



BULB LOG 48.....30th November 2016





The seed on the *Cardiocrinum giganteum* is now ripe and, as you see, there are a lot of seeds in a single capsule and there are several capsules on a stem so there are always plenty opportunities to increase numbers. It makes you think if all the seeds produced by these plants in the wild were successful the world would be full of them - that is the case with most plants. Plants have evolved this scatter gun approach producing masses of seed in the hope that a few will survive so we should not be too disappointed with our failures so long as we keep learning and trying.

With many of the seed exchanges now starting up I thought it might be a good time to review my methods of sowing bulbous seeds.

As a cannie Scot one of the big appeals of growing bulbs from seed is it greatly

reduces the cost of a bulb and I get so many more to play with.



Another advantage with seed raised bulbs is you will get plants that show considerable variation which I find much more interesting and desirable than a quantity of a single clone. Many bought bulbs are often clonal and usually represent a form that multiplies itself freely - this can sometimes be at the expense of flowering. Plants that concentrate their efforts on vegetative multiplication do not always spare the energy for flowers.



Narcissus 'Don Stead'

Growing from seed will bring the opportunity to select your own favourite forms from your seedlings that if you wish you can multiply clonally, such as Narcissus 'Don Stead' above - it is nice to have a pot full of bulbs that are just that bit different from everyone else's and if you enjoy showing, it might just take the judge's eye.

Crocus hadriaticus lilacinus

I do like to see a pot of bulbs showing the



variation in a species, providing this is not too extreme, I find it more interesting than a pot full of a single clone. A good selection of seed raised individuals will have varying levels of resistance to different diseases and as a result you are less likely to lose them all, if a problem strikes, than if you had a quantity of a single clone. Another advantage is you will have raised bulbs that are more suited to your growing conditions, as any that are totally unsuited will have died off at an early stage. It is much less painful to lose a first year seedling or two than to lose a flowering bulb bought at great expense which decides it does not like your cultural methods or conditions.



Narcissus seed

You should also collect and sow some seed of all your own bulbs on a regular basis to ensure that if they are unfortunate enough to get struck by a disease or a virus you will always have healthy young stock coming on.

Much is written about not letting your bulbs set seed as this weakens the bulb - this is nonsense. A bulb

that is setting seed will grow from four to six weeks longer than the same bulb would if it was not fertilised, this extra growing time more than makes up for the energy the plant needs to produce the seed. It is very important that we all collect and circulate as much seed from our cultivated bulbs as we can. We never know when wild sources of seed will dry up, either by legislation forbidding seed collection or by extinction of the plants in the wild, so we must look to preserve as wide a range of cultivated material as possible.

Compost

Over the years I have used many potting mixtures for sowing bulbous seed and provided they are well-drained and can hold both moisture and air, almost any mix will do. For many years we used a mix of two parts loam, one part humus and two parts 3 to 6mm gravel, this formed a good open compost. If your loam is heavy you may need to increase the amount of gravel to obtain a good porosity. We use leaf-mould for the humus part but peat or equivalent can be substituted. We use bone meal as an added feed. In recent years I replaced the loam with sharp sand with equally successful results and have also had good results sowing seeds directly into beds of sharp sand. Any proprietary seed compost can be adapted by adding some form of additional drainage such as grit or sharp sand but as the seedlings are likely to be growing in this medium for up to three years loam based ones are the best option.



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When to sow

I have always said that bulb seed has a 'time window' when seeds will want to germinate and if your seeds are not sown within that period you may have to wait a year for them to pass through the next time window before you see germination. However it is not time or a calendar that triggers plants into growth or germination but a complex combination of conditions, involving temperatures, light, moisture etc., to which the plants have adapted to respond, which will maximise their chance of growth and survival. These conditions obviously relate to the natural habitat of the plants and it is there we should look for the clues. I have no doubt that soaking seeds that have been stored in a dry state before sowing them will greatly improve the chances of germination in the first season. In addition to the time of sowing there are many other factors to take into account such as the conditions the seeds were stored in, the variations in moisture and temperature during storage.



