

Deflasking & Growing Orchids from Flask

If you have a little patience, and can give seedlings the right conditions, buying flasks with orchid seedlings is a good way to acquire multiple plants. This allows you to select for the best, as well as providing a source of plants for gifting/trading/selling.

Flask Sizes

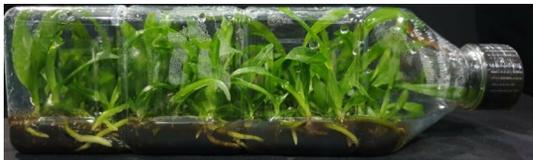
There are two flask sizes available:

Standard flasks:

US = 500 ml flask or lab tub with 25-35 seedlings (qty depends upon genus)



Asia = Horizontal square bottle with 40-60 seedlings



Hobby flasks:

6-12 seedlings. Not every breeder offers hobby flasks, but in the past I have purchased this size from Carter & Holmes, HMI, Ruben and Woodstream Orchids in the US, as well as Hengduan Mountains Biotechnology Ltd. in China.



Freshly Deflasked Seedling Conditions

The first 6-12 months out of the flask, orchid seedlings require:

- **High humidity**
- **Temperatures $\pm 10^{\circ}\text{F}$ higher than mature plants**
- **Somewhat lower light than mature plants.**

To provide these conditions, I modify a storage tub with shade cloth cover, a shelf and water reservoir in the bottom. This 'mini greenhouse' is then placed on an electric seedling heat mat. This provides the correct conditions inside my actual greenhouse, where the minimum temperature otherwise is 55°F (13°C), and light levels as high as Cattleyas can tolerate.

- Cut 3 lengths of $1/2$ " PVC conduit, each about $1.1/2$ " longer than the width of the storage tub.
- Drill 6 holes ($7/8$ " diameter) about 3" above the bottom of the tub, 3 on each side.
- Drill 1 hole ($7/8$ " diameter) in one end, 2" above the bottom. This is the drain hole for the tub.

- Drill an $1/8$ " hole through each end of the conduit sections (make sure holes are in same direction at opposite ends).
- Cut egg crate (or a wire shelf) to fit inside the tub. Egg crate is in the building materials section in Home Depot.
- Push conduit segments through the holes in the sides. Push a nail (or a cotter pin) through the holes you drilled in the conduit sections, to prevent conduits from falling into the tub.



- Cut out the center of the lid, and cover with shade cloth. You can attach shade cloth with small machine screws & nuts, or simply use duct tape.
- Place the seedling heat mat and the tub where you want this 'mini greenhouse' located, and add water to a depth of $1.1/2$ "-2". If indoors, **place a bucket under the drain hole.**
- Place seedling compots/flats on the shelf, and cover with the lid.



Deflasking

Some 'flasks' are jars, with a screw lid the same diameter as the jar, others are lab tubs with a full diameter snap-on lid. With either of these you can gently shake the agar 'cake' with seedlings out of the jar.

If the agar is stuck, add some lukewarm water and swirl till it releases from jar. It might be necessary to insert the tip of a clean knife blade along the edge to allow the water to penetrate under the agar.

When seedlings are in a narrow neck glass flask, you have to break the flask. Some recommend wrapping the flask in a couple of pages from a newspaper, and then tapping with a hammer. Others recommend doing it in a bucket with water, holding the flask under the surface while breaking it with a hammer.

I usually do it in my hand, tapping the bottle on the bottom edge (both hobby & 500 ml flasks), or on the shoulder of the square bottles from Asia. I have successfully deflasked some 40+ flasks in this way, and only cut myself once (when a bottle sorta exploded in my hand).

Whichever method you choose, **be careful.**

Continued . . .

Cleaning

If you had to break a glass flask, first remove any glass splinters stuck in the agar.

Next you want to remove most of the agar, but do not go crazy. You can gently scrape off gobs, where there are no roots, and you can rinse off more by spraying with water.

- **When rinsing off the agar, do this over a colander to catch any seedlings falling free.**

Aim for this level of agar removal (abt 80% removal, if you try for more, you will just break the roots):



If the seedlings separate by themselves while you clean the agar off, you can pot them several to a small pot (or individually if very large). If they do not separate by themselves, **leave them together** and plant the lot in a single compot (short for 'community pot').

The roots formed in the flasks are often tightly intertwined, and they are ALWAYS very tender and brittle. If you try to force separation, you will break off the majority of the roots. That is NOT a good thing.

For **Paphiopedilum** (pictured above), I make every effort to keep all seedlings from a flask together in a single compot. Their roots are too brittle to risk trying to separate them. They need at least 10-12 months to grow non-flask roots, which you can then gently tease apart.

Vandas & Cymbidiums have sturdy roots, and can usually be separated. However, **seedlings in a compot or tray always grow better than seedlings potted individually**. This should apply to **Phalaenopsis** also.

Cattleyas have fairly sturdy roots. I usually try to tease flask contents apart, so I can place clumps of 5-10 seedlings in each compot. I do not try to separate individual seedlings, unless they do it by themselves.

