St. Augustine Orchid Society NEWSLETTER
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Club News

August 2 SAOS Meeting

by Janis Croft, secy@staugorchidsociety.org

Welcome and Thanks. President Bob Schimmel opened the meeting at 7:15 pm with 65 attendees. Bob thanked Jeannette Smith, Leslie Brickell and Elaine Hardy for the refreshments while reminding all to drop a dollar in the jar. We welcomed two new members, Joan and Charles Delony who joined at the meeting, along with eight guests.

Our Membership Veep, Linda Stewart recognized our several August birthday people with a free raffle ticket. Bob informed all that the Best of Show voting would occur between the Show Table discussion and program and encouraged all to remember to vote for their favorite orchid.

Sue Bottom then welcomed our past president, Jack Higgins, who has recently moved back to St. Augustine.

Club Business. The August 14 Keiki Club will have Terry Bottom talking about Photographing Your Orchids. The meeting will be held at Kathy and Mark Young's air conditioned garage located at 160 West Genung Street, St. Aug 32086

The Ace Repotting Clinic will be on Saturday, August 6 at Ace Hardware on U.S. 1 from 9 am til 1 pm.

Email Sue Bottom (sbottom15@hotmail.com) if you need potting supplies, special quantities or different items and she will bring them to the next meeting for purchase.

SAOS Librarian Penny Halyburton brought in *Photographing Landscapes and Gardens* by Michael Busselle which was immediately borrowed. Check out the club's library collection on the website and email Penny (phalyburton@comcast.net) your request and she will bring the item(s) to the next meeting. We also received two new books donated to our library by Ken Weeks, thank you sir!

We introduced Suzanne Susko as our AOS Representative. Suzanne explained the benefits of AOS membership including discounts and free admission to over 300 gardens as well as the very informative culture sheets provided on the member's side of the AOS website.

Orchid Events. There are no Florida orchid shows in the next two months. The Odom's 6th Annual Cattleya Symposium will be held in Fort Pierce from August 5 and 6.

Show Table Review. Courtney Hackney stated that the table demonstrates that there are summer blooming orchids which are primarily the Bifoliate Cattleyas from Brazil. He pointed out the Cattleya leopoldii as a prime example. He then discussed the Lc. Maui Plum 'Volcano Queen' (whose one parent is Cattleya leopoldii) that has been bred for cluster of flowers and likes high light. Next was the pure white Cattleya Hawaiian Wedding Song 'Virgin' which was produced in the 60's. Hybridizers used the large corsage type varieties along with the smaller flower size species to produce a flower that worked much better as a corsage. The pure white varieties began to bore the judges and now the hybrids have fallen out of favor with growers.

Next he discussed the very green Blc. Prada Green Deluxe. These true greens are hard to come by and he noted that the green in the flower doesn't fade over time. He then went to the greenish Grammatophyllum scriptum var. citrinum which grows quite large and will grow for anyone that has the space for it. Another one that is easy to grow is

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Upcoming Orchid Events

August

5-6 Sixth Annual Cattleya Symposium
Sponsored by Odom's Orchids
Indian River Research & Education Ctr
Fort Pierce
6 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic
9 JOS Meeting, 7 pm
TBA
14 Keiki Club for Orchid Beginners, 1 pm
Photographing Your Orchids
Mark and Kathy Young's Home
160 West Genung St, St. Aug 32086

September

3 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic
6 SAOS Meeting, 7 pm
Ten Unusual and Easy to Grow Orchids
Thanh Nguyen, Springwater Orchids
13 JOS Meeting, Angraecums, 7 pm
Tom Kuligowski, The Angraecum Blog
17-18 Ridge Orchid Society Show
Lake Mirror Center, Lakeland
18 Keiki Club for Orchid Beginners, 1 pm
Get the 'chids Ready for Winter
Dianne and Drake Batchelder's Home
728 Old Loggers Way, St. Aug 32086

October

1 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic
4 SAOS Meeting, 7 pm
Dendrobiums
Roy Tokunaga, H & R Nurseries
8-9 Fort Pierce Orchid Society Show
Fort Pierce Shrine Club
11 JOS Meeting, TBA, 7 pm
Roy Tokunaga, H & R Nurseries
21-23 Orchtoberbest at EFG Orchids
4265 Marsh Road, Deland 32724
22-23 Gainesville Orchid Society Show
Kanapaha Botanical Garden
28-30 Delray Beach Orchid Society Show
Old School Square Gymnasium.

