



sarasota orchid view society

UPCOMING MEETINGS:

**May 2—Jim Roberts—
“Summertime and
the Growin’ is Easy”**

**June 6—Phillip Hamil-
ton, Broughtonias**

July—No Meeting

**August 1—Alan Koch,
Gold Coast Orchids—
Miniature Cattleyas
for the Home**

**September 5—Annual
Picnic**

**Meetings are on the 1st
Monday of each month.
Doors open at 6:15 pm.
Cultural Study Group
starts promptly at 6:30 pm.
Regular meeting starts at
7:30 pm.**

**Marie Selby Botanical
Gardens, 801 South Palm
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[www.sarasotaorchidsoci-
ety.org](http://www.sarasotaorchidsoci-
ety.org)**

Monthly Checklist for May and June

Cattleya

The last of the spring-flowering types -- those that flower from a ripened hard pseudobulb -- will be finishing, while the first summer-blooming types will be showing buds on their rapidly growing, soft pseudobulbs. Both may need potting, as signaled by deteriorating mix, this month.

The spring bloomers present no problems, as you will be dealing with fully ripe, well-hardened pseudobulbs. They will be ready to root on the mature front pseudobulb and will establish quickly. The summer bloomers, will be brittle and may be in bud. Nonetheless, experienced growers know that unless



potted now, they may not root later, as this type tends to be seasonal in its rooting behavior. Stake the lead growth to avoid breakage. May can still present some changing light conditions that can lead to burning of the foliage if the plants have not been properly acclima-

tized. Allow them to build up their tolerance to higher light gradually. Changing light and temperatures can also be the source of some frustration when trying to determine when plants need watering. While cattleyas will be entering into a period

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ORCHID VIEW is published monthly by the Sarasota Orchid Society and is available to members in either printed or digital format.

**2011
May**

The Sarasota Orchid Society Inc.

(SOS) meets on the first Monday of each month at Selby Botanical Gardens, 800 South Palm Ave., Sarasota, FL. The SOS Inc., an affiliate of the American Orchid Society, is a nonprofit association with the aims of promoting the development, improvement and preservation of orchids through the dissemination of information concerning the culture, hybridization or development of orchids; and generally to extend the knowledge of orchids.

Annual dues are \$20; \$25 for family. Deadline for the newsletter is the 15th of the previous month.

Contributors to this newsletter give reprint rights of their work to newsletters and other affiliates of the American Orchid Society.

www.sarasotaorchidsociety.org

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JOIN THE AOS

If you are not a member of the American Orchid Society, let me briefly tell you about the premier organization devoted to our hobby. The AOS is the world's largest specialty horticulture group and offers information not available elsewhere. The monthly magazine, *Orchids*, is the most highly-regarded orchid periodical in the world. The photography and articles are outstanding. Membership entitles you to a 10% discount on publications and your dues support conservation and educational programs. As a new member you will receive a copy of *Your First Orchid*, a book chock full of advice and an *Almanac* listing all affiliate organizations (Florida has the most with 58), growers, special interest groups, descriptions of awards, and many more resources. Membership forms are available at the sign-in table for anyone who needs one.

The AOS also publishes the *Awards Quarterly (Now on CD AQ Plus)*, with detailed descriptions of 200-300 awarded orchids with color photographs. I eagerly await mine every three months.

Dues are U.S. single membership \$60.00; for a 2 year membership \$108.00. American Orchid Society, 16700 AOS Lane, Delray Beach, Fl. 33446

Monroe



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SHELTON A. THORNE

UPCOMING SHOWS

April

2-3—Central Florida Orchid Society Show,

Maitland Civic Center, 641 S. Maitland Ave., Maitland, FL

16-17—Tallahassee Orchid Society Show,

Doyle Conner Bldg, 3125 Doyle Conner Blvd., Tallahassee, FL

22-23—Vero Beach Orchid Society Show,

Riverside Park Dr., Vero Beach, FL

23-24—30th Anniversary Orchid Show & Sale

Flamingo Gardens
3750 S. Flamingo Road
Davie, FL 33330

29-May 1—Platinum Coast Orchid Society Orchid Show,

Cocoa Expo Sports Arena, on SR 520, just west of I-95, Cocoa, FL

May

6-8—Tampa Bay Orchid Society Show,

Egypt Shrine Center, 4050 Dana Shores Dr., Tampa, FL. Contact: Patty Cartwright; pcartwright@earthlink.net.

7-8—Volusia County Orchid Society Show,

Volusia County Fairgrounds, Hester Building, 3150 E. New York Ave., Deland, FL. Contact: Jennifer Reinoso; 58 Fernwood Tr., Deland, FL

13-15—Redland International Orchid Festival,

Redland Fruit & Spice Park, Homestead, FL. Contact: Bill Peters, PO Box 924243, Homestead, FL 33092; (305) 242-1333; whimsy@bellsouth.net

27-28—Greater Orlando Orchid Society Show,

Orlando garden Club, 710 Rollins St., Orlando, FL. Contact: Joy Prince, dp691955@aol.

October

1-2—Florida West Coast Orchid Society Show,

Minneg Hall, 6340 126th Ave. N. Largo, FL. Contact: Brent Finck, 2961 La Concha Dr.,

Clearwater, FL 33762; (727) 460-4606; brent@irbhardware.com.

15-16—Gainesville Orchid Society Show,

Kanapaha Botanical Gardens, Gainesville, FL. Contact: Candace Hollinger; drahcir7@bellsouth.net.

21-23—*Orchtoberfest, Power Plant/EFG Orchids,

4265 Marsh Rd., Deland, FL. Contact: George Hasuermann; (386) 738-8600; powergrown@aol.com.

For members who are receiving the newsletter by mail, you are missing out on some wonderful color pictures taken during the year in our newsletter.

If you have computer access and are getting the newsletter by snail mail, you can switch and save the Society \$7.00 per year per person.

Please contact me and I'll be glad to add you to our e-mail list.

Carolyn Langdon
carolynlangdon@tampabay.rr.com

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LET'S TALK ABOUT SALES
The vendors who lecture at our meetings take their valuable time and effort to educate us on orchid culture. In turn, they ask us to buy their plants which they bring to sell at our meetings.

We know that there are lots of places to buy orchids in our area but as members of SOS, we should really make a point of patronizing the speakers and advertisers when we buy new plants.

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HELPING HAND HOME SERVICES

"May" from page 1

of rapid growth starting this month, they have still not built up sufficient momentum to be significantly slowed by your missing a day or two of watering owing to dark weather. As always, it is safer to err on the dry side than on the wet. It is important, though, especially to the summer bloomers. Too much shade will cause rapidly developing inflorescences to droop unattractively.



Paphiopedilum

The *Paphiopedilum Maudiae* types will be well into their season now, so a careful eye should be used toward stak-

ing. Do not be too anxious to stake, however. Many of this type, if staked too soon, will develop nodding flowers that do not face the observer. It is better to allow the flowers to ripen naturally, then support the spike right below the ovary for best display. This is especially common in *Paphiopedilum fairrieanum*-derived hybrids. If you have to do something when you first see the emerging spikes, just put the stake in the pot next to the spiking growth. Not only will this help you, but you will be able to see where the spikes are, so you can continue to pay attention to their development. The multifloral types will be entering their most active growth phase, so lots of light, water and fertilizer are called for to mature their large growths. Many will be spiking in the next couple of months, so be on the lookout for the emerging inflorescences. These may benefit from earlier staking than most, as the inflorescences grow so quickly

in some cases that they can be quite soft. Again, best support is right below the ovary of the first flower. This will allow the most natural presentation of the blooms.



Phalaenopsis

Except for the latest-spiking plants, all phalaenopsis should be ready for potting or already potted. Because phalaenopsis are tropical plants, they tend to be seasonal in their rooting behavior. The critical point for potting is when new roots emerge from the base of the plant. This is absolutely the best time to repot a phalaenopsis. The summer-flowering types, based on *Doritis* background, have ideally already been potted

and are becoming freshly established, ready to support their soon-to-emerge spikes for the summer season. *Phalaenopsis* potted at the right point in their growth cycle will reestablish almost immediately, with fresh roots growing into the new medium nearly uninterrupted. As soon as the flush of new root growth is seen, begin regular watering and fertilizing to make maximum use of the major growing season. Do not get over-exuberant with your watering, though, allowing water to splash between plants. This can be a source of infection for both water-borne pathogens and viral contamination. *Phalaenopsis* are much more susceptible to virus than was previously thought. Take extra care to keep your collection free of bacterial and viral problems, which you can accomplish by maintaining a clean growing area.

AOS thanks Ned Nash for this essay .

Joan Adams

IT is with sadness I report I received a phone call from Juanita Goolsby letting us know of the peaceful passing at 11:30 am, Tuesday April 5th, of *Joan Adams* who devoted many years to the betterment of the Sarasota Garden Club. Missy, Juanita, and close neighbors were with her providing peaceful comfort in her final hours. She was our friend, an active member, club benefactor,

and strong believer in our cause. She became a member in 1997 with Orange Blossom Circle. She was known for her cook books, menus, service as treasurer of SGC and instrumental in the development of the SGC Finance Office. She catered countless meals for SGC events. She was in the midst of finishing another cook book supporting the Orange Blossom Community Gardens which is an adjunct of SGC. We are grateful for her long hours at the SGC. She will be greatly missed

by all those who knew her. At Joan's request there will be no services. Please send condolences to Gail Harvey, 1965-17th St., Sarasota 34234 or Juanita Goolsby, 5906 N. Shade Ave., Sarasota 34243.

