St. Augustine Orchid Society NEWSLETTER
March 2019
Volume 14 Issue #3

Club News

Monthly SAOS Meeting, March 5

by Janis Croft

Welcome and Thanks. President Tom Sullivan opened the meeting at 7:05 pm with a 71 attendees. He asked Carolyn to announce our four guests, each received a free raffle ticket as first time visitors. Tom then thanked Dottie, Jeanette, Dorianna and Dianne for bringing in desserts and for organizing the refreshments. There was a line for Dorianna's flan, and whoever got the baby in the King Cake, you have to bring a King Cake to the next Mardi Gras party! He then reminded all to drop a dollar in the basket while enjoying their refreshments. Tom encouraged all to vote for their favorite orchid on the Show Table. Tom also announced that the Silent Auctions would close before the presentation and winners would be announced by Dianne Batchelder.

Club Business. Gulf Coast, Coral Gables, Jacksonville, Highlands County and Deep South Orchid Societies all have shows this month. Check out the website under Calendar of Events for details.

The next Ace Repotting Clinic will be on April 6th.

Email info@staugorchidsociety.org if you need supplies.

Catasetum Competition Grow. Several members brought in their catesetum plug that Fred Clarke donated for our club competition for the Best Grown, First Flowering and Best Flowering and reported that so far growing has been slow. She reminded the competitors not to water until growths are well over 4". She will continue to update us monthly on what to expect from the growers who won the plugs at the raffle table.

SAOS Exhibit at JOS Show. Janis Croft stated that we had enough volunteers to install the exhibit. She then said we now needed flowering plants and commented on how all of the plants on the show table would make a wonderful tabletop display. Janis then asked how many members were planning on submitting their plants for the exhibit and only three raised their hands. If you want to submit a plant for the club exhibit or for an individual award, send your plant's name to Sue Bottom by Wednesday morning. If we don't get enough plants, we will have to abandon the exhibit.

Keiki Club/Mentoring Program. Doug Smith is organizing a road trip to the Jacksonville Orchid Society Show and asked those interested to sign up on a sheet at the welcome table. If enough are interested, Doug will contact all with a location to meet and time to depart on Saturday, March 16. 2019 Dues are Due. See Membership Veep Linda at side table to pay dues or use the PayPal link online

Dianne Batchhelder announced that we had 11 birthdays this month and all received a free raffle ticket. Our Sunshine Coordinator and Membership VP, Linda Stewart announced that if you know of anyone in need of a cheering up or get well card, let Linda know by emailing her at info@staugorchidsociety.org.

Librarian Bea Orendorf brought in two books for people to borrow. If you would like a book, send a request to info@staugorchidsociety.org and Bea will bring the item(s) to the next meeting. The library collection is listed on our SAOS website.

Spring Picnic. Dianne Batchhelder announced the date change for this year's picnic. We will hold the picnic on April 28 at the Memorial Lutheran Church starting at 4 pm. Next month you will be able to sign up for what food items you would like to bring to the picnic.

Show Table. Courtney Hackney also commented that the Show Table was worthy as its own exhibit for the Jax show. There were so many plants, he solicited Sue Bottom to be his "Vanna White" and hold up each plant as he discussed it. A few highlights were the Blc. Mem. Grant Eichler that can have flowers up to 8" wide. The Blc. Momilani Rainbow 'Buttercup' was a beautiful pale yellow which exuded fragrance that was almost overwhelming. Another pale yellow orchid was a bulldog Paphiopedlum King of Sweden which was popular in the 1950s-60s but then lost favor. Now the bulldogs seem to becoming popular again. Courtney then showed a Tolumnia that he got from Anita Aldridge. The plant lineage comes from Moir's collection in Hawaii and Courtney estimated the plant lineage to be

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Club News

Upcoming Orchid Events

March

8-10 Gulf Coast Alliance Orchid Society Show
North Collier Regional Park, Naples
8-10? Orchid Society of Coral Gables
Fairchild Botanic Garden
12 JOS Meeting, Show Preparation, 7 pm
JOS Show Committee
16 Florida North-Central AOS Judging, 1 pm
Clermont Judging Ctr, 849 West Ave.
16-17 Jacksonville Orchid Society Show
Garden Club of Jacksonville
Show Committee Update
16 Keiki Club, doors open at 10 am
Field Trip to Jax Orchid Society Show
1005 Riverside Dr, Jax 32204
If you want to carpool or caravan up:
email info@staugorchidsociety.org
23-24 Orchid Society of Highlands Cty Show
Jack Stroup Civic Center, Sebring
29-31 Deep South Orchid Society Show
Coastal GA Botanical, Savannah
30-31 EPIC Celebration of Spring
Annual Flower and Garden Expo
St. Johns County Agricultural Center

April

2 SAOS Meeting, 6:30 pm
Judging Plants on the Show Table
Courtney Hackney and Eric Cavin
7 SAOS at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
9 JOS Meeting, Topic TBA, 7 pm
Speaker TBA
13-14 Tallahassee Orchid Society Show
Doyle Conner Agriculture Bldg
14 Florida North-Central AOS Judging, 1 pm
Clermont Judging Ctr, 849 West Ave.
20-21 Flamingo Gardens Orchid Society Show
Flamingo Gardens, Davie
21-22 EPIC Celebration of Spring
Annual Flower and Garden Expo
Ag Center, St. Augustine
27-28 Vero Beach Orchid Society Show
Riverside Park
28 Picnic and Orchid Swap, 4 pm
Memorial Lutheran Church
3375 US 1 South, St. Aug 32086

May

3-5 Platinum Coast Orchid Society Show
Kiwanis Island Park Gymnasium
4 Repotting at Ace Hardware, 9 am til 1 pm
3050 US 1 S in St. Augustine
5? JOS Picnic
3611 Richmond St., Jax 32205
7 SAOS Meeting, 6:30 pm
Vern Bloch, prior nursery owner
Laelia purpurata and its Hybrids

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at least 80 years old. Harry and Celia McElroy brought in some beautiful cymbidiums including a first bloom seedling Pele with its flat flower, Cabaret, Peaches and Cream with its spotted lip, Napolean and Lovely Rain. Courtney ended with the yellow flowering Den. aggregatum in full bloom. 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 speaker, Daryl Venables, owner of Tezula Plants located in Miami. His talk was on Tolumnias, the Equitant Oncidiums. Growing up in South Africa, his aunt got him interested in orchids at the young age of seven and he has been growing them for 34 years. He first saw Tolumnias at an orchid show and immediately knew he wanted to grow these. Tolumnias, even though they are Oncidiums, do not have pseudobulbs. All of their nutrients are stored in their fleshy leaves. They originate in the Bahamas and surrounding islands, growing in beach areas as well as in the mountains. Wherever they grow, they prefer to grow on twigs and sticks. Hybridization started in the 1950s by W.W. Goodale Moir of Hawaii and his results were commonly referred to as Moir's weeds. Tolumnias are compact plants and breeders like to keep them simple and small. Most tend to grow fan on fan with very short rhizomes. A few grow more actively with a rhizome between fans and these plants prefer mounting.

