

Choosing Potting Media

An attempt to answer the common question:
"*What's the best potting medium for my orchid?*"

The correct answer to that is that there *isn't* a single, best medium! Instead, when choosing a medium, one has to take a "holistic" approach and look at a variety of factors, including:

1. The growing conditions the plant prefers.
2. The plant's water storage capabilities.
3. How well does the plant take to repotting, that is, being disturbed.
4. What kind of conditions are you easily able to provide.
5. How fastidious are you about watering and feeding, or at least what are your capabilities.

All of those factors should be considered when choosing a medium, and should be reconsidered for each type of plant you grow.

First of all, think about the **conditions the plant experiences in nature** (if it's a hybrid, think about the species in its breeding background, especially recent ones). Right off the top we may be baffled, as orchids in nature usually have no potting medium at all, but are *epiphytes*, living attached to the bark of host trees! Look a little closer though, at the environment those roots, dangling in air, see.

1. **Water Supply:** Is the plant from a rainforest, constantly bathed in rain or fog? Is it instead exposed to seasonal monsoons followed by relatively dry periods, or does it get typical, random rains such as seen in many temperate climates?
2. **Air Movement:** Heavy and wet, cool and buoyant, or parching, arid winds?
3. **Growing Location:** Is the plant from a bog, where it constantly has "wet feet," or is it in leaf litter on a forest floor, in a densely-leaved host tree, nestled in the detritus of fallen leaves, or up at the top where the wind and sun dry it out rapidly?
4. **Typical Temperatures:** Is the plant from a hot, intermediate or cool environment? (The choice of medium can help you grow a plant that otherwise might not do well in your environment.)

Next, let's look at the plant's physical structure, and how it relates to **the plant's water storage ability**.

1. **Plant Structure:** Those with **pseudobulbs** can generally store water for longer periods of time than those without. Take a close look at the leaves as well, before concluding your evaluation. Those plants having thin, strap-like leaves, such as oncidium and cymbidium, will lose their stored water faster than those with shorter, thick leaves, such as cattleyas. Plants that don't have pseudobulbs have in some cases developed **thick, fleshy leaves** (phalaenopsis, for example) as their water storage scheme, but that's obviously not as effective as pseudobulbs. Others that have neither pseudobulbs nor thick leaves, such as phragmipediums, are going to need a steady supply of moisture.
2. **Root Structure** is another important aspect in deciding on the medium. The factors to consider are the **extent of root growth** (long versus short, branched versus single), the **thickness** of the roots, particularly that of the **velamen layer**. A very extensive root system suggests that the plant has to work hard for its water and nutrition, so wants to gather as much as it can when it is available. By contrast, a short root system suggests easy and/or frequent availability of them. **Velamen** - that layer of white that covers healthy roots - is actually dead tissue that acts as a sponge to rapidly absorb water and nutrients, so they can be passed onto the plant. Thick velamen is generally found on plants that like to grab a lot of water,

but prefer to have their roots dry rapidly. Vandaceous plants are good examples.

Don't take that to mean that roots with thin velamen like to stay moist - you need to couple that with the plant's storage structure, mentioned above. Oncidiums, for example, tend to have thin velamen on thin roots, but their root systems are quite extensive, and they have pseudobulbs for storage, so they too, like to dry fairly rapidly. Phalaenopsis, with their minimal storage capabilities, tend to have thick roots to add to the "reservoir," so do well in a damp, but not sappy environment.

As to **how well a plant tolerates repotting**, that can generally be judged by the plant's growth rate, with slow-growers being less tolerant of disturbance than others. Some plants, notably paphiopedilums, seem to actually enjoy repotting, often putting on a growth spurt immediately afterwards!

Your growing conditions play a most significant role in deciding on a medium. If you have no problem providing a constantly humid environment due to your climate or if you grow in a greenhouse, the moisture retention on the part of your media is less of a concern. Ambient temperatures play a role here, as well, as warmer temperatures tend to increase the evaporation of water, and along with the drying rate of the medium.

Your **personal tendencies**, and how much time you can- or prefer to spend watering your plants is another significant factor in choosing a medium. If you're a "busy bee" who likes to pamper your plants, then an open medium that doesn't hold a lot of water may be a good choice. If, on the other hand, you have a large collection and don't have time for such individual attention, or if you travel a lot on business, it might be worth thinking in terms of a more stable moisture holding selection.



OK, now that we have the background behind us, it's time to look at the various **media ingredients** that are commonly available, and their specific properties.

One of the more common media ingredients - used alone or in blends - is **fir bark**. Good quality bark is getting harder and harder to find, but the stuff that is available is typically steamed to extract the resins that could be toxic to your plants. The removal of that resin increases the water-holding capacity of the bark, but also shortens the life of it. The irregular shape of the pieces of bark can lead to excess packing, which may reduce the airflow to the root system. Fine grade is often used for small seedlings, and the coarser grades for large plants. Before using bark, water it with boiling water to facilitate wetting, then let it cool.

Coconut husk chips (CHC), made from the pithy covering outside of the spherical, hard coconut shell, is gaining popularity as a replacement for fir bark. It is readily available, relatively cheap, and wets and rewets better than bark. It also tends to be more regular in shape - chunks or cubes as opposed to coarse flakes - so facilitates better air flow throughout the root mass. CHC holds a lot more water than bark, so keep that in mind when using it. It lasts considerably longer than bark as well, often going three years before decomposition becomes an issue, as opposed to a year for bark. A word of warning: despite claims otherwise, most CHC has a fairly high salt content when you get it, so it pays to soak and rinse it several times prior to use.