November

1 SAOS Meeting, 7 pm
Bulbophyllums
John Budree, Orchid Hobbyist and Grower
5 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
Repotting and Plant Clinic

St. Augustine Orchid Society Organization

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the Cymbidium Valerie Absolonova. He then moved to the Aeranthes grandiflora with its multispiked green flowers. Next Courtney commented on the Ascocentrum Mona Church and how it had Spanish moss added for display. He noted that if you have Spanish moss growing well then you are probably growing your orchids just fine. Check out the photos of our show table examples at the end of the newsletter and on the SAOS website.

SAOS Program. Sue Bottom introduced our evening's speaker, Alan Koch, who spoke on *Managing Your Orchid Collection*. Alan started orchid growing early when his aunt gave him three cymbidiums and has been running an orchid nursery since 1978. He and his wife run Gold Country Orchids in Lincoln, California and are known for their miniature and compact cattleyas.

Alan started by saying some of us we grow indoors with one to three orchids and some of us grow many more in our greenhouses but all of us have growing limitations. He emphasized that we need to know our limitations which are 1) your growing area, 2) your water quality and 3) your light levels. Once we accept those limitations, we can then manage our collection to meet those conditions. Alan's next point was to decide what you like the most and then go shop accordingly. Buy plants at different times of the year to ensure you develop a collection that will be producing blooms year round. There is some debate on whether to buy a plant in bloom or not. Alan generally suggests that you buy the plant in bloom so you see what you are getting. When you buy foreign plants, smell them to see if they have been gassed by the USDA. If you smell something similar to chlorine, then the odds are the plant has been gassed to rid it of insects and disease. If that's the case, don't water the plant for over a week as watering forces the gas into the plant which will very likely kill it.

Pick your repotting culture to match your watering habits. No plant has ever died from over watering; plants die from lack of oxygen. So be sure your culture provides the plant roots plenty of access to oxygen. Since we are in the bifoliate season, he reminded everyone to repot bifoliates only when you see the start of new roots even if the plant is flowering. He also stated that he has found the best way to grow bifoliates is to let the roots grow out of the pot and hang over the edge. Then pot the next year.

Fertilizing is based on your water quality. It is crucial to find out what's in the water you use for watering. For orchids, your water needs to be brought to an acidic level occasionally to manage the media alkalinity. In his greenhouses, they do an acidity adjustment with citric acid to 4.5-4.7 range. He also recommended using pH Down, a pool product you can purchase at a local hardware

store. If you tend to have black spots or black tips on your leaves, your plant is pushing excess salts, received from your water supply and added fertilizer, to the edge of the leaves in an effort to rid itself of the excess salt. Cut back on the salt levels in your fertilizer or use less fertilizer and flush your pots monthly with an excess of water. If you want more keikis, then increase the nitrogen levels. If you want to produce more flowers, then lower the nitrogen levels in your fertilizer.

In closing, Alan fielded a few questions from the audience. He stated that the use of cinnamon is only effective on 40% of all pathogens and advised using something more thorough. For spider mites, he uses abamectin, sold as Avid, mixed with Talstar to kill all types of mites. He recommended a general all purpose fertilizer for roots and leaves such as MSU, CalMag or Jack's Professional. If you are using rain water, then get the RO formula of CalMag. In closing he reminded us to remember, Happy Roots = Happy Plants.

Meeting Conclusion. Harry McElroy announced the Member's Choice Award as the Blc. Prada Green Deluxe grown by Suzanne Susko. The raffle table closed out the evening. Thanks to those that volunteered to stay and clean up the room.

Thanks to Watson Realty and Jeanette Smith for the use of their meeting space at 3505 US 1 South