Daryl next described how he grows his collection. He challenged the audience to determine what the most important requirement for growing tolumnias was, and we came up with water quality. He stated that quality does not seem to be a priority for these small plants as he grows them in south Florida well water, which is notorious for salt intrusion and has also grown then in reverse osmosis water and really sees little difference. What is most important is air movement. These plants have their roots exposed on the twigs or mounts they grow on and need their roots to dry out before the next watering. If they are potted, they need a fast drying medium also. He also believes in the dunking method of watering though he cannot do that because he has over 320,000 plants. He uses an overhead watering system, three times a day for 5 minutes each at 6, 7 and 8 am so the roots are dry by 11 am. For misting, he recommends Fogg-It Nozzles and he uses MSU Orchid Fertilizer 13-3-15 once a week. He recommended using an alternative fertilizer on every 4th week to provide nutrients that might be missed in your weekly fertilizer. For this, he uses Nitrozine, which is a marine algae extract. Then every three months, he also adds Cal-Mag Plus and Silica Blast (not for Vandas). He uses a Dosatron to deliver his fertilizers at a consistent rate.

Other variables for growing Tolumnias include light and temperature. Both affect the color of the flowers. These

plants can be grown from shade to full sun but if the later, gradually introduce the plant to the brighter light. The leaves will turn redder with more light. Tolumnias, being from the West Indies islands, like the warmer weather but can handle temperatures down to 45 occasionally. Temperature differences affect how bright a color the flowers will have. Some bloom with intense colors that then fade to paler versions.

He recommends mounting on any type of hardwood. Many people use cedar shingles cut to 4" x 1" but be sure they have not been treated with anything. If you are going to use coconut coir, be sure it is the horticultural type and anything from green coconuts will kill the plants. When mounting put the new growth as close to the wood as possible and you may want to add a small amount of sphagnum moss depending upon your watering practices. Daryl also recommends using panty hose to secure the plant to the mount.

If you want to pot your tolumnia, he advised using a medium that will last a long time; he prefers charcoal. Daryl suggested putting a few pieces of charcoal into a mesh pot and then setting the plant on top and firmly securing it in place. Another option is to mount on a small piece of wood and then set that into the mesh pot with charcoal at bottom. Tolumnias' number one pests are scale and mealy bugs. Daryl uses Safari and Distance, which are the only two products that will definitely eradicate scale. He also sprays weekly with Physan 20 but only at a rate of 1 tsp/gal.

Daryl ended his presentation with slides he called "eye candy" and they were. He showed many photos of Rodrumnias as well as his most recent crosses. He is working on crosses with multi-branching spikes. He ended by advising us to never cut a flower spike off as they often rebloom on a second spike. Only remove the spike when it is definitely brown and dried up.

Meeting Conclusion. Sue Bottom announced the Member's Choice Award as Janis Croft's Dendrobium aggregatum. The evening concluded with the raffle. Thanks to all the helpful hands that stayed to reset the tables and chairs, and help clean up the room.

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

Club News

February Keiki Club Get Together

Winter Orchid Growing
Susan and Doug Smith's House

About a dozen members convened at the Keiki club meeting at Susan and Doug Smith's house. They toured Susan's portable greenhouses for winter growing. Each 6x8 structure has an electric heater with thermostat control. Doug adapted closet poles to hang vandas and other mounted orchids. The orchids are happy and many are blooming or in bud. Afterwards, Janis gave an overview of the SAOS website and its wealth of information.

American Orchid Society Corner

March 12, 8:30-9:30 pm, AOS Members Only
Choosing the Best Plants – Lois Cinert

March 26, 8:30-9:30 pm, Everyone Invited
Greenhouse Chat Orchid, Q&A - Ron McHatton

Orchids Magazine this month: request free issue
Vining Orchids, Tom Mirenda
Repotting - Wet or Dry, Sue Bottom
Building a Summer Pergola, Nile Dusdieker
Vanilla planifolia, Barbara Schmidt

Photos of Latest AOS Awards

Final Month to Pay Your 2019 Dues

This is the final month for renewing your membership. Dues are $20 for an individual and $30 for a family. You can mail your membership check to SAOS c/o Bill Gourley, 807 Kalli Creek Lane, St. Augustine, FL 32080. If you prefer to renew your membership online, you can use the link on our website to pay using PayPal. After the March meeting we will be updating our membership and newsletter distribution lists.

March 16 Keiki Club

Road Trip - JOS Orchid Show

Have you ever gone to an Orchid Society show and seen all the beautiful exhibits or shopped from 10 orchid vendors side by side? We'll be going up to the Jacksonville Orchid Society Show. If you want to car pool, email us.
Organizer: Doug Smith
Where: Garden Club of Jacksonville
1005 Riverside Drive, Jax 32204
When: Saturday, March 16, leave at 9 am for 10 am arrival

April 2 Monthly SAOS Meeting

Judging the Plants on the Show Table

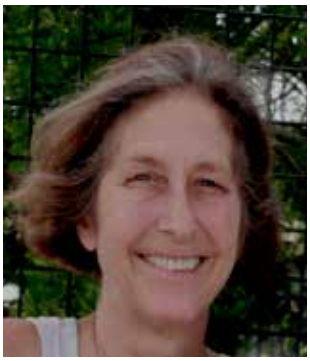
We all enjoy Courtney's review of all the plants on the show table. He somehow manages to weave a story about commonalities in hydridizing, habitat, etc. and gives plenty of orchid cultural information.

