



St. Augustine Orchid Society

[www.staugorchidsociety.org](http://www.staugorchidsociety.org)

## Watering Orchids During Each Season

by Sue Bottom, sbottom15@hotmail.com

How many times have you heard it said that overwatering kills more orchids than any other single cause? But it isn't really overwatering that kills orchids, it is the lack of air around their roots that occurs when plants are overwatered. One of the many things orchid roots do is absorb oxygen needed for the respiration process, and when they are waterlogged the wet medium displaces the air and basically the plant suffocates. So how often should you water your orchids? It is such a simple question, with such a complex answer. The short answer is that it depends... on the type of orchid, on your potting mix, where you grow and the season. Here's the long answer.



The thick fleshy leaves on phalaenopsis along with their roots store water and energy reserves while cattleyas can withstand longer periods of droughty conditions because of their plump pseudobulbs.

**Pseudobulbs vs. Fleshy Leaves.** The pseudobulbs and canes typical of cattleyas and dendrobiums store water and food in their thickened tissue, acting similarly to the humps on camels. These orchids can sustain themselves with their reserves during extended dry periods. Phalaenopsis and paphiopedilums that have only their leaves and roots to store water and food require more frequent watering because they rather can deplete their reserves rather quickly. Orchids with thin leaves, such as Miltoniopsis, also require more frequent watering. You can look at the physical shape of your orchid and make an educated guess about its water requirements. Depending on the type of orchid, water either right before or right after the mix is dry when felt an inch or two below the surface of the media. There is an old saying: "if a phal looks like it needs watering, you should have watered it yesterday and if a cattleya looks like it needs watering, water it tomorrow".

**Potting Mix.** Orchid growers can talk about the pros and cons of various orchid mixes and media for hours, whether or not sphagnum moss spells death for plants, whether or not organic matter should be added to a mix, and on and on. Water retentive mixes containing sphagnum moss, fir bark or coconut husks retain water so they require less frequent watering than coarse, mostly inorganic mixes. Large irregularly shaped pieces of bark or lava rock provide more air spaces in the pot for the roots so they hold less water than finer pieces of potting media. You learn, usually through trial and error, which mix works for your growing conditions and watering habits. There is no absolute rule. If you grow outside in a climate where there are extended rainy periods, you should be thinking about potting in a coarse, freely draining mix. If you grow inside in a climate-controlled



Clockwise from left, sphagnum moss, a bark sphagnum blend, a coarse bark blend, a coarse tree fern blend, lava rock and cypress mulch. Freely draining coarse potting mixes are a good choice for outdoor growers where plants are subject to extended, uncontrolled rainy periods.



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environment with low humidity, a water retentive mix with organic matter may be a better choice. Whichever potting mix you select for a given type of orchid, make sure that all similar plants are in the same mix so they can all be watered at the same time. If you have one cattleya growing in sphagnum, one in bark and one in lava rock, are you going to feel each pot individually so you only water that pot when the mix is dry?



Orchids that are mounted or growing in baskets have roots more exposed to the air than those growing in pots, although they have to be watered more frequently.

**Pots, Baskets and Mounts.** Clay or plastic pots, baskets, mounts, which is best? You can use the same decision-making matrix, to what extent does your orchid require fresh air around its roots? Can it withstand droughty conditions? How much time do you have to water? Orchids on a mount most closely mimic epiphytic orchids growing in nature, where they can stay wet for extended periods of time but are always exposed to buoyant air movement. But mounted plants must be watered frequently, particularly during the growing season. If you are a high tech mogul with little free time, you either need a spray system to regularly wet the roots or you need to think about using a different growing system.

Pots are really just for the convenience of the grower to contain the plant and roots and provide sufficient moisture in the mix between waterings. The air movement around the roots is much restricted, hence the use of orchid pots with the slotted sides, if you can find them. The pros and cons of plastic pots vs. clay pots is much debated particularly with bark based mixes. Clay pots evaporate water across their entire surface area producing a reasonable drying time. Cattleyas and similar-growing orchids prefer these conditions, particularly if grown in a hot environment. In cooler climates, the water evaporating from the clay pots can actually chill the plants to their detriment. Plastic pots “breathe” only across the top surface of the media, so the media remains wet longer, especially in the bottom of the pot. Someone who has time to water only on weekends will find that plastic pots extend the time that their media remains damp. This simple fact can make it easier to grow phalaenopsis, paphiopedilums or bulbophyllums indoors.

Baskets are sort of a hybrid between the two. You can use a basket without mix similar to a mount or you can add mix in the basket. Either way, a basket allows more air around the roots and dries out more rapidly than a pot does.