Fritillaria pluriflora seed

I know that some people say you should always sow everything fresh as this is what happens in the wild but this does not take into account the very differing conditions found between a summer season in a garden in NE Scotland when compared to the those of the plant's natural habitat. Seed from a wild growing bulbous plant shed when ripe into a hot dry sandy Mediterranean type climate will experience very different conditions to those in our cool wet summer conditions.

Fritillaria seed is best sown at the beginning of September and watered well, just as you would treat the mature bulbs. You can successfully sow Fritillaria seed up to late November and possibly December. If I receive Fritillaria seed after December I do not sow it until the following September because I have missed the time window for Fritillaria. When I have sown it outside the time window I have found that germination in the first season is likely to be poor, if at all, and there is every chance that the ungerminated seed of that type often rots off in the long period of unfavourable wet conditions of a Scottish spring and summer before the next time window comes round. The North American Fritillarias are an exception to this and I know people who have had a good early germination following a January/February sowing - I am convinced that the American frits are very different breed to the old world frits. I have also had reports of the American Fritillarias germinating in the autumn if the conditions are mild so a good guide would be to sow these seeds when the temperature drops and winter comes.



Crocus seed

Crocus and Narcissus seed should, ideally, also be sown in August or September although the time window seems to be wider in these genera and they are less susceptible to the ungerminated seed rotting off in the spring and summer months. If you get them from seed exchanges in January and February soak it overnight then sow them immediately.

Seed of summer growing Lilies such as *L.L. nanum*, *oxypetalum*, etc and *Nomocharis* species should not be sown until the end of January. I have made the mistake in the past of sowing them in the autumn and as they do not require a cold period to break dormancy they germinate quickly before the onset of winter giving me great problems of how to take the tiny seedlings which have not grown sufficiently to withstand a dormancy, through a long cold winter. This is how gardeners must learn - I do not think a dead plant is entirely wasted if I have learnt something in the process.



Sowing

We use square plastic pots of various sizes for all our seed sowing - they make much more efficient use of the space available.

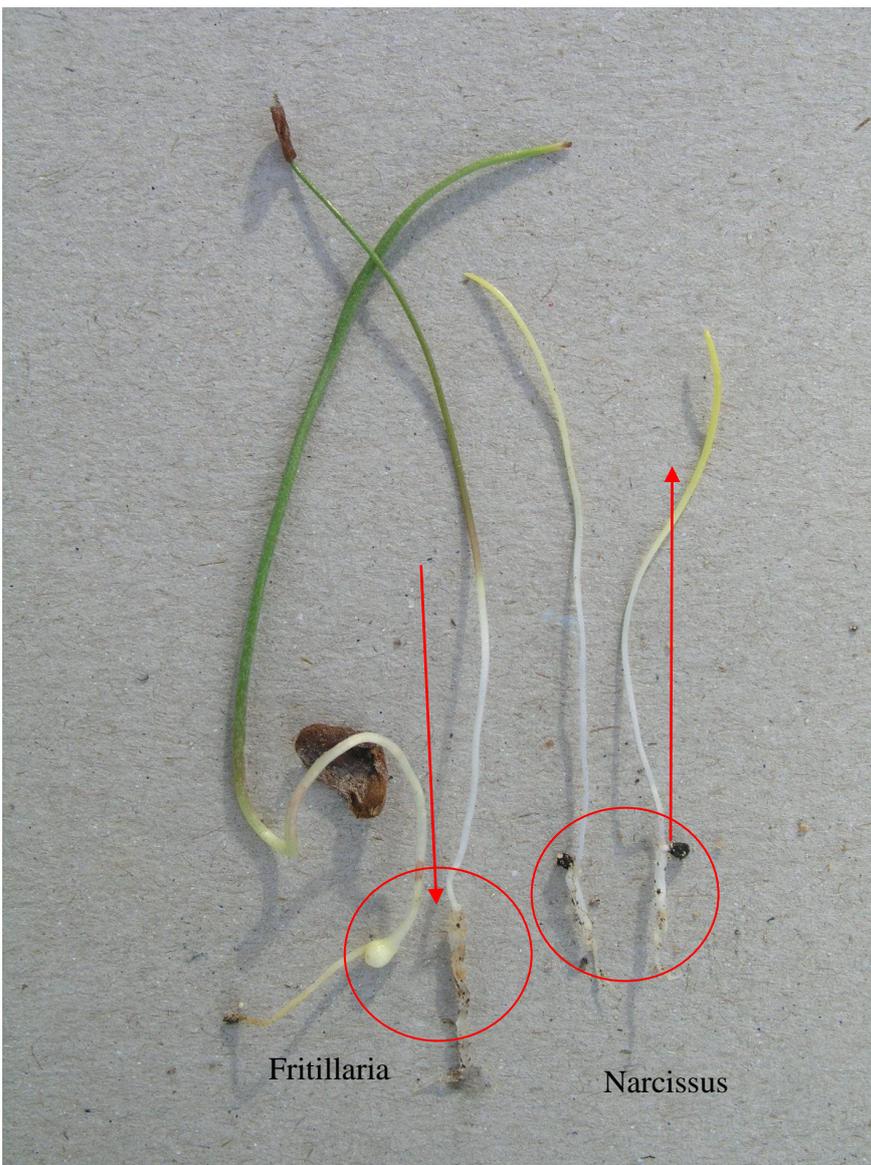
To surface sow frit and lily seed: fill the pot to about 2cm from the top and scatter the seed evenly on the surface then fill the pot to the top with a centimetre or two of 3 to 6mm gravel.

I know that the traditional advice is to sow seed thinly but with bulb seed you can get away with and in fact sometimes get better results from

sowing it quite thickly. We often have pots that resemble a lawn on germination because we sow so thickly; bulbs do seem to enjoy company. Polystyrene fish boxes are very useful for sowing very large quantities of seed in and we grow *Erythroniums*, *Trilliums* and *Lilies* in these until they reach flowering size without the need to repot.



These are some Fritillaria seeds, sown directly onto an open sand bed in September, germinating in the early spring. Note how the growth always emerges from the pointed end of the seed so if you have plenty of time and patience you may gain an advantage by carefully slipping the seeds pointed end down into the top of the compost before you cover them with gravel.



Fritillaria and narcissus seeds germinating

Understanding the way Fritillaria seed and narcissus seed develop at germination along with knowing the method of natural seed distribution will help you understand the optimum depth at which to sow the seeds.

You will find that in Fritillaria the root growth pushes down deep into the compost with the bulb forming at the end of this tip. Take that knowledge, along with the understanding that this type of seed has evolved to be wind distributed and so land on the surface, this guides us to sow all this type of seed on the surface with just a light covering of gravel.

With Narcissus and similar types of seed, the young bulb forms beside where the seed was sown with only the roots penetrating down into the compost - take that with the fact that narcissus seeds have elaiosomes evolved to attract ants to carry them off to an underground store, leads to sowing them deep.



Look how deep these first year *Fritillaria* bulb seedlings, seed of which was sown on the surface, have taken themselves in their first year of germination. – one is even escaping through the bottom of the pot. Learn this lesson from the bulbs and never be afraid to plant small bulbs that bit deeper - they will be able to get their leaves up to the surface.



Fritillaria seed germinating.



If the Narcissus seed is sown on the surface and covered with a thin layer of gravel that is where the young bulbs will spend their entire first year of growth - in subsequent years the bulbs will form contractile roots which, combined with it forming an elongated shape, will over a few years work its way down to its preferred depth.

On the left are a group of first year seedling bulbs of Muscari which have a similar type of seed to Narcissus – these were sown on the surface with just the covering of a layer of gravel. As soon as the leaf growth died back at the end of the first spring I tipped the gravel off revealing exactly

how vulnerable and exposed a position these young bulbs will be in for more than another twelve months.

Compare that to these first-year Narcissus seedlings sown around 5 cms deep - these bulbs were both larger and were in a much more stable growing environment. I also found the black shrivelled now empty seed shells beside the young bulbs.



Sowing seeds of this type deeply not only saves them from having to pull themselves down but also places them in a much more stable environment less likely to dry out or be attacked by pest or disease.

