



St. Augustine Orchid Society

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Winter Dormant Orchids Requiring a Dry Rest

by Sue Bottom, sbottom15@gmail.com

As summer fades into fall, the days shorten, the sun stays lower in the sky and the air starts to cool. Your plants respond to these environmental triggers. Those orchids that struggled with the summer heat enjoy a second growth spurt when temperatures moderate in the early fall. While the cooler growers like the *Zygopetalums* may revel in the lower temperatures, many other orchids gradually slow their growth rate as temperatures and solar intensity decrease in late fall into winter and their need for water and fertilizer is lessened.

There are deciduous orchids that become dormant in winter due to the cool weather, like terrestrials and those from non-equatorial regions. These types can receive rainfall during their dormancy without detriment. Some of the *Cymbidium* relatives like *Eulophias* and *Cyrtopodiums* like to stay much drier during the winter although they enjoy an occasional watering even after they have lost their leaves. Then there are those winter dormant orchids that are native to habitats that have extended dry periods, and these orchids have adapted to the long droughty period without any rainfall. The *Catasetinae* and some of the *dendrobiums*, *Lycastes*, *Habenarias*, and *Calanthes* go into a very deep resting period during the dry season, often shedding their leaves and staying hydrated only from the occasional mists and dews. This dryish, coolish resting period is a natural part of their growth and flowering cycle.

There are some general rules for preparing these plants for their annual dormant period. The first step is to stop fertilizing them once they have finished their summer growths, usually sometime around the fall equinox. Some growers advocate using a bloom booster during the late summer to early fall to prepare the plants for dormancy. This high phosphorus formulation may work because the excess phosphorus limits the amount of nitrogen that can be absorbed by the roots, although you can achieve this more simply by just not using a nitrogen containing fertilizer. Keep watering as you did during the growing season, but eventually you will water them less frequently as the seasons progress. Some leaves may yellow. Not a diseased sort of yellow with black necrotic spotting and streaking, but a general overall yellowing as the plant reabsorbs whatever minerals it can from the soon to be dropped leaves. By the late fall, you will water a third or half as frequently as during the summer growing season. Once the leaves start to shed, restrict water almost completely. Root and bulb rots are a concern if these plants receive excess water during their dormant period. Some can last the whole winter without being watered. The bulbs may shrivel to some degree, but will plump up when watering is resumed in the spring. Others can be heavily misted rather than drenched with water if they begin to look overly desiccated, a watering practice more akin to the morning dews they might experience in their native habitats.

Dendrobiums. Hobbyists often wonder which of their *dendrobiums* might enjoy a cooler, drier winter rest. When you first start growing, one *dendrobium* looks pretty much like another when they are not in bloom. Eventually you learn to distinguish the different groups or sections of *dendrobiums* based on their shape, growth and flowering habit. Until you can tell one type from another, simply add a predetermined color plant tag in the pot to remind



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you of the ones that need different treatment during the fall and winter. If you have more than a couple of these, group them together in the growing area so you do not mistakenly water or fertilize them when you are watering your other plants.



(1.) The Dendrobium section Dendrobiums include the mostly upright nobile types like the Den. Love Memory 'Fit' on the left and (2.) Den. *aphyllum* on the right. The species in this group include the following:
Intermediate/Warm Growers: *anosmum* (syn. *superbum*), *aphyllum* (syn. *pierardii*), *chrysanthum*, *crystallinum*, *fimbriatum*, *friedicksianum*, *gibsonii*, *heterocarpum*, *linawianum*, *loddigesii*, *moschatum*, *nobile*, *parishii*, *primulinum*, *pulchellum*, *schulleri*, *senile*, *signatum*, *stricklandianum*, *unicum*, *wardianum*
Cooler Growers: *falconeri*, *findlayanum*, *moniliforme*

The Dendrobium section Dendrobiums is a group of winter dormant dendrobiums, often called the soft cane dendrobiums, with club-shaped, lightly ribbed stems bearing very showy flowers in groups of 2 to 5 along the stems in the spring. The other winter dormant group of dendrobiums is the Densiflora section, sometimes referred to as the Callista section. This group has bulbous ribbed pseudobulbs with leathery leaves at the apex, bearing showy but short-lived pendent golden grapelike flowers in the spring. The Dendrobium section plants are often deciduous, losing their leaves while the Densiflora section do not drop their leaves during the winter. These dendrobiums are cold tolerant, with cooler night time temperatures below 50°F (10°C) spurring the development of flower buds. These types can withstand



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temperatures into the upper 30's (around 3°C). During their dormancy, you should severely restrict watering. Some growers keep them bone dry, others prefer to heavily mist them perhaps once or twice a month. Once you notice flower buds, you can increase the frequency of misting, but wait to begin regular watering and fertilization until flowering is complete and new growths have started. The Dendrobium section dendrobiums freely form keikis, but if you get only keikis rather than flowers, perhaps they were not sufficiently chilled and/or fertilizer was not restricted during the cool months.



3. The short-lived pendent golden grapelike flower that appears in the spring on *Den. aggregatum* is almost irresistible. The *Densiflora* Section (syn. *Callista*) consists of the following species:
Intermediate/Warm Growers: *chrysotoxum*, *farmeri*, *griffithianum*, *jenkinsii*, *lindleyi* (syn. *aggregatum*), *palpebrae*, *sulcatum*, *thyrsoflorum*
Cooler Growers: *densiflorum*



4. The *Dendrobium* section is deciduous and the *Densiflora* section is evergreen. Both enjoy a cold dryish rest period in bright light. Some growers restrict all water, other growers provide occasional watering to keep canes from shriveling. Discontinue fertilizing after new growth matures through the winter dormancy. Protection required only if temperatures drop below the upper thirties.

