

Orchiflora

Volume 8, Issue 5
February 2018

Speaker Series:

February 28 – Sasha Kubichek – ‘Orchids from the Philippines’
 March 28 - Verne Smythe - ‘Native BC Orchids’
 April 25 - TBA
 May 23 - TBA
 June 27 - Alan Koch Gold Country Orchids, Topic to be announced
 September 26 - Roy Tokunaga, H & R, Topic to be announced
 October 24 - Winquing Penner, Topic to be announced

Culture Class, held in the Cedar Room, VanDusen Garden 6:30 pm – 8:30 pm. All orchid related questions are welcome – *culture class is a member's only benefit*

February 13 - Phragmipedium Culture & Care - Don Harquail
 March: 13 – Pests & Diseases - Grant Rampton
 April 10 - First Aid for your rootless orchid - Ingrid Pike
 May 8 – Culture of Dendrobium cuthbertsonii - Wayne Riggs
 June 12 – topic to be decided - Daniel Wong
 October 9 - Lava, leca and lessons learned: A beginners guide to growing in inorganic media and semi-hydroponics. - Jennifer Pell

Upcoming Shows & Sales

Victoria Orchid Society – March 2, 3, 4, 2018
 Our Lady of Fatima Hall 4635 Elk Lake Road Victoria

Vancouver Orchid Society – March 23, 24, 25, 2018
 Floral Hall, VanDusen Garden
 5151 Oak Street,
 Vancouver BC V6M 4H1

AOS Judging:

Pacific Northwest Judging Centre (**PNWJC**) meets every 2nd Saturday of the month. Everyone is welcome to attend and bring their orchids for consideration by the American Orchid Society judges. This is a great opportunity to learn about the judging process and see many orchids of award quality.

2018 Calendar

February 10, 2018 : 11:30am at Sea Island Community Centre, 7140 Miller Road, Richmond B.C.
 March 3, 2018 : 2:00pm after Victoria Orchid Society Show Judging at Our Lady of Fatima Hall, 4635 Elk Lake Drive, Victoria BC

Monthly General Meetings: 4th Wednesday of each month (except July, August and December) at VanDusen Floral Hall; Doors Open 6:30 pm, meeting starts at 7 pm

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President's Message

I've been quite busy the last few months and rounding this week with what should be a new delivery literally anytime now.

Focusing on what is important in your life is a constant challenge and recently I found sometimes orchids can take a back seat. With anything we love however we make sure to nurture and care for them and when the time comes, surround ourselves with their beauty.

Excitedly we can share that beauty with others at our meeting and shows. Speaking of shows the Victoria show is the weekend following our monthly meeting, consider offering your flowering plants in our display there. Ingrid will be happy to take them from the meeting. Our show is also just around the corner and I'm greatly looking forward to it and of course the vendors!

I hope no matter how busy you are, you focus on the good stuff, make the time to care for your orchids and enjoy the beauty they give us, until then happy growing; we'll see you soon.

Ryan

MINUTES of the 24 January 2018 Meeting:

Meeting was chaired by Ryan Young. One new member was present

MINUTES FROM THE LAST MEETING – could not be approved as our last meeting was the potluck and auction.

REMINDERS AND GENERAL BUSINESS - If you haven't already, please pay your annual membership fee.

The Fuchsia and Begonia Club is organizing a bus trip to the Northwest Flower and Garden Show in Seattle on February 7th. The cost is \$115 and includes the bus, entrance to the show and a buffet dinner. Please let Anna know before the end of the month if you'd like to go.

March 3rd and 4th is the Victoria Orchid Society show. Please bring plants to our February meeting for Ingrid to take for our display there.

We will be hosting an event at Gardenworks' three locations the weekend of February 10th. There are morning and afternoon shifts to volunteer for and will include a presentation on orchid and a repotting demo. Plants and media will be supplied. It is a great opportunity to hand out flyers and coupons for our show in March.

There are four missing binders with pamphlets and culture sheets that are missing. If anyone has information regarding their whereabouts, please let Ingrid know.

In preparation for our show please sign up to volunteer. We will be setting up tents outside this year to give us additional space.

Preorder lists have been sent out from Ten Shin and Ching Hua and Ecuagenera's is available on their website if you'd like to order plants for pick up at the show.

The next AOS judging will be on February 10th at the Sea Island Community Centre in Richmond. Members are encouraged to enter plants or simply observe the judging.

TREASURERS' REPORT - The auction at our November potluck brought in \$890 for the Society. The account at Coast Capital was closed and all of our funds are currently at Vancity. We currently have \$30203.02.