*God Bless her memory,
Andy Papineau*

SHE was still a supporter of SOS even if she couldn't attend meetings anymore. She always had me buy her raffle tickets each month and added to her collection often that way. She was so excited

to win Stig's painting at our last show. What joy she had when I delivered it to her that Sunday afternoon.

She is the one that encouraged me to join SOS and help cultivate my interest in orchids. She was on the refreshment committee for 3 years and worked to help plan the food for at least 3 flower shows. It was a pleasure to work with her and be considered her friend.

*With a sad heart,
Kay Weber*

Extinction in our own Back Yard

Lawrence W. Zettler explains the struggle to save a North American terrestrial orchid.

Below: *Platanthera integrilabia* in its native habitat. Locally common on the Cumberland Plateau of Tennessee and Kentucky until about 1950, the species suffered from over collecting after botanists first wrote of its unique taxonomic identity. Thousands of individuals were known to flower during mid-August in dense masses deep within shaded swamps. Today, only one such great population is known, and it serves as relict reminder to those who dream of the past when botanists first encountered it.

AS THE HUMAN SPECIES CONTINUES to multiply rapidly and search for food, shelter, and a better way of life, many orchid species will continue to be lost forever as their habitats fall victim to development. Most people associate this loss of habitat with the tropics, where most



Platanthera integrilabia in its native habitat.

Photo by: Thomas G. Barnes @ USDA-NRCS PLANTS Database
USDA, NRCS. 2011. The PLANTS Database (<http://plants.usda.gov>, 18 April 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

of the showy orchids reside, high in the canopies of giant trees. Few realize that many temperate terrestrial orchids will also be lost to human development, especially those species native to sensitive areas.

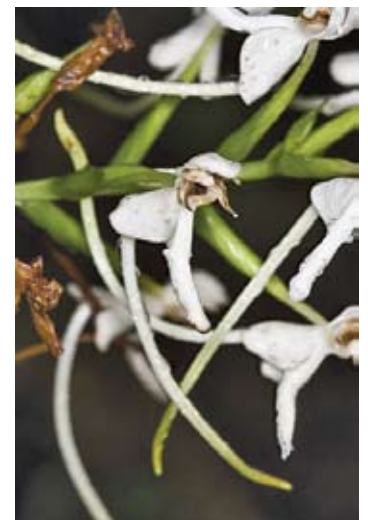
When I came to Clemson University as a graduate student in 1988, my advisor at the time, John Fairey, PhD, encouraged me to study a little-known orchid that was currently listed in South Carolina as endangered. The species was known locally as ole monkey-face, an apt

description for the appearance of its flowers when viewed from the front. To the scientific community, it is known as *Platanthera integrilabia* (Correll) Luer. Locally common on the Cumberland Plateau of Tennessee and Kentucky until about 1950, the species suffered from over collecting after botanists first wrote of its unique taxonomic identity. Thousands of individuals were known to flower during mid-August in dense masses deep within shaded swamps. Today, only one such great

population is known, and it serves as relict reminder to those who dream of the past when botanists first encountered it.

My first meeting with ol'e monkey-face came on a mountain top in upper South Carolina, where a wonderful sweet-smelling scent led me to a lone-flowering specimen among dense vegetation. Among terrestrial orchids, *P. integrilabia* is unique. Its white flowers, long-curving nectar spurs, fringeless lip and pleasant fragrance mesmerize the beholder, and much like the smile of Mona Lisa seduces its admirers. Like most terrestrial orchids, the display is brief, lasting less than a month. Since that first encounter, I have visited nearly a dozen populations throughout the southern Appalachians.

Soon I understood why the species was threatened with extinction. At two populations, housing developments were just a stone's throw away. At another, cows walked and grazed in a fenced-in bog. At a population seemingly



Detail of flowers of *Platanthera integrilabia*.

Photo by Brad Wilson, DVM



inaccessible to human activity at the bottom of a 900-foot gorge, kudzu (*Pueraria lobata*) lurked nearby with its rapidly advancing vines less than 100 feet away. And at the largest remaining population in a national forest in Tennessee, collectors and nearby logging threaten large numbers of plants. I once counted more than 200 flowering specimens toppled, and their root systems removed destruction which can be attributed to feral hogs. I was discouraged to find so many human-induced factors threatening the species. My conscience could not let me blindly study a species' biology without making some effort to save it from extinction.

Developing a Strategy

The following fall semester, I enrolled in a mycology course taught by my current advisor, Tom McInnis, PhD. For my class project, I decided to study some aspect of mycology while linking it with *Platanthera* research. I had read that orchids harbor symbiotic (mycorrhizal) fungi within their root systems, and that this symbiosis is required in nature for seed germination and development. What I failed to realize, however, was that little was known of orchid mycorrhiza for terrestrial orchids native to the United States. An extensive literature search revealed that the isolation of such fungi was tricky, because some orchid species were better candidates at yielding fungi than others. Even if a cooperative orchid was

selected, one had to know where in the root system to look, and one had to distinguish between authentic mycorrhizal strains, and "trash" fungi that serve as saprophytes in nature, with little or no (known) benefit to the symbiosis. As it turned out, *P. integrilabia* was an excellent species to work with in terms of yielding what looked to be good mycorrhizal candidates. If these were truly symbiotic strains with *P. integrilabia*, then in theory, such fungi should be capable of germinating seeds of the species *in vitro*.