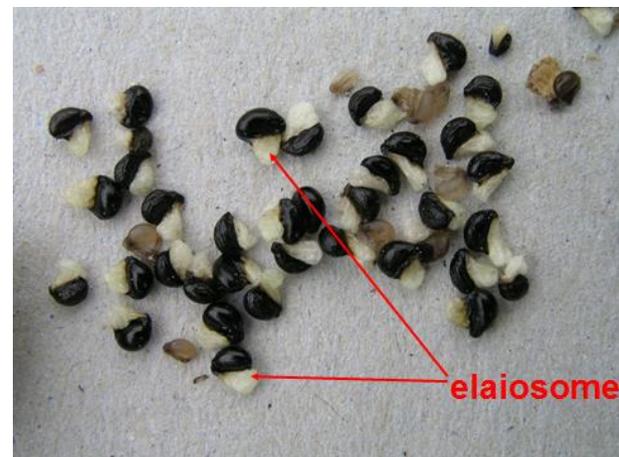


Allium & Rhodohypoxis seed heads

As I look at more of the bulbs we grow I am now starting to be able to predict whether it is best to surface sow the seed or sow at depth. On the left is a typical Allium seed head which, you will observe, hangs onto the seed for a long time even after it has opened unless it gets broken off by the wind and then it gets blown around,

tumbleweed style, shedding some seed each time it is knocked. On the right the Rhodohypoxis seed just seems to fall to the ground and I have not worked out how else it might get dispersed – these types I surface sow.

Seeds to surface sow include lily type seeds along with other genera such as Allium that have evolved a wind-blown distribution method.



Seeds that are best sown deep will generally have an elaiosomes indicating they have evolved a distribution method aided by insects and include Crocus, (left), Cyclamen, Narcissus, Tecophilaea and Trillium.

On the left are some Crocus seeds I have sown deep, at around 5cms, pictured before the pot is filled with potting mix and topped off with a layer of gravel.



Soaked and un-soaked Erythronium seed

I soak all stored seeds, except the papery lily type seeds, before sowing. I soak overnight in water to which I add a tiny smear of soap, just enough to break the surface tension - this rehydrates the seeds making them nice and plump - again greatly improving the germination rate.



Crocus seed pods

Crocus are another group that do best if planted deep and again we can start to see the link between how the seed is dispersed in the wild and at what depth we should be planting the seed. Many crocuses also have the sticky appendage attached to the seed and there are some crocus seed pods that do not come above ground, certainly in cultivation, even when they are ripe and open.



Crocus caspius seed pods where the top tip of these seed capsules was just below the gravel top dressing.



Crocus seed germinating

After sowing we place all our bulb seed pots on a sand bed in an outside plunge bed which is left open in all weathers until germination starts to occur. Some Crocus and Narcissus species can start to germinate in the winter before the year ends and you need to look regularly at the seed frames to check for growth. Once a pot has started to germinate it needs to be covered to protect the fragile young growth from the physical effects of the weather and any prolonged periods of frost.

A good flow of air should be maintained to prevent any fungal disease attacking the growth. If the seed coat is stuck to the end of the cotyledon do not worry, this is quite normal and you are only going to do harm trying to remove it.

Also watch out for slugs, they can devour a whole pot of precious seedlings in no time, we have to admit to using slug pellets in the seed frames.

As spring arrives and the seedlings are in good growth we apply a sprinkling of sulphate of potash to the surface of the gravel and then water it in. Some of the potash, a white powder, will remain on the gravel and each time we water a bit more will wash down to the roots.

It is important to keep the seedlings growing for as long as possible in their first year, constantly watering and feeding until the shoots show signs of yellowing.

Once the young bulbs start going into their dormant period, keep the frame covered to prevent excessive moisture, but do not let them dry out completely. The tiny young bulbs have not yet built up a big enough store of energy and moisture to take them through long periods of drought.

The frames are kept covered as required through autumn and winter with occasional openings during light rain to keep the compost always moist.





I will finish off this week with two more pictures showing the benefits of growing from seed; first a Narcissus cross I made between *Narcissus triandrus* and *cantabricus* repeating a naturally occurring hybrid **Narccissus x susannae**.



Secondly a group of garden-seeded **Erythronium dens-canis** showing lovely variation in colour, so much nicer than a single form - enjoy your seeds.....