

Deflasking Seedlings

The most economical way to buy plants is in flasks. Different operators use different vessels such as plastic takeaway containers, food jars, Erlenmeyer flasks, bottles and even sealed plastic bags. Accordingly there may be different numbers of seedling inside these containers depending on preference, container size and ultimate size the plants will reach in the flask.

Regardless of the above there are several advantages and one perceived disadvantage of buying your orchids in flask. The advantages of buying flasks include the following;

- Economy - with tubestock retailing at \$5 to \$12 depending on genera seedlings in flasks cost around \$1 to \$3. Even the really expensive plants work out to be much cheaper in flask.
- Hygiene - as long as there are no fungal (mould) or bacterial (slime) infections the plants inside the flask will be pest and disease free.
- Opportunity - the plants inside will all be yours and the biggest or best seedlings will not have been picked out by the customer before you.
- Transport - as long as you are not too violent and upset the jelly it is easy to transport a large number of plants inside a flask. Flasks are also the easiest way to bring plants in from overseas as long as you declare them to AQIS on arrival.
- Insurance - you should get a large enough sample from the seed pod to get a good variation and ultimately increase your chances of getting a good clone. Some growers are wary of buying flasks because they get "too many the same" my advice to these growers is that many hybrids have great variation but swapping, selling some and sharing are always possibilities.

The only real disadvantage is the difficulty of getting bottle babies to survive once they are taken out of the flask. The rest of this article addresses the problem of transition from the flask into the 'real world'.

Choosing A Flask

Generally the best flasks have evenly spaced plantlets that are all about the same size and are large enough to be taken out immediately if necessary (because they have been contaminated, dropped or the flask broken etc.). Until you have experience it is best to avoid flasks that are overplanted, have a few big plantlets and several smaller ones or have any sign of fungal (usually a mould) or bacterial (usually a slime) contamination. Generally dead leaves in a flask are a sign that the plants are beginning to lose vigour as the nutrients in the jelly deplete and if this is happening to more than a few of the plants then such flasks are also best avoided. Be realistic in the genera you choose to start with. Genera that are difficult to grow as mature plants will generally be even more difficult to manage from a flask, hybrids are probably easier than most species due to their 'hybrid vigour'.

Managing your Flask

What you do with the flask when you bring it home is largely determined by the readiness of the plants to come out of the flask and you having the time and materials needed. If you need to keep the flask intact until you are ready to deflask then you should do the following;

- Cover the lid/stopper with a small piece of foil or a couple of layers of cling wrap or similar, an elastic band will keep everything in place. With flasks cleanliness is really close to godliness!
- Place the flask somewhere safe from accidents which is light and warm but not in any direct sunlight. A table or windowsill behind light curtains in a north or east facing room are recommended locations. Most laboratories use different types of fluorescent light, the number of hours per day varies between operators, and you may be able to provide something similar.
- Some growers actually place their flasks in the orchid house where the plants will ultimately be grown. The idea is to acclimatise the plants before they are liberated. Proponents of this technique see great merit in doing so but I do not.
- Decide when to take your seedlings out of the flask by determining when they are about to slow their growth as the chemistry of the jelly deteriorates. This is difficult to do without having had

lots of experience but in your early stages it is probably better to wait a little longer than to be impatient

- Avoid deflasking when the weather is at extremes of heat, cold or low humidity (which will usually accompany one of the preceding extremes). Mid-winter deflasking without a heated glasshouse is probably courting disaster at worst and, at best, creating a long time lag before the seedlings begin active growth. I prefer rainy days for deflasking as the seedlings will not dehydrate and the whole process can be conducted indoors.

Getting them out of the Flask

The exact method depends on the type of vessel being used as a flask. Narrow necked containers need to be wrapped in newspaper and tapped with a hammer - yes broken! The use of a glasscutter to score around the base may be a little tidier than a random effort. I have been assured that a sharp tap on the bottom of the vessel does a pretty neat job.