According to Australian, Canadian and European literature, the preferred method for symbiotic seed germination (inoculating orchid seed with mycorrhizal fungi *in vitro*) is to place surface-sterilized orchid seed on a low-nutrient medium, followed by the introduction (inoculation) of the fungus. Most researchers find that simply adding rolled oats (such as those eaten for breakfast) to agar in a Petri dish provides a suitable medium for germination and development if the seeds are inoculated with the right fungus. In this manner, the fungus is believed to transfer carbohydrates (from the oat endosperm) to the "hungry" embryos that normally lack a food source of their own. During my first attempt at seed germination on such a medium, I placed the Petri plates in darkness at room temperature and waited for something to happen. After about two weeks, I examined the seeds and noticed that some were slightly larger

than the others, about the size of the head of a pin. Observing the seeds under a dissection microscope revealed many of the seed embryos had broken their seed coats and appeared to be growing.

Future Prospects

This work led to a PhD dissertation. After receiving funds from the American Orchid Society's Conservation Committee, I repeated the experiments and even displayed some of the plates to the South Carolina Orchid Society in Columbia. One guest at the meeting remarked sarcastically, "That's nice. But you do realize that just because they've germinated *in vitro* doesn't mean you'll get them to survive on their own in soil." I was challenged by the remark and even more determined to succeed. But he was right. Most orchid seedlings in sterile conditions do not survive transfer into the real world where they are subjected to pathogens and herbivores. After illuminating the seedlings (protocorms) under a 16-hour photoperiod, I transferred them to tiny aluminum dishes that held sterilized soil that was later inoculated with the same fungus responsible for germination. This would allow the young protocorms slowly to become acclimated to soil conditions before any pathogens had a chance to establish themselves. The dishes were then placed in a greenhouse bog complete with a misting system to simulate the species' natural habitat. The next year, some

of the protocorms grew basal leaves several inches long. Then, it looked like this terrestrial orchid might avoid extinction. Currently, I am finishing work on my advanced degree here at Clemson. We have since propagated *Spiranthes cernua* using the same methods and are even attempting to germinate seeds of small whorled *Pogonia* (*Isotria medeoloides*), which is listed as an endangered species by the U. S. Government. Following their identification, we also plan to donate our fungi to a mycological supply company so that those interested in propagating these or similar terrestrial orchids may continue to do so. And as for the *Platanthera* seedlings, they will likely be given to the state of North Carolina, which no longer harbors an extant, naturally existing population within its borders. Hopefully, one day, the species can be reintroduced into other areas, in numbers that will restore ole monkey-face to its former glory.

Lawrence W. Zettler, son of plant virologist F. William Zettler, PhD, received his BSc in entomology at the University of Florida, Gainesville, and PhD in Plant Physiology from Clemson University and is currently Professor of Biology at Illinois College in Jacksonville, Illinois.

Originally Published in the American Orchid Society Bulletin June 1994

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chid Research Program which promotes and supports active research programs and the publication of orchid research projects, performed by active members of the Sarasota Orchid Society. The purpose and definition of orchid research is to further the understanding, conservation and appreciation of orchids and their role in Nature and in cultivation.

This Orchid Research Program will encourage people who may have a more scientific interest in orchids to become members of the S.O.S., both to participate in the regular meetings and activities, and hopefully to become involved in future research programs. The orchid research activities will create publicity and goodwill for the Sarasota Orchid Society, help reach a broader audience with information regarding the S.O.S. and also offer greater credibility of the

Sarasota Orchid Society's non-profit status.

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SOS Customized Merchandise available online during the month of April, at a 10% discount!

As we SWING INTO SPRING, see directions at left, go to the top of our Home Page and find S.O.S. Customized Merchandise, All orders received April 1st through April 30th are eligible for a 10% discount. SOS Members must type in the Code Word: **getyourten** (all lower case and one word) at the bottom of the shopping cart page in the "Coupon Box". The Code Word must be in the Coupon Box or the system will not recognize the order as eligible for the 10% discount. A Sweet Saving as we Swing into Spring!

Beginner's Series
Orchid Culture—
Fertilizing

Stephen R. Batchelor

Soluble salts are at once a bane and a blessing in orchid culture. They can be present in dangerously high concentrations in water supplies and potting media, and yet they are what constitute conventional fertilizers. Since opposite charges attract, negative and positive ions in solution come together to form a salt when the water is removed (by evaporation). Salt deposits can be a nuisance on leaves, a peril near roots. Conversely, when water is added to a fertilizer's soluble salts, they dissolve into their component, negative and positive nutrient ions.

