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BULB LOG 35.....1st September 2021

Crocus nudiflorus - Sand Bed Special -

The appearance of the Autumn-flowering Crocus is a timely reminder that I need to prepare the bulb house sand beds for the first watering of the season - the storm. Before I water the sand beds I remove as much of the dried remains of the old growth as I can to prevent it attracting mould when it gets wet.

Some of the later flowering bulbs, such as this allium, still cling to a few seeds, which I will scatter on the sand.

Tools

The most useful tool to use in the sand beds is the small rake I made myself from stainless steel – it has a four pronged end and a single spiked end –it is very useful to help rake the dried debris into piles and to level the surface of the sand prior to watering. I have also made another similar tool from and old kitchen fork.

Sand beds

The beds are now reasonably clear of debris, levelled off and with any hard surfaces broken up; so it is ready to receive the first storm.

As I was working the sand I noticed the first signs of the new growth emerging from Tropaeolum tricolor even before any watering, which raises the question how do bulbs know when they should start to grow?

PLUNGES

1 Ideally the plunges should be as deep as possible: ours are 15cms and anything less could be difficult to manage.
2 The structure of the plunges must be sufficiently strong to take the considerable weight of the wet sand.
3 There must be good drainage built into the plunges so that excess water can drain away freely.
4 We use a soil warming cable placed near the bottom of the sand, not as a source of heat but to protect the bulbs against deep frost freezing the sand all the way through. The sensor is in the sand and the thermostat is set to zero – in recent mild winters it has never come on but it is necessary if we get a severe winter.

SAND

The best sand to use should be gritty and open with a range of particles from around 0 – 5mm. In the UK it is often sold as ‘Sharp Sand’ but it does not need to be sharp, angular, most of the sand we use is natural with rounded particles. ‘Builders Sand’ as sold in the UK is not suitable because it is too fine and does not allow free drainage; neither is sand that contains a lot of clay. The best test of the sand is to take a handful of the wet sand, squeeze it tightly in your hand then open and shake your hand gently - if the sand is suitable the ball should break apart relatively easily, if it stays in a tight ball it is not suitable. You can adjust the sand by adding additional grit until it falls apart when applying the above test.

When we started we placed around 3-5cms of sand in the plunges which covered the warming cable, we then placed the bulbs before filling the plunges to nearly the top - if planting the bulbs after the plunges are full of sand, then the bulbs are best to be around 7cms deep.

Narcissus bulb

This small Narcissus bulb has been kept completely dry in a paper bag since early July yet when I sectioned it there are clear signs of growth initiating. At the centre of the base are dried remains of old roots this is surrounded by a yellowish section, often referred to as the basal plate, from where the roots emerge. Even before any water the tips of the roots are already starting to swell out from the base and the leaf is growing up from the central bud. It is my informed speculation that the growth is not initiated directly by water but by temperature, or more likely a temperature gradient. Our bulbs start into growth earlier in the cool north than they do in warmer areas so depending on your climate you may need to adjust the timings I use for the storms described below.

One regret I have about watering the sand is that the garden sparrow population love having dust baths in the dry sand. On a sunny day there can be up to fifteen sparrows sand bathing in the bulb house so to avoid mass panic I have to announce I am going in. The picture above shows one of the many small depressions in the sand this one has also revealed the advanced growth of leaves from a Muscari in the completely dry sand.

I always apply the first storm around the 1st September, this will be followed by a second storm on the 1st October and this applies to the bulbs in pots as well as the sand plunge beds where the bulbs are planted directly into the sand.

It is extremely important to take the time to soak the sand completely - this will take several passes and soakings with the hose to ensure that there are no dry pockets left in the sand.

This water gun allows me to adjust the water from a jet to a fine mist and I use something approaching a heavy shower of rain for the soaking. I can also adjust the rate of flow and to get an idea of how much water I am adding, I time how long it takes to fill a 5 litre watering can – at this setting that took 2 minutes so that gives me an idea of the amount of time I will need to be watering for.

The initial pass of water is just to soak the surface and make it receptive to the water then I continue to water making floods which I leave to drain before going over it yet again.

Our 15cms deep sand beds are filled with a sharp, free-draining sand - the bulbs are growing directly in the sand. 15cms is the minimum depth that I would recommend for the plunges - ideally I would prefer them deeper but then we would need much more sand and they would be a lot heavier especially when well-watered.
It takes time for the water to soak all the way through the plunge so I often leave it for a while before continuing the soaking –the deeper the plunges the longer it will take to soak. The bed on the left is still dry the other two are in the process of soaking.