July 17 Keiki Club
Orchid Pests and Diseases

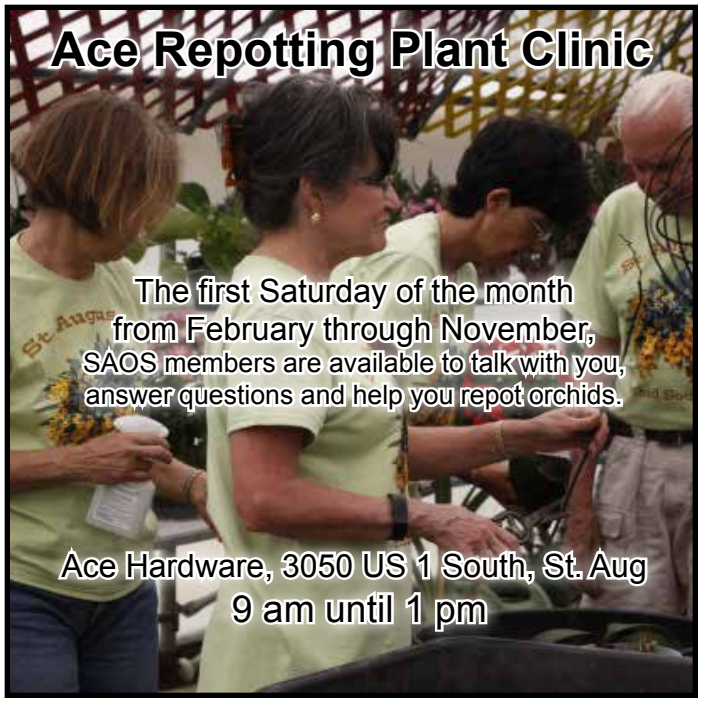
About a two dozen SAOS members met up at the Mark and Kathy Young's Garage Mahal to talk about orchid pests and diseases. Sue Bottom opened the get together with the observation that the majority of problems you might experience with your orchids are likely the result of some cultural misstep rather than any pests or disease vector. Careful attention to your cultural practices for watering properly, repotting at the correct time, ensuring buoyant air movement, providing enough of the right kind of light and protecting orchids from temperature extremes will eliminate the potential for the vast majority of possible diseases. A protective bactericidal and fungicidal treatment when the plants are under increased disease pressure from tropical storms, high humidity, winter cold, etc. should allow you to virtually eliminate diseases from your collection. Then each time your water, look at each plant to detect any pests, If you grow cattleyas, watch for scale. Scale and mealys often attack paphiopedilums and phalaenopsis. Thin leafed orchids like catasetums and grammatophyllums are mite magnets. Thrips like emerging buds and flowers on vandas and cattleyas. Scroll through the orchid pests and diseases pages on the website for pictures to help you with detection and suggestions for chemical treatment. Maybe next year we'll schedule a talk on orchid pests and diseases at one of the monthly meetings so we'll have access to the computer and big screen to show pictures and allow members to discuss treatment alternatives. Thanks to Mark and Kathy Young for hosting us during these hot summer months.

August 14 Keiki Club
Photographing Orchids

We'll be meeting in air conditioned splendor at the Garage Mahal to talk about photographing your orchids. You might have a beautiful orchid in bloom and want to share a picture of it with friends and family. Terry will offer some techniques for taking the best pictures whether you're using a fancy camera, your point and shoot camera or a cell phone.
Moderator: Terry Bottom
Where: Kathy and Mark Young's Home
160 West Genung Street, St. Aug 32086
When: Sunday, August 14, 1 to 3 pm

September Monthly SAOS Meeting
Ten Unusual and Easy to Grow Orchids, Here's How

Thanh Nguyen of Springwater Orchids in Melbourne always has the most unusual orchids in his sales booth, so different from the orchids you see in the big box stores. Although he grows and sells many types of orchids, his forte has always been the genus paphiopedilum. His paph passion is reflected in his award winning plants and ongoing paph breeding program. He put together a special program for us on ten unusual orchids we should consider growing and how to grow them. Orchids will be available on the sales and raffle tables. Friends and guests are always welcome.



Inspiration

Lc. Nell Clark 'Lenette #1'

Orchid Questions & Answers

by Sue Bottom,
sbottom15@hotmail.com

Q1. This Aliceara Memoria Jay Yamada was a much larger plant. It had some problems with rotting pseudobulbs last year so I removed them and fitted the orchid into its current pot. It now looks like this. Any recommendations?

A1. The new growths are starting to throw off new roots, but they are several inches above the potting mix so it will be difficult to stabilize the plant. Perhaps you should consider resituating the plant so the roots can grow directly into the medium. New roots are starting now so it would be a perfect time to repot it and let it reestablish itself.

Q2. I am fairly new to orchid growing and am reading everything I can find. So far I have 3 lovely Phalaenopsis that are doing well. Today I bought a mystery plant at the grocery store and am hoping you can help identify it. It has large pseudobulbs, and has very tall and slender leaves. It stands about 22" tall. The flowers are kind of a wine color edged in green. Also, it seems to be potted in regular soil. I am planning on re-potting in bark mix. Do you think this is a good plan?

A2. That is a zygopetalum hybrid, beautiful and fragrant. It is probably potted in a soilless mix, a peat based mixture with perlite, which is just fine for these guys. Let it bloom and don't even think about moving it to bark. As long as the plant is not wobbly in the pot, your plant has well established roots. Most orchids like to be tight in the pot, but if you find the roots are so voluminous in the pot, you can simply drop it into the next size pot and backfill around the root ball so you won't disrupt the roots. Quite nice!

