St. Augustine Orchid Society
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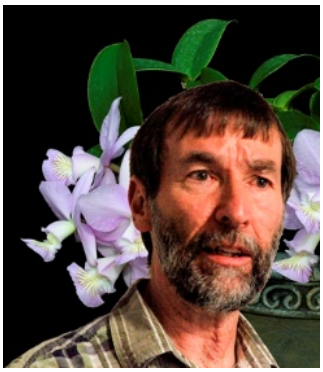
Purely Organic Fertilizer

by Sue Bottom, sbottom15@hotmail.com



1. Keith Davis is a cattleya aficionado from North Carolina, check out his website, keithdavisorchids.com.

Keith Davis is a cattleya grower and hybridizer who freely shares his knowledge and growing tips. His very practical advice is delivered southern style at Orchid Society meetings, Speaker Day events and orchid conferences across the country. When Keith Davis talked to our club in St. Augustine, he introduced us to Purely Organic Fertilizer. He told the story of his trip to visit legendary orchid hybridizer Gene Crocker, who also grows and hybridizes day lilies. Gene had one row of vigorously growing lilies and another that looked puny in comparison. When Keith asked why, Gene explained he was trialing this new organic fertilizer and it was obvious which bed had been treated with the Purely Organic. We orchid growers have much to learn from the day lily growers, rose gardeners and turf farmers who so often find and use products many years before we ever hear of them.

The Purely Organic (PO) fertilizer is produced by Jim Young of H.L. Shealy Company in South Carolina. It is a proprietary blend of a number of organic ingredients, as outlined in the summary tabulation. There are some components that quickly release nutrients but the majority of them slowly release nutrients, presumably as a result of enhanced microbial action in the root zone. Many of the components contain secondary nutrients like calcium, magnesium and sulfur as well as the micronutrients. Some of the components such as the kelp contain plant growth hormones and the alfalfa contains trace minerals and trianconatol, a natural fatty acid growth stimulant favored by the marijuana farmers.

Keith has been experimenting with this product several years, and he writes *"It is best used to promote new growths on poorly growing plants that lack a good root system. The extra new growths will all produce a new flush of roots to exponentially increase the root system. I find that it works best as a light dressing on top of the plant just as the normal season's growth starts. Application at this time really promotes back eyes to break and grow. Application at other times does not seem to make growths just magically start, timing is critical. I have found one plant that it has no effect on, so it does not work on all plants. But other than that one, it has worked every time I tested it.*

I have experimented with PO on yard plants and they respond unlike anything I have ever seen on plants growing outside. I have a large lemon tree in a container that has always had problems with chlorosis on leaves that are symptoms of iron deficiency. I would apply iron and it would go away but return in a few weeks. This year when I took it out of the greenhouse to spend the spring and summer outside, I put a cup of PO in the pot and it is the healthiest I have ever seen and the chlorosis has not returned. It has bloomed nonstop since March and looks lush. So there are a lot of nutrients in the PO that are released over a long time.

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I have also found that light top dressings on orchids basically have vanished by the next growing season. Those I treated last year show normal growths this year with no extra eyes on the back breaking. Plants are vigorous from the extra root systems that they put out last year. I think the loose mix basically lets most of it wash out and the majority of the hormones are short lived.

2. Keith Davis showed us this picture of one of his cattleyas after the stocking bags filled with Purely Organic Fertilizer were placed on top of the potting mix. The strong growth of the 7 new leads is quite impressive!
photo courtesy of Keith Davis

My most recent two examples of using PO are on this C. mossiae alba 'Longwood Gardens' and two small pots of C. bicolor coerulea that I got from Francisco Miranda. On the bicolors, both in 4 in (10 cm) pots and almost identical plants as to size and number of bulbs, I put about 1/2 teaspoon (2.5 ml) as a top dressing on top of the mix as soon as I saw the first new growth back in May and to the other plant I added nothing. They hang in my burn zone in high light with good wind from the fans. The untreated plant has two new growths that look good. The treated plant has 7 new growths.

Then I tried it on C. mossiae alba, this plant came to me from Art Chadwick Sr. and he told me that it is what he considers the best alba mossiae in existence. Coming from him, that

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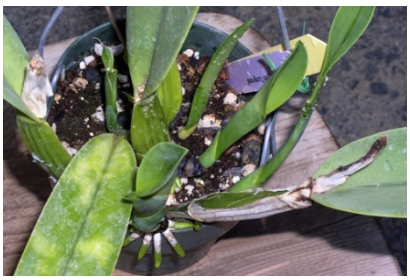
says a lot. When I saw it bloom on a small back bulb plant in a 4 in (10 cm) pot, I had to agree with him. I got the plant 3 years ago and it has only put out one growth each year, each a shade larger than the previous, but the root system really was lacking for the plant to explode in growth. So I treated it with PO and you can see the results in the pictures. I expect next year for this plant to explode with a couple of new growths that will show what the blooms can look like on a vigorously growing plant."