AOS Judge Eric Cavin from the Jacksonville Orchid Society will follow Courtney's talk with a short discussion of what American Orchid Society judges look for when giving cultural and flower quality awards, the differences between ribbon and award judging, etc. Then Courtney and Eric will select some potentially awardable plants from the show table, to talk about their desirable qualities and how the flower presentation might have been improved. Should be fun and informative for all, particularly with the Jacksonville Orchid Society coming up next month.

Courtney will be bringing plants for sale. There will also be plants available on the raffle table.

Inspiration

Tolumnia Jairak Rainbow 'Yellow Nazo'



Orchid Questions & Answers

by Sue Bottom, sbottom15@gmail.com

Q1. My oncidium is firmly established in the pot but the roots are exposed and hanging over the edge. Should this be repotted in the early spring and should the roots be covered with the medium?

A1. Roots adapt to what they are growing in, aerial roots that have adapted to growing in the air will not adapt well to growing in media, roots adapted to growing in ProMix will not adapt well to growing in bark, etc. So, when time comes to repot in the spring, I would give the aerial roots a hair cut, so they would fill perhaps 2/3 of the pot. Get the plant situated in the pot, and put an inch or two of medium in the pot, and then as you see new rootlets branching from the aerial roots, you can backfill a little each week so the new rootlets will grow into the new mix and adapt to that mix.

Q2 This cattleya has soft brown discoloration, what should I do?

A2. That looks like Rhizoctonia, that is moving from the older part of the plant through the rhizome to the forward

part of the plant as well as moving up the pseudobulbs. You will have to cut away all the infected tissue and repot the healthy growing leads into fresh mix.

Q3. My orchid has been in the same position for a few years near the window facing south east by the heater. There are no sign of insects. What should I do?

A3. I suspect mites, from the stippling pattern, and the warm dry location in the house. Sometimes you have to get a magnifying glass to see them, or wipe a kleenex across the bottom of the leaf and see if you find little dark blotches on the kleenex. I would suggest you take it to the sink and give the leaves a thorough bath top and bottom with the sink sprayer and then get a spray bottle of isopropyl alcohol and spray the leaf surfaces, perhaps making the alcohol spray a weekly ritual. Belinda updated us “I just wiped it with a tissue and the tissue was a rusty color with tiny dark specks.”

Plant Label

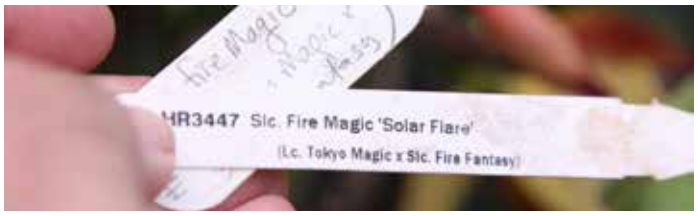
Courtney's Growing Tips

A is for apple, B is for boy. Does that sound familiar? Most of us have long forgotten that we started with the basics when we learned to read. Many new Orchid hobbyists must remember that it took them a long time to learn to read and accept that it will take awhile to learn the language of orchids. More advanced growers must try and recall how difficult the terminology of Orchids was in the beginning and not overwhelm new hobbyists with jargon. Orchid names may seem simple now, but only because we learned the language.

Species names are perhaps the most difficult, not just because they are derived from Latin and Greek roots, but because there are underlying conventions that go unspoken, but must be understood to appreciate the language of orchids. All living things in nature are identified by two names. When naming a species this binomial nomenclature is used, e.g. Cattleya bicolor. The first name is the genus and the second is the species, although they both are used to describe one kind of Orchid. There may be many different kinds of Cattleyas, but the combination of the two names is only applied to this one type of Orchid. There may be other species named bicolor, but they are in other genera, e.g. Lycaste bicolor.

Rules for naming orchids species are long and elaborate and usually accomplished by plant taxonomists. The first one to name a new species must describe the plant, place a dry specimen in a plant museum (Herbarium), and publish the description. Often two different people will name the same new species using different names. The first published description is the one that takes precedence. Thus, Cattleya warscewiczii is the accepted name of the much easier to pronounce Cattleya gigas. They are the same species. Note that for a naturally occurring species the genus is always capitalized and the species name always in lower case. For convenience and to save space, Cattleya is abbreviated C. There is a list of accepted abbreviations accepted by the RHS (Royal Horticultural Society).

Species often have more than one color form or growth form that are given varietal status. Cattleya bicolor var brasiliensis refers to a certain population of tall growing



members of this species, while C bicolor alba designates a plant with green flowers and a white lip no matter what population produced it. In Orchid jargon, the varieties that refer to color often are retained in a name, while those designating a growth form or area from which a plant came are often dropped. There may be many different clones of C bicolor alba, each grown from an individual seed. Clones that are exceptional in some way or gain an award of some kind are also given a clonal name. Thus, C bicolor alba 'Orchidglade' SM/SFOS refers to a specific clone named Orchidglade that was granted a Silver Medal by the South Florida Orchid Society. Divisions of that plant, even if the divisions were made before the award, will carry the same clonal name.

Orchid hybrids also follow the same general protocol, i.e. a Genus and Specific name. The specific name is not described in a scientific journal, but is registered with the RHS. If a hybrid is a cross of two Cattleya species, it still carries the same genus name. If, however, the hybrid combines two or more genera an artificial Genus will also be registered with the RHS. The hybrid between Laelia purpurata and C mossiae was registered as Laeliocattleya Callistoglossa. Note that both names are capitalized. Clones of hybrids may also be given varietal names as well as clonal names.

There are natural hybrids that are found in the wild. Most were originally described as new species, but later recognized as natural hybrids. These are designated as follows: Cattleya xHardyana, the natural hybrid between C dowiana and C warscewiczii. If an orchid nursery remakes this hybrid it should be called Cattleya Hardyana to separate it from its wild kin.

Many modern hybrids can be traced back many generations to the original species from which they were derived. Records of who first made the hybrid, when it was made and when it first flowered are recorded in Sander's List of Orchid Hybrids that is maintained and updated by the RHS. Once you learn the language, volumes of "Sander's" can be a wealth of information and a lot of fun to examine.

