Growing Orchids in Sphagnum Moss with a Few Additional Items by Cathy Loftfield

At the January 2012 White Elephant Sale, I acquired many American Orchid Society magazines and started to read many of the great articles regarding orchid culture. Therefore, much of what I have learned has helped me become a better grower so I am attempting to impart some of the information to you. However, the emphasis of this article is how to grow in sphagnum moss.

Culture on an ongoing basis in sphagnum moss is a little different than potting in most other media. The three ways to pot in sphagnum moss is very tightly so that the moss is damp but never waterlogged; medium pack where watering must be spaced to allow the moss to dry to a state of dampness and loose potting, where the open nature of the medium means it is almost impossible to overwater.

I prefer to use either New Zealand or Chilean moss. The unique water holding and water releasing qualities of the special cells in sphagnum moss means that plants grown in it will thrive as long as there is not a rapid salt buildup accompanying the breakdown of the moss. Plants in decomposing moss will go backward even faster than they improve in the fresh product, so you must be observant for the best results.

Moss dries from the bottom up, the exact reverse of bark's drying properties. For the most efficient watering don't allow the plants to become more than 50 percent dry. This is most easily observed when orchids are growing in transparent pots. Double watering usually works best for plants grown in moss, water until the water backs up to the rim of the pot, let it soak in and then water again until it drains out the bottom hole(s). When the moss dries from the bottom up there is less risk of rotting the roots at the bottom of the pot.

Do not fertilize a plant that has become too dry between watering. Instead, water it thoroughly so the moss is remoistened and then fertilize in several hours later or the next day.

I don't think it is a good idea to use slow-release fertilizers on plants grown in moss because the release of the elements is affected by temperature or moisture causing either over or under fertilizing. That is what I experienced when I tried the slow-release fertilizer.

Whenever potting in sphagnum moss there must be an understanding that repotting needs to be carried out on a shorter cycle than with most other media. Two factors that come into play are the quality of the water you are using and the strength and nature of your fertilizer of choice. Therefore, if you fertilize your orchids and use high purity water or reverse osmosis water on a regular basis, you should apply a complete fertilizer that contains major, minor and trace elements. I use the fertilizer developed by Michigan State University (MSU), called Feed Me. It is available at Repotme.com. Below are the instructions for using MSU fertilizer:

MSU RO/Rain/Tap Water Version Fertilizer
Directions for Use

How Do I Mix FEED ME?

- Mix liquid FEED ME! At 1 oz/gallon in the fall/winter and 1.5 oz/gallon in the spring and summer. One ounce is equal to 2 tablespoons.
- Mix granular FEED ME! At 3/4 teaspoon/gallon in the fall/winter and 1 teaspoon/gallon in the spring/summer.
- If using a fertilizer injector, mix the stock solution proportional to the ratio of the injector. For example, for a 1:3 injector you would want to add 3 times as much fertilizer as you would if feeding directly.

What is the best way to fertilize?

- Use a solution of fertilizer and water with the weekly watering 3 out of every 4 weeks of each month.
- Flush pots with ample water on the 4'th week and do not fertilize. This will leach out salts left behind in the media.

How much fertilizer should be applied?

- When in doubt, too little is better than too much.
- Don't try to make up for not fertilizing by giving a hefty amount all at once, instead try to fertilize "weekly weakly".
- Use a solution of 125ppm Nitrogen in the fall/winter and 50% more in the spring/summer or when plants are in their most active growth (almost 200ppm). The mixing instructions for FEED ME provide this amount.

FEED ME! Nutrient Analysis	**Micronutrients:**
Macronutrients:	0.177% Iron (Fe)
13.0% Total Nitrogen	0.088% Manganese (Mn)
(Nitrate Nitrogen 12.5%,	0.044% Zinc (Zn)
Ammoniacal Nitrogen 0.7%)	0.044% Copper (Cu)
3.7% Available Phosphate (P_2O_5)	0.018% Boron (B)
15.9% Potash (K_2O)	0.018% Molybdenum (Mo)
8.0% Calcium (Ca)	**Derived from Iron EDTA, manganese sulfate, zinc sulfate, copper sulfate, boric acid, ammonium molybdate**
2.6% Magnesium (Mg)	
Derived from calcium nitrate, magnesium nitrate, potassium nitrate and monopotassium phosphate	

Note: There are other companies that sell similar fertilizers with both macro and micro nutrients. To make sure you are purchasing an orchid fertilizer with these nutrients, read the label on the container.

- **Other products I use to promote healthy plants include the following**:

Super Thrive, I use approximately 1-2 drops per one gallon of water every time I fertilize.

Hydrogen peroxide, I use approximately ¼ - ½ cup 3 percent hydrogen peroxide per gallon of water every time I fertilize. Hydrogen peroxide works by releasing oxygen. It acts as an oxygen supplement for plants. It seems to support both good health and strong growth for plants. It is also anti-fungal and anti-bacterial.

Additionally, I have added a product to stimulate root growth called plant plant hormones known as Indole-3-butyric acid and 1-Naphthaleneacetic acid once a month. Several companies that provide these products include the following: Dip N' Grow, Dyna-Gro's, KLN Rooting Concentrate, and Clonex. The instructions for use are on the container.

I also leach once a month. I flush orchid plants with ample water the fourth week and do not fertilize. This will leach out salts left behind in the media.

Potting

I use both AAA New Zealand and 5 Star Chilean Sphagnum moss. When I order moss from Repotme.com, it comes damp and ready for me to start potting. If I am not going to pot right away, I let the moss dry out. (I was told to do this by the owners of Repotme.com). If I have let the moss dry, I soak the moss overnight in water and add ½ cup of hydrogen peroxide per gallon of water. You can also use Physan 20 at a rate of a one tsp. per gallon of water. Squeeze the moss out by hand and then fluff it to expand the fibers. Always wear rubber gloves when working with Sphagnum moss.

To the moss I add Hydroton or Aliflor (same type of product) that is light weight expanded clay aggregate. This product is porous and adds openness to an orchid mix and promotes oxygen at the root zone. Additionally, it is very long lasting and reusable. For example, I add about 1/4 - 1/3 of a cup to a 4 inch pot. For larger pots adjust accordingly.

Next as a dressing at the top of the potted orchid, I add Dyna-Rok II. This is a soilless growing media that is light weight, reusable, super absorbent, porous mineral rock. It adds micronutrients to the media.

Note: If you grow in bark, you can also add these products to your mix.

When repotting, water the plant first, then remove the plant from pot, and carefully remove the old media. Then wrap the fresh mix around the roots and place plant in a clean pot. Then carefully pack potting media around the spaces left after placing plant in pot. Depending on

whether your intent is to pot in sphagnum moss very tightly so that the moss is damp but never waterlogged; medium pack where watering must be spaced to allow the moss to dry to a state of dampness and loose potting, where the open nature of the medium means, it is almost impossible to overwater, use the technique that fits your potting needs the best.

Leaching.

Leaching is an operation performed to control or remove accumulated salts from the growing media. Regardless of what leaching technique is used, it should be understood that the whole purpose is to prevent the buildup of salts. If salts are allowed to accumulate, they will eventually reach a concentration that damages and eventually kills the orchid roots.

To leach, one can use reverse osmosis water, plain tap water, or distilled water. Only a thorough leaching will remove all of the salts held in the growing medium. If the goal is remove all of the salts, not just lower the concentration, you will have to leach with fresh water a number of times. The lower the concentration of salts in your leaching solution, the more salts will be dissolved and removed from the growing medium.

References:

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