Keith's Experiment with Purely Organic Fertilizer on C. mossiae alba 'Longwood Gardens'.
Keith reports "This year I treated it with PO just as the new lead started to grow. It immediately put out 5 more growths, one of which rotted, but not far enough down that the new eye was damaged and thus is putting out a flush of new roots along with all the other five new growths.
photos courtesy of Keith Davis

3. Looking down on the plant to show the visible 5 new growths
4. Side view to see the roots coming out of each new growth
5. There even new roots coming out of the rotten growth.

Needless to say, many people started experimenting with this new fertilizer available from PurelyOrganicFertilizer.com (not to be mistaken with PurelyOrganicProducts.com). Their observations are recounted here.

Courtney Hackney grows many cattleyas and phalaenopsis in his greenhouse, along with other orchids, and enjoys raising seedlings of his hybrids. His interim report: "*I initially put the powdered PO on many orchid genera in a variety of media and the only place I saw a direct, positive effect was on my phals in ProMix. I grow most orchids in a very porous mix, so suspected the PO just washed through my media. In my second trial I wet the PO into a thick porridge-like consistency (grits if you are from the South) and let it sit for a day. I scooped a teaspoon (5 ml) for small pots and a tablespoon (15 ml) for larger pots. The PO stayed on the surface of the pot as a spoon-shaped lump for three months, slowly decomposing. For orchids that had good root systems there was a distinct improvement in growth, but not for others that had few live roots. There was a detrimental effect when the PO was placed on or near new growths, some new growths rotted. When placed in plug trays some seedlings grew rapidly, but others rotted. I also placed scoops of PO in small porous mesh bags and hung on vandas or on top of hangers, so water would drip through onto the orchids below. The PO had an effect for about three months, especially on vandas that had not been growing well. Leaves turned from yellow to green suggesting that PO was leaching nitrogen onto leaves and roots. I plan to use it again next spring.*"

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Harry McElroy is an accomplished grower of thousands of cymbidiums in a shade house. He reports *"I have put it on top of cymbidium pots and sprinkle it lightly with water - it forms a cake and stays on top of the pot. It seems to be moldy at first and gnats come but leave after a few days. The plants grow well, no problems. When I pot new cymbidiums seedlings I incorporate a little into the new mix I am using plus a 1/2 tsp (2.5 ml) just underneath the top layer, no gnats and no problems. Seedlings are growing surprisingly fast. Older seedlings that were languishing were transplanted using the new mix and Purely Organic and are beginning to flourish. Although using it as a top dressing seems to work, incorporating it into the mix or covering it with a layer seems to be the best way to use it. It is better to use too little than too much, in that damping off of seedlings was observed with higher application rates.*"

Mary Ann Bell grows several different types of orchids on the lanai and trees around her house. She shared her preliminary experience "*Just finished making 100 little sachet bags of fertilizer to place on the potting mix surface. I ordered the bags on eBay, sheer little drawstring bags like you would use at a shower or wedding for favors. Previously I placed about 2 tsp (10 ml) in each plant at the base; that took time and patience. It didn't take much time to make the sachets. The fertilizer I placed on the plants in April is showing good results. Where normally I would get 1 new lead, now I'm getting 2 or 3. So many of my orchids that were barely thriving have rallied, now with new growth and often with flower sheaths. My less than ideal growing conditions have been improved with better results. The PO has to be the reason. Some plants have already bloomed with more blooms than usual. One of my cattleyas has 24 buds getting ready to open!"*

6. The Purely Organic may work by encouraging the growth of good microflora in the root zone, but when watering with the organic tea, there was flower blighting which is never a good thing.

7. More isn't always better, next year I'll use smaller tea bags for the Purely Organic on newly repotted plants in coarse mix, and just use two or more bags on larger pots.

I tried applying the Purely Organic in different ways when first experimenting with it. In the beginning, it was simply spread on the surface of the potting mix of recently repotted cattleyas, particularly the bifoliates. The treated bifoliate cattleyas sprouted new growths

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from back bulbs, though one recently repotted bifoliate lost the new growths to rot (it has since sprouted additional new growths from back bulbs). Some was applied to the habenarias growing in a peat based Pro-Mix. They grew well but I also noticed some fruit flies or gnats in the first few weeks after treatment that probably were feeding on some decomposing organic matter.