Note: Dr. Courtney Hackney wrote a monthly column of his orchid growing tips for about 20 years; we are reprinting some you might have missed, this one from March 2002.

Equitant Oncidium Culture – A Practical Approach: by Anita Aldrich, courtesy of the American Orchid Society

In an earlier article on equitant culture (AOS Bulletin, July 1986, pp. 676-683), I briefly discussed pot culture and recommended using any good mix which 'drained well and allowed ample air circulation about the roots'. This is still valid advice for pot culture but perhaps not the simplest.

In the intervening years the "impossible" happened: my greenhouse wall space ran out. Although I personally prefer the mounted method for seedlings, I was forced to expand to pot culture in order to utilize available bench space. As a result, I tried several different, readily available media in search of the one that would provide the best growth under my conditions.

The bark and peat-lite mix which I had been using in the past retained too much moisture; the mounted plants over the benches were being misted daily, and the pots below never had a chance to dry out. So this mix was modified by simply omitting the peat. Although the plants grew well, the main problem was the growth of mold in the medium. This tended to cause the bark to break down quickly and necessitated yearly repotting — more work for me and more disturbance to the plants.

A seedling grade mix of charcoal, perlite and a small amount of peat was tested and provided excellent results, although the dust generated during handling made potting somewhat unpleasant. Additionally, each pot required enlargement of the drain hole because of the tendency of the medium to aggregate and block it.

New Zealand sphagnum had been highly praised, so it, too, was given a trial. Although I was quite apprehensive about the danger of overwatering, my conditions surprisingly produced the opposite problem. If the moss was allowed to dry out past a certain point, it became very difficult to rewet. However, if the right moisture balance was struck, the plants grew with great vigor. Unfortunately, so did the larvae of a small moth which found the sphagnum to be its medium of choice at egg-laying time. Any accelerated growth was offset by eventual root damage.

In spite of the fact that the few objections I had to each of the various media could have been handled, their common disadvantage was the time involved in the potting operation. I could still mount two or three plants in the same time it took to pot up one. But I figured this was the price I would have to pay for good growth.

This was about the time Serendipity - that benevolent guardian angel that watches over crazy orchid growers - stepped in. Virtually all of my seedlings are mounted and hung on wire walls throughout the greenhouse. It was during a prolonged reorganization of the wall space to

hang some newly arrived plants that the problem provided its own solution. The plants were promptly mounted on pressed-cork slabs, but having no place to hang them, I set them in 2 inch pots until I could get to them.

As it turned out, they were "gotten to" a few months later! When I began removing them from the holding pots, the painfully simple answer struck me. The plants had done very well, putting on root growth comparable to that of the hanging plants.

This "discovery" has had several advantages, not the least of which is that I can mount all seedlings as I prefer for best growth (and do it at least twice as fast as potting them in a mix). If wall space is currently at a premium, the mounted plants can be set into pots for bench growing. When seedlings selected for breeding or exhibition outgrow the holding pot, they can be moved up to three-inch pots and potted with or without medium as preferred or simply fastened to larger mounts.

The sheet moss I use for padding when mounting seedlings has proven to be a good medium in itself. It is simple to add an extra portion when moving the plant to a larger pot. It holds the right amount of moisture while remaining open for good drainage and air circulation.

And for some reason the moths don't invade it. For growers who are unsure whether their conditions are amenable to pot culture, this method allows them to sidle up to potting without totally committing the plant to a particular medium. If mounted culture seems too dry, the plant on its slab can be set into a clay pot and moisture stepped up a bit at a time. If this still proves to be on the too dry side, medium can be sifted in around the base of the plant and watering adjusted accordingly. The plant never has to be disturbed!

Commercially, this system has two distinct advantages for the client. Shipping is more economical because the pot is not needed, and trauma to the plant is minimized by eliminating unpotting for bare-root shipment or removal from the slab for potting on arrival. The grower whose preference is pot culture can simply add pot and medium. Those who prefer mounts can hang the plant as is, attach it to a larger mount or place it in a pot on the bench.

Voila! The greenhouse space available for equitants has just expanded!

This article appeared in the American Orchid Society Orchids magazine, in April 1991 (Vol. 60:4, pp 314-315), reprinted with permission.

Reverse Osmosis Water - Friend or Foe

by James Arnold

After a bite from the orchid bug in 2006 I rather quickly found the slipper orchids. Oh, I had others too but the Paphiopedilums and Phragmipediums were the favorites. After some plants died and others barely hanging by a thread, I became concerned that the chemicals added to the municipal water system was in part to blame.

I decided in 2008 to have a well drilled. What could be better than water from Mother Earth? After a few months of using the well water, things became worse. Most of the plants stagnated and some died. I tried everything, more light, less light, different fertilizers. Nothing seemed to make much difference. One commercial grower I spoke with suggested that I send a sample of the well water for testing. After reviewing the results with a few commercial growers and a few fellow society members (a great source of information), it became obvious that the well water was less than desirable. The high alkalinity coupled with the sodium and chloride levels plus the high calcium content was not good for the slipper orchids.

After some research I decided it was time for more drastic changes. With my greenhouse filling up with more and more expensive species and hybrids I could no longer just let them limp by on water of questionable quality. In 2010 I installed a 100 gallon per day reverse osmosis or RO system. It is a three-stage unit with a sediment filter, carbon filter, and the RO membrane. How does it work? Water is forced through the membrane with the help of a pressure boosting pump. The pump increases the pressure 10 to 15 psi, a must in the winter when the source water is colder slowing production. The membrane removes the solids that are dissolved in the water. Afterwards the water is less than 10 ppm or parts per million. The well water was of such poor quality that I was forced to use the municipal water source. This became a blessing in disguise because we had just recently had a water softener system installed. The water softener removes the calcium and magnesium minerals responsible for fouling the membrane. The clean water is stored inside the greenhouse in a 100 gallon container used on farms for watering livestock. I cover the top with plywood to keep out the light and control algae growth. When watering I pump directly from the farm container with a 1/3 HP sump pump, 20 ft hose with a wand and low-pressure water breaker.