If the flask has a wide mouth, such as a jar, then the whole 'plug' of roots, plants and jelly can be slid out intact using the following method. Tilt the jar at about 45 degrees and firmly tap the bottom rim (corner?) of the jar into the palm of your other hand. If you repeat this while maintaining the angle then the whole plug should slide onto the side of the jar from where you can slide it out of the jar and onto your palm. A little CAREFUL tugging may help to liberate the plug, especially if there is a dense root ball.

Getting Rid of the Jelly

Regardless of which of the above procedures are employed all of the jelly needs to be rinsed away. Care will be needed if a glass flask has been broken as shards of glass look a lot like wet jelly fragments. Once the jelly has been washed off I always separate, as much as possible, the seedlings and try to avoid leaving them in clumps they are then soaked in a fungicide for about twenty minutes. I have found Previcur to be excellent (and expensive!) but any common fungicide should suffice. There is some thought that using fungicide on small seedlings impedes the development their natural resistance and retards the development of beneficial fungi. I choose to continue using Previcur because I have had great success with it and great losses when I haven't used it. At this stage the seedling are removed from the fungicide and sorted into three piles according to size and left to dry off on some towelling for ten minutes.

Potting Them Up

The pile of larger seedlings, often called 'heroes', are potted directly into 50mm tubes and the pile of small seedlings are put into a community pot. The pile of medium sized seedling can be treated either way depending on availability of pots, space, tags or potting mix. As stated earlier seedlings are separated. This is to reduce the degree of damage from any spreading infection at a later date and small seedlings are actually easier to separate at this stage than later when they have a more extensive root system. The mix I currently use for small seedlings is detailed here-

- Cocopeat chips - these pass through a 13 mm sieve but remain in a 6mm sieve, this ingredient would constitute around 80% of the final mix.
- Maidenwell stone - the same size as above and constitutes about 10% of the final mix.
- Perlite - super coarse grade and constitutes about 10% of the final mix
- Pinebark - fine "seedling" grade may be included in small amounts, when I remember, just to utilise my remaining supply

This mix **must** be moist when it is being used. The process used for potting the smaller seedlings into community pots is not vital but I operate on the following principles.

- 100mm pots are used because 'sandwich bags' fit snugly over the top to form a 'humidicrib'
- the pot is filled to about 25 mm of the rim with potting mix.
- the pot is tilted backwards a little so that a thin layer of mix can be retained against the pot wall up to the rim- along about one quarter of the pot's circumference. A wooden chock would work well but I support the tilted pot in a mound of mix in the potting tray.
- The first seedlings are lined up against the mix and then more mix is carefully placed against their roots thus presenting a new 'wall' of mix to accommodate the second rank of seedlings.

This process is repeated as alternate ranks of plants and mix proceed across the pot towards you.

Aftercare

These little plants need some intensive care until they build some resistance to their new hostile environment. Their first week is most important as the plantlets develop the ability to control their moisture loss through their stomata (leaf pores). Placing the plants in a glasshouse until they show signs of active growth is recommended but there are alternatives.

As they most need protection from contamination (airborne, water splashes, touching other plants, bug transfer) and dehydration any of the following barrier provisions will be useful.

- Spray with an anti transpirant such as 'Envy'.
- Create a humidicrib using an aquarium, plastic bin or bucket with a clingwrap 'roof'.
- Make a similar arrangement using plastic bags, either a sandwich bag cap on each 100mm pot or a tray of plants inside a kitchen tidy bag. Ziplock bags are often used with good results.
- Invert a plastic soft drink bottle over the community pot or a group of tubes (remove the neck of the bottle first).

Whatever method is used there should be little need to water the plants in their first weeks and they should be placed away from direct sunlight (try putting your hand in a plastic bag in full sun!!) The difficult decision here is when to remove the covering. I am guided by three principles;

- The plantlets should be showing signs of active growth - new roots, leaves.
- Protection should be removed in stages - a small opening in a bag that is gradually enlarged or removing the cover for longer periods of time.
- Choose favourable weather - I try to remove the covering after rain so that the plants can dry out at the same time as the air around them.

A rainy afternoon spent at the potting bench listening to the radio while deflasking seedlings can be a very pleasant and fruitful experience. Once you become confident with the process you rapidly realise that the real challenge is not getting the plants to survive but writing all those tags ... and then finding space in the greenhouse!

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