

# Quick Start - Buying and Growing Your First Paph.

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### Introduction

There are several genera (plural of 'genus') of Slipper Orchids: *Paphiopedilum*, *Phragmipedium*, *Cypripedium*, *Selenipedium*, and *Mexipedium*. This article will deal with the "tropical" slippers, commonly called *Paphiopedilums*, or Paphs, which are from Southeast Asia. *Phragmipediums*, or Phrags, are the other tropical genus of tropical slippers commonly cultivated (from South and Central America), and will be dealt with separately due to different culture requirements. Paphs are houseplants or greenhouse plants unless you live in a tropical paradise, or any other place where the temperatures stay well above freezing all year long. If you live in a colder climate and are looking for the native, wild Ladyslippers that grow in woods or bogs, then you are probably thinking of the *Cypripediums*, which are not discussed here, although we do have information about their pot culture (see [Pot Culture of Cypripediums](#)).

Fortunately, many Paphs, both species and hybrids, are suitable for indoor culture on windowsills, light-stands, and in growing rooms with HID lights as well as in the greenhouse. Light requirements on a majority of the species and hybrids are fairly low to moderate, and if the temperature and humidity are comfortable for you, then it will generally be suitable for them also. We like to say to people that Paphs are not difficult, just different, in that they do have some growing requirements, but they are not so specific as to preclude most people from growing them.

### First Selection



*Paphiopedilum sukhakulii* 'Candor Kioo' AM/AOS. *Paph sukhakulii* is one of the species we highly recommend as a beginner species.

There are several suggestions for choosing your first Paph. Try to select your first plant in bud or in flower. The chance to see your plant in bloom right away is great encouragement for the first time owner, and there will be no surprises if you see the plant in flower before you buy it! It is not unheard of, unfortunately, for some plants to be mislabeled (which is not to say that this is intentional). It does sometimes happen, and should you be looking for a vinicolor (solid dark wine color) Maudiae type flower, and end up with a spotted complex flower, you will be rightly disappointed. Leaf structure and patterning, or lack of, can sometimes be diagnostic in these confusing cases, but not always. Unlike many other genera of orchids,

it is generally okay to move a Paph in bud from the vendors growing area to yours. Paph buds

and flowers are not easily blasted or damaged by a change in conditions, but they can sometimes be lost if taken from the warm environment of the vendors growing area or greenhouse, to an icy cold car in winter time. It's a good idea in winter to have your car warmed up before you transfer the plant from greenhouse to car. Placing the plant in a closed box, or bag, which is then folded shut, is another good idea to protect the plant from temperature extremes. Also, try to arrange the plant so that the bud, or flower, will not repeatedly hit the side of the container as the car moves along, as this could cause severe bruising and a distorted flower. Crunched up newspaper or paper towels will work very well as a buffer on either side of the pot. Additionally, hot temperatures incurred in transit from greenhouse to car can also be disastrous in the summer months, so consider running the air conditioning for a little while in your car, or open the windows in your car, before you place your plant inside to bring it home. Also, don't leave the plants in a closed up car while you run other errands, for if there are extreme temperatures, you can not only kill the bud or flower, but the plant as well in

a short period of time. Buds can also be lost if exposed to exceptionally low humidity, high heat, freezing conditions (as when placed an inch from the windowsill in winter) or very strong light (direct sunlight) while in the home environment. Poor choices for plant placement include: upon a heater or radiator, by the stove or fireplace or space heater, or up against the glass in a south window or west window where it may receive



Three of the flower types found in the mottled leaf Maudiae type breeding, left to right a coloratum, a flame, and a vinicolor.

too much heat from direct sunlight, or too much cold from freezing temperatures. When the plant is in flower or bud, perfect growing conditions aren't all that important, as the plant has matured its growth, and has produced its bud or flower. Just enjoy the flower while it lasts (which can be sometimes up to 8 weeks or more) and place the plant where you will most enjoy it: your kitchen table, the living room coffee table (watch out for large dogs with wagging tails though!) or in the foyer. Presumably, the pot in which the Paph is growing has drainage holes, so you will need to use a saucer or some form of protection for hardwood surfaces to prevent water stains.

'Blooming size' can mean different things to different vendors, and everyone's growing conditions are not all the same, so one person may in fact be able to flower a 'blooming size' plant, not currently in bud, faster than someone else. Technically, 'blooming size' should mean that the plant has grown to mature size, and will flower in just a short time, perhaps a few months at most. Don't be surprised, however, if your plant matures its second growth larger than the first mature growth it had when you bought it---if so, congratulations, you are doing a good job! Before you buy the plant, check at the base of the plant for that new 'start' on the side of the growth that is in bud or bloom, this is the new growth (start) which will produce the plants next



This previously bloomed mottled leaf hybrid shows two starts, a larger one in the front and a small one closer to my thumb.

flower when it matures. The new growth may be very small, only a few millimeters in size, and hidden by the lowest leaf of the plant, so look closely, but be careful if you pry that lowest leaf back, as you could break it off. Lack of this new start does not indicate an inferior plant, only one that has not had time to initiate that new growth, but it's a nice plus if it's there.

Now, what do you buy as a first Paph? Both hybrid and species Paphs (note that 'species' is both the pleural and singular form) are a varied group as far as cultural requirements are concerned, and this means that there is

probably some kind of Paph that everyone can grow!