CULTURE CLASS – The next culture class will be presented by Don Harquail on the 13th of February. Please note that culture class has moved to Tuesdays this year to avoid holiday Mondays.

SPEAKERS SERIES – Alan Koch and H & R will be coming later in 2018 to speak at our monthly meetings.

SHOW TABLE AND RAFFLE - Judged by Don, Grant and Eugene, 8 plants were awarded from our show table. The raffle was also a success. Thanks to everyone who brought plants!

Executive and Board of Directors

President – Ryan Young

1st Vice President – Margaret Prat

2nd Vice President - Natasha Charif

Treasurer – Judy Buttress and Erik Nilsen (Co-Treasurers)

Secretary – Connor Preston

Directors:

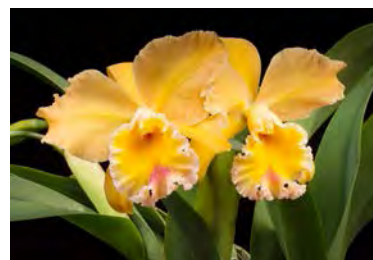
- Grant Rampton
- Eugene Banziger
- Daniel Kwok
- Keith Willet
- Ingrid Pike
- Jennifer Pell

Contributions to the newsletter are welcome.

Please send to Wayne Riggs at:

wayne.riggs66@gmail.com

Article/Photo Submission deadline is the 10th of each month. Items received after this date will appear in the next newsletter.



Additional information for upcoming orchid shows:

Victoria Orchid Society 2018 Annual Show and Sale – March 2, 3 & 4.

Location: Our Lady of Fatima Hall 4635 Elk Lake Road Victoria

Ingrid Price will be taking plants to the Victoria Show for the VOS display. Please bring your flowering plants to our February 28th meeting so she will have lots of color and variety to prepare a nice display.

Show schedule:

Friday, March 2nd - 8:00 a.m. to 12:00 noon - Registration for display plants, display and sales table set-up; 1:00 p.m. to 5:00 p.m. - Ribbon Judging; 7:00 p.m. to 9:30 p.m. - Awards presentation

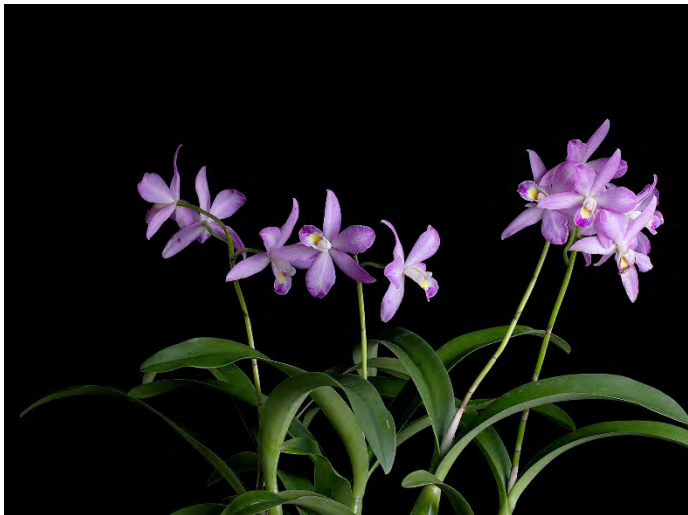
Saturday, March 3rd - 9:00 a.m. until 5:00 p.m. - Open to the public; 1:00 p.m. - AOS Judging

Sunday, March 4th - 11:30 a.m. until 4:00 p.m. - Open to the public; 4:00 p.m. – 6:00 p.m. - Take down of show

Vancouver Orchid Society 2018 Annual Show and Sale – March 23, 24 & 25. VanDusen Floral Hall

We need many volunteers to help us put on a successful show. Please sign up at our next meeting for one or more of the following positions: show set up/ tear down, security, plant hotel, preview night, ask me, ribbon judging, etc.

