduces the need for watering, as opposed to a dry, sunny, warm week. Watering schedules for orchids are usually highly individual and constantly changing.

## Understanding your orchids

It is vital to research an orchid's natural environment. For example, there is no point in watering orchids from parts of India throughout the winter if they would be resting during the corresponding dry season in their native habitat. Many *Dendrobium* species, such as *Dendrobium anosmum*, *D. aphyllum* and *D. lindleyi* fall into this category. Watering them when they would be experiencing a relatively dry rest in the wild means not only are the plants unlikely to flower in the spring, ▶



but also their resting roots may well rot. Hybrids are a little more forgiving, but primary hybrids between two winter-resting species will still need a winter rest, whereas a resting crossed with a non-resting species will need some water during the winter.

Orchids from rainforests such as the Amazon need a different watering cycle. In these hot tropical climates rain falls every day in the rainy season. The showers are relatively brief, from 30 minutes to an hour or so, but that is far longer than the three seconds it normally takes most growers to water an orchid in a pot. During those three



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Soak long, dangling aerial roots, such as those of vandas, in a bucket of warm water for at least 15 minutes to allow the roots time to drink. Bare-rooted plants may also be soaked in a weak fertiliser solution about once a week during active growth.

practical for a large collection, but for growers with small collections it is the most effective way of watering orchids that are potted in fresh bark. Soaking is also a good way to water mounted orchids, as well as those whose roots hang free in baskets without any potting mix, such as vandas and ascocendas. After 10 minutes of soaking, a weak fertiliser solution can be added to the water.

Whether orchids are grown in a greenhouse, a window, or under lights, they should be organised so plants that dry out at about the same time are grouped together for convenience of

## In heavy shade a plant's metabolism slows down so less water is needed, and also less water evaporates from the pot

seconds, water runs from the holes in the bottom of the pot and the grower moves on to the next pot. The roots will have got wet, but they may not have had time to absorb sufficient water, especially if the bark is new and there are no other water-retentive materials in the mix. However, if the mix is so old and decomposed that it never completely dries out, then the same frequency of watering will rot the roots because the sogginess of the mix leaves no room for the oxygen that is vital to the roots' survival.

It is important to remember that in the rainforest most orchids are epiphytic, growing with their roots exposed and adhering to the branches of trees often high in the canopy. During the average hour of daily rainfall, the roots have plenty of time to absorb enough water for the orchid's daily needs. Even when the rain has stopped, water dripping from the leaves of trees continues to provide moisture to the orchid for some time afterwards. We can approximate this condition by soaking orchids in a sink or bucket of warm water for 10 to 15 minutes at a time. It may not be



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The crinkled, accordion-like leaves of the *Oncidium* (left) indicate that it has been underwatered in the past. The *Coelygne* (right) has been kept too wet, and its bare pseudobulbs are starting to rot.

watering. Orchids in large plastic pots in a north-facing window, for instance, need watering far less often than orchids in small clay pots, in a sunny, south-facing window. Microclimates exist even in a greenhouse, with cooler, shadier, more humid areas and warmer, sunnier, drier areas depending on the orientation to the sun.

An effective way to tell whether an orchid needs watering is to lift the pot directly after it has been watered, and to lift it again on subsequent days to compare weights. The recently watered orchid will feel much heavier than the orchid that needs watering. Soon the grower will be able to judge how dry the compost is just by lifting the pot.

### Potting medium

The more water-retentive materials a compost contains, the less often it needs to be watered. A bark mix consisting of straight fir bark, or bark and charcoal, needs to be watered frequently, especially if the orchid is in a clay pot in a sunny location. However, the same watering schedule would soon rot the roots of orchids in decomposing bark mixes, such



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Warm water from a hose is directed closely into the pot. Avoid wetting the leaves if there is not time for them to dry off before temperatures drop at night.



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Hang greenhouse plants in the aisles between benches so that water does not drip on to the plants below. This reduces the possible spread of virus or disease.

as those overdue for repotting.

Sphagnum moss is a tricky material to work with. After six months it begins to break down and hold too much water, meaning oxygen can not reach the roots, and they quietly rot away inside the pot. New sphagnum moss in a small clay pot in a sunny place dries out extremely quickly, and orchids in such a situation need frequent monitoring. When new sphagnum moss dries out it can be difficult to re-wet but warm water applied in intervals will usually be absorbed without any problem.