Following are some suggestions for what to buy as your first Paph. The list may seem somewhat limiting, but once you get growing and gain confidence, and have the time to read a bit more about the different types of Paphs in our other articles, you can spread out as far and wide as you wish in the wonderful world of Paphs and enjoy success. The first choice could be either a species or a hybrid, and it is strictly a personal one. A list of what we would consider beginner species Paphs, taking all aspects of culture into account, including ease of care and ease of blooming in the home environment, includes:

*Paph. appletonianum* (including var. *hainanense*, which has more brightly patterned leaves and somewhat more colorful flowers, but the same growing requirements)

*Paph. argus*

*Paph. callosum* (including var. *thailandense*)

*Paph. sukhakulii*

*Paph. urbanianum*

*Paph. venustum* (including var. *album*)

*Paph. wardii*

*Paph. barbatum*

*Paph. fowliei*

*Paph. hennesianum*

*Paph. fairrieianum*



*Paphiopedilum henryanum* 'High Time' AM/AOS. *Paph henryanum* is another species we highly recommend as a beginner species.

*Paph. gratixianum*  
*Paph. henryanum*  
*Paph. hirsutissimum*  
*Paph. insigne*  
*Paph. spicerianum*  
*Paph. villosum*  
*Paph. glaucophyllum*  
*Paph. primulinum* (including *var. purpurascens*)  
*Paph. liemianum*  
*Paph. victoria-regina* (*chamberlainianum*)



***Paphiopedilum primulinum* var. *purpurascens*.** *Paph primulinum* and its *var. purpurascens* are members of the cochlopetalum group of sequentially blooming Paphs. We suggest both most of the cochlopetalum species and many of their hybrids as excellent beginner Paphs.

If you are thinking of purchasing one of the above, look at the plants' label to see what is written upon it. Do not remove the label from the pot until you own the plant, as a courtesy to the current owner, and it's also best to ask the vendor if you may pick up the pot from the bench to get a better look at the label. Many vendors may offer the above species as divisions of wild-collected plants, which were purchased from their county or origin prior to the 1989 CITES ban on importing wild *Paphiopedilum* species. Frequently greenhouse made sib crosses of species (for example, *Paph. appletonianum* 'Candor Pink Silk' HCC/AOS x *Paph. appletonianum* 'Candor Moonlight') are now widely available, and are usually a better choice because of the probability of superior flowers and more reliable identity.

One suggestion for a first hybrid Paph would be one within the group known as the cochlopetalums. The cochlopetalum section includes *Paph. glaucophyllum*, *Paph primulinum* var. *flavum* (a nearly solid yellow form), *Paph. primulinum* var. *purpurascens* (this has yellow, cinnamon-brown and some green color), *Paph. liemianum*, *Paph victoria-regina* (*chamberlainianum*) and *Paph victoria-mariae*. We have found these to be, with the exception of the latter, relatively easy to grow plants. They



**Cochlopetalum Paphs have a sequential blooming habit, as illustrated here. Each of the bracts represents a previous flower, and if you look close behind the current flower, you will see new buds forming to continue the flowering.**

have the habit of sequential blooming, which can give you a very long period of flowers: on mature plants this can mean you will have flowers---usually one or two at a time--- for several months. Hybrids between them tend to become even easier to grow and flower, and while they are not speed demons as far as growth, the long flowering time makes up for that. When they are mature plants with several growths they can be continuously in bloom. Another

factor in their favor is that even as mature plants, they are not very large in size, even with

multiple growths. The hybrid Paph. Pinnocchio is probably the most commonly available of this type of hybrid. Hybrids between the cochlopetalums and other types of *Paphiopedilum* also generally tend to be easy to grow and flower. Crosses between them and the true multiflorals tend to give inflorescences of 3 to 5 flowers, but usually the first flower or two will fade before the last is open. Beware, however, that some of the multiflorals can produce large plants, even when crossed with the smaller cochlopetalums. Crosses utilizing the smaller multiflorals such as *Paph. wilhelminae*, *Paph. adductum*, *Paph. glanduliferum* and some clones of *Paph. philippinense* will remain a more reasonable size. Crosses between the cochlopetalums and the "single flowered" *Paphiopedilum* are also usually easy to grow and flower, generally maintaining a reasonably compact size and producing 2 to 4 flowers per inflorescence.

Another choice in starter hybrid Paphs are the mottled leaf 'Maudiae' type hybrids. These are probably the most commonly commercially available of all of the hybrid Paphs. You may find such plants available as *Paph. Maudiae*, *Paph. Faire Maud*, *Paph. Holdenii*, *Paph. Alma Gavaert*, *Paph. Makuli*, *Paph. Claire de Lune*, *Paph. Emerald*, *Paph. Clarissa*, *Paph. Gloriosum*, *Paph. Maud Read*, *Voodoo Magic*, and many more. It is not uncommon to find these Maudiae types available for under \$20 dollars in bud or even in flower, and they are very readily available at most retail greenhouses and even some of the department and retail type stores. They are generally also very rapid to grow to



*Paphiopedilum* Luna Moth 'Candor Moonlightflight' HCC/AOS. This represents the fourth major flower type in the mottled leaf Maudiae types, the green and white "albums".