I have never deflasked **Dendrobiums** or **Oncidiums**. With their smaller roots, I would be inclined to treat them similar to Cattleyas or Paphiopedilums.

Potting Mix

Obviously you cannot use a coarse bark mix. There is some difference of opinion between individual growers as to which mix to use. Each grower needs to decide, which mix will work best **with the watering schedule that he or she can provide**.

Some growers use pure sphagnum, others use a predominantly granular mix. My preference is finely chopped sphagnum (cut with scissors, about 1/4" cuts), seedling bark,



charcoal and perlite, in approx. 5-2-1-1 ratio. Ron Midgett was favorably impressed with the results achieved in this mix.

I place the plants in a 3½" or 4" pot (sometimes 5" bulb pan), and gently pack mix around the group of seedlings. I try to work some mix in between the plants as well, using chop sticks. Then I water them immediately to get the mix to settle.

Here are two fresh compots with Paphiopedilum fr, on hobby flasks. The one on the left could have waited a couple of months, but since I had to do the one on the right, I did both at the same time.



After the plants have spent 10-18 months in compots, developing new and stronger roots, with freedom to grow in all directions, it is much easier to separate the now larger seedlings. On occasion two plants might still have roots firmly intertwined, in those cases, you can leave those plants together, till they eventually grow in opposite directions.



For comparison (photo on the bottom of page 2), here are 3 other compots from hobby flasks, some 10½ months after deflasking; they are ready to be split up.

At this stage, I try to get individual plants into either 2¼" 'rose' pots (as shown here), or into 3" standard pots.

The smallest plantlets from the compot are going into mini compots = 2-3 plants together.

These individual pots go back into the seedling tub for another 3-4 months, so the plants can be well established before they join the 'adults' in the greenhouse.



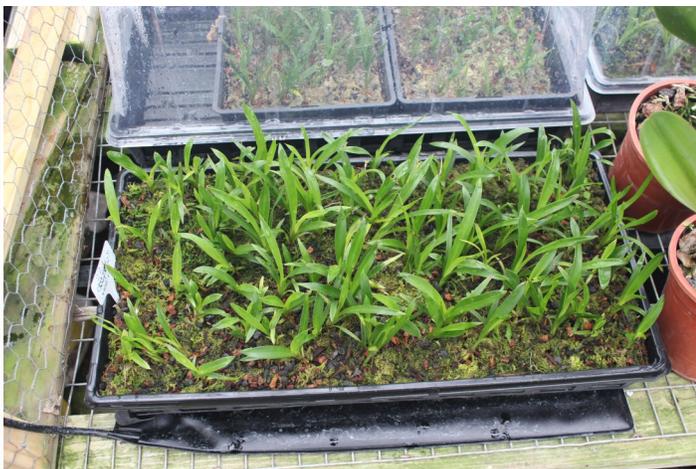
Next, here is a 4" compot from a commercial nursery in HI. Seedlings are in pure sphagnum, and have been in this compot for 9-10 months.

This compot is ready to be split up (Update: there were 26 seedlings in that pot).

When I have a large number of seedlings (multiple flasks of the same cross), I often use

trays or flats in place of compots.

Here you see about 80 Cymbidium seedlings in a single tray compot. In this case, the tray is standing in a flat, which raises it about 1/4" above the seedling heat mat (visible at the bottom of the photo), and the tray is then covered with a tall clear plastic dome to retain the heat & high humidity.



Behind this full tray, there is a tray containing two smaller flats with seedlings.

Fungicide?

Some authorities recommend treating the newly deflasked seedlings with fungicide. They come from a sterile environment, so I do not understand this recommendation, and have never done it. Of course, if the seedlings show signs of a fungal attack later on, by all means treat them.

Drying Off?

Some writers recommend letting the seedlings 'dry off' before you start watering. **I disagree strongly.**

These young plants come from a 100% humidity environment, and have had their roots in agar for the past 8-16 months. They should be watered immediately after being potted up. This also helps settle the mix in between the newly potted seedlings.

Special: Phragmipedium

These require slightly different treatment in that:

1. They do not just want to not dry out, they want to be WET. Use a higher percentage of sphagnum, and place the compot in a saucer with 3/4" water.
2. **Phrag seedlings** also want lower light than most other orchids. In a greenhouse with 50% shade cloth, I still add a layer of 50% shade cloth on the seedling tub.

NOTE: Because we keep them so wet, plan to replot Phragmipediums every 12 months.

You do not want 25 plants?

Few people want 25 plants of the same thing. Think about going in on several flasks together with 2 or 3 other growers, and you will get 6-8 plants each of three or four different crosses.

Hobby/Small Scale, versus Commercial Large Scale

The recommendations in this article are directed to hobby growers and small scale nurseries, which do not have a separate greenhouse for propagation. When a propagation greenhouse is available, freshly deflasked seedlings go into plug trays, where each cell is filled with either sphagnum or a foam cube to hold the seedling in place (and provide moisture for the roots).

I use plug trays for sowing seed of *Adenium obesum*, but cannot rely on this approach for orchid seedlings, since I only go to my greenhouse 2 or 3 times a week.

Orchid seedlings coming out of plug trays with foam cubes after a year look like this:

