

How I Deflask My Orchids and Look After My Seedlings

By David Butler

Why grow from flask

An exciting part of my orchid-growing has always been the raising of young seedlings and flowering them for the first time. The seedlings within each cross are individuals evident in flower quality and plant habit so an obvious advantage is to grow-on multiple siblings and give them every chance to attain flowering size. For both economic and practical reasons this is best achieved by growing from flask and while a bit daunting at first I found deflasking and my ongoing care of young seedlings quickly improved with practice and the better understanding of their needs.

In nature young orchids experience good times and set-backs making their development to flowering quite uncertain. In our situation we need to be mindful of their basic needs, provide consistent care, and be open to good advice. While mindful that each grower's conditions are different, the amazing amount of information on the internet can be a helpful part of our gaining expertise. With understanding and experience comes confidence, a necessity when we start tackling less than ideal flasks.



A flask of strong, well-rooted seedlings

flasks

My idea of an ideal flask is one which contains multiple strongly growing seedlings with good roots and little or no things which may impede the

welfare of the plants.

One problem often experienced is bacterial contamination (a slime on the surface of the agar), or fungus (thick and often fluffy in appearance with the ability to smother the plants). In each case I ensure the seedlings are deflasked before they are adversely affected. A sudden drop in temperature can draw air (and with it spores) into an apparently clean flask.

Excess vegetative growth is called proliferation and sometimes small plants in flask proliferate rather than develop normally. A little proliferation in a flask may just mean there will be fewer good plants but too much and it may indicate a flask to be avoided.

Sometimes the seedlings in a flask look tired and listless, often due to depletion of the food in the agar. The decision to buy such flasks needs the backing of experience and keeping in mind that orchids can take a long time to "turn around" and regain vigour once planted out.

Initially I gained confidence in growing from flask by choosing only 'ideal' flasks with strongly growing seedlings and avoiding the allure of 'cheap specials'. Fortunately, with experience, came the ability to tackle all situations and some special plants came from scrappy flasks of crosses with little germination. Examples are *Sarco*. Misty 'Spangles', the pollen parent of *S. Galaxy*, and *Oncsa* Trinket 'Good One' AM/AOC 82 points, a speculative cross I made (*Oncosotomanum* x *Gomesa forbesii*) which resulted in only one good seedling but which was well worth the effort.



Sarco. Misty 'Spangles'



Oncidium. Trinket 'Good One' AM/AOC

Care of flasks

Having obtained new flasks of seedlings the choice arises between deflasking promptly or holding the flasks for some time. I prefer to plant out at a time which coincides with the orchid's growing season, but will plant out promptly if plants have been deflasked prior to delivery or if there is evidence of contamination. Deflasking may be deferred, subject to other considerations, simply to allow the seedlings to grow bigger.

I find a suitable location for storing flasks is a south-facing windowsill inside the home. Wherever is chosen the flasks always receive good light but not direct sunlight, and are never subjected to sudden changes in temperature. I have two ways of deflasking described below as Method 1 and Method 2



Occasionally a partial flower forms in a flask

Method 1 (an overview)

Hardening off the seedlings prior to planting out

This is an adaptation of an article I read describing the deflasking of *Masdevallias* and have found over many years it can work for *Sarcochilus*, *Dendrobiums* and lots of other genera, both native and exotic. Starting with an article "Seeds so Tiny Hopes so High" I wrote in 1998, I have advocated it's adoption under the heading "Deflasking the Ice Cream Way" or "Deflasking For Busy People".

This is my favourite method of deflasking and started when I was working long hours without the luxury of adequate time to deflask and, more importantly, to follow through with the proper care of the young seedlings. This method sees the plants removed from flask at any convenient time and placed in a sealed container where they remain for a period of days or weeks. During this time sealed in the container they harden off and adapt to 'outside' life – all as explained below..

The timing of the actual planting out from container to growing medium is chosen for when the plants have hardened off, and I can tend to their ongoing needs. From experience this is a 'window' between two to four weeks during which I plant out with the best chance of raising all the seedlings including the smaller ones. By an oversight plants were once left in an ice cream container for seven weeks. The foliage had become hard and the roots wiry but nonetheless when planted out the seedlings grew quite happily.