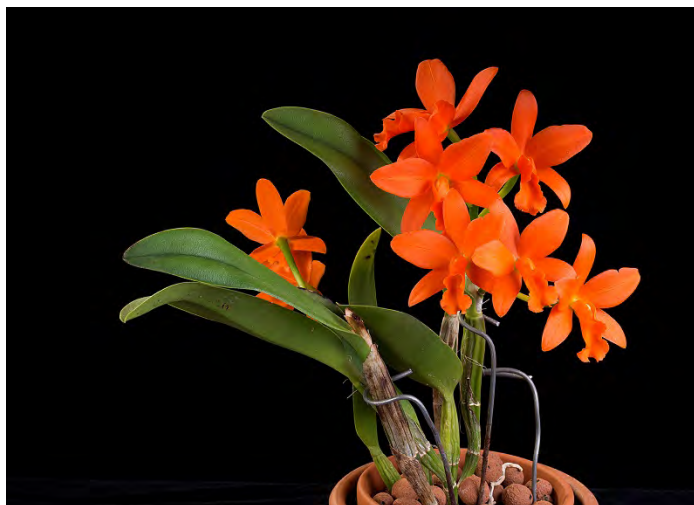
Photos from the January 24 Monthly Meeting Show Table



Rlc Cute Lady 'Christmas Candy'
Flower Quality, Plant culture - Eugene Banziger



Prosthechea Boothiana
Plant culture, Unusual Species – Silvia Fabry



Rhyncattleanthe Young-Min Orange
Flower Quality - Silvia Fabry



Rossioglossum Rawdow Jester
Flower Quality - Richard Pearson



Bulbophyllum Wilmar Galaxy
Hybrid - Barbara Cable



Phragmipedium China Dragon
Member's Choice - Hazel Stewart

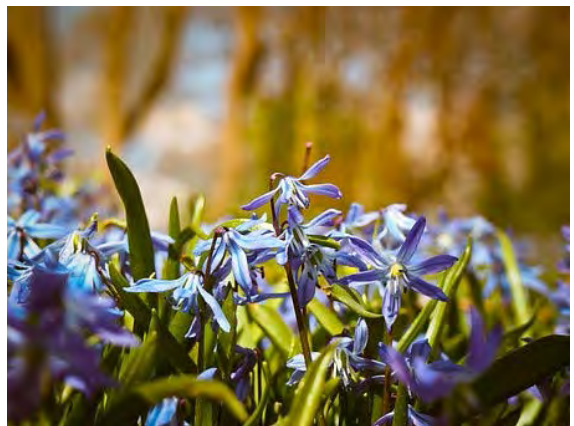
Monthly Show Table Photos –
Continued:



Cymbidium Green Apple
Flower Quality, Plant culture, Hybrid - Peter Zhao



Cymbidium goeringii subspecies tortisepalum
var. lianpan - Daniel Kwok



AOS Western Canada Judging Center - Judging Results - January 13, 2018



Cattlianthe Red Viking 'Tania's Own'
(Cattleya Bonanza (Bracey) x Cattlianthe
Chocolate Drop)

CCM/AOS 81pts (20187050)

Exhibitor: Svend Munkholm



Photographer:

Judith Higham

**please note that all awards are considered provisional until paperwork and payment is processed by AOS and published in Orchid Plus

Appended is an interesting article on calcium deficiency in cattleyas. Reprinted from the AOS Orchids magazine (February 2018).

Calcium Deficiency in Cattleyas

Understanding Orchids with Roy Tokunaga — Part 2

Text by Sue Bottom/Photographs by Terry Bottom

Roy Tokunaga of H&R Nurseries in Hawaii has spent countless hours during his orchid-growing career trying to understand how the best growers grow their orchids, studying the science underlying cultural practices and experimenting with different approaches to test these theories. Here are some of his insights on calcium deficiency in orchids, what can cause it and how to prevent it from occurring.

YOU ALREADY KNOW that calcium is an essential nutrient required for optimal growth of your orchids. Calcium is absorbed through the roots and moved upward through the xylem (water transport system) via the transpiration process. It increases cell wall thickness and strength, among other things, as well as a plant's resistance to fungal and bacterial disease. The plant requires calcium the

most during periods of active growth, while it is building new tissue. It must be supplied to the plant in proportion to its growth rate. Calcium is mostly immobile in the



Sue Bottom

phloem (food transport system) so the plant cannot translocate it from the older growths to the newer growth, unlike some of the other essential elements. An easy way to supply calcium to your plants is through water-soluble calcium-bearing fertilizers or calcium nitrate applications. Many growers use media supplements, including dolomitic lime (which supplies magnesium as well as calcium), gypsum (calcium sulfate) and calcium carbonate supplements (such as egg shells and oyster shells).

