

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS

VERTICORDIA STUDY GROUP

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VERTICORDIA STUDY GROUP- CHANGE OF LEADER

Members are advised that personal circumstances have forced me to relinquish my position of Leader of your Study Group. This newsletter therefore will be my last. I intend however to continue to maintain my garden efforts to test grow and hopefully advance our knowledge of the various species requirements

We are very fortunate to have in our membership, someone with the enthusiasm for growing and learning about Verticordias, as Adrian Lamande and he has agreed to take over the position of leader. He is currently growing a good range of species which he is aiming to expand, but like many of us he is finding it a little difficult to acquire new ones or material for propagation.

His address is Adrian Lamande
 6 Amys Grove, Donvale
 Victoria 3111

Study Group subscription rates will remain unchanged at \$5.00 & \$20.00 overseas. Cheques should be made payable to ASGAP Verticordia Study Group. Prompt payment to him for the 07/08 membership year, (due 1/7/07) would be very much appreciated.

With continuing drought conditions, he has suffered few losses and I believe we may well profit in having an opportunity to advance our knowledge of various species requirements with a leader in a different latitude of Eastern Australia. Your individual reports of growth performance etc, both positive and negative, will be very necessary for him to further our prime objectives.

VERTICORDIA STUDY GROUP- REVUE 1983-2007

I believe it would be appropriate for me to revue the activity of our Study Group since it's formation in 1983. I hope you will excuse some repetition of matters discussed in various Newsletters over the period.

I became particularly interested in Verticordias after several visits to the 'Wildflower State' and in seeing them displayed here at SGAP floral displays.

I started to ask questions but the common answer was always that they were certainly very desirable but would not grow satisfactorily under our Eastern Australian climatic conditions. I was also surprised, on my early trips to the West that few could be seen in gardens over there. Some ASGAP Study Groups were later formed but not for Verticordias. I decided it was time that one for this genus existed, hence my 1983 action. My initial approach was to try to find real reasons for the common explanation, 'drop dead plants' and hopefully come up with some more positive answers

I had earlier succeeded in acquiring and striking cuttings of a few species and grew them reasonably in my garden at Mount Kuring-gai. When I had to move to Cherrybrook in 1985, because our property was on the route of the proposed F3 freeway, I decided it was time to make a special effort with them. After my early efforts here at Cherrybrook I was pleased to be visited by Elizabeth and Alex. George. I was very fortunate a little later when Elizabeth arranged to send me cuttings of many more species. She collected these from Norm and Pat Moyle at Mandurah. After some time I was 'growing'??? more than 90 species or forms.

My earlier efforts at Mt. Kuring-gai had been with rockeries built up with local grey bush sand over natural soil of lightish yellow loam with sandstone or ironstone inclusions.

Here at Cherrybrook base soil was rather heavy clay loam and the previous owner had introduced 48 truckloads of pure clay from another building site in the area to level over his site. I had earthmoving equipment move this clay to form elevated perimeter areas for soil improvement and later planting of taller native shrubbery.

An area with best sun was allocated for my heath garden and elevated beds were formed from the upper stratum of the natural clay loam soil. Later I filled in a few areas with several other introduced soil types and also some sections with plain builders sand underlain with agricultural tubing to provide extra good drainage. As time progressed a little well rotted compost was dug into the upper stratum of the entire heath area and in some clay loam sections a little sand, to also lighten the texture of the surface stratum.

The purpose of the above bed preparations was to provide conditions to try various *Verticordia* species under different soil textures and drainage characteristics.

I kept records of what I considered may be significant, including on occasion, weather vagaries. When losses occurred I examined root systems to note plant responses and reactions and recorded my assessments of the reason for the demise.

With this information after quite a few years and many plant losses, I felt I might get a little closer to answering some of the questions about 'drop dead plants' and other equally useless comments.

I realised of course that all factors contributing to loss may not be hidden below ground, but at least this seemed a reasonable start.

With a few species for instance, foliar fungal attack appeared to be a major cause of the losses. If my assessments were correct it would seem to suggest the adverse reaction was triggered by our eastern climatic pattern here during late summer or autumn, a natural *Verticordia* dormancy period in W.A.. Here rain is frequently followed by two weeks or so of overcast with 24 hour temperatures hovering between approximately 20 and 26 degrees C. Solutions to this fungal problem however by me must remain part of my unfinished business. I have wondered however if perhaps judicious pruning could lead to an answer..

Verticordia nitens, for instance is one species which has suffered here under the above conditions. In its natural state it grows a large flower head on a very tall spectacular leader stem which the florists find so desirable. In my earlier experiments with it I tried pruning to force an alternative growth pattern of multiple and less robust, shorter stems. These seemed more able to resist the fungal problem and plants were longer lived but without the characteristic flower formation.