flowering size and add new growths, and are not as strict about what conditions they will accept in order to flower. They are based primarily on the species *Paph. callosum*, *Paph. lawrenceanum* and *Paph. barbatum*, but at the current level of breeding may include other species in their heritage, many of which appear on our easy species list above. The previously named hybrids may be available in 4 different 'types'. Vinicolors, which have an overall medium to dark wine color on all parts. Flame vinis are similar but have a dark wine halo covering the upper part of the dorsal sepal, with a greenish window at the center of the base of the dorsal, and frequently also a lighter greenish halo around the edges of the dorsal. The coloratum forms have much more white in the dorsal, with vertical red and sometimes also green striping, and the red in the flower can vary from pale red to dark burgundy. The last form is the pure green and white or album forms, which lack the ability to produce the red pigments (anthocyanins). All of these forms may have smooth colored or warty petals depending on the breeding.

There are two other types of mottled leaf Paphs commonly found, the brachypetalums (*Paph. bellatulum*, *Paph. godefroyae* (*leucochilum*), *Paph. concolor*, and *Paph. niveum*) and the parvisepalums (*Paph. delenatii*, *Paph. emersonii*, *Paph. armeniacum*, *Paph. micranthum*, and *Paph. malipoense* [there are other newly discovered species, but they are not legally in



**Paphiopedilum Magic Lantern is one of the parvisepalum hybrids that is very forgiving in ease of culture and blooming, and who can resist its beauty.**

cultivation, in any form, outside of their countries of origin at this time]). These are not the mottled leaf type we suggest you start with, either as the individual species or as hybrids, but rather as the plants that you can 'graduate to' after growing some easier and less expensive plants. (Typically, the Parvi and Brachy hybrids can cost several times that of the Maudiae group.) The Parvisepalum and Brachypetalum have substantially more specific cultural and flowering condition requirements, but this is not to say that some individuals will not have success with them, only that they are not suggested as a first Paph. They are wonderful plants that can be readily grown and flowered in the home with the right, specific conditions, which may be more difficult for the novice to create and maintain. The parvisepalums, in particular, seem to be irresistible to most, so we

will make one exception here. The hybrid Paph. Magic Lantern, which has to be considered one of the finest primary Paph. hybrids, seems to be quite forgiving in both culture and flowering requirements, so may be considered suitable as a first Paph. The color on the good Magic Lanterns is a bright, rich rose, particularly if the cross was made with *Paph. micranthum* as the capsule parent (which would be listed first on the tag in the pot) and in many ways, it can almost be said to be superior to either of its parent plants, *Paph. micranthum* and *Paph. delenatii*.

As we suggested earlier, if possible for your very first plant, buy it in person. This will give you a chance to examine the plant carefully, which can be a learning process in itself. Later on, when you are more experienced with Paphs, we will suggest that you devise your own potting medium, use pots that suit your conditions, and always replot the plants you buy immediately into it. But for your first Paph, we want to maximize your possibilities of success and get one that is in an appropriate pot and medium to start with.

First, check the relationship of the plant size (referred to as the 'top growth') to the pot size. If it is a small plant in a very large pot, be careful as this could create conditions, depending on the mix, where the roots stay wet for extended periods of time, and these conditions will not allow the roots, or the plant itself, to survive for long. Paph roots require both air and water, and a 'mucky' or soil-like mix will surely preclude much air getting to the roots, which will eventually cause the death of the roots and the plant. A dense and wet mix is also very attractive to slugs, snails and fungus gnats, which is another reason to avoid a plant potted in such a mix. It may be possible that the plants' grower could maintain conditions where a plant potted as such would dry out quickly, but it is highly unlikely you will be able to duplicate this in your home. The appropriate pot size to maximize your success will probably appear comparatively small for the plant considering the size of the leaves. This is a good thing, as it indicates that probably the plant's roots will dry out in 3-4 days before rewatering, and the plant's roots will thus not stay overly wet.



**This mottled leaf Paph. is a good candidate for a first Paph. It passes the "wiggle test" to show it is firmly rooted, has clean leaves with good color, is potted in a nice open and fresh mix, and is in bud. Note that the anthocyanin (red) pigment at the base of the plant is natural coloration, not related to the soft brown rot you need to look out for.**

Next, take a look at the medium itself. Again, when you are very experienced with growing Paphs, you probably could adjust your conditions and watering to grow them in a wide variety of mediums. But to start with, we are looking for a very open and free draining medium to minimize the number one cause of dead Paphs, and that is root rot due to lack of air at the roots, and staying moist too long at a time. It helps to remember that no Paphs are found growing in the wild in swamps, and are rather considered humus epiphytes, i.e. plants that grow either on rocks, or in organic detritus in tree crotches, or on ground litter of dead and decaying leaves, twigs, etc. What you are looking for is a 'particulate' sort of medium, containing small chips of material such as bark, coconut husk chips, sponge rock, charcoal, lava rock, aliflor or other of the lighter weight stone based aggregates. What you want to avoid is a medium that has a fine-grained appearance because it has decayed to mush, or one that looks like the potting soil often used for other houseplants. These are probably based on peat or coir (pronounced "kwarr", and made from ground up coconut husk). Even if the plant started out with good roots, you will likely have a difficult time

maintaining them under your conditions in such a mix. Other plants to avoid are those that are growing in some kind of moss, as this medium is definitely not suitable for most first time growers, and it's very possible that such plants will not have an abundance of roots.