I also tried making a compost-type tea by mixing some Purely Organic into a bucket and filling it with water, but this did not smell like roses. Next I tried adding 2 cups (0.5 l) to a knee high stocking and dropped that into the Dosatron bucket from which the fertilizer injector draws the fertilizer concentrate. Some of the material in the knee high dissolved over the course of a month but most didn't. I noticed lots of new growths on my cattleyas during the summer, but also noticed an increase in flower blighting, mostly molds and bacterial blighting on flowers and a higher incidence of leaf rotting where the cataphyll formed a water pocket, so I'm guessing the bacteria flourished in the trapped water quickly causing rot. The Dosatron also fouled much more quickly. I think the organic tea experiment was probably a failure and it has been discontinued it, though the tea may have some value as a foliar drench when trying to rehabilitate plants that have lost their root system.

I noticed someone wrote on a bonsai blog about filling empty tea bags with organic fertilizer and placing the tea bags on the soil surface of their bonsai trees. I ordered some empty large tea bags from Amazon.com and filled them with the Purely Organic in anticipation of the spring repotting season. As each cattleya was repotted, a tea bag full of the fertilizer was placed on top of the mix. This seemed to work well although I think smaller tea bags would work better, with using one small bag on the smaller pots and maybe 2 or 3 small bags on the larger pots.

8. I interlayered the PO fertilizer with sphagnum moss when potting. There was a lot of bacterial and fungal growth, which wasn't too attractive but didn't hurt the plants.

9. When the catasetums broke dormancy and started to grow in the spring, there were multiple new growths in each pot. The Purely Organic really got them off to a good start.

10. Most of the catasetums bloomed with female flowers until late summer when finally some male flowers appeared. Maybe next year we'll cut back on the Purely Organic!.

One of the most incredible growth responses was on the catasetums, which grow very quickly after they break dormancy. In the past, I always interlayered timed release fertilizer

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with the sphagnum moss, say 3 layers of moss with fertilizer in between the moss and then some more fertilizer on top. This year I used the Purely Organic fertilizer instead of the timed release fertilizer. There was some funky white filamentous growth on the top of the pots through the winter but it didn't negatively impact the plants. When they started growing in the spring, there were multiple new growths in each pot that grew fast and strong. When they started to bloom, I was rewarded with 90+% female flowers, which are thought to occur in very healthy plants because only those vigorously growing plants are able to carry their seed pods through the dormant season. Green helmets were everywhere in the shade structure all spring and through the summer. Male flowers finally started to appear in late summer and into fall. Next year, we'll be using less of that magic potion on the catasetums!

The fertilizer has a tendency to wash through the pot when using a coarse, porous orchid mixes, so different growers adopted different strategies. Keith recommends placing some over the top of the pots and creating a crust by spraying it twice with a Fogg It nozzle. After the material becomes crusty, it seems to just slowly dissolve with each watering. Courtney made a mixture with water to the texture of cookie dough, and then just spooned a glob of the mix on top of the pot. This glob dried and then a little bit dissolved with each watering. The Purely Organic can be placed in bags or sachets on top of the potting mix, or if you top dress pots with sphagnum moss or Cypress Mulch, you could place the organic fertilizer on top of the top dressing. If you are using a sphagnum moss or peat based mix, the Purely Organic can be incorporated directly into the mix. If in fact the Purely Organic works its magic in part by encouraging the growth of beneficial microflora, direct incorporation into the potting mix is probably the most effective way to use it.

Optimum application rates are a guess. For top dressing, use perhaps ¼ to ½ teaspoon per inch (0.5 to 1.0 ml/cm) of pot diameter. Use the lower rate for the lighter feeders like cattleyas and the higher rate for heavy feeders like cymbidiums and the winter dormant Catasetinae. For incorporation into a peat based mix like ProMix, something on the order of ½ cup per gallon (30 ml/l) of mix seems reasonable. Start with lower application rates until you have experience with the fertilizer on different genera.

The conclusions from those that have been trialing this product on orchids are:

1. For plants growing in a coarse, freely draining mix, use as a light dressing on the top of a potting mix just as the normal season growth begins.

2. For plants growing in a peat based mix like ProMix, incorporate some of the Purely Organic directly into the potting mix prior to repotting.

3. For plants growing in sphagnum moss, the Purely Organic can be interlayered with or spread atop the moss surface without fear that it will wash through the moss.

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3. Target poorly growing plants for treatment, either with the granular product or an organic tea sprayed on the plant surfaces. The foliar drench may be particularly effective for those plants lacking a good root system for absorbing nutrients.

4. Seedlings are good candidates for the Purely Organic fertilizer. The seedlings have no stores of nutrients in reserve so the combination of quick and slow release nutrients and trace elements as well as growth stimulators should facilitate fast growth.

5. Apply a light top dressing on the pots of just repotted plants, particularly if the plants have been repotted when new root growth is being initiated. This will help stimulate growth and help your plant reestablish after undergoing transplant shock. Bifoliate cattleyas may benefit in particular from top dressing after repotting.

As you experiment, observe your plants carefully. Watch for the expected benefits like strong new growths, sprouting back bulbs, an energized root system and enhanced flowering. Also watch for any negatives, like soft new growths susceptible to disease, rotting new growths and mold on plant and flower parts. As you experiment, you will fine tune which plants and which situations benefit the most from applications of the Purely Organic fertilizer.

Citations and Additional Reading:

Card, Adrian, Whiting, David, Wilson, Carl and Reeder, Jean, *Organic Fertilizers*, Colorado Master Gardener program, CMG GardenNotes #234, Colorado State University Extension, accessed online January 6, 2017 http://www.ext.colostate.edu/mg/gardennotes/234.pdf

Table 1 – Purely Organic Fertilizer Constituents

	Typical N-P-K Ratio (%)	Release Time (months)	Comments
Alfalfa Meal	2-1-2	1 – 4	Alfalfa meal is milled or ground up alfalfa that is primarily used by organic gardeners to increase organic matter in the soil. It is rich in carbohydrates and proteins and it acts as a biostimulant for the microbial life in the root zone. It offers nutrients and a high availability of trace minerals, along with trianconatol, a natural fatty-acid growth stimulant.
Cotton Seed Meal	5-2-1	1 - 4	Cottonseed meal is the end product after oil is extracted from cotton seeds. It is usually used for animal feed but also by organic gardeners. It has a relatively high nitrogen content that has a slow nutrient release rate and tends to have an acidic reaction in the root zone.

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Table 1 – Purely Organic Fertilizer Constituents

	Typical N-P-K Ratio (%)	Release Time (months)	Comments
Fish Meal	10-4-2	4+	Fish meal is the ground up remains from fish processing facilities. It is a general-purpose, organic fertilizer that contains a rich supply of all the major elements and the trace minerals and is slow to break down.
Feather Meal	7 – 13% N	4+	Feather meal is hydrolyzed poultry feathers. It is high in slow to release nitrogen forms that become available due to microbial action.
Blood Meal	12-0-0	1 - 4	Blood meal is made from dried slaughterhouse waste. It is high in quick to release nitrogen forms that can burn plants with excessive ammonia, and also delivers trace minerals including iron.
Steamed Bone Meal	3-15-0 22% Ca	1 - 4	Bone meal is made from steamed animal bones that have been ground into a fine powder. It provides slow release phosphorus and calcium and tends to have a mildly basic reaction in the root zone.
Soybean Meal	7-2-1	1 - 4	Soybean meal is a by-product of the soybean oil manufacturing process. It is relatively high in slow to release nitrogen.
Finely Ground Rock Phosphate	0-3-0 16% Ca 2.7% Fe	not applicable	Rock phosphate is a mined product that is a source of phosphorous and calcium as well as iron, silica and trace minerals.
Sul-Po-Mag	0-0-22 22% S 18% Mg	not applicable	The mineral Langbeinite is composed of sulfate of potash magnesia, sold under the Trade Name Sul-Po-Mag. It is a quick release form of potassium that also supplies ample amounts of magnesium and sulfur.
Kelp (seaweed)	1-0-2	4+	Kelp meal is harvested from the ocean, dried, desalted and ground. It is a rich source of trace minerals, plant growth regulators, vitamins, hormones, amino acids, enzymes and chelated nutrients.
Greensand	0-1-6	not applicable	The mineral glauconite, also called green sand, is an iron-potassium silicate mined from natural seabed deposits. This mineral is rich in soluble potassium, iron, silica and magnesium and also has traces of over 30 other elements.

Source: Info extracted from http://www.ext.colostate.edu/mg/gardennotes/234.pdf, http://www.fertrell.com, http:www.groworganic.com and http://islandseed.com