Q3. I got this Kefersteinia tolimensis from a Colombian grower at the Redland Festival. I repotted it in a mix of fine bark, perlite and tree fern fiber in a 3" clay pot. It is growing under my lanai roof with a ceiling fan for air movement but, of course it has been extremely humid recently. I assume it has a fungus?

A3. I'm not familiar with this orchid so I looked it up in OrchidWiz and what's there does not bode well for us being able to grow it well in Florida. The Bakers say it grows at elevations of over 1500 meters and summer highs are 72 to 77F with nights of 57F! They also say it requires very strong air movement, likes lots of water, hates to have the roots disturbed, does better on a mount or open basket and likes shady conditions, 1200 to 1800 foot candles, around phalaenopsis light. You got it from one of the South American growers, so it is also suffering from transplant shock, transportation shock, and the seasons being 6 months out of whack after changing hemispheres, so I'd say you have your work cut out for you!

The first step is to stabilize the plant and stop the bacteria from spreading. If peroxide doesn't stop the enlargement, you could try one of the copper compounds. Then think about where you can put it to mirror some of its natural habitat conditions. A nice shady spot will help keep it cooler during the day. Do you grow anything mounted? Perhaps mount it or put it into an open basket with just a little long fibered NZ moss to help with cooling and root moisture. You may also think about bringing it into the house during the hottest months to keep it a little cooler. You have lots of things to consider.

Summer Pests and Diseases Courtney's Orchid Growing Tips

Repotting should be done by now, but keep an eye on those oddball species that like to grow roots as they flower. Many bifoliate cattleyas need to be repotted just as they come into flower. Some like C bicolor with 3 foot pseudobulbs are particularly frustrating since buds emerge about the same time as new roots. It is not unusual to see this same characteristic in their offspring.

Insects are cold-blooded, which means they grow faster when greenhouse temperatures are warm. This is true for both scale insects and mobile pests such as roaches. Roaches, mealybugs, and other mobile animals that live in pots can reduce all your carefully protected root tips to little white nubs. Unfortunately, this mostly happens at night so there is always some uncertainty as to the identity of the offending culprit. If you are a night owl, a quiet visit with your flashlight to your growing area at night may get you a quick view of the culprit. If you are having this problem, mix up a 5 gallon bucket of liquid Sevin, 1 teaspoon per gallon and dip the entire orchid pot for a minute or two and see what comes out. Roaches will make themselves known, but many smaller animals such as snails and slugs will just die in the pot. Either way, problem solved. For hobbyists who place their orchids outdoors in summer and bring them inside in winter, remember this treatment to avoid importing pests.

There are a few orchids in my collection that should love the heat of summer, but angraecum hybrids and species often develop rots in their new leaves as they emerge. Keep a bottle of household hydrogen peroxide in the growing area. After you water, put a few drops in the crown of angraecums or any other monopodial orchid (phals, vandas, etc.) that grow on a vertical stem and the rot problem will disappear.

Summer is a time of both heat and humidity. If you are growing outdoors don't forget last month's watering advice. Always keep in mind that cool weather will require a reduction in watering frequency. There is always the possibility here in the Southeast of a tropical system lasting for days. Tropical systems import fungal and bacterial spores. The heat and humidity that accompany these storms encourage their growth. These disease-causing organisms are always around and there is nothing that can be done.

If you grow outside and your orchids are naturally watered by the rain, it may be necessary to provide some shelter if several days of tropical rain is expected. In my greenhouse, I also spray down all surfaces under benches, on walls, etc. with a strong anti-bacterial. Copper hydroxide (Kocide) works well as can a solution of Clorox. However, these products can damage orchids if they get on leaves. If orchids are wet there is less danger or a less toxic product can also be used.

Kocide, used in a more dilute form, is safe to use on some orchids, but only if the water you mix it with is on the basic side of the pH scale, i.e., above 7. Even then, there can be damage on tender new phal leaves as well as to other sensitive orchids. There are other products such as Phyton 27, approved for direct application to orchids. It is easier to prevent infections than cure them.

Once the tropical system has passed it is wise to treat your orchids with some type of anti-fungal or anti-bacterial agent. Some hobbyists that have small collections use the same hydrogen peroxide, noted above, place it in a spray bottle and spray their plants. Remember to keep air moving around your orchids. Once the rain stops and humidity drops it is also a good idea to let your orchids dry thoroughly.

