Seed Germination Guide

Our seed is freshly collected and stored under optimum conditions of low temperature and humidity to ensure that it remains viable for the best possible conditions. It is important that the use of many species and varieties in cultivation conditions, successful germination cannot be guaranteed but we believe you will find that this seed offers the greatest chance of success in introducing your chosen species into your collection.

Please take time to read the germination tips through - we know you want to get the best results you can from these seeds.

Some useful general information on germination and cultivation:
- Use good quality soil and clean soft water for germination and cultivation - for most Carnivorous Plants, a mix of 2 parts sphagnum moss peat to 1 part sharp sand (Standard Sowing medium) is suitable, however I have detailed other soil mix options under the appropriate species. This rainwater is preferable to tap water, but if boiled to remove lime and chlorine prior to use, tapwater will suffice.

Almost all carnivorous plant seeds are best sown on the surface of the soil and not buried.

Good light going through the pots/seed trays to prevent the risk of mould attacking the emerging seedlings. Check the seed frequently - fungicides (In a 1% strength solution of any fungicide that is not coated on the seed surface) will cause no harm, and is recommended.

Avoid using fungicides at the first signs of mould attack the emerging seedlings. Check and allow the ice to melt. This can be followed by refrigeration using a refrigerator for 24 hours in a solution of 250 ppm (i.e. 100mg GA in 400ml water). Sow on mild live sphagnum to help prevent the ice forming on the seedling. For B. gigantea this is certain the most reliable method, though great care must be taken transplanting small seedlings to soil.

Smoke treatment:
- Various products are available either to burn on the seeds or to prepare a smoke solution to water over them, and good results have been reported in many cases for tuberoses, Drosera, Byblis, etc, by users of Damp Water Papers on our website etc. This is done for this purpose. Burning leaf litter, eucalyptus bark/leaves or paper in the pots (see heat treatment for details) will also provide smoke.

Heat Stratification:
- Some species benefit from controlled burning of leaf litter or tissue paper on the seeds - these are usually species native to areas which experience regular fine brushes, e.g. some tuberoses, Drosera, Byblis gigantea, Monotropa pubica. A small pile of suitable dry material can be piled on top of the sown seeds and ignited - remove excess ashes once combustion has ceased. I prefer to use eucalyptus leaf litter for this purpose. A similar effect can be more safely obtained by watering the seeds once with boiling water immediately after sowing. If in doubt, don't use this method for any species which benefit, and most CP species would be damaged or destroyed by the heat.

Scarcification:
- Some larger seeds may benefit from scarification - this is a process whereby the seed is chipped or filed to provide a weak spot in the tough seed case so that the germination process can occur. This is particularly recommended for Drosophyllum lusitanicum.

More Specific Advice

Dionaea muscipula
- Seeds require cold stratification. The ideal temperature is growing a cold winter is vital to synchronizing the seed and persuading it to germinate. Use the Standard Sowing Medium. Seeds germinate at temps of 15 - 25C and prefer high humidity. Transplant the seedlings when they have developed 3 - 4 leaves.

Sarracenia species
- Trumpet Pitcher Plants
Sarracenia seed requires cold stratification. Sow the seed on to the surface of a soil mix consisting of 3 parts sphagnum moss peat: 1 part sand. The seeds will germinate over a period of several months, but can take as long as 18 months!

Cephalotus follicularis
- Albany Pitcher Plant
Cephalotus seeds are freshly chopped LIVE sphagnum moss. If live moss is not available then use compressed dried Sphagnum moss or Super sphag available on Ebay. Sprinkle seeds and spray with water. Cover to provide humidity and place in half shade in a warm greenhouse or windowsill.

Darlingtonia californica
- Cobra Lily
As above, but protect from temperatures over 30C and ensure roots are kept cool - use a light-coloured pot and water tray, in hot weather top-water with cold water daily. I have had most success by sowing the seed on to pure sphagnum moss.

Drosera species
- Sundews
Tuborous Drosera:
Australian Tuberous Drosera seeds can be some of the most difficult of all Drosera to germinate! Some seeds take up to 2 years to germinate but if you can crack their complex germination mechanism then the rewards are magnificent. The problem is that these seeds are designed to lay dormant in harsh Ootz conditions, often for many years, until exactly the right combination of conditions occurs. This might be a flood, a warm night, a cold night followed by a hot day, a tropical storm or even a change of the above! This makes them incredibly difficult to germinate (apart from D.peltata and australata which are pretty easy!!) since you, the grower has to try and mimic this unknown series of conditions.