Additionally, moss is difficult to rewet once it completely dries out, and while you may think that you have watered the plant, you may have actually only watered the top of the moss, and this means that that roots will stay too dry.

Now that you've found a Paph that meets the above criteria of reasonable pot size and an appearance of a healthy plant potted in an open mix, let's take a closer look. First, with permission of the storeowner, lift the plant up by the pot. While holding the pot in one hand, gently and very slightly wiggle the plant at the base with your thumb and index finger.

If it seems well anchored in the pot, then there's a good chance it has the most essential requirement, a good root system. If it seems poorly anchored in the pot, put it back on the bench in the same place it came from. This plant may not have good roots, or at best, may only have roots that circle the top of the pot because the mix is too dense for the roots to penetrate any further and still get the required air. This is not a plant you want to start out with. Next carefully look at the leaves, especially including the undersides, and peer down into the leaf axils as best you can. You are looking for evidence of scale and mealybug insect presence. We have included photos of what some of these insects look like for reference. You also want to look for any areas of very fine white cottony masses, or a black sooty material that wipes from the surface of the leaves (sooty mold). These can also indicate the presence of these insects. If the

plant passes the bug inspection, next look for any signs of soft brown areas anywhere on the leaves, especially at the base of the plant. This would indicate the presence of one of two types of bacterial rot that are very devastating to Paphs once they get started and are difficult to eradicate, so do not consider a plant that you suspect has them.



**The dreaded mealybug.**



**The even more dreadful armored scale. Once infested, these can be difficult to eradicate.**

Sometimes, the brown rot will be nearly invisible at the base of the plant, and you may have to gently brush away some of the potting mix at the base of the plant with your fingers to find the area from which the roots begin. If this area is free of brown rot, or dark spots, or a 'transparent' aspect of the lowest part of the leaf (which is another form of bacterial rot), then this is a plant you may consider. Also, look at both the top and undersides of the leaves for any unusual patterning that seems to occur only sporadically on the plant. Regular, even mottling of the leaves is normal, but isolated, dark patterns, especially very small spots that are pitted or light brown and appear in clusters, indicate that this is a plant that should be

avoided as it probably has a fungus infection.

A common question has to do with whether it is advisable to purchase a plant that has a yellow leaf. If the plant has three or four other healthy looking leaves making up the growth, it is perfectly normal for it to shed a yellowing, lower leaf, so generally you do not need to be concerned about this. This is especially apt to be the case in the late fall and early winter, and when a plant is pushing up a new inflorescence. The old leaf has done its job, and is yellowing prior to being discarded by the plant because the plant is cannibalizing nutrients from it. If a majority of the leaves on the plant are yellowing, then you may have cause for concern. This particular plant may be in the process of losing all its roots, or may be suffering from a nutrient deficiency, or may have some other problem you will have to deal with if you buy it.

If the plant you are considering is in bud, but the bud is just barely showing, check to see that the bud is plump and actually alive and growing. Occasionally, the leaf axils that contain the bud may collect water during irrigation that allows bacteria to grow, which can kill the developing bud. If the bud is deep in the center of the plant, flat and very dark, it has probably died and is not going to develop any further, and the plant will have to mature a new growth before it will again produce a bud and flower.

## Growing

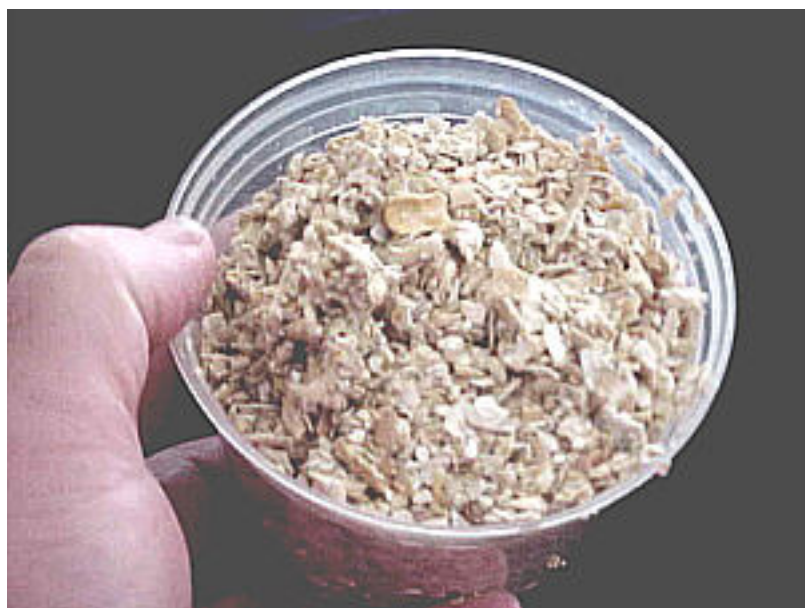
### Watering

Watering is probably the single biggest factor that will dictate your success with a Paph. Generally, we don't like to use common catchy statements and phrases in culture advice, probably because so many of them are wrong. But, "you can never water a Paph. too much, but you can water it too often" is one of the better ones we've heard. Simply stated, when you water, really water that plant. You want water