Note: Courtney Hackney wrote a monthly column of his orchid growing tips for about 20 years, we're reprinting some you might have missed, this one from August 2010.

Growing Cattleyas, What Can Go Wrong
Part 1 – Cultural Missteps

by Sue Bottom, sbottom15@hotmail.com

Cattleyas are hard to resist, having showy and fragrant flowers that come in various shapes, sizes and colors. They require lots of bright light to manufacture the reserves necessary to produce those incredible blooms that last anywhere from one week to two months. They enjoy an open, freely draining potting mix that allows plenty of air around the roots. They store water and energy in their pseudobulbs so they are accepting of droughty conditions for a short period of time. Most are moderately cold tolerant but require winter protection from the coldest temperatures. Like so many orchids, they enjoy summering outdoors under a shade tree or in a screened area where they are exposed to loads of fresh air. All that bright light and the day night temperature change pays big dividends when it comes time for them to bloom.

So if they're so easy to grow and bloom, what can go wrong? You tend to blame problems you may encounter on orchid pests and diseases, but oftentimes the culprit is some cultural misstep that either created the problem or created the environment which allowed a pathogen to thrive. Improper watering can create a variety of problems for you as can insufficient air movement, extreme temperatures, and other cultural mistakes. Cultural errors may very well cause more problems than those from orchid pests and diseases.

Improper Watering. Over watering is often cited as the primary cause of death of orchids in hobbyists' care. If your plant begins to look dehydrated, the leaves look leathery rather than turgid, the pseudobulbs are wrinkled rather than fat and plump, it is time to knock it out of the pot and take a look at the roots. Either you are under-watering, in which case the roots look dry but viable, or you are over-watering and the roots have rotted so the plant cannot take up the water that you are trying to supply to it. Another common watering error is watering too late in the day when the nights turn cool or the weather turns grey, causing edema. The plant absorbs more water than can be shed from the leaves, so the leaf cells swell and produce a blister-like lesion. During the cooler months, it is particularly important to follow the much repeated advice to water early in the day and don't water on a gray or rainy day.

The aerial parts of the plant are shriveled and wrinkled, dehydrated as a result of the roots rotting and unable to absorb water.

Water Pocketing. As the pseudobulbs form, there is a leaf like bract that surrounds and protects the new growth, called a cataphyll (or the descriptive sarong). Sometimes a pocket forms between the pseudobulb and the cataphyll and water from rain, watering or condensation can accumulate. Omnipresent bacteria can grow in this wet pocket and rot the new growth. This is a cultural issue rather than a disease problem. Outside growers need to be particularly vigilant. When you notice these pockets, gently peel the sheaths down so water can drain from them but be careful because this new tissue is very easy to bruise and break. You can also add a few drops of hydrogen peroxide to kill any bacteria.

Watering late in the day when the night turns cool or the skies turn gray can cause edema, blisters which may be unattractive but not too harmful.

The cataphyll or leafy sheath around the pseudobulb often forms a pocket in which water from watering, rain or condensation can accumulate.

Problems with Buds. As long as the sheath remains green or a healthy colored tan, it will continue to protect the newly forming bud from damage. If it turns a sickly colored yellow or black, you should consider gently peeling down the sheath to expose the bud to air. Sometimes the day night temperature change can cause condensation to form inside the sheath and this water can result in the bud rotting. You should also be aware that some cattleyas bloom from green sheaths, so they bloom shortly after the sheath has formed, while others bloom from dried sheaths, so they rest for several months after forming the sheath before the primordial bud transforms into a flower bud. Sometimes a sheath will form but a flower fails to develop, called a blind sheath. This happens most commonly on a young plant without sufficient reserves to fuel the development of the flowers.

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Water Quality. If your orchids are irrigated with pure water like rainwater or water from a reverse osmosis system, you avoid many of the problems that might arise with a water source high in dissolved salts. The typical well water and public water supply derived from wells in our area tends to be alkaline and very hard. The salts in the water tend to accumulate in the root zone as the potting media dries. The evaporation of water leaves the salts which become more and more concentrated with each wet/dry cycle, similar to the Red Sea. The problem arises when the media is dry and those salts reach a concentration toxic to the roots causing root tip burn. The harder your water, the more important it is to have a long irrigation cycle, or to flush the pots regularly. To flush, water thoroughly to solubilize the salts and then come back and water thoroughly a second or third time to force the salts out of the pot. Cattleyas are not the most salt sensitive orchids, but if salts are accumulating in your pots you may see black tips at the end of your leaves. Sometimes this is mistaken for the fungal infection Anthracnose, the difference being that with Anthracnose, you will see little tan dots (the fungal fruiting bodies) at the interface between the dead and live tissue.