The most obvious sign of the deficiency is rapidly expanding tissue which becomes necrotic, such as a newly forming leaf or pseudobulb. Do not mistake this damage for black rot caused by water molds just because it is black and the tissue looks like it is rotting. Black rot is a fast moving disease that often starts at the base of pseudobulbs and moves upward through the plant, killing within days. The necrotic tissue from calcium deficiency slowly continues to blacken. It is unsightly but not fatal to the plant. If you have been supplying enough calcium to your orchids in your fertilizer program but are still seeing signs of calcium deficiency, there is some other cultural issue for you to diagnose and correct.

The plants in my greenhouse receive lots of calcium in their diet, from what is naturally present in the water as well



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- [1] Despite using a Cal Mag fertilizer and other calcium supplements, black necrotic tissue at the leaf tips, often with a yellow halo, is suggestive of calcium deficiency that occurred through the growing season.
- [2] Roy Tokunaga of H&R Nurseries, dedicated to mastering the art of orchid growing.

as Cal Mag fertilizer and calcium nitrate applications. Despite the high calcium diet, there were still black leaf tips on cattleyas during the growing season, a characteristic sign of calcium deficiency. I suggested to Roy Tokunaga, who was visiting on a speaking tour, that it was impossible for my plants to have a calcium deficiency. Roy, if he had been wearing his deerstalker hat, might have said (to quote Sherlock Holmes [Doyle 1890]) "once you eliminate the impossible, whatever remains, no matter how improbable, must be the truth." Instead, Roy just smiled and proceeded to explain how a damaged root system, an accumulation of salts in the root zone or inadequate hydration can all impede calcium uptake.

ROOT DAMAGE Despite your best efforts to supply sufficient calcium, your plants can still suffer from deficiency if something interferes with the uptake of this critical element. Calcium is mostly absorbed through the roots so a compromised root system can easily manifest itself in signs of calcium deficiency. Root function can be disrupted for many reasons. One of the most common causes of root damage is the repotting process itself, particularly when orchids are repotted when new roots are not actively forming. The older roots are damaged in the repotting process and the plant must send out new roots to stabilize. Chewing pests such as snails and roaches can eat the tender new root tips. Once damaged, the roots need to regrow before the plant will stabilize and be able to absorb water and nutrients. A waterlogged potting mix can suffocate roots. Waterlogging does not occur as a result of overwatering per se; it occurs when there is insufficient air around the roots because the potting mix is too fine or the organic matter has degraded and compacted around the roots.

SALT BUILDUP As long as the concentration of salts in the potting media is less than that inside the root, water is pushed into the root by osmotic pressure, which is termed "root pressure." Salts naturally present in your water supply or added by fertilizers can build up in the potting mix from the repeated wetting and drying cycles. Organic matter, such as peat and sphagnum moss, tends to retain salts. Unless flushed from the pot, high salt levels can build up to unsafe levels so that water will tend to move out of the root rather than into the root. The root damage might be obvious; roots look stunted and may have brown markings. A sure sign of excess salts is when the root



[3] Just because it is black and appears to be rotting, do not mistake the signs of calcium deficiency for the fast-moving summer rots from excess leaf wetness (shown here) or the deadly black rot from water molds.

looks fine until it touches the clay pot or top of the media and then blackens.

INADEQUATE HYDRATION Calcium uptake is directly related to the transpiration rate, the process by which most of the water absorbed by the roots is pulled upward through the vascular tissue and ultimately evaporated from the stomata (openings) in the leaves. Plants that are not transpiring at a high rate do not take up large amounts of calcium. One adaptation to an epiphytic lifestyle is a thick cuticle with few stomata to limit water loss. Cattleyas and other CAM (Crassulacean Acid Metabolism) orchids have adapted to a xeric environment by keeping their stomata closed during the day, only opening at night when temperatures are a little cooler and humidity is higher, in an effort to prevent

water loss. When humidity is very low, the stomata may remain closed both night and day, in which case transpiration cannot occur, severely limiting the amount of calcium that can be absorbed. If grown under too dry conditions, there may not be enough moisture taken up by the roots or that can be robbed from adjacent cells for there to be a continuous flow of water from the roots to the leaves for transpiration. A strong transpirational pull is essential for calcium uptake.

EXCESS PHOSPHORUS Different cations (positively charged ions, such as calcium and magnesium) can compete for uptake. High phosphorus levels have been found to increase die-back symptoms in cattleyas (Poole and Sheehan 1970, 1973) because excess phosphorus is antagonistic to calcium absorption by the root system.