There is satisfaction in seeing even the smallest seedlings respond to our care and thrive

Method 1 (my usual way)

Deflasking by method 1 in detail

- I prepare a 4 litre plastic ice-cream container or equivalent by lining the bottom with two thicknesses of paper towel.
- The agar is then washed off the seedlings which are carefully separated, preferably into individual plants, or otherwise in multiples to be separated at some time in the future.
- Next the plants are immersed in a suitable fungicide solution (I use Previcur), removed and drained briefly before placing them in the container in a spaced-out fashion and preferably upright. In this regard they may be leant against the container side or sit naturally on their bent flask roots.
- The container is then covered with clear plastic film such as gladwrap to make airtight and placed in a cool well-lit shady place for a period of a few days to a month. Success to a large extent depends on having the right amount of moisture/humidity in the container. The residual water on the seedlings is usually enough but it may also be necessary to slightly dampen the paper towelling. Either way the paper should not appear “wet”.
- At a suitable time I plant out the seedlings from the container and for the initial period place in a well-ventilated humid environment. I usually plant singly into 50mm tubes, with the exception of any small seedlings which may be planted a few at a time into tubes, or larger pots, to form community pots.



Tubes as community pots for the smaller plants

Method 1 (a recent alternative)

A scaled-down version that suits mini-flasks

These days space for my orchid growing has shrunk and I grow from mini flasks as a way of still introducing new plants into my collection. The photographs show seedlings I have deflasked this way being hardened off in smaller ‘take-away’ containers and then planted into community pots. These community pots are then individually enclosed in plastic bags to form humidicribs making their aftercare less critical, something I previously would have reserved for very small seedlings. Shown are the pots with humidicrib wires ready for their plastic bag covering (humidicribs are explained later).



Seedlings placed on paper towel in a container



A clear top (or gladwrap) covers the container



Several containers grouped in a well-lit location



The seedlings after two weeks in the container before being planted out into community pots. The foliage has become tougher and roots wiry.



Two weeks from flask potted in 80mm squat community pots ready for plastic bag covers.



Five weeks from flask the plants were watered, fertilised and the bags replaced for another month as a benefit to the smaller seedlings.

Method 2

Deflasking straight into pots

This sounds simpler than method 1 but I find it requires more care and oversight of the newly deflasked seedlings.

- I carefully remove the seedlings from flask and separate them as much as possible without damaging the foliage or roots, a task assisted by the slipperiness of the flasking medium.
- Most of any remaining agar is washed off and the plants then immersed in a suitable fungicide solution (I use Previcur), removed and allowed to drain.
- They are then potted into 50mm tubes or community pots for very small seedlings, often just using the 50mm tubes as community pots.
- They are then watered well, allowed to dry off, and the foliage sprayed on all surfaces with an anti transpirant (I use Envy).
- The seedlings are then placed in a protected area as described later.

Humidicribs

My humidicribs are simply community pots covered by plastic bags. They are easily created, the plants thrive, and are more versatile for me than purpose-made humid boxes.

- They suit seedlings which are quite small or lack roots as these can be placed in a humidicrib until ready to be potted on and treated normally.
- They give extra care and continuous protection with minimal attention from me.
- I find a size 40 freezer bag pulled over two bent wires and folded under the pot is all that is needed.



A humidicrib set up.

The bag is yet to be tucked under the pot.

- Prior to covering I water the plants and spray with fungicide letting the plants then dry briefly.
- For the first couple of days excessive humidity usually forms in the bag. This is indicated by dew on the inside surface and is readily overcome by removing the bag and turning it inside out.
- Towards the end of the plants' stay in the bag a small hole is made and gradually enlarged to acclimatise them to their future growing conditions.

Tagging seedlings

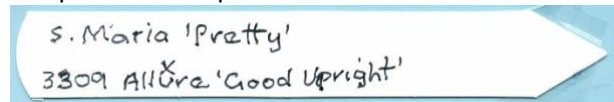
I take care to clearly identify the seedlings from the time the flask is obtained to the time of eventual flowering using a consistent approach and a protocol for each situation. The method of tagging which works well for me is:

- Each batch of seedlings is identified by their cross no. or the parent names, or both and tagged accordingly. The pod parent name is written first followed by the pollen parent. Should it be an already named cross the registered name is not written on my tags at the seedling stage.
- When groups of seedlings are transferred from flask to container (method 1) at least two tags are placed in with them. I don't write on the container as my containers get reused.
- Seedlings planted out from containers or directly from flask (method 2) are potted into 50mm tubes grouped in in their crosses and placed in trays. At least three seedlings are tagged in each group and I separate the groups with coloured plastic strips wide enough to be clearly seen, in this case strips of builders waterproofing plastic cut into strips.