Calcium deficiency manifests itself in blackened tissue in the newest growths.

Nutrient Deficiencies. Cattleyas are not particularly heavy feeders. If you use a good quality fertilizer with most of the nitrogen in the nitrate form and micronutrients, the only likely mineral deficiencies are calcium and magnesium. These two elements are not present in many fertilizers so if your irrigation water does not contain them in sufficient amounts, you will have to supply them. Calcium is essential for building new tissue and it cannot be moved from older to younger leaves in the plant. Our well water contains plenty of calcium, but pure water sources like rainwater have none so it must be supplied in a fertilizer, like a CalMag fertilizer. Without it, the newly expanding tissue will not develop properly, often turning black and rotting, particularly in the fast growing Central American Guarianthes. Magnesium is used by the plant to make chlorophyll. Our well water is generally deficient in magnesium so it must be supplied either by a CalMag fertilizer or Epsom Salts supplements. Magnesium can be moved from the older to younger leaves in the plant, so yellowing of the older leaves could be a sign that your plant is sacrificing the older leaves to produce new growths. After exposure to high temperatures, you also might notice a mottling on your leaf indicative of chlorophyll damage, again suggesting magnesium deficiency.

Magnesium deficiency can cause older growths to yellow and leaves may appear mottled after exposure to high temperatures.

Repotting Errors. Roots are the key to your plant's overall health. Anytime you repot an orchid and disrupt the root system, your plant will undergo some degree of transplant shock. You can minimize this by vigilantly observing your plants and repotting just as new roots are beginning to form so the new roots grow into fresh mix and get established quickly. The unifoliates are generally much more forgiving of the repotting process than are the bifoliates, though both will weather the transplant shock much more easily if they are repotted just before the new roots emerge. Some varieties grow new roots with the new leads in the spring while others form roots after the new lead has bloomed, as so succinctly described by Bill Rogerson in his must read article Cattleya Species and Their Culture published in the Orchid Digest in 2004 and summarized in this table that can be downloaded from the Orchid Culture by Genus section of the website. If you repot your "blooms after flowering" cattleyas too early, before the new roots are ready to emerge, the plant may become severely dehydrated because the older roots have been damaged

Repot cattleyas right before new roots form, particularly bifoliates, or they may sulk and suffer dehydration.

in the process and cannot uptake water efficiently, while the new roots are weeks to months away from forming. If you wait too long to repot your cattleya such that the potting mix degrades, the mix tends to compact around the roots, excluding air and thereby suffocating the roots, so the plant likewise suffers from dehydration. You may also find a white filamentous snow mold growing in the decaying mix. The snow mold is water repellent, so once it covers the roots they cannot absorb water. If your plant starts to look dehydrated, examine the roots and determine how best to proceed.

Sunburn is really a thermal effect that begins as a whitish or yellowish scar fading to tan or black depending on the severity of the burn.

Too Much or Too Little Light. Cattleyas are bright light lovers, requiring lots of energy to to produce their showy flowers. Many growers recommend growing them in intense light just short of burning the leaves. The leaves turn as hard as cardboard after they mature in plants grown in very high light. Leaf color is often used as an indicator of light. If the leaves are yellowish; the light may be too bright, if the leaves are a lush green, the light is probably too low, and if grown in just the right light, the leaves should be a granny apple green. If your otherwise healthy cattleya doesn't bloom for you, move it slowly into more light. For many orchids, insufficient light is the major reason they fail to bloom for you.

The sudden appearance of leaf spots can be caused by sunburn, a result of leaves becoming overheated from too much light. Many orchid growers have sunburned their plants during the change in seasons when the sun angle changes or after moving plants outdoors in the spring. The burn occurs on the highest point of the leaf where it is exposed to the most direct sun rays. The burn fades to a thin tan colored leaf scar over time and can be invaded by secondary infections. If the damage is not too severe, it is unsightly but the leaf will still photosynthesize. You may want to remove severely damaged leaves.