The reverse osmosis is very pure so fertilizing is a must. I feed at every watering with 15-5-15-5-2 Cal-Mag formula at 50 ppm nitrogen. The calcium and magnesium in the fertilizer are in the nitrate forms. They are readily available to the plants. Because the RO water has no buffering capacity, the pH of the water/ fertilizer mix drops into the 3's, about the same as orange juice. I use a potassium silicate product that raises the pH back up to 5.5 or so. This also provides necessary silica to the plants that was removed from the source water by the RO system.

100 gallon per day RO unit

In the winter the water may need to be heated, even when storing the treated water in the greenhouse, which is kept at minimum 50 F temperature. I use two 30 gallon aquarium heaters to heat the water to 65 to 70 F. Cold water can shock plants and may slow or halt growth all together.

The pH of the media should be checked on a regular basis. High nitrate fertilizers may cause a rise in pH out of the desirable range of 5.4 to 6.2. I check a few plants each month with the pour thru method using steam distilled water. I simply water the plants well, wait about a half hour, then pour enough distilled water thru the media to get about an ounce. I then test this with a Blue Lab Combo meter for pH. It may be necessary to rotate in a more acidic reaction formula fertilizer to help maintain the pH in desired range.

The RO system is not without its negatives. Storage of the RO water can be an issue. If not for the space taken up by the RO container, I could have another small table for seedlings. Waste is a concern; some units use four gallons of water to make one gallon of clean water, although the newer units may be more efficient. Water shortage could be problem in summer because the unit cannot meet the increased water requirements. Plan ahead, buy a bigger unit than you need. Collections tend to grow and so will the water consumption. Also remember that in the winter it takes longer to produce because of cooler water temperatures. The sediment and carbon filters should be changed on a three-stage unit every three months, at a cost of about $15. The membrane can last up to five years, but I change mine every year, purchasing a replacement on Amazon for approximately $25.

Clean RO water has been good for my plants. With a few AOS awards, four of which are CCM's, I can't complain. Maybe coupled with dedication and attention to detail, RO water might be the answer to your water woes.

Rainwater Collection - A Solution for Poor Well Water Quality

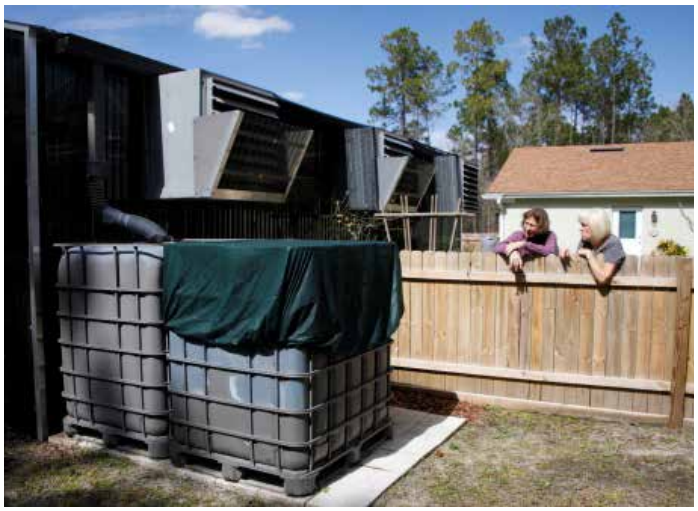
by Linda Stewart

I moved to a home with my very first greenhouse, located in rural Florida, about seven years ago with my rapidly growing orchid collection. You can imagine my dismay during that first year as I saw many of the miniatures and more unusual orchids slowly decline and die. The well water was tested revealing the problem, a pH of 8.0 and 1100 ppm of soluble salts, otherwise called Total Dissolved Solids. The comments section of the written test results noted that "Soluble Salt levels are high enough to affect many plant varieties."

Finding an alternative source of water was problematic. There are no public water supplies in the area and the cost to install a reverse osmosis (RO) system to remove the dissolved salts from the well water was cost prohibitive. This left a single option: rainwater. The first step was to figure out how to collect and store the rainwater, and the second was how to plumb it to the automated system in the greenhouse, preferably without having to call an electrician and/or sprinkler company.

Collection System. I first purchased a 330-gallon rectangular poly container, also known as an IBC tank, which had already been cleaned. The collection tank was thoroughly rinsed out (just in case) and painted with a grey Rustoleum primer, to help prevent the top coat from peeling from the poly. The tank was then given a topcoat of Rustoleum in a similar shade of grey. Grey won't get as hot as black in the summer heat, but will still keep out sunlight and prevent algae buildup in the tank. A short time later, the second tank was purchased. But this time the primer was not used. Instead it was painted using a type of marine paint that was supposed to adhere to plastic. As you can see from the picture the shortcut was not a good idea. It is currently covered with frost cloth to help keep out the sunlight. I don't want to take it out of service and it can't be repainted until all of that peeling paint has been removed.

The tanks were placed on cinder block pavers next to the greenhouse as close to the water connection for the greenhouse as possible. Gutters were installed along one side of the greenhouse with the downspout directed into the first tank, with a debris filter to catch debris as it comes out of the gutters. Each tank is equipped with a gate valve at the bottom, so that's where the two tanks were joined together using PVC pipe. A T-connector was inserted in the middle to create one line going to the filter and pump. If there is a need to isolate one of the tanks, it is a simply a matter of turning the gate valve at the base of the selected tank.



I purchased my tanks from a friend, but they should also be available at local farm or irrigation equipment supply stores. Just be careful they didn't originally contain an herbicide or other chemical that could potentially leave a residue that might be harmful to your plants.

If you don't paint your water container and/or it is not completely enclosed, you may tend to have a problem with algae, particularly during the hot summer months. This can be prevented by the addition of an algaecide, such as GreenShield, Physan 20, or pool algaecide, all of which contain quaternary ammonium compounds. The Physan label recommends 1 teaspoon per 52 gallons of water for controlling algae in birdbaths, fountains, etc. I don't have an algae issue, so tend to use less, and then only once to twice per year. Please bear in mind that this algaecide is not recommended to be used on food crops or with fish.