quickly running out the bottom of the pot and you want several pot volumes of water to run through the pot each time you water it. This not only makes sure that you properly rehydrate the medium each time you water, but that you do not have any excess build up of salts in the pot. However, overwatering in the sense of watering too frequently, and not letting the plant's medium dry out somewhat between waterings, is probably the number one reason Paphs die an early death. There has been, and unfortunately still is, a large misconception that even allowing the potting medium to approach drying will kill a Paph's roots. This is probably based on the use of poor quality water, which would form salt deposits on the roots of plants if the pot were allowed to dry out. This has led to a second misconception that the plants should be grown wet all the time, which in turn has probably killed far more plants due to root loss than a little drying would ever have done. Not everyone has such bad water.



This Paph has a new growth in bud and an older flowered growth. The lower yellowing leaf on the older growth is a natural process of senescence and does not indicate an unhealthy plant.



Calcium carbonate precipitated from hard water in a water heater. This is the stuff that makes water "hard".

If you do have extremely hard water (indicated by residue in tea or coffee pots, or if your hot water heater builds up scale interiorly), you can minimize salt build up by using very little fertilizer and water copiously when you do as just explained. It also should be noted that most of the Paphs we've listed as beginners plants here are not among the more sensitive in the genus to water quality---that was one of the key issues we used in selecting them. If it turns out that you have sufficiently bad water to cause problems for even these plants, there are other ways of dealing with this problem explained in the water quality

and mineral nutrition chapters. The signs you will look for are obvious, whitish mineral deposits on the surface of the medium, or Paphs with burned as opposed to rotted roots, or Paphs that

have roots that are not rotted but do not have active growing tips. The plants will also be slow to form new growths and 'sulky'. If you are unsure of your water quality, take a shallow bowl, fill it with your tap water, and allow it to evaporate over several days. Look at the residue in the bowl; if it is easily visible, then you very likely have 'hard' water, or water that has a high content of total dissolved solids (TDS), designated in PPM (parts per million). You should get your water analysis from your department of public works, or done by a private company if you have a well. Water with a very high TDS can prove problematic to growing your first Paph, but in this case, with a single plant, you can purchase bottled distilled or reverse osmosis water, and use this for irrigation every second watering. This should help flush from the roots any minerals accumulated from your tap water. The final point on water is do not use water that has been 'softened', as this will kill the plants. If you are interested in more information on water and water quality, please read ["Water Quality Issues for Slipper Orchid Growers"](#).

## **Fertilizing**

Fertilizing is the second most important aspect of Paph culture. We have detailed information in the chapter on mineral nutrition, but for simplified purposes of getting you going with your first Paph, the suggestion is to fertilize very weakly. If you don't know what your water quality is, or suspect that it is pretty hard, then fertilize only every second or third watering, and use about 1/4 of the recommended dosage on the label of the fertilizer. If you know you have pure water, or are using rain water or distilled or otherwise purified water, then you may consider fertilizer every two or three times out of four that you water, and possibly slightly increasing the amount to as much as half the recommended dosage. If your tap water is hard (see description in the above paragraph) and you are using rain or otherwise purified water instead, consider watering with a fifty-fifty mix of your tap water and the pure water once a month to insure adequate calcium supply. Also consider substituting Epsom Salts for the fertilizer at the same level you'd use the fertilizer about once a month, regardless of your water source. The above program is basically a compromise program to put you in a situation under which the beginners Paphs listed will grow under a wide range of possible water qualities; it is meant to simplify things until you get to the point where you want to learn the more intricate details of water quality and fertilizing that will allow you to become a master Paph. grower. If you want more details on fertilizing, see ["Mineral Nutrition Issues for Slipper Orchid Growers"](#).

## **Light**

The first point to consider with light is that it is better to err initially on the side of too little than too much. It is easy enough to slowly increase the light level to the proper level with no trauma to the plant, whereas placing it where it may suddenly get direct sun or too close to a high intensity discharge light may damage the plant. Under fluorescent lighting, it would be difficult to give the plant damaging light levels, although you can certainly cause unsightly but not fatal burning of the leaf tips if they touch the bulbs.

One can gauge the light intensity of greenhouse or HID grown plants by placing a hand about 10 inches above the plant and looking at the shadow cast upon the plant. You should see a slight shadow; if it is a very pronounced shadow, then your light levels may be too high, whereas no shadow would suggest a light level that is too low.



Checking light levels by judging the intensity of the shadow cast by your hand.

Paphs that are growing in too strong light will generally exhibit bleached looking leaves, i.e. very light green or approaching whitish green, and will mature smaller and smaller growths, and may put out multiple, tiny growths at the base of the plant. Inflorescences will also tend to be short, and the flowers may be small and hard. Too little light, and the leaves of your Paph will be relatively dark green in color, overly long, perhaps floppy and/or lacking substance. Growths will mature slowly, and the plant will take longer to flower than if it were grown in higher light----perhaps the plant will take 1.5 years to mature a growth to flowering size, for example, rather than the expected 10 months. If you believe that you have too much light or little light for your Paph after a period of time, make the changes to the correct conditions slowly and over a period of time so that the plant can become accustomed to the new conditions. This way it will not suffer trauma during the transition----in other words, don't take a dark green, floppy plant and place it in a bright south window and

hope that you can thereby speed up its growing and flowering. It will only burn in this too high light, and you may end up losing the entire plant in a very short period of time. Generally, you can expect the species Paphs to flower every year, pretty much on a set schedule, with the exception of the previously mentioned cochlopetalum species and hybrids, which can flower successively over several months. The Maudiae types can easily flower twice a year under the right conditions.