One thing I always do with tuborous Drosera seeds is to soak for 24hours in GA3 solution however.

Use a soil mix of sphagnum moss peat to sand and do not waterlog the seed pots or trays.

When germinating any tuborous Drosera species it is the difference between the day ~20C down to the night temperatures of +5C combined with moisture, that finally trigger germination. This temperature "swing" is critical.

Tropical Drosera:
Tropical Drosera require the exact opposite of Tuberous spp, in that there must be very little, if any, temperature difference between day and night temperatures. Germination is stimulated when day are temps in the range of +25C and night temperatures are only 2 - 3C lower.

Tropical Drosera and Tuberous Drosera cannot therefore be grown side by side since the conditions needed for each are very different!

Sub-Tropical Drosera:
Use Standard Sowing medium and maintain temps of 9 - 25C.

Tropical Drosera
Cold Stratification is recommended for these mainly American and European species.

Pygmy Drosera
These Australian species should be sown on Standard Planting mediums at temps of 15 - 25C and prefer high humidity and an addition of leaf litter ash can give higher germination rates. I have also had excellent results growing Pygnmos on 60% moss peat: 40% perlite.

Petalords/complex:
These Australian species require high temps (25 - 35C) and high humidity. Similarly high levels of light intensity for 12 - 14 hours per day are also needed. I use a soil mix of a 60:40 blend of sphagnum moss peat to perlite as recommended by Allen Lowrie. Do not use the tray method for these plants, just ensure that the soil is kept damp and hot!!

Pinguicula species
- Butterwort
Sow onto the preferred soil mixture (as above) and keep in bright light and high humidity. In the addition of the seeds those that form winter resting buds (hibernacula) will require cold stratification.

Tropical temps: 2 parts sphagnum moss peat: 1 part sand: 1 part perlite.

Mexican and Tropical Sps: Equal parts of Sphagnum moss peat, sand and vermiculite.

Nepenthes species
- Tropical Pitcher Plants
The viability of Nepenthes seed is highly variable and depends on a number of factors including size and storage conditions. Germination can be a long process varying from a matter of days right up to 18 months! Many CP seeds are designed to be viable for many years, indeed the seed of Drosophyllum lusitanicum actually has improved viability after 20 years storage! Nepenthes seed doesn't however! Always try and get FRESH Nepenthes seed and wherever possible try and establish the date of harvest. Viability of most Nepenthes seed is halved after 6 months post-harvest so use fresh seed and sow soonest!

High humidity and temperatures of 12 - 30C are required. I sow Nepenthes seed on to live sphagnum moss, however I have seen great success with using parts vermiculite, keep damp, the seeds sown on to the surface and the whole tray covered with clingfilm to maintain humidity.

Genlisea species
- The Corkscrew Plants
Use a mix of 3 parts sphagnum moss peat: 1 part sand at temperatures of 25 - 35C.

Genlisea often show low seed viability and the use of GA is recommended.

Byblis andoraria species
- Byblis gigasno requires heat stratification and the use of GA can also be beneficial. Temps of 15 - 25C are best.

Roots are sown on the surface of moist medium (sphagnum moss peat sand and 3:1) then the seeds are lightly covered with more soil medium. The pots are then placed in freezing conditions for 72 hours after which they place at temperatures 22-25C.

Drosophyllum lusitanicum
The Dewy Pine
Use a soil mix of equal parts of sphagnum moss peat, sand, perlite and vermiculite. Do not use the tray system but keep the soil damp. I have recently had great success germinating species using a method perfected by Jan Visée in Germany. Slice off a small part of the black seed coat to reveal the tan interior. Set them in a screen inside and place on trays 2 - 4 layers of dames filter paper. Keep damp at all times Seeds should germinate within 2 - 4 weeks. As soon as germination has occurred, transplant to their final pots. Seedlings will die if given to much humidity. Keep the soil damp, never wet.

Utricularia species
- Bladderworts
Southern and North American species require cold stratification, and prefer a soil mix of 3 parts sphagnum moss peat to 1 part sand. Provide temperatures in the range 20 - 30C.

Australian spp need heat stratification and a soil mix of 1 part sphagnum moss peat to 1 part sand. High light intensity and day temperatures of up to 35C, with night temps of 18C. Allen Lowrie also strongly recommends overwatering 4 times a day.
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