Delivery System. The next step was to get the rainwater into the greenhouse to the orchids. A 3/4" PVC line was installed from the T-connection, first to a water filter to trap any sediment, and then on to the pump. The Shurflo pump has ½" connections, so 10" flexible ¾ to ½ reduction connectors were used to connect to the pump. Shurflo recommends that the pump be mounted to a piece of wood, to minimize vibration when the pump is running. It is also recommended that flexible connectors be used to connect directly to the pump. There is no isolation valve, so the pump pulls from both tanks concurrently unless the gate valve at the base of one of the tanks is turned to isolate the tank. The Shurflo pump is a 3.0 gpm, 45 psi, 1/2 npsm, 115 vac with electrical cord. It is housed under a large plastic bin with a screen covered opening cut into the side for ventilation.

From the discharge end of the pump, I dug under the greenhouse and installed a combination of ¾" inch PVC and irrigation tubing along with a T connector to add a faucet for hand watering. The water pressure is sufficient to use a Siphonex system to add fertilizer when hand watering (as long as the hose does not exceed 35 ft. in length). The greenhouse already had an automated mist system over the vandas at the south end, and over the wall containing my mounted orchids on the north wall. A connection was run to tie in via a gate valve just below the existing mist system control solenoid, so no electrical work was required and the existing mist system timer could be utilized. The system can be valved off so the old well water plumbing can again be used, should the need arise during extended dry spells. Once it was up and running, the pump cycled too frequently, so an in-line 2 gallon pressure tank was installed right after the pump and before the faucet and solenoid - problem solved.

Since there already were gutters across the front of the house, I decided to add a rain barrel there as well to have additional rainwater for hand watering, etc. It is a simple system, a completely enclosed, 55 gal. food grade drum on a cinderblock platform. It was painted the same grey primer and top coat initially used on the larger tank. Although there are several brands and types of downspout diverters available in the market today, a *DIY Downspout Diverter* was selected. The diverter kit came complete with spigot, rubber grommets, hole saws, diverter, connection hose and a downspout cover for freezing weather. The diverter was inserted into a small hole drilled into the side of the downspout. Once complete, the system is very unobtrusive and only requires 1/2" of rain to fill the drum. Once full, the rain diverts back to the downspout, so the rain barrel never overflows.

My orchids are now happily flourishing again. I love miniatures and unusual varieties, and wish that I had known much earlier just how detrimental poor water quality can be, particularly on varieties that require water purity to flourish.

Pump System

Soluble Salts

by Sue Bottom

Good quality water is the "holy grail" for orchid growers. The better your water, the better your orchids will grow and the greater the variety of orchids you will be able to cultivate. Good quality water should contain a low level of soluble salts. Salts dissolved in water gradually accumulate in potting media and around roots with every watering/drying cycle. If not flushed from the pot, salts can build up to toxic levels and cause root tip burn, which limits root growth.

Soluble Salts. There are two standard measures of the soluble salt content in water. Electrical Conductivity (EC) is a measure of water's capacity to conduct electricity and a direct measure of the concentration of various ions in water, measured in mS/cm with an EC meter or Total Dissolved Solids (TDS), measured in the laboratory by evaporating a fixed amount of water and weighing solids left behind. Most hobbyist meters use a conversion factor to calculate TDS in parts per million from the measured EC. Knowing the soluble salts content is the first step in evaluating the suitability of your water for growing orchids.

Soluble salts can be beneficial, benign or potentially toxic. Calcium and magnesium are macro micronutrients and required for essential plant growth processes, but in high enough concentrations they can interfere with nutrient uptake. Bicarbonate and carbonate compounds (measured as alkalinity) are not nutrients and can accumulate in potting mixes, driving up pH and making important nutrients more difficult for roots to absorb. Some substances like sodium, chloride and boron are required in very small amounts for plant metabolism, but toxic for orchids even at levels where water is acceptable for human consumption. Salt water intrusion is a major cause of high sodium/chloride concentrations, but not the only one.

Best Water. Water with a conductivity below 0.25 mS/cm is considered excellent for orchids, i.e. a TDS <175 ppm. Typical rainwater and some groundwater obtained from non-shell strata in our area would be in this range. The Hastings public water supply is the only one in our area that supplies this high quality water. Rainwater contains very little buffering capacity to resist pH changes and requires a fertilizer that will produce the desired slightly acidic conditions around your roots, without imparting too much acidity. A Cal Mag fertilizer like a Peter's Excel 15-5-15-5-2 that supplies supplemental calcium and magnesium does best with this pure water. Absence of soluble salts in water allows even cloud forest orchids to grow well. Species from cloud forests, e.g. many Masdevalias and Pleurothalids, are sensitive to even tiny levels of soluble salts.

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Good Water. Good quality water could range in EC from 0.25 to 0.75 mS/cm, roughly equivalent to a TDS level between 175 and 525 ppm. This would be typical of the municipal water in a few selected areas in St. Johns County, including Hastings, Ponte Vedra, the City of St. Augustine and St. Augustine Beach. Some private wells in the Jacksonville area also tap into good quality water, though this is the exception in St. Johns County.

Questionable Water. Water with an EC between 0.75 and 1.25 mS/cm (roughly equivalent to 525 – 825 ppm TDS) is considered marginally suitable for orchids. This would be typical of many private wells in St. Johns County as well as the majority of the public water supply systems. At these elevated EC levels, it is imperative to know what soluble salts are present in the water. If salts are mostly associated with alkalinity or hardness of water, then the issue is the potential for the root zone to become more and more alkaline with each watering. However, if soluble salts present include sodium and chloride, there is a potentially severe problem in that these salts can be toxic to your orchids at relatively low concentrations.

Unsuitable Water. Water with an EC >1.25, equivalent to a TDS > 875 ppm, and water that contains toxic levels of sodium and chloride should not be used on your orchids. You should find an alternate water source or treat your water to remove salts.

Private Wells. In St. Johns County, private wells tap into either the shallower surficial aquifer or the deeper Florida aquifer. The surficial aquifer consists of interbedded sand, shell and clay that occur to a depth of about 120 ft. The water quality of the surficial aquifer is highly variable. In some areas, soluble salt levels range from acceptable to excessive. Highest salt levels are in coastal areas where the aquifer is interconnected with marine water as well as in farming areas around Hastings and Elkton.