Windowsill growers need to be aware of the amount and duration of light available at the window, as well as the temperature fluctuations where they plan to grow their plants. Some people have had limited success with northerly facing windows, and this can work if the window is large, or there are sliding glass doors at this site, and there are no trees further obstructing the sunlight reaching the plants. If the Paph is placed on the windowsill, and you live in the north where the winters are frigid, you will have to maintain extra distance between the pot and the glass of the window. Bear in mind that temperatures next to the window glass can be close to freezing if that is what the outdoor temperatures are! Be careful not to overly chill the roots of the plant, which might just slow down the plants growth, but could also freeze it to death if the temperatures plummet. If possible, it might be best to place the plant during the cold winter months on a table close to the window where it will get sufficient light, but will also stay closer to the temperature of the room itself. If the north facing window is less than large, supplemental lighting could be added in the form of a 'shop light' with 2 fluorescent bulbs hung over the plants on the windowsill or table placed next to the window. Single bulbs sold as 'grow lights' are, in our opinion, not worthwhile. Generally, quality and quantity of light is better for Paphs at east or west facing windows. South facing windowsills can be a challenge to grow in, because of the light intensity and accompanying heat from mid day sun, especially in the summer. Growing in a south window is possible, though, if you can place the Paph back some

distance from the window, say around 12 inches or so. When the sun is strongest at this location, place your hand on the leaves: if they have become warmer than your hand temperature or feel hot, then the light (and the heat) may be too strong and the plant will need to be moved back. Alternatively, if it is not excessively hot, increasing air movement may help dissipate the heat at the leaf surface. If these solutions are not possible or successful then it may be necessary that the plant be moved to a different window. Alternatively, you could place your Paph in this window if there is a plant in front of it that can withstand this stronger light and heat, and will thus shield the Paph somewhat from the harsh conditions. Use of sheer curtains may also work as long as they do not excessively limit the total amount of light that reaches the plants leaf surface. You may have to experiment with the curtain for several days, pulling it several inches either way, before you feel that you have it arranged 'right', so that the plant's leaves will not get hot to the touch, but it will also get enough light so that you will get flowers.

Under a two 40 watt bulb fluorescent light set up with standard bulbs, you will want to get the plants leaves within a few inches of the bulbs. We prefer C50 (5000K) bulbs, but you will probably be able to do fine with almost any of the commonly available bulbs. When you are ready to optimize you fluorescent set up, we suggest Philips C50 Ultralume bulbs, which have a substantially higher lumen output than standard C50s and will allow you to do better with some of the higher light requirement Paphs, such as Paph philippinense and other multiflorals. If you have a 4 bulb fluorescent set up you will probably be able to place the plants 6 to 8 inches below the bulbs. Remember that the bulb output is greatest near the center and diminishes towards the ends, so arrange your plant placement accordingly. Also, growing under fluorescent lights will automatically provide some of the day/night temperature differential of several degrees that most plants appreciate, as the lights go on and off.

HID (high intensity discharge) lights (high pressure sodium or metal halide) put out considerably more lumens per watt, so care must be used in plant placement with them. It is indeed possible to burn a Paph if placed too close or directly under one of these lights, so using the light shadow rule, start below and to the side of the light, gradually moving the plant into higher light until you have it in a position where the leaf color is ideal.

Paphs do not appear to be particularly photoperiod sensitive and the plants suggested for starting with are not among those that require higher light intensities. A photoperiod of 12 to 14 hours should work very well with these plants. Windowsill growers unable to provide this longer photoperiod in the winter months may not experience as rapid growth without supplemental light, but the plants suggested here nevertheless should grow and flower for them.



High Intensity Discharge light fixture.

## **What to do with long inflorescences**

Some Paphs, both species and hybrids, can produce extremely long inflorescences that can be difficult to deal with especially if you are growing under fluorescent lights. Also, as the inflorescence grows in length, it will at some point actually touch the bulbs, which will inevitably kill the bud by drying it out. Therefore, any Paph in spike must be moved out from under the lights when the bud starts to get too close to the bulbs. 'Too close' is a bit difficult to define, because humidity, and air movement, and density of potting mix and its speed of drying, will have some affect on the outcome, but for safety's sake, remove the plant from under the fluorescents by the time the bud is within a few inches from the lights. Now, what to do with the plant? Well, the inflorescence and the resultant bud will grow in the direction facing the source of the light (think back to grade school science experiments and sunflower seeds and closets and light bulbs). You have basically 2 choices at this point. You could move the plant off to the side on a table, or on to a crate, or some other stable object, and place the developing inflorescence facing the closest fluorescent light. Place it probably not more than 24 inches from the light source, as you do not want to encourage the plant to produce an outrageously long inflorescence. You want the plant to funnel the majority of its resources into the flower, not the stem length. Or, you could place the plant close (but not too close!) to a bright window and allow the inflorescence to develop there.