The phosphorus level of 100 ppm used in their experiments to induce leaf-tip die-back is more representative of what might be expected when using bloom booster fertilizers, those with a high middle number in the fertilizer formula. Phosphorus can react with calcium to form insoluble calcium phosphate rendering both unavailable to the plant. As long as you are not using bloom boosters too frequently, or acidifying your water with phosphoric acid, excess phosphorus levels are probably not a concern for the orchid hobbyist. To a lesser extent, potassium and some other nutrients can be antagonistic to calcium uptake but this would not be expected to occur with most fertilizer formulations.

HIGH TEMPERATURES In their article, "Leaf-Tip Die-Back of Cattleya — What's the Real Cause," Poole and Sheehan (1973) postulate that unusually high temperatures in the absence of the cooling effects of frequent watering can interfere with calcium uptake:

"Several factors must therefore be present in order for die-back symptoms to occur. First, the plant must be in active vegetative growth, especially the stage of rapid leaf expansion, which would require high light intensities, good fertilization and warm temperatures. Second, temperatures surrounding the root system must be higher than normal. The epiphytic medium can be expected to reach temperatures comparable to the high air temperatures of a greenhouse during the summer months unless some control of root temperatures is used, such as more frequent watering. However, any cultural factor that would injure the roots and affect their capacity to absorb calcium during periods of active vegetative growth could in itself induce calcium deficiency without high root temperatures. Third, the degree of susceptibility is dependent upon the genetics of the plant. We have noted symptoms on *Cattleya* hybrids, *Epidendrum anceps*, *Stanhopea* species and possibly *Vanda* from which we did not take tissue samples." (p. 229–230)

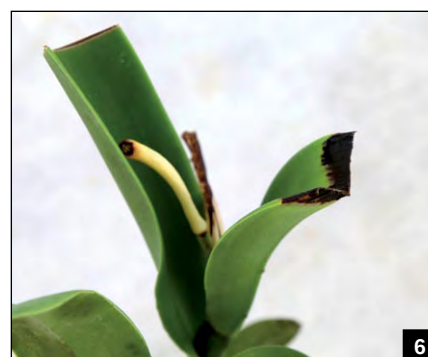
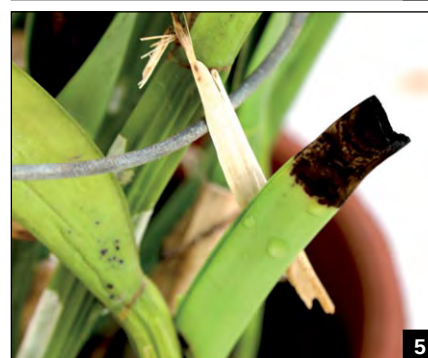
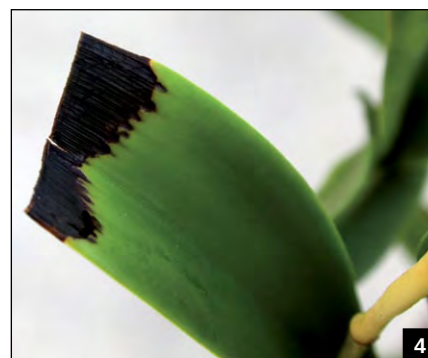
LESSONS LEARNED Roy is not the kind of guy who walks into your growing area and tells you what you are doing wrong. He does not like to make a diagnosis based on a simple visual impression after a walk through, but his powers of observation are keen and after much discussion, he offered his opinion as to why some of my cattleyas were suffering from calcium deficiency despite their high calcium diet. The verdict: inadequate hydration compounded possibly by inadequate

flushing of salts from the pot. Some of the roots on the plants with calcium deficiency symptoms looked stunted, and perhaps the problem was exacerbated when the potting medium was too dry during an extraordinarily hot July.

The contrast between my plants grown under cover in the greenhouse and those grown in the new shade structure without a roof was significant. Both receive the same fertilizers but shade structure plants were better hydrated from the morning dews and summer rains, which also helped flush excess salts. Plants growing in the shade house were also cooler in the heat of the day than those in the greenhouse because of the more buoyant air movement and more frequent watering schedule. These cattleyas are potted in an ultra-coarse, freely draining mix to be able to withstand a week of rainy weather during the tropical storm season.