It is often written that it is the first rains that initiate the bulbs into growth but it is not directly the presence of water that triggers this response. I think the bulbs respond to multiple factors such as the decline in temperatures when autumn approaches as well as the increasing gradient between day and night time temperatures.
The cold rain will also rapidly cool down the ground and it is my belief that it is the sudden temperature drop that is the main trigger. The growth initiates when the temperature drops and the presence of water then encourages the first phase of root growth. Above from left to right I show the temperature of first, the dry sand plunge, then that of water, followed by the sand plunge after adding the water.

As I flood the sand particles of fine material get washed to the surface which if left would form hard caps, preventing further water penetration as well as attracting the growth of moss in the damper weather, so I always cultivate the surface of the sand with the small rake to roughen it up.

I have cultivated the central area to illustrate the difference raking makes this allows water and air to penetrate the sand making a much better environment for the bulbs below. It is easy to rake the surface when there is almost no growth to be damaged. From now on cultivating the surface will take increasingly more time because I have to be wary of damaging any emerging shoots. I enjoy the slower task which necessitates me examining the surface of the sand in detail allowing me to spot any delicate shoots emerging or seeds germinating on the surface.

Bucket, collecting the surplus water.

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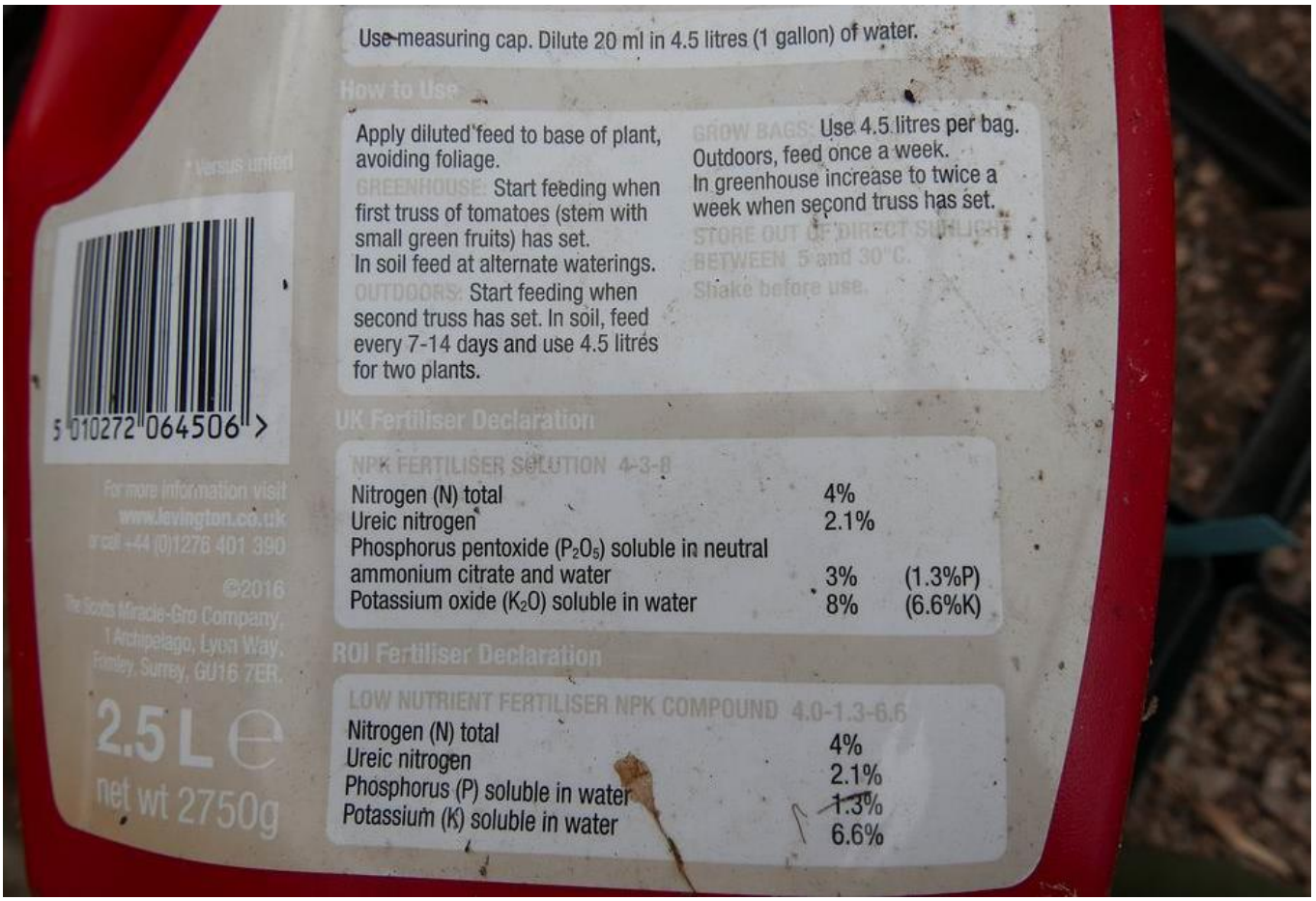
As well as using a sharp, free-draining sand you also need to ensure the excess water can drain away from the staging - which I have done by drilling some large holes and installing a gutter system which allows me to collect and recycle the surplus water. If you would like the full details of the plunges click this link to Bulb Log 3113 where I document the construction process.