While of some nutritional value, water supplies with a high ion content can cause the orchidist difficulty. Dr. O. Wesley Davidson, in his discussion entitled, "Quality of Water and Orchid Culture" in the Handbook on Pests and Diseases (Davidson, 1978, page 39) defines water quality in terms of electrical conductance, a measure of total soluble salt content. Salts form readily on surfaces with the evaporation of waters high in soluble salts. "Hard" waters, waters high in calcium and magnesium, leave a whitish residue, particularly on leaves (see illustration). Likewise, waters high in soluble iron leave orange-colored deposits. In



these instances, care should be taken to avoid wetting the leaves; misting or syringing should be excluded. In the repetitive process of drying, potting media can accumulate salts. Using a water supply with a high ion content can lead to salty media. Heavy and frequent fertilizing can have the same effect. Areas of salt accumulation usually have a lighter, crusty look. Clay pots tend to build up tremendous salts on their inner surfaces, because their porosity encourages water to evaporate, leaving the salts behind. Roots coming into contact with these regions high in salts will encounter the overwhelming osmotic draw described in the last article of this series (Orchid Culture — 7 — Nutrition, September 1981 BULLETIN, pages 1087-1091), and are likely to turn black, at least at the tips. "Leaching", or flushing with water, is often recommended to retard this build-up of hazardous salts. Quantities of water help dissolve existing salt residues, but in cases of heavy



accumulation repotting with fresh media may be necessary. Clay pots require soaking and a vigorous cleaning to remove residues before sterilization and re-use.

FERTILIZERS

Fertilizers differ according to their formula, a three-figure designation indicating, from first to last, the percentage of "total nitrogen (N)", "available phosphoric acid (P2O5)" and "soluble potash (K2O)". These are the terms used to express the content of those three essential elements a plant is least likely to obtain on its own in quantities sufficient for good growth and flowering (see previous article of this series). Consider the "Guaranteed Analysis", required on all fertilizer labels, for an "Orchid Special" 30-10-10 water-soluble fertilizer, the type recommended for cattleyas in bark mixes. Total nitrogen is 30% of the fertilizer, as indicated by the first figure of the formula, and is listed in three forms: nitrate nitrogen (NO3~), the form most readily absorbed by plants, is a fraction over 3%; ammoniacal nitrogen (NH4+), next in terms of availability, is slightly over 2%; and urea nitrogen [CO(NH2)2], least immediately available of the three, composes nearly 25% of the total 30% figure. Available phosphoric acid is 10% of the fertilizer, as is soluble potash. But in what form are nitrogen, phosphorus and potassium provided?

Listed below on a 30-10-10 fertilizer label are the "primary plant nutrient sources". Synthetic urea, first on the list, is considered

an "organic", or complex, slower-release source of nitrogen. It is simplified through the influence of water and microorganisms into NO3'. Ammonium phosphate (NH4H2PO4) is the next fertilizer ingredient listed, and is a source of



nitrogen and phosphorus for plants, dissolving into NH4+ and H2PO4- ions in water. The third and last ingredient of a typical 30-10-10 water-soluble fertilizer is potassium nitrate (KNO3), a soluble salt offering, as is evident, potassium and nitrogen in readily available form.

Composed of soluble ingredients, water-soluble fertilizers do just that — they dissolve in water and are then applied. More conventional "dry" fertilizers used around the yard are never recommended for orchids. If applied without water as a dressing on a porous, relatively unabsorbent bark mix, a granular fertilizer would in all likelihood create conditions of devastating osmotic turmoil, resulting in the "burning" of roots and tissue. Any fertilizers, granular, slow-release pellets or otherwise, which are not applied with copious amounts of water, should be considered risky in terms of epiphytic orchid culture for



this reason.

Of the water-soluble fertilizers, there are offered on the market an array of formulas: 30-10-10, 20-20-20, 10-30-20, and others. The 30-10-10 formula, high in nitrogen, as mentioned earlier is used with woody mixes, essentially to provide enough nitrogen for both the orchids and the decay organisms in the mix (see discussion in Orchid Culture — Nutrition). The nitrogen is typically provided in both available (simple) and unavailable (complex) form. An orchid will absorb what it can of the readily soluble NO₃⁻, while the microorganisms present in the mix can simplify the more complex urea compounds. Fertilizers with an even ratio of nutrients, such as the 20-20-20 formula, are recommended for orchids growing in media not particularly woody in nature, such as tree-fern or osmunda. Nitrogen is not needed in superabundance when there are not countless extra mouths to feed! Nitrogen, phosphorus and potassium, as previously discussed, are all vital in some way to the growth process. To provide nitrogen to build new tissue, for example, without the phosphorous needed to convert and supply the energy necessary to do so, is of little use, possibly

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even counterproductive. The same applies with potassium, though it is more readily translocated from existing tissue to regions of greatest demand in plants.