In 2002, after considerable thought, I decided to try a different planting and growing procedure This has been described in recent Newsletters so I will include here my thoughts on various aspects of same. The accompanying sketch should be of assistance. The sequence of operations is numbered A,B.etc, the lower case letters following cover secondary details, including my hopes and reasons for adapting particular features..

A- A 250mm hole is dug through the elevated garden bed irrespective of soil type. The depth of the hole varies with conditions but generally would range from 500 to 800 deep and is limited at times by the drainage capacity of the subsoil at bottom.

a1- Under no circumstances would the hole be taken into very poorly drained material.. I find it convenient to use a 200 diam hand borer which gives a 250 hole.

B- The hole is filled with a prepared mix of loam and unwashed gravel with a surface mound added. For species which are expected to prefer a deep root run a 50/50 mix is used, otherwise gravel proportion is reduced to 1/3rd

b1-In the filling process light spade tamping is applied at about the half way mark. At surface level the existing stratum at the perimeter is broken in at about 45 degrees down to about 150 and mixed with the new fill.-

b2-The filling is pre-moistened slightly before placing so that the clay particles of the loam coat the gravel. If the mix were too wet at this early stage I considered there to be too much risk of early compaction from slumping and hence reduced capacity to encourage deep leader root development..

C- A shallow depression about 75mm deep is formed around the central mound at about 800 diameter and the mound sloped down to bottom of same

c1-The intention is to restrict excess entry of water to the lower leader root zone from heavy rain, especially in early growth periods, before fill stabilisation This, it was hoped,would reduce risk of destroying the open texture of the fill created with by the light initial prewatering.

c2-With mounding and excess water dissipated across the adjacent bed surface it was hoped not only to minimise danger of root rotting but also help lessen the risk of collar rot attack

c3- Water directed towards the finer feeder root system I considered furthermore, might hopefully encourage better peripheral development of same by maintaining more constant moisture level a little below surface.

c4- It was also considered that this improved fine root development might ultimately slow any excess water entry to the lower leader root zone and consequently obviate water collecting at the bottom of the hole

D- Planting procedure and early maintenance. Several factors were considered significant.

d1-Size of specimens. I have generally preferred to use small specimens such as nursery tubestock in order to avoid initial set back from root disturbance, as can occur with planting of more advanced plants. Graham Eastwood, Batemans Bay NSW, has adopted a policy with such more advanced specimens of removing the existing potting mix, root and foliage pruning and repotting into his own soil. Plants are then held, before planting out, until good new growth starts, which sometimes may take up to six months or so.

In favorable weather cycles, particularly in the cooler months, I have successfully established some specimens taken directly from my cutting box.,

d2-Time of planting. Although planting has been done throughout the year, winter here can be a little cold and dry for some species; particularly the rounded leaf varieties. With these it seems better to generally wait until the weather starts to warm a little in early spring. Planting in early autumn has often proved satisfactory, particularly with some fine leaved species. Planting on occasion throughout summer has also been successful.

With summer planting I have found on hot days that the temperature inside the bell jars, (see d4 later), is usually cooler than outside. This would seem to be caused by air convection, whereby heated air is expelled through the top and replaced with cooler air drawn up from the soil below

d3- The final planting stage involves placing a light vegetative mulch over the bed surface around the specimen. I prefer to use shredded garden material. The decaying leaves ultimately break down enriching the general surface stratum, tracking light rain into the soil and leaving a final mulch of fine stem material. In placing, the mulch is allowed to also spill into the peripheral depression

d4-Early maintenance. Plants are protected early with use of bell jars made from two litre wine bottles with bottoms removed. Perforated metal caps are used initially, but removed in favourable weather as the specimen starts progressing.

d5-At planting the mound is mulched with unwashed quartz gravel approximately 15mm deep. This weathers to white and considered to be relatively sterile, thereby helping to combat collar rotting. With weather washing of same furthermore, a thin layer of fine loam forms over the mound surface, thereby tending to throw off excess water to the outer depression. This mulch also provides better stability to the young plant.