Heat and Cold Damage. Extremes of temperature, either too hot or too cold, can damage your plants. Heat stress starts to occur at temperatures above 95°F or so. If temperatures continue to rise, heat damage, resembling sunburn, can occur, with the visible signs of damage first occurring at temperatures around 110°F and death of the tissue at 130°F. Air movement and moisture along with additional shading can help control leaf temperatures. Cold damage can occur from exposure to low temperatures, causing the collapse of cell tissue resulting in surface lesions, pitting, sunken areas and discoloration. The tissue can become water soaked, wilted and browned and can be susceptible to secondary infection. Most cattleya alliance plants prefer temperatures above 55°F though many will tolerate temperatures into the mid 40's. Cattleyas from the Amazon like C. violacea prefer warmer temperatures, and there are many cold hardy varieties that tolerate temperatures in the mid to upper 30's, like Soph. coccinea, C. loddigesii, C. intermedia, L. anceps and L. purpurata.

Heat damage like this happens when air temperatures exceed 110°.

You can commit sins of commission as well as sins of omission with your orchids. Some cultural errors are caused by something you did, like overwater or repot bifoliates before new roots are forming. Other cultural errors are a result of things you didn't do, like repot the cattleya before the mix degraded or peel back that sheath so water doesn't accumulate. The majority of potential problems can be avoided by providing enough of the right kind of light, watering and fertilizing properly and repotting before the mix sours and becomes salt encrusted. If you observe your plants each time you water, you will learn to recognize the signs of happiness as well as the signs of distress.

Lc. Allen Condo 'Joe's Beauty'. When all goes well, your cattleyas reward you with beautiful blooms that make all your efforts worthwhile.

Good Orchid Growing, or the Concept of Stress on Plants

by Carl L. Withner, Canadian Orchid Congress

Reprinted with Permission

Why are some orchid growers more successful than others - I mean, in growing fine plants with beautiful flowers? They produce the kinds of plants that show maximum qualities, the kinds of specimens you know are possible but that you can never quite achieve. Why do some people have a "green thumb" and others have only what is termed in some parts of Brooklyn the "dreck effect"? Well, my wife says I think like a plant, and although I'm reputed by some to have a green thumb, I know that others can grow much better plants than I do. This puts me under some stress, but the main problem is that my plants don't or can't improve their situation. Eventually you compromise between what you know and what you do - I'm starting to write this now about the stress on the grower, when what I wanted to do was write about stress on the plants.

The idea is that whenever you have less than perfect conditions the plants are under stress and respond with less than maximum growth. Perhaps this is just as well, for if we all grow such plants, bursting with vigor, who would have room for them all anyway? All orchid greenhouses are too small (they're built that way, it would seem) and that produces the first sort of stress - from overcrowding. One of my friends says he specializes in growing orchids back into their pots, but I don't really think that is his intention. Few people, apparently, have the courage and determination to keep their greenhouses with sufficient "lebensraum" for every plant. Sooner or later, one plant begins to shade another; flower spikes are broken or distorted; petals are crumpled; roots grow into other pots, and sure enough, something behind something else dies because it wasn't watered, or you didn't notice that the roots had rotted off from lack of repotting. Each plant obviously needs its own niche for exposure to a proper environment for maximum growth and flower production.

We are involved here with what is called in biological circles the principle of limiting factors. This idea may be stated by saying that whenever any process, such as growth, is controlled by a variety of factors, any one of them can be limiting at any given time. At one time it may be the amount of light, at another the temperature, or in turn any one of many other environmental or internal factors may be involved. Whenever the balance among factors is not optimal, the plant is placed under stress. If the stress is too great, it may die, or alternatively, produce smaller growths, not flower, produce fewer or poorer flowers, lose leaves, form blind sheaths, or just plain rot.

Light is most often a critical factor, one that can easily cause stress. If individual leaves are not saturated by light, each does not make the food that is possible through photosynthesis. This means fewer reserves for cellular respiration and maintenance processes in the plant and it may mean a lack of sufficient additional reserves for growth and flower production. When reserves are plentiful, multiple growths may break, leaves and bulbs may turn a healthy shade of red, and sugary nectar droplets will be formed on the sheaths and flowers, even on the leaves of some orchids. Since new growths depend upon the vigor and reserves of previous growths with good root supplies, continued lack of stress from sufficient light is critical. Light, along with production of food, has other effects on the plant, namely, the production of heat. This occurs within the tissues of the plant, as well as within the greenhouse which is really an infra-red trap. Each plant, according to its origins in nature - on low savannah or high cloud forest - grows best within a particular temperature range. Exceeding this range can slow down the rate of metabolism and growth or, in other words, produce a stress that prevents maximum results. So while increasing the light for photosynthesis, be careful to control heat buildup.