Deeper wells tap the Florida Aquifer within the Ocala limestone. The Florida Aquifer generally contains more solids than the surficial aquifer because water resides in porous limestone rock for a long time. The saline (sodium chloride) content in the upper part of the Florida aquifer ranges from very low levels in the northwest part of St Johns county to extremely high levels along the southeast coast. Water from the southern two thirds of the county probably is probably too saline than is desirable for orchid cultivation. Levels of hardness (calcium and magnesium levels) and sulfate concentrations are far in excess of desirable levels in the northern part of the county and along the St. Johns River, which can interfere with the uptake of required nutrients. If you use a private well for your orchids, consider having the water tested. For $40, QAL will analyze your water. Please send any lab reports you have for your well water.

Public Water Supplies. These utilities obtain water from the Florida aquifer wells and use a combination of treatment steps including aeration and sometimes softening, desalinization and reverse osmosis to provide potable water. This map shows the water treatment utility serving your area. Only the Hastings system provides excellent quality water. Water that is considered good for orchid culture is provided in Ponte Vedra, the City of St. Augustine and St. Augustine Beach. Water from these utilities typically has a pH a little higher than desirable, but alkalinity levels are generally low. pH is a measure of how acidic (below 7) or basic (above 7) the water is and alkalinity is a measure of how resistant water is to downward changes in pH. Water with low levels of alkalinity can more easily be made acidic by choosing a water soluble fertilizer with an acidic reaction, like a 20-20-20.

The World Golf Village and Bartram Oaks have elevated soluble salt levels, but levels of the potentially toxic sodium and chloride levels are within acceptable ranges. Ideally, sodium levels should be <10 ppm. Problems can arise at concentrations >50 ppm. Water with high levels of calcium will help ameliorate high sodium levels. Sodium is a greater problem in water with relatively low levels of calcium. If slightly high levels of sodium are present in your water, alternating your acid generating fertilizer with a Cal Mag fertilizer like Peter's Excel.

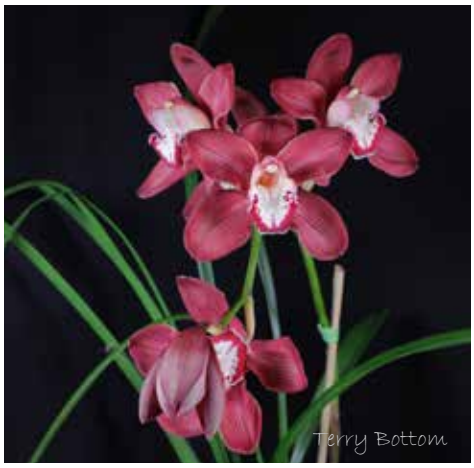
Most of the public water supply in St. Johns County, including the Nocatee area that is supplied by water purchased from JEA, would be classified as questionable based solely on the total dissolved solids levels. Much more troublesome are the sodium and chloride levels reported for these utility service areas, well above the level considered to have toxic effects on orchids.

Club member Linda Stewart identified and corrected the problem with her excessively salty water by installing a rainwater collection system. James Arnold of the Jacksonville Orchid Society went a different route, installing a reverse osmosis system to remove salts. These companion articles will give you some alternatives to consider.

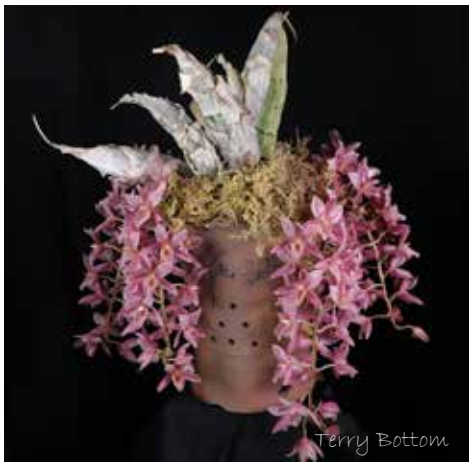
The problem with elevated soluble salt levels is that orchids are efficient scavengers of nutrients. In their natural environment, mineral nutrients are rare, so orchids have evolved to absorb every atom they encounter, potentially producing toxic levels in their tissues in cultivation. You can compensate to a degree for elevated salt levels with your cultural practices. Do not use this water for misting or for overhead watering. Use dilute fertilizer solutions. Water more frequently than you might otherwise to prevent the medium from completely drying out and concentrating salts. Use plastic containers that will not absorb salts. When you water, do so until water runs through pots and then water some more. Flush pots regularly. Salts can be flushed more easily from an open, freely draining potting mixes than they can from water retentive mixes containing sphagnum moss or peat, which tend to accumulate salts. Get in the habit of watering and fertilizing and then water a second time an hour later, ideally with rainwater if you have it. Move plants outdoors in summer so they can be flushed naturally with rainwater.