Immediately after I have soaked the sand for the first time I add a light scatter of a balanced N-P-K 7-7-7 fertiliser. The one I use is Growmore which is a chemical fertiliser in the form of small pellets that will quickly provide the bulbs with the nitrogen and phosphorus, essential food they need to fuel the growth of shoots and roots.

Growmore

Each of the individual plunges are 1800 x 600 they are conveniently made of three sections of 600 x 600 which allows me to gauge watering and feeding. I do not want to overfeed the bulbs: I try to get a balance to allow healthy but not excessive growth so I add a small handful of Growmore to each 600 x 600 section once in the year.



Most of the bulbs we grow here are winter growing so need to be watered and fed through the winter months then when the frost arrives and the outside water is turned off I revert to using watering cans. Into each can I add around a liquid tomato type plant food at 1/3 strength , which has lower nitrogen and higher levels of potassium making it perfect for feeding the bulbs at this stage of growth.

Depending on the season and the stage of growth I switch to a pure potassium feed around late February into March when many of the bulbs will be in flower so have no further need for nitrogen but they do need potassium to help build up the bulb and encourage the formation of the next year's flower buds which start to form at this time.

Whether they are growing in the sand or in pots I add a small sprinkle of the powdered potassium around the bulbs before watering it in – depending on how long they bulbs keep growing I may add a second dose later.

Now for a few pictures as a reminder of the bulbs flowering in the sand beds through the year – this is the stage of growth when I add the potassium.

There now follows a photo-essay looking back at some of the sand beds trough the year starting with the ‘U’shaped one. This picture, taken in mid-January illustrates what can be flowering at this time of year . The flowering time of these Narcissus varies considerably depending on the weather since the autumn watering.

As the year progresses the flowers of those early bulbs fade and are replaced with waves of later flowering ones.