Roy's suggested solution was pretty simple: adjust the watering practices in the greenhouse. Roy recounted advice from his mentor, Wilbur Chang, who recommended an initial watering followed by a second, more thorough watering an hour or so later, to mimic the water uptake that might occur in a gentle rain. The velamen surrounding the roots has an opportunity to change from the hydrophobic state in which the velamen functions to limit water loss to the hydrophilic state in which it swells and absorbs moisture like a sponge. Dycus and Knudson (1957) documented how orchid roots absorb moisture the fastest during the first 90 minutes after immersion in water, and then continuously, though at a decreasing rate, for the next seven days. Even though I water frequently, it is possible that not enough moisture is retained in the coarse mix after a single watering pass. The double watering step not only helps hydrate your plants, it also helps leach salts every time you water, similar to the practice recommended by Bergman (2004) in his excellent article about leaching salts from the medium. The more dissolved solids are present in your water, and the more organic matter in your mix, the more critical it is to leach salts away from the roots to prevent salt toxicity. Roy had another suggestion: consider top-dressing the pots with sphagnum moss or cypress mulch — anything that will retain moisture in the top of the pots that the plants can use to keep the roots a little cooler and better hydrated during the hot summer months.

These two changes, double watering and top dressing cattleyas after repotting,



[4–6] Black leaf tips plagued me all summer long; the necrosis just kept moving down the leaf even after cutting damaged tissue away.

were instituted immediately. The growth response from double watering was impressive with the plants just looking happier. The next growing season confirmed that the combination of healthy, hydrated and cooler roots in addition to a high calcium diet prevented the young cattleya leaf tips from turning black.

Orchid growers spend a lot of time worrying how best to supply proper nutrition to their plants. Not only do you have to give them enough calcium, you need a healthy root system which can absorb that calcium. There must be sufficient moisture available for calcium ions to move upward within the plant with the transpiration stream. Once again, we are reminded that it is *all about the roots*. A healthy root system is the key to your orchid growing success.

Acknowledgments

Many thanks to Roy Tokunaga, for all his knowledge so freely shared with orchid growers of all levels of experience. This article is a summary of his insights in diagnosing and correcting cultural problems.

References

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— Sue Bottom started growing orchids in Houston in the mid-1990s after her husband Terry built her first greenhouse. They settled into St. Augustine, Florida, Sue with her orchids and Terry with his camera and are active in the St. Augustine Orchid Society, maintaining the society's website and publishing its monthly newsletter. Sue is also a member of the AOS Editorial Board (sbottom15@gmail.com).



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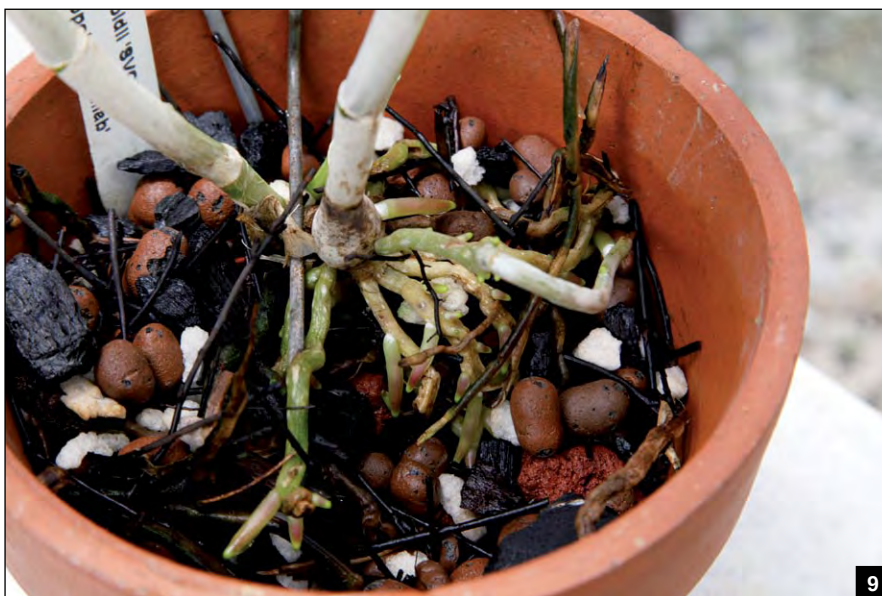


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[7] Catasetums are heavy feeders, so they get both water-soluble and timed-release fertilizers. Even though they are flushed by summer rains, look at the salt accumulation on this pot after a single growing season. If you see salt deposits on the outside of your clay pots, you can assume the roots on the inside of the clay pot are also exposed to a high salt content. Flush!

[8] Roots should be a uniform white when dry with nice green (or sometimes reddish) root tips, not these stunted roots that have brown discoloration.

[9] The damaged roots on this bifoliate cattleya are just starting to regrow. You can see the branching rootlets emerging from the older roots.



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