## **Temperature & Humidity**

We are fortunate that most of the Paphs on the beginner's list will grow just fine at temperatures and humidity levels with which we ourselves are comfortable. Ideally, Paphs probably would like maximum temperatures not above the 85F range, but can tolerate much higher temperatures with minimal stress, and can go down into the higher 50's F if necessary without suffering leaf or flower damage. The Paphs listed as beginner plants would prefer to stay mostly in the 60-80F range, preferably with a day night differential of 8-10F, but again for this particular group this is an ideal, but not an essential at all. The day/night differential is fairly easy to attain, either when growing under fluorescent lights when the lights go off, or on a windowsill when the sun goes down. Again, ideal relative humidity would be in the 70 to 80% range, but these plants if otherwise cared for properly (i.e. you've maintained a good root system through having an open potting mix, and a reasonable watering schedule) will tolerate lower humidity in the 40% range very well. Do keep a careful eye out for spider mite damage if you do grow in the lower humidity range, and especially if you grow under fluorescents. Spider mite damage will appear most often on the upper sides of the leaves, and will look like fine red dust, and you may also see a dull grayish minutely pitted surface to the leaves and slight webbing on the undersides of the leaves

## **Air movement, etc.**

Air movement accomplishes many things in orchid culture. In warmer, high light conditions, it helps prevent heat build up on the leaf surface. In cooler conditions, it dries leaf surfaces after watering and thus limits pathogen growth capable of flourishing on wet surfaces, and under all conditions it helps limit a plants' pathogen exposure by keeping spores from settling on leaf surfaces. A few well-spaced plants on a windowsill will probably do fine without supplemental air movement, as thermal currents should provide enough. However, this

gentle sort of air movement is easily disrupted as more and more plants are crowded together. Under these circumstances, or when plants are clustered together especially under fluorescent lights, it is a good idea to provide a small fan to keep the air moving around the plant foliage. Care should be taken in placement of the fan so that it does not force air directly onto the leaves of the plants, but rather pushes the air around and adjacent to the plants. The problem of direct air flow from a fan in windowsill and underlight cultivation is that the closest plants may dry out extremely fast due to their proximity to the fan, while plants that are somewhat shielded from the fan, or are further away, may take considerably longer to dry out. This condition could make figuring out when and what to water difficult. An ideal situation is when you can place 2 fans that blow the air circularly around the plants, perhaps with one fan placed higher than the other, with the upper fan tilted slightly down to push the warmer air down, and the lower fan tilted up to push the colder air up into the warmer air, thus making the temperatures in the growing area more uniform. There are some cases, when you are growing certain Paphs, that you will actually want the warmer or cooler microclimates that are created in your growing area, either by proximity to a window or light source where the temperatures are warmer, or closeness to the floor on a table or lightstand, where the temperatures are cooler. The fan(s) should be run both day and night.

## Repotting

When and how often should a Paph be repotted? The short answer to this question is an easy one: you repot the plant when it needs it, whether it's spring, summer, winter or fall. Unquestionably, ideal times for repotting are when the weather is going to be warm for some time to encourage new growth, but if the plant needs repotting, it's best not to postpone it.



**A proper repotting job in an appropriate mix is essential to good root growth.**

Most plants appreciate, and need, repotting annually if they are in standard bark mixes. Plants that are grown in the 'new' coconut husk mix probably can go longer, perhaps up to 2 years or more if necessary, as the coconut husk chips do not break down at the same speed as the bark mix does. Seedlings can benefit from twice yearly repotting if you have the time, as they definitely experience a growth spurt in the new medium. Generally, it's helpful, but not absolutely necessary, to water these newly potted adult plants (not the seedlings) a little less often than your other plants, to encourage roots to grow and seek water and nutrients in the mix.

Any Paph that looks unthrifty, sickly, wilted, is falling over in the pot, is starting to grow up and out of the pot, has overgrown its pot with an excessive number of growths, has any sort of wet or damp rot visible on the leaves, has extremely pale leaves, or has excessively wrinkled leaves should be repotted. These conditions can be strongly correlated to poor roots and/or poor growing conditions that caused root

loss, with the subsequent loss of ability of the plant to absorb water and nutrients. If the plant does have evidence of bacterial or fungal problems, remove these infected areas either by tearing off the affected leaf or leaf area, or use very carefully a small, sharp knife to excise the infected area. Wash your hands before handling the plant after you have done the 'surgery'.

What should you use for a potting mix? The one that works best for you and your conditions! You can grow Paphs in any number of different types of potting mix; you can even grow some of them mounted if you have the right conditions. The basic needs are ample ability for holding air and water, ability to stabilize the plant, and not too high a salt retention. The most traditional mixes for the past several decades have been based on fir bark, with various additives such as perlite, aliflor, sphagnum moss or rockwool. Mixes utilizing coconut husk chips and lightweight aggregates are becoming more popular, and are our preferred mix. For more information see "[Use of Coconut Husk Chips as a Potting Mix Base Superior to Bark](#)" and "[Coconut Husk Chips Followup to FAQs](#)".