Show Table

Grower Joanne Stygles
V. Alan Ashe Patterson

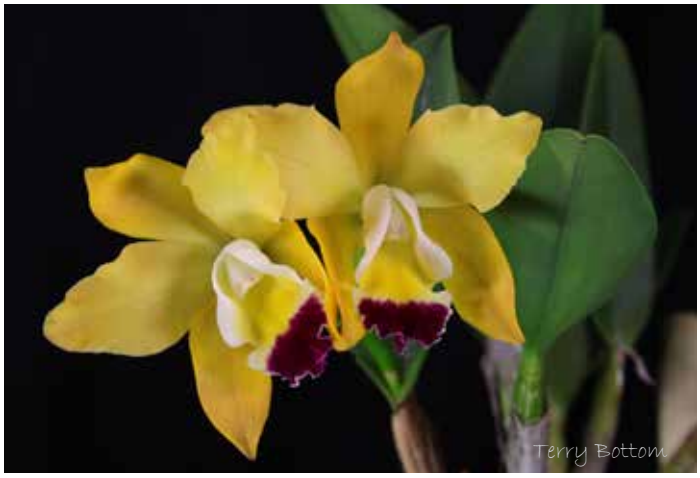


Grower Harry & Celia McElroy
Cym. Pele

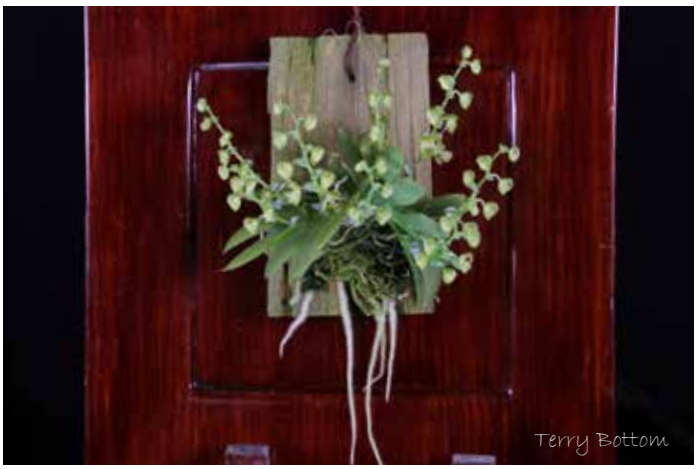


Grower Sue Bottom
Clowesetum Alexandra Savva

Grower Susan Smith
Slc. Rajah's Ruby 'Sweetheart' HCC/AOS



Grower Bob & Yvonne Schimmel
Pot. Paradise Beauty 'Golden Angel'



Grower Linda Stewart
Ornithocephalus gladiatus

Grower Tom & Dottie Sullivan
Onc. maculatum 'Paulo' AM/AOS

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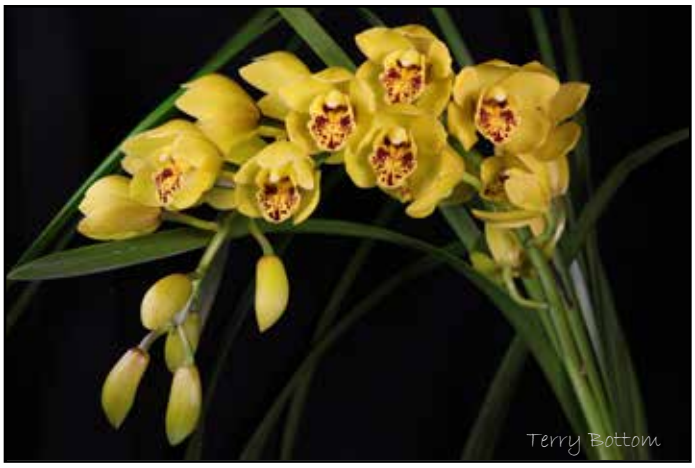
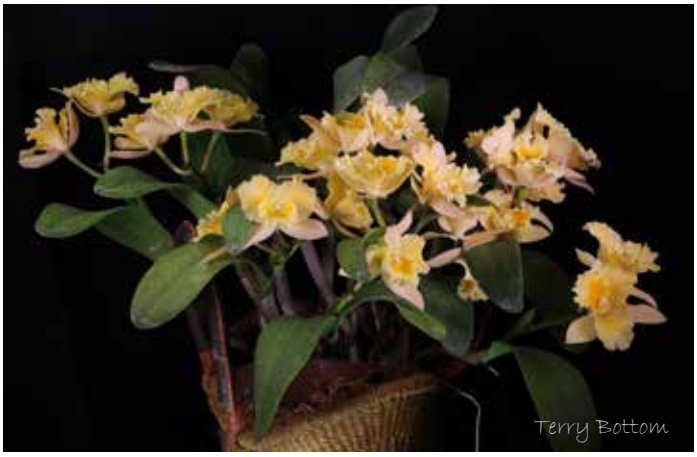
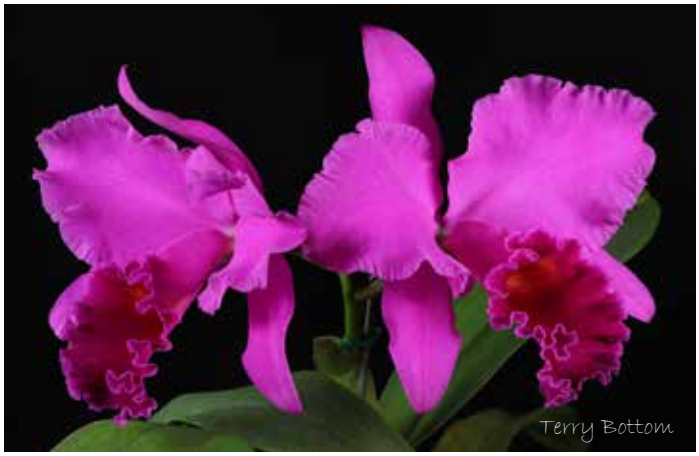


Grower Harry & Celia McElroy
Cym. Lovely Rain 'New Horizon' ACC/AOS

Grower Janis Croft
Dendrobium aggregatum

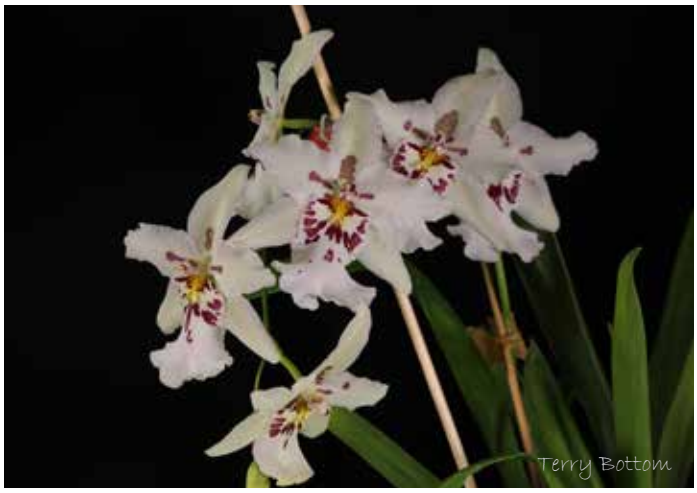


Grower Sue Bottom
Blc. Momilani Rainbow 'Buttercup'



Grower Courtney Hackney
Blc. Mem. Grant Eichler 'Lynette' HCC/AOS

Grower Lois Muller
Colm. Catatante 'Pacific Sunspots' HCC/AOS



Grower Jack Higgins
Dgmra. Mem. Khun Krairit 'Stargazer'

Link to all Pictures. https://flic.kr/s/aHskPqgVN2