But we are not finished with the light and its detrimental heat effects. Excess light causes a deterioration of chlorophyll, yellowing the leaves, and eventually causing them to fall from the plant prematurely. The heat also causes an increased water loss from the leaves so that they become collapsed, soft, and pliable, and bulbs become wrinkled and ridged. One immediately proceeds, as an average response, to overwater the plants to make up for this obvious dehydration - only to kill the roots and worsen the total picture. Decrease the heat by increased air movement; diffuse the light; increase humidity to prevent excess water loss; don't overwater the roots. Be patient if the plant is new until it makes one or two growths under your specific conditions and has had a chance to adapt.

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At this point you are beginning to see the interrelationship of all these variables and how the principle of multiple factors gets to work. Everything from cuticle thickness (relating to humidity and conditions the plant was grown under previously) to the type of flower pot used plays a role in the total process. Orchids grow slowly, and they die the same way, so fortunately, you usually have an opportunity to change whatever is not optimal and alter their deterioration.

Orchid roots need lots of air and a certain humidity to stay alive. The velamen does not cover the very apex, and if humidity is low such tender tips have difficulty in surviving, particularly if nutrients in the water, or its pH, are not favorable. Good green roots continuing their growth into the air without stunting or stopping are a fine measure of proper humidity and good general conditions. Since roots absorb water at a given rate, only a certain amount can enter them within a stated period of time. If water loss through leaf or flower surfaces is excessive because of heat or low humidity, the plant loses turgor, gets soft and wilty with shrunken pseudobulbs. This condition is not cured by additional watering. There cannot be any faster uptake by roots, particularly if they are waterlogged, so the resolution of this stress involves heat and humidity control.

Proper humidity has remarkable effects on orchids, aside from keeping root tips alive. It seems to produce a real change in vigor and growth. The leaves expand more fully, flowers open to larger size and stay in good condition for longer, leaves last for an extra year without falling, bulbs don't shrivel, more buds break for new growths. Everything goes better with humidity, even petal spotting and root rotting, unless you also have buoyant air as well. The humidity and good air go hand in hand, and many times the lack of them, it seems to me, causes more stress than lack of proper light and temperature.

The factor causing least stress under average conditions is nutrient availability. Because of advertising and convenience it is easier to provide fertilizer than high humidity, proper temperature, or proper watering. In bark, with its lack of nutrients, this factor may become critical because of the almost total lack of necessary ions. With other media - osmunda, moss, or tree fem - the stress may be decreased as natural nutrients are available in degree. Of course, the balance of the chemical compounds, the pH of water, presence or absence of sodium, carbonates, etc. can complicate this picture unbelievably.

How is it then that the plants can grow at all – each with its season to grow, another to rest, a period of flowering? I'm always impressed by the adaptability of orchids and their tolerance of greenhouse, windowsill, or under light conditions. The question is, how close do we come? How many plants from various niches do we try to grow together? And which environmental factors are at work producing stress conditions and limiting the growth or flowering of individual plants? As your "green thumb" develops, you'll begin to know at a glance, or at least you'll have some definite ideas, and what will you do about them? The more ideal your conditions, the fewer fluctuations in their supply at critical times, the less stress your plants will have. They will begin to look better and produce the fine flowers you deserve.

Note: The late Dr. Carl L. Withner wrote this article for the Orchid Society of Nova Scotia in May of 1997, and it was reprinted in the March 2002 Canadian Orchid Congress newsletter, a great searchable source of orchid information.

Show Table

Grower Celia & Harry McElroy
Blc. Hawaiian Passion 'Carmela'
HCC/AOS

Grower Yvonne & Bob Schimmel
Cym. Valerie Absolonova 'Ruby Lips'

Grower Yvonne & Bob Schimmel
Phalaenopsis Type Dendrobium

Grower Suzanne Susko
C. Hawaiian Wedding Song 'Virgin' AM/AOS

Grower Harry & Celia McElroy
Paph. Magic Lantern

Grower Sue Bottom
Lc. Lake Tahoe x C. loddigesii

Grower Linda Stewart
Asctm. Mona Church

Show Table

Grower Sue Bottom
Lc. Nell Clark 'Lenette #1'

Grower Suzanne Susko
Blc. Prada Green Deluxe

Grower Angela Shuett
Antelope Type Dendrobium

Grower Yvonne & Bob Schimmel
Gram. scriptum var. citrinum

Grower Penny Halyburton & Michael Rourke
Mtssa. Estrelita 'Sweet Senorita'

Grower Sue Bottom
Lc. Maui Plum 'Volcano Queen' AM/AOS