



**St. Augustine Orchid Society**

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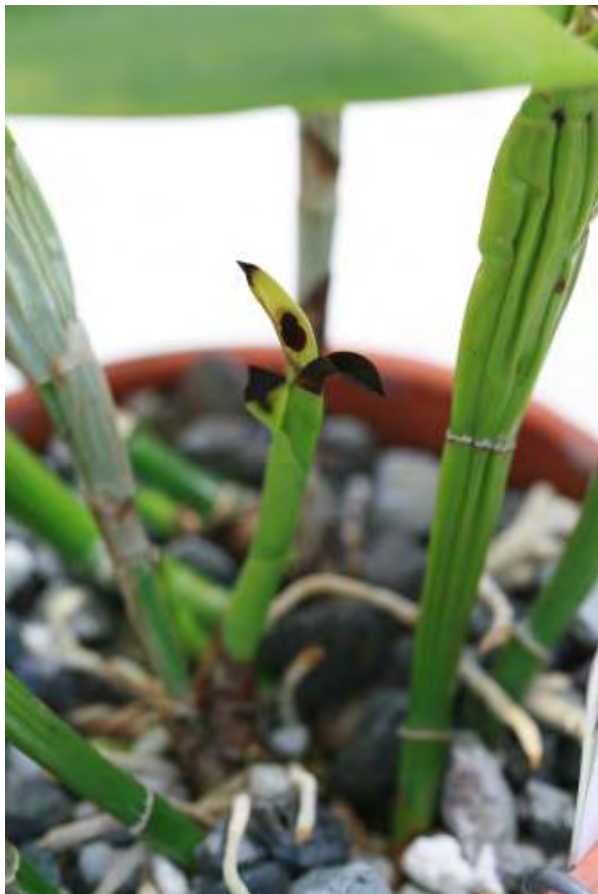
## **Calcium Supplements for Orchids**

**September 2011**

by Dr. Courtney Hackney, [hackneau@comcast.net](mailto:hackneau@comcast.net)

For many years, the only water available to me for my orchids was too salty and getting even worse from salt water intrusion into the aquifer. A concrete cistern was constructed to collect and hold rainwater. Rainwater contains almost no dissolved solids, so you can imagine my surprise when an analysis of my water showed high levels of dissolved solids. Concrete cisterns are made of lime and some of that is lost to the water through leaching. Fortunately, other than making the water basic and leaving a white film on leaves, there was never a problem using this water. My orchids thrived with this calcium laden rainwater. After 4 or 5 years, water from the cistern was just slightly higher in solids than rainwater.

I often recommend keeping a log book indicating when various pesticides were sprayed, fertilizers used, etc. This is important in diagnosing the cause of problems that arise from time to time. An orchid growing friend had been using some of the bench in my greenhouse when I installed the cistern and was amazed at the incredible growth of his paphs under my care. After obtaining a few paphs of my own and studying the natural habitat it was clear why paphs had grown so well. It was the extra calcium and magnesium leaching from my cistern. To compensate for the slow change in water as my cistern reached equilibrium, I began adding dolomite lime to pots containing paphs and they thrived. I also began using Peters Cal Mag, which provided even more calcium and magnesium each time fertilizer was applied. My cattleyas and other orchids grew well under these conditions, except in the summer when I would experience new growths that rotted. I would also lose seed pods from rot.



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Every orchid hobbyist knows that moving to a new greenhouse requires a reexamination of culture, and my move to Florida four years ago has been no exception. The one big surprise was an issue that had occurred before, always in the summer, that was never resolved to my satisfaction. During very warm summers there would be the occasional rotting of new growths on cattleyas as well as on new leaves of phalaenopsis. Most surprising was that the issue occurred on both species and hybrids that should have been fine under high heat and temperatures based on their countries of origin. On these occasions, various anti-bacterial and anti-fungal agents were used.



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Based on the premise that most horticultural issues are caused by culture, various attempts were made including altering fertilizers, increasing air movements, etc, with no real clear success. The problem typically disappeared once temperatures cooled in fall. Most frustrating was the loss of countless seed pods of some potentially great hybrids. They would begin rotting from the tip and the rot would eventually progress, destroying the seed pod.

I have finally discovered as the cause of this problem, blossom-end rot; the same malady that causes tomatoes to rot from the old bloom tip, which is low calcium and magnesium. Orchids are "cold-blooded" and when it gets warm they are capable of growing at a very fast rate. To do this, they must take up nutrients at an accelerated rate, too. Calcium and magnesium are required for proper cell development in new leaves and other tissues, e.g. seed pods. That was what was missing from my culture during the heat of summer.

During summer's high temperatures, many orchid hobbyists report loss of new leaves especially when growing outdoors. Heavy rains flush nutrients, especially calcium and magnesium, from media, and at the same time, high temperatures and humidity foster very rapid growth. It did not occur to me to increase the calcium and magnesium content of the water I am now using since it comes from a limestone aquifer and is loaded with minerals, including calcium. My fertilizer now is fish emulsion instead of the cal-mag fertilizer I have used in the past. Essentially, I am now providing more of the essential growth nutrients, mainly nitrogen, but not enough calcium for my orchids in this high growth time of the year.

When I first realized what was causing the increased loss of new growths and seed pods, I hand spread dolomite limestone powder all over the plants in the greenhouse. My orchids looked like it had snowed. I also placed a couple of pounds in the reservoir from which my Dosatron draws water after I have applied fertilizer. Within a week, there ceased to be an issue of rots despite the highest summer temperatures of the year.

Even some of what I consider intermediate temperature orchids have responded to the extra calcium and magnesium by growing extremely well in the heat. Most orchid growing advice suggests acidifying water. Adding dolomite raises pH, but has not had any negative effects so far. I still flush regularly and fertilize with fish emulsion and this keeps the pH of the medium at the right level for growth.