Narcissus including **bulbocodium, obesus and hybrids.**

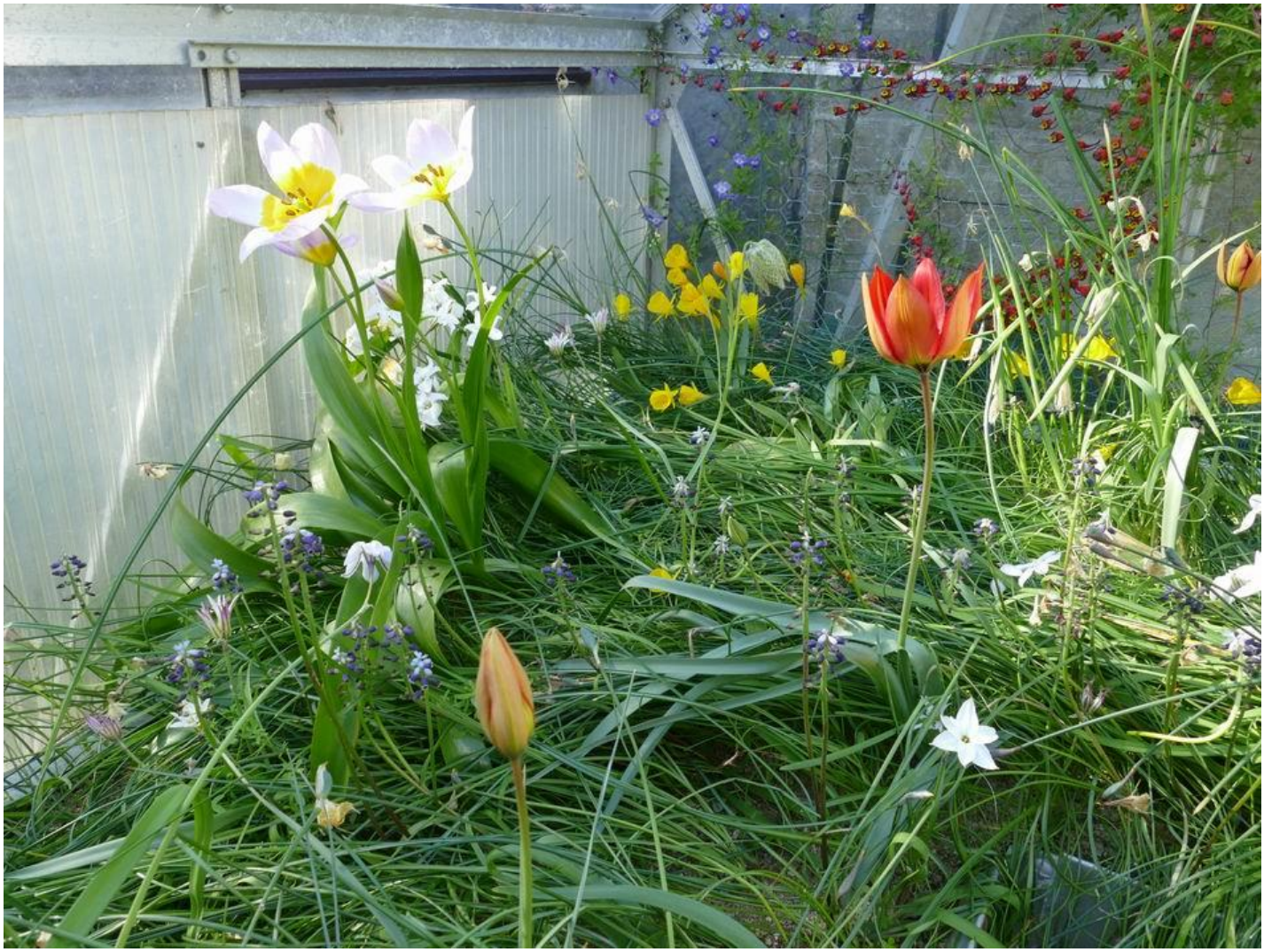
Tecophilaea cyanacrocus and **Muscari sp.** are mixed among the Narcissus.

As we move through April the yellow hoop petticoat Narcissus flower in profusion.

Narcissus obesus is among the last to flower.