**Small Coconut Husk Chips (CHC).** We have found a mix based on CHC and a light aggregate (in our case Aliflor) and charcoal works best for us.

Next you need to choose a pot. To a certain extent, determining pot size will take into consideration your growing conditions, growing medium and watering habits, but as a general rule you do not want to 'over pot' Paphs. Rather, pot them so that the roots just comfortably fit into the pot, like a hat on your head: snug enough to stay on but not uncomfortably tight. The other consideration in a pot for Paphs is that it has sufficient drainage. Many pots designed for other types of plants do not drain well enough, so it may be necessary to enlarge existing or cut new drainage holes in your pots. The choice between clay and plastic also depends on your circumstances. Plastic pots are available readily in more sizes, lightweight and relatively inexpensive, and are easily modified to increase drainage if necessary. Clay pots dry faster and are more stable on the bench, but also tend to accumulate salts. They also tend to cool the root zone a bit, which can be either a benefit or a detriment depending on your climate.

Now that you have your mix and your pot, you're all set to repot. First, to unpot your Paph: firmly hold the pot upside down, and with one hand hold onto the pot, and with the other hand grasp the plant at its base, and slowly pull it out of the pot, allowing all the old mix to fall into the trash. If you have difficulty removing the plant, you can carefully squeeze the pot all the way around before turning it upside down, which should loosen the roots sufficiently so that the plant can be removed. Any of the old mix that adheres to the roots of the plants can be gently removed. If you have to struggle to remove it, you will probably do more harm than good by removing it, as you will damage the roots. Now, carefully hold the plant in the proper position in the pot with one hand (so that the base of the plant----where the roots come out---is just below the lip of the pot), and start to gently work mix in and around the plant's roots, gently packing it in place with your fingers. Make sure that as you add the mix, you get the mix all the

way to the bottom of the pot. Once you have the mix in place, press down very firmly with your fingers all the way around the top of the pot, making sure that there are no empty spaces that could be occupied by mix. It is not likely that you will press with enough force to seriously injure the roots. If the mix condenses with the pressure of your fingers to considerably below the base of the plant, you'll want to add more mix so that newly emerging roots will have something to grow into. You want the mix level to come up just to the junction of the base of the plant with its roots. If mix is built up higher onto the base of the plant, you will be inviting rot. If the plant is not stable in this position, despite your efforts, you can fashion a wire into a U and insert it over the crown of the plant and into the pot to add stability until the plant grows more roots and anchors itself. Now, let the plant rest a day, and then you can water it.

Finally, don't be afraid to take a plant out of its pot, once you own it, to check on the condition of the roots at any time. It's better to have to unnecessarily repot a healthy plant, than suffer the consequences of waiting until you have a serious problem with your plant, and have to nurse the plant back to good health and good roots.

## Finished Flowering

When your plant is done flowering, generally, it's fine to let the inflorescence fade on its own ---it will slowly dry out and turn a brownish color after the flower has dried up and fallen off the plant. Simply snap the stem off, using your first 2 fingers and the thumb on opposite sides of the stem, close to where the inflorescence emerges from the plant. Another way to remove the stem, especially if hasn't turned completely brown and dry, is to grasp it close to the base and your first two fingers and thumb, and give it a quick twist in one direction. Most stems will easy to remove, but there are some plants, *Paph. venustum*, *Paph. tigrinum*, and *Paph. fairrieianum* come to mind, that have very fibrous stems and they really need to be severed from the plant with a knife or razor blade. Remember to flame sterilize your instrument of choice after you have removed the stem. If you've chosen one of the cochlopetalum beginners plants, you will want to wait until the stem is definitely showing signs of turning brown before removing it, as these are sequential bloomers and can surprise you with another flower. If there is any question in your mind as to the health of your Paph and/or its root system, and it is in flower, it is best to cut the flower stem off. This will allow the plant to concentrate its energy in growing new roots and new growth for the next flowering.

Paphs only produce one inflorescence per growth (there have been recorded instances of 2 inflorescences growing from the same growth---we had 2 grow out of a single growth of a *Paph. fowliei*, but it is quite rare), so now it up to you to grow the next growth up to flowering size. When you have grown a Paph and flowered it, the plant is "yours". Do not be discouraged if you are not completely successful with your first plant, it may take a little while to get the hang of growing them properly, but it will come if you carefully observe your plants and how they are growing. If you are observant enough, the plants will start to "talk" to you and tell you what is going on. Also remember that all plants are individuals, and it is possible to get the occasional clone that is just a stinker to grow.

Finally, an important concept to keep in mind is one of balance or harmony with regards to the amount of light, fertilizer, heat, pot size, and water that your plant receives. All aspects of orchid culture are closely interrelated. As you may have noticed in the information we've presented, a change in one set of conditions will probably result in the necessity to change other

aspects of culture. A complete understanding and appreciation of this concept develops with experience with your Paphs, and attention to detail in your growing.

It is our hope that we have given you enough information in this article to get you a quick and easy start into growing Paphs. If you have further questions, you may be able to find the answers in our Paph. FAQ. As your interest and collection of Paphs grows, you will want to delve deeper into their culture needs, and read our more detailed articles on various aspects of culture. It is our hope that we can help you be a successful Paph grower, and as a result gain greater joy from this hobby.

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