Coconut husk fiber is the wiry result of stripping and shredding the interior of the coconut husk, rather than chipping it. It is springy and flexible, and is often matted to form liners to hanging baskets, but it can also be use straight as a medium for plants that really like to dry out fast. If fairly tightly compressed, water will stay in pockets in the mass for a longer time period.

Coir, sometimes called "**Coco-Peat**," is the result of grinding the husk into coarse powder. It is often used as a substitute for peat moss in blends, but can be used alone for seedlings that like to stay damp.

Peat moss and its commercially available blends, such as **ProMix HP**, are sometimes used in the so-called "mud mixes," which hold water really well. Like coir, it can be blended with other ingredients to produce a good medium for terrestrial and semi-terrestrial species.

Osmunda fiber, the roots of a number of ferns from the genus *Osmunda*, used to be a staple in the orchid-growing community, but it is now difficult to find a high quality fiber.. It is tough and springy, and requires vertical alignment in the pot to ensure proper drainage. In almost totally ensures that the plants' roots get all of the air

they need, and as it decomposes, is an excellent source of nutrients, requiring little or no supplementation via fertilizers.

Tree fern fiber - the "trunks" of tropical tree ferns - has replaced most osmunda in orchid culture. It is very stiff and airy, and can be obtained as shredded fibers, chunks or slabs. It has little moisture holding capacity, so aerates media blends very well. The slabs are often used for mounting plants directly.

Redwood fiber, or "**Palco Wool**" as it is sometimes known, is a light, fluffy wood fiber that does not decompose, and is added as a moisture-retention aid and as a means of increasing the acidity of media blends.

Sphagnum moss is pretty much a standard in the orchid growing community, whether by itself or as a blend additive. Available in a wide range of quality - from the expensive New Zealand "Primo" and it's close-but-less-expensive counterparts from Chile, to some really lousy stuff (short strands, no "fluff"), - the good stuff is a great medium for plants that love constant moisture. Learning how to attain the proper packing density is a challenge, as it holds so much water that it can become sopping pretty easily. Generally, sphagnum becomes sour and in need of replacement in the 6- to 9-month range, although that can be extended by blending it with charcoal.

Hardwood charcoal is a very long-lasting medium ingredient having a moderate-to-low moisture holding capacity. Many growers of vandaceous plants use the coarse grade as the sole medium. Some claim that the charcoal "sweetens" the medium by absorbing some of the foul chemicals produced in the decomposition of other media components, or excess salts from fertilizers.

Perlite, often referred to as "**sponge rock**" for the coarser grades, is expanded volcanic glass, and is a great aerator of blends, but still holds enough moisture to be a fairly good substrate for Semi-Hydroponic culture.

Pumice is similar in nature to perlite, but with a higher density and lower moisture-holding capacity.

LECA, standing for "Lightweight Expanded Clay Aggregate," is a general term for any number of more-or-less spherical terra cotta pellets that were originally designed to be the aggregate in lightweight concrete formulations, but later diverted to horticultural use. There are many brands available, including Aliflor, Hydroton, PrimeAgra and others, and they vary greatly in their properties and applicability to orchid culture.

Diatomite is calcined diatomaceous earth muds. It is highly porous, and holds a tremendous amount of water. While it seems to be just too wet for Semi-Hydroponic culture, it has seen good application by itself for pot culture for plants that appreciate a damp root environment.



A few **examples** of the selections I make follow. Keep in mind that I am growing in a greenhouse in southeastern Pennsylvania, so the applicability of these may differ from yours.

Many of my small species plants are grown mounted on virgin cork oak bark from Portugal. In the greenhouse, I'm able to keep the moisture level high to sustain their health.

Vandaceous plants are, for the most part, grown in baskets of coarse charcoal, although I have been successful with PrimeAgra in pots, as well.

Cattleya-types are either in PrimeAgra in clear plastic pots, or in a blend I refer to as "Husk Off." a blend of CHC, perlite and charcoal, with all particle sizes approximately in the medium grade, at equal proportions.

For the majority of my moisture-loving plants, I use **Semi-Hydroponic culture**, using PrimeAgra medium, as it provides a constant moisture and nutrient supply, while guaranteeing great air flow to the root systems.

I am leaning more and more to a 50/50 blend of PrimeAgra and charcoal for paphiopedilums and phragmipediums, but still in Semi-Hydro culture. I'm not sure what the charcoal adds, but it seems to have helped considerably in rescuing some rootless plants I have obtained.

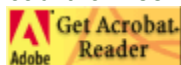
I use sphagnum for small, moisture loving seedlings, but usually move them into S/H culture as they mature.

As you gain experience with your plants, you'll develop a "feeling" for their needs that will allow you to customize the medium for the plant. I have been known to use different media for different plants of the same species, just because they respond differently.

[E-mail This Page](#)

[Download this document as an
ADOBE Acrobat *.pdf file](#)

Don't have an Acrobat reader?
Download it for free [HERE!](#)



This is another public offering of First Rays Orchids
<http://www.firstrays.com>