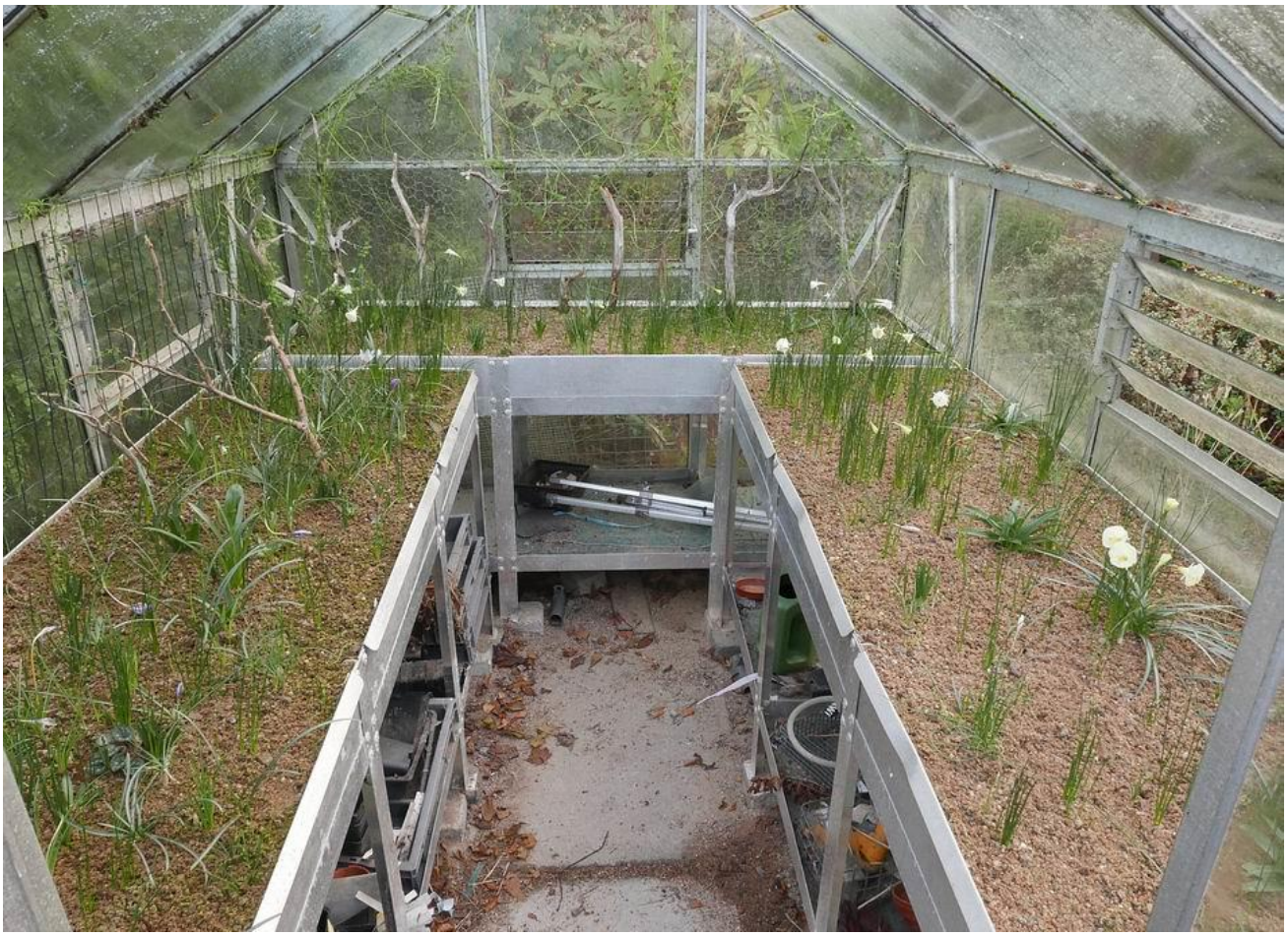
Eventually the Narcissus season starts to subside but there are plenty other bulbs flowering.

Tropaeolum azureum and T. tricolor climb up the mesh I have placed along some of the glasshouse walls.



Some Tulipa and Fritillaria flowers join in.

In this bed most of the flowering is over by the middle of May.



Moving over to what was the ‘Fritillaria House’ before we converted it entirely to mixed bulbs growing in sand beds. Our intention is to have flowers for as many weeks /months of the year as we can with the first two pictures showing the very first few flowers of the season that depending on the weather can appear as early as late September.

October

Moving on to the end of February.

Crocus and Narcissus

End of March.

By mid-April some Fritillaria are in flower.

Fritillaria

Fritillaria

Fritillaria tubiformis

In May the last of the Narcissus are flowering along with the white flowers of an Ornithogalum sp.

Ipheion are good for adding later flowers but they increase rapidly in the sand so I need to thin them out.

Towards the end of May many of the early bulbs are in retreat but there are others still to flower.

We have a number **Ornithogalum sp**. that flower through the warmer months.

There are a number of smaller Allium species that flower through May into June.

Allium platycaule

Calochortus uniflora

Allium crispum and Allium gomphrenoides

Allium gomphrenoides

Triteleia ixioides, Allium crispum and Allium gomphrenoides

The Triteleia and Alliums stop flowering towards the end of July which brings the season to a close but at the same time I spot a Colchicum shoot pushing though the dry sand heralding the first of the new season of flowering.
I continue to seek bulbs that will fit in with the Mediterranean type season that will flower in the dry summer months.

A white Colchicum species photographed on 28th July 2020 represents an early start of a new season of flowering in the sand beds - the only month we have not had a flower is when the sand is completely dry in August. On the right another Colchicum is the first into flower early in September after I have soaked the sand again.

In September growth is appearing both leaves and flowers such as **Cyclamen mirabile** along with Crocus species.

September also brings the first of the **Sternbergia sicula** flowers and we don't have long to wait before the Narcissus start flowering again in October.

In this Bulb Log Video Diary Supplement I talk about the construction and maintenance of the bulb house sand beds while looking at what was flowering in April of that year.