**Humidity.** Orchids like 60 to 80% humidity, not so different from the human comfort zone of 40 to 70%. When the humidity is too low, the potting mix and roots can dry out too quickly resulting in dessicated orchids. Indoor growers battle low humidity as a result of wintertime artificial heat and summer time air conditioning. For indoor growers, a filter-less cool mist humidifier that produces a fine fog is great for your orchids. A humidifier holds



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about a gallon of water so it will fog on a high setting for 12 hours between fills, but has a low to high variable setting so you can set it lower if the plants are in a small room. It significantly increases the humidity in an area without making a mess. It also will allow you to water less frequently, particularly if you top dress pots with sphagnum moss so the mist will hydrate the moss and keep the young roots in the top of the pot moist without saturating the media in the bottom of the pot. Greenhouses in arid environments can increase humidity with a gravel floor and under bench misting system, with a humidistat controller.

**Fertilizing.** To water or not to water before fertilizing, that is the question. Many advocate fertilizing after watering because it will help prevent fertilizer burn, especially in fertilizer sensitive plants such as Paphiopedilums and some species orchids. Others believe that once the roots are wet, the fertilizer won't be absorbed well by the roots although of course this depends on whether you have a cup of coffee in between so the roots aren't dripping wet when fertilized. Still others believe you should water a third time after fertilizing, particularly if you have very hard water, because you will leach some of the water and fertilizer salts away from the root zone, particularly if your final watering is with rain water or some other pure water. You have to find what works best for you, given your time constraints and your orchid's needs. Fertilizing with every watering using a dilute fertilizer, say an eighth to a half the recommended amount, is another way to split the baby.



A heavy volume Fogg-It nozzle is a great way to water mounted orchids and vanda roots.

**Day Time vs. Night Time Watering.** All the orchid books urge you to water early in the morning so the leaves are dry by evening, the idea being to prevent fungal and bacterial problems from occurring. During periods of low humidity, water can evaporate from around the roots so quickly that your plants don't have sufficient time to absorb as much moisture as they need particularly if your plants are mounted or potted in a coarse inorganic mix like lava rock. Night time watering during periods of low humidity can allow your plants to hydrate properly without fear of disease problems, if you make sure that

the air movement is good, night time temperature will not drop below 60F and you don't apply fertilizer in the evening. You basically water your orchids with plain water at dusk so the roots will remain wet overnight, keeping the leaves, buds and crowns dry to the extent possible. Early the next morning you apply the fertilizer solution. This way you can adequately hydrate your orchids at night and then flush and fertilize in the morning. When the high humidity returns, everything dries out more slowly. Think of how long it takes for a wet towel to dry on a rainy day. With the increase in humidity, you should resume early morning watering so the vegetation will dry by evening. Don't water at night during periods of high humidity and low air movement and don't fertilize when watering at night.



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New roots and long green root tips are telling you it is time to ramp up your watering and fertilizer, your orchid is hungry and thirsty.

**Growth Season vs. Winter Rest Period.** Orchids in rapid growth during their growing season may have to be watered two or three times more frequently than during their resting season. High light and high temperature (up to some critical point) usually increase the plant's metabolism and cause it to grow more quickly necessitating more water. The plants need much more water and fertilizer to put on new growths and prepare the next season's blooms than they need during their resting nap. Keen observation of your orchid's growth habits during each season and its response to climatic conditions will determine how much water and fertilizer your orchid needs to grow to its maximum potential. Are

your orchid's root tips growing and lengthening? Are new growths beginning to show and enlarge? Is your orchid in bud? These plant activities indicate growth is occurring and the plant needs water and food to produce strong growths and flower well. The growth of many orchids slows in the winter, but some orchids such as Miltoniopsis and Oncidium (syn. Odontoglossum) grow rapidly during the cooler fall and winter. Miltoniopsis mature their new growth in winter and their buds begin to show at that time. Do not allow these plants to dry out, even though it is winter, or their new growth will be wrinkled and the flowers, if any, will be wilted.



So many ways to grow orchids... How do you water them all?



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**Watering in St. Augustine.** Watering in a climate with hot humid summers and cool winters, like St. Augustine, requires attention to your plants response to sunlight, humidity and other climatic factors.