Fertilizers proportionally high in the last two figures of the formula, such as a 10-30-20 "Blossom Booster", as it has been called, are purported to encourage flowering. However, since all three elements are involved in growth, any one of the three can be the limiting factor in terms of growth when provided in the least amount, leading to the accumulation of food reserves needed for flowering. In the case of a 10-30-20 fertilizer, nitrogen would be the limiting factor. Under these circumstances, what an orchid would do with the extra phosphorus and potassium, I cannot say. All these formulas aside, the best guarantee for satisfactory flowering: is a healthy

orchid, one not limited, or overfed, with any one essential element. Once these nutrients are adequately provided, light and temperature deserve far greater concern when it comes to flowering (see Orchid Culture—Light and Temperature). My recommendation to those beginning in orchids is to stick to the basic, and sufficient, 30-10-10 (3-1-1 ratio) or 20-20-20 (1-1-1 ratio) water-soluble fertilizers, using only one or the other depending on the media used. (For a contrary point of view, see Wilcock, 1973). So-called "organic" fertilizers, such as fish emulsion with a 5-5-1 analysis, contain nutrients in complex, organic form at low concentrations. These organic compounds, again, have to be reduced to the simple, inorganic ions before they can be absorbed by plants. Purchasing a smelly material low in nutrients in

complex, unavailable form, when for a similar price one can buy nearly twice as much of an "inorganic" fertilizer, high in both available and unavailable nutrients, does not make economic — or biological — sense, in my opinion.

HOW MUCH AND WHEN TO FERTILIZE

Orchids are comparatively slow-growing plants. But like most plants, they are composed of more than 90% water. For these reasons, orchids do not require high amounts of fertilizer. Not to be disregarded, however, are the fungi within woody media which are fast-growing and demanding, particularly of nitrogen.

It is only logical that orchids have a greater demand for nutrients when in active growth. Conversely, during periods of little growth, less fertilizer and water are needed. Micronutrients present in the water supply and the media are almost always sufficient for orchids, even when actively growing. The macronutrients calcium and magnesium are also usually available in adequate quantities in the water supply. In contrast, nitrogen, phosphorus and potassium are in low supply, though in fairly high demand. Therefore these elements are regularly supplemented in orchid culture.

Whether you are using a 20-20-20 water-soluble fertilizer for orchids in tree-fern or osmunda, or a 30-10-10 formula for orchids in a bark mix, the safe approach is to apply in low concentrations. It is frequently suggested that the orchid hobbyist

use at most half the recommended dosage on the fertilizer package. Dr. O. Wesley Davidson, the Question Box Editor, routinely recommends 1/2 teaspoon of 30-10-10 fertilizer per gallon of water for orchids growing in bark. The coarse, porous media required by orchids retain but little of the fertilizer supplied, so residual fertility is minimal, especially in bark mixes full of hungry fungi! Because of this, fertilizing should be frequent, perhaps as often as every other watering for orchids actively growing or in a fresh bark mix. Alternating light feeding with a good watering will help flush or leach any residual salts. When not in growth, fertilizing may be cut back to as little as once a month, or eliminated altogether for orchids in a partially decayed medium such as osmunda, which is not woody and has residual fertility.

Orchids recently repotted in a fresh bark mix have a double nutritional handicap compared to those well-established in an older medium. The disruption and inevitable (partial) damage caused to roots in the process of repotting must reduce their nutrient-absorbing capabilities to some extent. Having lost the "intimate association" they had with the previous substrate, orchid roots are then forced into a rather inhospitable (at least initially) new medium. Fresh bark is not only competitive for water, being quite dry, but the microbial population which blossoms with this new, undecomposed food source makes it competitive

for nitrogen as well. This is the time when nitrogen especially may be most scarce, though in high demand. In my experience, nitrogen deficiency symptoms (particularly the yellowing of leaves) readily appear during this newly-repotted stage, unless a periodic fertilizing program with a high-nitrogen fertilizer is begun immediately. With time, new roots penetrating the medium will enhance nutrient absorption, and a "seasoned" medium is better able to retain water and nutrients, some of which may eventually become available to the plant.

HOW TO FERTILIZE

Naturally, watering and fertilizing are similar activities with orchids, since both involve the application of abundant water. As with watering, a fertilizer solution should be given when an orchid can use it. Temperatures should be moderate at the time of application. If they are too low or too high, the roots will not be able to properly absorb the nutrients. You may have sensed in the literature and at orchid meetings that there is an ongoing debate as to whether the medium should be wet at the time of fertilizer application. My feeling is that if you use the low concentrations of fertilizer recommended here and elsewhere, there will be little risk of soluble salt injury in substituting "fertilizer water" when watering is called for. If anything, fertilizing then will enhance retention. The important point is that orchids, and all plants, need water present