### Type of pot

The material the pot is made from is a very significant part of the watering equation. Plastic pots only allow evaporation through the top surface, whereas clay pots are porous so

moisture is lost through the sides as well, meaning a clay pot will always dry out faster. Orchids in baskets dry out even more quickly, while mounted orchids, especially those with no sphagnum under the roots, dry out faster still, along with vandas in baskets without any potting mix.

### Size of pot

Pot size has much to do with how quickly an orchid dries out. Small, 5cm seedling-size pots dry out quickly, especially in sunny conditions, whereas an orchid in a 15cm pot or larger dries out much more slowly, and is in greater danger of root rot from over-watering. The relationship of size-of-orchid to size-of-pot is important. An orchid in too large a pot (over-potted) is at risk of root rot because there are not enough roots

to take up the water and the excess compost remains wet. If a plant is received like this, it should be repotted into a pot just large enough to hold its roots comfortably and snugly. A plant that is large in proportion to its pot (under-potted) needs water frequently. It may be safer to keep a large specimen-size orchid under-potted to minimise the risk of the roots rotting in the centre of the pot.

### Light

In bright light (with higher temperatures) moisture evaporates more quickly, so the orchid takes up water faster from the compost because of increased photosynthesis. In heavy shade (if it is cooler), a plant's metabolism slows down so less water is needed, and less evaporates from the pot, so less water is needed overall. ➤

## Temperature

The hotter it is, the more evaporation takes place, and the more water an orchid needs to absorb to stop it dehydrating. Light and heat tend to be closely related, but this is not always the case. For instance, orchids placed close to a heat source, whether in a greenhouse or home, will dry out quickly even if the light is low. In lower temperatures an orchid stays moist longer, but if the entire plant stays wet when it is cold it can be attacked by fungi and bacteria.

## Humidity

When atmospheric humidity is high, an orchid can go longer without being watered because more moisture is retained in the plant's cells, and less moisture is lost from the pot through evaporation. In a dry atmosphere, such as a sunny window over a radiator, orchids lose moisture very quickly and need watering more often to compensate for the constant evaporation and loss of water from the leaves through transpiration.

## Air flow

The greater the air circulation in the growing area, the more evaporation takes place. This is advantageous in drying off foliage, which protects it from fungal attack, but also speeds up the drying out of the compost. Plants



Grouping plants that dry out at about the same rate makes watering easier. Sections of a collection can then be watered at the same time, separately from other groups.

directly in the path of fans dry out much faster than those further away.

## Tips and advice

If watering by hose in a greenhouse, it is best to water as early in the day as possible so that the leaves are dry by nightfall. The water should be at ambient temperature. Watering by hand in the house can be done at almost any time as long as care is taken not to leave water on the leaves or in the crowns at night. Use drinking water or rainwater brought to a tepid temperature to prevent shock to the roots and avoid black marks on leaves. When watering orchids in clay pots,

saturate the entire outside of the pots so the clay does not wick water away from the bark. After watering each plant, water it a second time to allow the compost to absorb more moisture. This applies to bare-rooted orchids too so they can take in as much water as possible. If an orchid has been left dry for too long and the leaves and pseudobulbs have begun to shrivel, soak the pot in warm water for 15–30 minutes to give it time to replenish itself. ■

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## A GUIDE TO WATERING FREQUENCY

### Water more frequently

Small pots (5–8cm)  
Clay pots  
New bark potting mix  
Orchids in sphagnum moss less than 6 months old  
In a dry atmosphere, with humidity of less than 50 percent  
In a sunny location most of the day  
In high temperatures in the growing area  
Orchids near a heater, or in the path of fans  
Large orchids in small pots  
Orchids without pseudobulbs  
Seedlings; mounted orchids; orchids in baskets; bare-rooted vandas or ascocendas

### Water less frequently

Large pots (10cm and up)  
Plastic pots  
Old, decomposing potting mix  
Orchids in sphagnum moss over 6 months old  
In high humidity, of more than 75 percent  
In a shady spot, or where there is little direct sun  
In cool conditions  
In rainy or cloudy weather  
Small orchids in large pots  
Orchids with pseudobulbs  
Large, specimen-sized plants