*Spring.* In the spring, the hours of daylight gradually increase and the sun rises higher in the sky, warming the earth. Your resting orchids rouse from their winter nap in response to the increased light and temperatures and ramp up their growth rate. When nighttime temperatures stay above 60°F and daytime temperatures stay below 90°F, your orchids start to move into overdrive. You'll be able to tell by the flush of new root tips, where the growing green or tan tips lengthen each day. You want to keep pace with the accelerating growth rate, so increase the amount of water and fertilizer you supply your plants. Gradually decrease the time between watering events. If you were watering every 7 days, start watering every 6<sup>th</sup> day, then every 5<sup>th</sup> day. You'll find yourself watering fairly freely during the glorious spring weather. Often during this time of year, the humidity is very low so water rapidly evaporates from the pot. Expect to water very heavily during this time of year, the cattleyas may be watered every second day if they are potted in a coarse, freely draining, low organic-containing media. The amount of fertilizer should likewise be increased. If the weather turns cool or rainy, you'll revert more to your winter watering habits until the blue skies of spring return.

*Summer.* As we move into summer, the day length is the longest and the sun angle is the highest so there is plenty of light fueling growth and both day and night temperatures rise. If you live in an area where your summer day time temperatures are normally in the 80° to 85°F range, your orchids will think they are in heaven, particularly if there is at least a 10°F drop at night. Their water demands will be at a maximum. In many areas, summer is characterized by an increase in humidity, which tells you that the potting mix will start drying a little more slowly. If your day time temperatures rise above the 90° to 95°F range, you'll see the orchid growth rate actually start to slow. This tell you to water slightly less frequently than during the spring which will also help with disease problems. If you were watering cattleyas every other day in spring, you may cut back to every third or fourth day during the hot humid summer months. If you live in an area where there are extended periods of rainy and gray weather, allow your plants to go to a hard dry by adding extra days between waterings to help stave off fungal and bacterial infections. Black rot may make its appearance on cattleyas particularly in potting mixes that are kept too wet. The water molds that cause black rot require water to move around and infect your plants. If you're growing outdoors and cannot restrict the amount of water your plants receive, consider moving them to a covered area and applying prophylactic sprays of effective fungicides.

*Fall.* In the early fall, the temperature and humidity mediate and you may notice many of your plants putting on a second growth spurt. As in the spring, you may see a flush of new root tips. As long as the nighttime temperatures stay above 60°F and the humidity is low, you can increase watering levels to almost spring levels to compensate. But inexorably, the days shorten, the sun rises lower in the sky and the temperatures cool. Your plants'



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growth rate slows as they prepare themselves for winter. Many genera enjoy a deep winter rest, some even become dormant in winter. The Dendrobium and Callista section dendrobiums, calanthes, habenarias and catasetinae should be eased into their winter rest by slowly decreasing the frequency of watering and either switching to a bloom booster fertilizer or restricting nitrogen in the early fall. The first signals of incipient dormancy are yellowing and browning off of the leaves, at which time you will stop fertilizing them and reduce watering by half. When all the leaves have dropped, stop watering the plants. Other genera like phalaenopsis slow their growth but do not enter a winter rest period.

*Winter.* As the days get shorter and your orchids are experiencing low light levels, their water and fertilizer requirements are also less. A general rule of thumb is water half as much as you do during the summer. Phalaenopsis and paphiopedilums like to be moist but not wet. Cattleyas, dendrobiums and oncidiums like to dry between watering. Check the medium several inches down in the pot to see if it is still damp. If it is damp, delay watering. It is especially important to watch your largest pots since they are the slowest to dry out after watering, especially when it is cool. You may also want to fill the bottom center of the pot with Styrofoam chunks or peanuts to allow drainage and improve drying. Some people advocate not watering the Dendrobium and Densiflora (also known as Callista) section dendrobiums at all during the winter until after flowering or new growth begins, others just restrict watering to once or twice a month to prevent the bulbs from shriveling. Do not fertilize these plants during this time period or you will encourage vegetative growth rather than flowering. When all the leaves have dropped on your winter dormant orchids, stop watering the plants. Watering during dormancy should only be done if the plant bulbs shrivel severely, at which time you can place the pot in a saucer so water wicks up through the potting medium to restore the bulbs.

In the beginning of your orchid growing career, you may have watered your orchids every Saturday morning. Then you learned that the plants growing in sphagnum moss died with this watering frequency so you decided that sphagnum is evil and wondered why so many commercial growers use it. As you continue buying and growing different orchids, you learn the advantages and disadvantages of different mixes or growing without mixes and how to water the various types you grow. Ultimately you start using your powers of observation to tell how often your orchids need to be watered based on their roots, leaves and growth habits and how wet the potting mix is. At this point, when someone asks how often do you water your orchids, your answer is: whenever they need it.

### Additional Reading:

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