Catasetinae Subtribe. Almost all of the *Catasetums*, *Clowesias*, *Cycnoches*, *Mormodes* and their hybrids enter a distinct dormancy period. Some bloom in the summer and early fall before entering dormancy and others bloom from leafless bulbs during their winter dormancy. When the leaves of your plant start to yellow and brown, it is time to stop fertilizing, normally in mid to late fall. You can continue watering at a reduced rate until all the leaves drop, generally by the winter solstice. If your plants still have green leaves after the first day of winter, you can force them into dormancy by restricting all water. These plants generally have stored up enough reserves that water can be withheld all water during the dormant period, watering only if the bulbs are severely shriveled. You can repot during the dormant period or once you see the signs of new growth, do not wait until after the new roots have entered the potting mix. Do not water the new growth or the newly repotted orchid until the plant is between 3 and 5 inches (8 – 13 cm) tall and the leaves have unfurled. Otherwise water can become trapped in the emerging leaves and rot the growing point at the apical tip of the bulb. Gradually increase water and fertilizer in concert with the growth rate of these fast growing orchids.



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(5.) There are many summer blooming plants in the Cataetinae subtribe, including most of the Catasetums and large flowered Clowesias and their hybrids. The Cycnoches bloom in summer and sometimes a second time as they approach dormancy, like this intergeneric Cycnodes Jumbo Puff on the left. (6.) The Clowesias bloom on leafless canes, like this Clowesia Jumbo Grace 'Jumbo Orchids'.



7. The Catasetinae Subtribe has to do a year's worth of growing in 7 or 8 months, so they enjoy lots of bright light, water, fertilizer and fresh air during the growing season.

8. Most of the Catasetinae go dormant in the winter. Any sunburn or mite damage that the leaves sustained will be a distant memory after the plant sheds its damaged leaves.

Lycastes. Of the two groups of commonly cultivated Lycastes, it is the small flowered Mexican and Central American species with yellow to greenish flowers that are winter dormant, including *Lyc. aromatica*, *Lyc. bradeorum*, *Lyc. cruenta* and *Lyc. deppei*. They come from locales that have a distinct wet season/dry season so they shed their leaves in late fall or winter during the dry season of their native habitat. They remain dormant during the early spring when your other orchids have woken up and are in their growth phase, so you begin to wonder whether or not they have breathed their last. The flower stems emerge from the base of the most recently grown pseudobulbs in mid to late spring, often at the same time as the new leafy growths begin. They grow fast once they start growing, so you can start watering and fertilizing but be careful not to get water in the unfurling leaves as they are prone to rot, similar to the Catasetinae.



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9. This *Lyc. aromatica* blooms about the same time as the new growth is forming in the spring.



10. The lush summer growth on this *Calanthe* suggests the plant will have lots of energy reserves.



11. *Calanthe* Baron Schroder blooms prolifically as the last leaves drop in early winter.

Calanthes. Calanthes are terrestrial orchids that can be separated into two groups, the evergreen calanthes that keep their leaves year-round and the deciduous calanthes that drop their leaves in the droughty season. The deciduous Calanthes like *Cal. rosea* and *vestita* make rapid growth during the summer and fall, maturing the new bulbs that sometimes are pinched in the middle. When the leaves start to yellow in the late fall let the surface of the potting medium dry between waterings instead of keeping it constantly moist and restrict fertilizer. The flower spikes emerge from the base of the bulbs in late autumn soon after the leaves start to yellow. Once the blooms are finished and the leaves have dropped, restrict all water and give them a cool, dry rest. As soon as new root growth begins, the plants can be repotted. Water sparingly and keep them shady and warm while waiting for the leaves to form. Keep them evenly moist and fertilized regularly during the growing season.

Habenarias. Habenarias are a group of mostly terrestrial orchids that grow from underground corms, similar to a crocus. There are more than 150 species of which the Asian varieties *Hab. medusa*, *Hab. rodocheila* and *Hab. carnea* may be the most familiar. These hail from areas with a monsoonal growing season followed by an extended dry season when the soil can become dry and hard baked. While they are in active growth through the summer, they should be kept evenly moist and well fed. Once the rosette of leaves is fully formed, watch for the flower spikes that emerge from the center. Keep watering until the last flower drops, and then allow the mix to become slightly dry between watering. At this point, the foliage will start to yellow but keep watering albeit at a reduced rate because the plant is forming new corms below the surface. Once the aerial part of the plant is dead, stop watering and keep the plant dry. You can repot at this point into dry mix, being careful to note which way the corm should be oriented. Then you wait. Starting in late winter through early spring, check weekly to see if the plant has broken dormancy, and if it has you can start watering lightly. If no vegetation is visible by mid spring, you can heavily mist the mix to simulate the early spring rains that encourage the beginning of the growth cycle.



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12. *Habenaria* Wow's White Fairies is a thing of beauty when it blooms in the fall.



13. *Habenaria rhocheila* 'Nora' has bright fall colors.



14. Not so pretty as the plant dies back to the underground corm in the fall.

These orchids have all adapted to the extended dry periods that occur in the native habitats by going into dormancy or semi-dormancy. They shed their leaves to prevent moisture loss through their stomata as a response to the droughty conditions. Water loss and respiration rates are at a minimum, so the plants can sustain themselves by consuming some of their reserves, which you notice as shriveling of the pseudobulbs. Once they wake in the spring, they enjoy ever increasing amounts of water and mineral nutrition to fuel their rapid growth rates. They have to do a year's worth of growing in only 7 or 8 months. At the end of the summer growth season, they need plump pseudobulbs or corms to sustain them through the dry winter months until they come back alive the following spring.