Seedlings in groups of each cross and minimal tags separated by plastic dividers

- Community pots always have at least two tags, one pushed well down, a precaution for when the pots are butted together, and a tag is withdrawn and accidentally pushed back into the adjacent pot (a few mm away). This may be done by a curious visitor without my knowledge.
- To this stage the plants are tagged in groups but when final numbers are known (usually some don't make it) I tag the seedlings individually. The tags show the name of each parent (pod parent first) together with the hybridist's cross no. Small numbers of tags are printed by hand but it is time saving and more accurate for large lots to be printed commercially.
- When eventually a seedling flowers a new tag may be placed in its pot showing the grex name (if a registered hybrid) and perhaps a cultivar name, in which case the old tag remains in the pot as back-up and for the cross information.



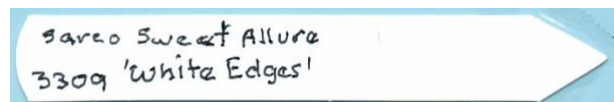
A few handwritten tags accompany each cross



When final nos. are known each plant is tagged



Details of first-flowering may be worth noting



Plant now identified by reg. grex & cultivar name

My seedling growing environment

Very young plants are placed in a 'fresh' but protected place where air movement, humidity and warmth suit their needs and a clear roof allows watering control. A good shady under-bench shelf with some air movement but free of wind and draughts works well.

After a month or two the seedling are ready to be relocated to a similar but less protected environment at bench level where they remain until re-potted and moved to a final location. Here they remain until their first flowering. The use of

purpose-made wire or plastic trays makes handling tubes and 80mm pots easy as they are held upright and move in groups.



Trays of young seedlings on an under-bench shelf. The foreground tray is all one *D. tetragonum* cross.

Creating an environment

As growers we strive to create a suitable environment by controlling shade, humidity, temperature and air movement within the shade house. I do this by:

- Using a permanent outer covering of shade cloth which suits winter conditions works well provided additional shade can be readily added during the warmer months. One method is by way of an overhead retractable shade cloth curtain.



Retractable shade cloth – curtain rings on wires



The retracted curtain reveals the clear w/p roof

- Having overhead weather protection which allows me to control watering.
- Damping down the floor and surrounds together with using a fogging nozzle to raise humidity levels and to cool the plants on hot days.



A versatile hand-held fogging nozzle

- Doubling the shade cloth on the west wall to give protection from drying winds while still allowing some air flow.
- Making the most of microclimates within the shade house.

Dealing with problems

My potting mixes are relatively open and free-draining, being mainly bark based with added stone, perlite, and charcoal.

- Should I find problems with a plant's roots I don't hesitate to repot it into a coarser mix as my general collection all gets watered together. I also follow the adage "if not sure whether to water – don't" as having the correct humidity is more important.



Heat stress led to rot and was fixed with Phos acid

- I find Phos acid (Yates Anti Rot) gives good control of most rots in the vegetative parts of my plants.
- I grow on galvanised wire benches which deter slugs and snails but it is still necessary to keep an eye out for pests as young seedlings can be lost overnight.
- Guidance is often available on the internet when problems arise.

Finally

There is a great satisfaction in raising orchids from flask as plants grown in groups are more representative of each cross's potential, along with the satisfaction of nurturing such small plants to maturity and the joy of seeing them open their flowers for the first time.

My orchid growing activities have, of necessity, been reduced in scale and variety of genera grown, but the principles have not changed hence my tendency to write in the present tense.

The article "Seeds So Tiny – Hopes So High" was first published in The Orchidophile July 1998 (newsletter of ANOS Sydney Group) and picked up by The Orchadian December 1998

A copy of the cartoon which accompanied it is shown below, the artist Ron Formby being a friend and fellow orchid grower.