to absorb nutrients. This is assured, with a minimal chance of salt damage, in using a weak nutrient solution of water-soluble fertilizer. If you have a small collection, preparing a fertilizer solution in a two-gallon water-bucket and then applying is easy enough. Particularly at first do not trust your judgment; use a measuring spoon in mixing! For more expansive collections, proportioners are frequently used, and



are certainly more realistic. These can be quite elaborate and expensive — or quite simple and cheap (though still effective). Simple proportioners involve an attachment to the faucet and hose, and a siphon dipped into a container of concentrated fertilizer solution. Many proportioners mix at a ratio of 1:15, so if you have a gallon container for the concentrate, and you want 1/2 teaspoon of fertilizer per gallon of water, set up an equation: $1/15 = 1/2/X$. With a little arithmetic, X, the amount of fertilizer you will add to

a gallon of water to make the concentrate, is 15/2 or 7 1/2 teaspoons. Fertilizer and proportioner packages also provide instructions.

NUTRIENT IMBALANCES IN ORCHIDS

"The nutrient content of potting or support materials used, supplemented by the nutrient furnished by water supplies, is apparently adequate to preclude the occurrence of all but

nitrogen and phosphorus deficiencies in these relatively slow-growing plants." (Davidson, 1978, page 48) Nitrogen deficiency in orchids, as just mentioned, can cause a yellowing of leaves, starting with the oldest and shifting to younger leaves if the deficiency persists (see illustration). New growths forming without adequate nitrogen will mature much reduced in size. Phosphorus deficiency in orchids is far less common, but can be induced when nitrogen is supplied in abundance while phosphorus is not. In

this case, the nitrogen will encourage growth, resulting in a demand for the phosphorus which is not there in comparable amounts. Leaves are reported to become darker green, even to take on a reddish cast, without adequate phosphorus. Growth ultimately is substantially reduced (see Davidson, 1961).

On the other hand, excesses of nutrients do occur with orchids, most frequently because of overfertilizing. Short of extreme, overfertilizing favors vegetative growth, since nitrogen, phosphorus and potassium promote growth at the expense of the food reserves necessary for flowering. Rather than applying yet more fertilizer in the form of a "Blossom Booster", the more appropriate choice would be to reduce the rate and concentration of fertilizer, or to withhold it altogether. Even higher amounts of fertilizer will cause the blackening of roots where salts accumulate and the die-back (necrosis) of the tips of the newest leaves. At this extreme, growth will be limited because of the impairment of the roots' ability to absorb. In this case, further fertilizing should be stopped and water given in copious amounts to reduce the salt residue. Repotting is also likely to be in order.

OTHER FACTORS IN FERTILIZING

Besides nitrogen and phosphorus deficiencies, symptoms of other deficiencies have been observed in orchids. Leaf-tip necrosis (see illustration, page 646 of the June 1981 BULLETIN)

is a troublesome phenomenon with many orchids. There are many possible causes, including the excess salts from overfertilizing, just discussed. Poole and Sheehan in an article entitled, "Leaf-tip Die-back of *Cattleya* — What's the Real Cause?" attribute this problem to a calcium deficiency and put forth the following hypothesis: "An active root system is necessary to absorb calcium ions from the medium and the greatest need for calcium is during the period of rapid leaf elongation prior to maturation. The roots become ineffective at absorbing these ions when high temperature conditions surround the roots (perhaps greater than 75°F or 24°C). Frequent watering supplies additional calcium but more importantly maintains a cooler medium, thereby improving calcium absorption by the roots." (Poole and Sheehan, 1973, page 228)

This hypothesis points out that other factors must be considered in orchid nutrition beyond whether the essential elements are available. What good is the presence of nutrients if they cannot be absorbed by the plant? "The fact that absorption of root-cells is dependent upon respiration suggests that temperature may have a marked effect on the process, a suggestion which has been confirmed experimentally." (Meyer, et al, 1973, page 304) High temperatures not only adversely affect the upper portions of orchids, but the functioning of their roots as well. In addition, without proper

aeration a root is unable to respire the energy necessary to absorb the nutrients. Even with adequate energy, roots surrounded by a solution extremely high in soluble salts may have difficulty absorbing. An orchid with dead or crippled roots cannot make use of any fertilizer (or water) it is given! Decay organisms have reduced the organic components of this bark mix into humus. Orchid roots cannot absorb nutrients, much less survive, under these low-oxygen conditions. Repotting is a necessity!

CONCLUSIONS

Providing orchids with sufficient nutrients to grow and flower is by no means an up-hill battle. Nutrients are available from sources other than fertilizers, particularly existing water supplies and organic media. Competing for nutrients, nevertheless, are fungi present in the media. Their needs, as well as an orchid's, can easily be met with the frequent but light application of water-soluble fertilizers containing the elements most in demand — nitrogen, phosphorus and potassium — in a ratio suitable for the media involved. Conditions within the potting media strongly influence an orchid's ability to absorb available nutrients and water. The substrate as a factor in orchid health will be further considered in the next article of this series.

— 84 Sherman Street, Cambridge, Massachusetts 02740.

REFERENCES

- Brady, Nyle C. 1974. *The Nature and Properties of Soils. Eighth Edition.* Macmillan Publishing Company, Inc., New York.
- Davidson, O. Wesley. 1961. *Principles of Orchid Nutrition.* Am. Orchid Soc. Bull. 30(4): 277-285.
- Davidson, O. Wesley. 1978. *Orchid Ailments Not Caused by Insects or Diseases. Handbook on Orchid Pests and Diseases.* Revised Edition. American Orchid Society, Inc., Cambridge, Massachusetts.
- McLellan, Rod I. 1961. *Necessity of Feeding Orchids Grown in Bark.* Am. Orchid Soc. Bull. 30(4): 274-276.
- Meyer, Bernard S., Anderson, Donald B., Bohning, Richard H. and Douglas G. Fratianne. 1973. *Introduction to Plant Physiology.* Second Edition. D. Van Nostrand Company, New York.
- Poole, Hugh A. and T.J. Sheehan. 1973. *Leaf-tip Die-back of Cattleya — What's the Real Cause?* Am. Orchid Soc. Bull. 42(3): 227-230.
- Wilcock, Donald. 1973. *Fertilizing and Allied Factors.* Am. Orchid Soc. Bull. 42(6): 909-917.



Exhibit and awards garnered by SOS at the Englewood Orchid Show.

April 2011 minutes of SOS

Vice President Pavlock called the meeting to order at 7:30 pm. Carolyn Langdon welcomed Jane Hagerstrom, our newest member. The minutes of the March 2011 meeting were approved on a motion made by Jack Kneuse and seconded by Laurie Stoner, all in favor. The treasurer's report was posted on a cover letter for members receiving their newsletter by email and an insert for those members receiving it by mail. A motion was made to approve the report by Jack Kneuse and seconded by Fred Bigio. Jo Davis advised the members that we no longer have a volunteer to chair the Refreshment Committee. She asked for a 3-person committee to be formed, but received no volunteers. She then asked for a vote to approve a monthly rotating slate of members compiled of those who regularly attend meetings to bring in snacks (cookies, crackers & dip, nuts), soda, water, ice, make coffee, and clean up after the meeting. She explained that we have a monthly refreshment budget of \$50 and food bills may be reimbursed if receipts are turned into Laurie Stoner, Treasurer. The vote passed. Carolyn Langdon, membership Chairperson agreed to compile the list. Jo noted we still need a Refreshment Committee chairperson to coordinate the effort, notify the members, and remind them one week prior to the

meeting.

Vice Pres. Pavlock made the following announcements:

1. Florida West Coast Orchid Society will have their Annual Orchid Auction on April 16th at 9:00 am at the Southwest Recreation Complex on 13120 Vonn Rd., Largo, FL.

2. Venice Area Orchid Society will do their annual Redland Show Bus Trip on May 14th. Seats will go on a first come, first served basis. Contact Barbara Wagner at 923-7706 or vaos.trips@gmail.com at your earliest opportunity to reserve a seat. Trip is \$38.00 per person, which includes admission into Redlands. More information next month.

After a 15-minute break, Jeff from Orchids Etcetera gave a great demonstration on how to repot orchids and how to mount orchids, and had a question and answer session. We then had our "Swap Meet" where members could sell or exchange plants, clean pots, orchid books, etc., which was a great success!

Vice-President Pavlock announced the slate of Board members for 2011 as follows: *President*—Monroe Kokin, *Vice President*—Dennis Pavlock, *Treasurer*—Laurie Stoner, *Recording Secretary*—Jo Davis, *Membership*—Carolyn Langdon, *AOS Representative*—Barry Reese, *Show & Tell Table*—Roy Kruger, *Raffles*—Leroy Mouton, *Librarian*—Patti Quinnelly, *Members at Large*—Norm Hillstrom, Manuel Chepote, & David Belle, who was the newest member voted in.

Vice President Pavlock announced our Society's participation in the Englewood Area Orchid Show and the ribbons received at the Englewood Orchid Society Show.

Dennis Pavlock received a Show trophy for the Best in Diversified genera for his *Phaiocalanthe Kryptonite*, Bill Shaban received a show trophy for Best *Phalaenopsis* for his *Dtps. Sogo Romantic*, and Jo Davis received a show trophy for her *Cymbidium Oriental Legend*. We also received a 3rd Place Society Exhibit, and 17 Blue Ribbons, 13 Red ribbons and 2 yellow ribbons. Congratulations to all!

The Library was open during the meeting for members wishing to sign out books for the month. Please see Patti Quinnelly to check out books. Leroy and Mecky then sold raffle tickets in the back of the room. Roy Kruger went over the beautiful plants at the Show & Tell Table and announced the winners. The meeting adjourned at 9:30 pm.

Respectfully submitted,
Jo Davis,
Recording Secretary

Winners from Monday April 4th meeting



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