Before placing the bell jar the specimen is watered lightly, care being taken to minimise such watering so as to avoid deeper moisture penetration into the lower filled zone., I usually include a little seaweed additive at this stage

d6- As growth progresses watering if applied, is done without removing the bell jar and only then if plants show stress from exceptionally dry conditions. Under mild post-planting weather, plants have sometimes grown on satisfactorily to maturity, without needing further hand watering

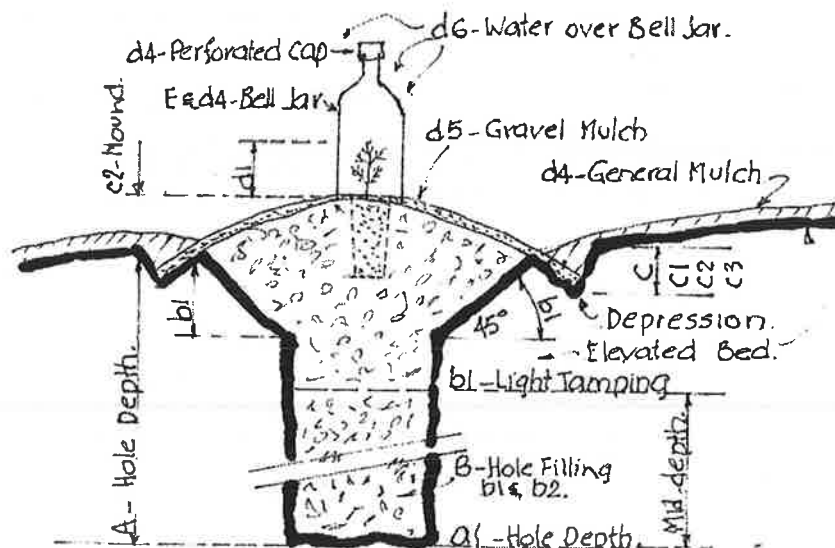
E- As growth proceeds and when mild weather prevails, **the bell jar is removed completely** and the plant thereafter is left to its own resources, without further hand watering needed, even in the recent severely dry conditions

In my pre-verticordia days I recall being visited by **Judy Hamersly**, who ran a large WA nursery..She remarked:- "If you want to grow Australian plants, grow them slowly". I now believe this was very good advice, and even in the recent drought cycle, my experiences confirm same. In many cases I would say further that plants under this planting method have generally shown better ultimate growth, and generally better longevity than with my earlier attempts, despite generally, not having been hand watered since I commenced this planting process in 2002.

As reported in the newsletters however there have been several problems. In autumn 2006 several specimens died quickly and shortly following media reports of extremely high ultra violet solar readings. Shortly following same we experienced a succession of days with misty drizzle but little actual precipitation. The specimens which deteriorated quickly had all been given greater sun exposure in the drizzle period by pruning away close foliage from adjacent plants. Lifting of the dead plants indicated collar rotting and I believe I had affected their local plant environment by removal at the time, of neighboring foliage. The soil approximately 75 m below surface which contained the fine

feeder roots was bone dry. I should add that I have never before seen such widespread evidence throughout the district and in native bush areas of apparent sun scorch.

In the recent autumn I have experienced several sudden losses of mature *Verticordia densiflora* var *cespitosa*, which I note is sometimes referred to as a swamp *Verticordia*. It seemed strange that the losses occurred shortly after some light rain periods. Perhaps in this case the light deeply drained soil conditions provided in the selected positions may not have been best for this species, or alternatively, if the species were expected to produce a shallower root system, more maintenance watering may have been desirable,



GRAFTING

This revue would not be complete without reference to the increasing use of grafted *Verticordias*.

My attention was first drawn to the possibilities of same when **Peter Abell**, well known SGAP identity, who had been employed at the time by the Sydney Botanical Gardens at one of their outer metropolitan venues, had been doing some private experimental work with *Verticordias*. He had successfully grafted several *Verticordia* species on to *Thryptomene* hosts..

Early Study Group member **Doug McKenzie** from Ocean Grove Victoria had been doing a lot of experimental grafting since 1980. On a visit to me in 1994 I was very pleased to accept from him a grafted specimen of *Verticordia galeata*. It was planted without special treatment except for the digging in of compost to the surface soil. It survived and flowered well for about five or so years before merely hanging on until final loss after flowering in December 2003, following a very dry early spring and good rain in November..

Examination of the root system disclosed bad rotting. I suspected though that age might have been a significant factor in the demise. I should add here that in earlier years it had flowered well with good growth, but the growth form was not as good as the more bushy to ground form I have since achieved with struck specimens on their own roots, planted as described above in this revue

A little later Doug sent a number of grafted *Verticordias* to Western Australia which were distributed to Study Group members there for test growing .

I included a report in March 2000 from **Dick Mills**, one of the recipients. He had also taken up the grafting challenge and noted his successes with many of the beautiful *Verticordias* in *Verticordia* Section *Pennuligera*.

I resolved on several occasions here that I should pursue some grafting attempts but for one reason or another some other matter seemed to take priority and none of my efforts got very far. One of my problems was, with drought conditions prevailing, after having host plants prepared for a particular seasonal attempt, I did not have suitable scion material available.

Much more grafting of Australian plants is now being done by specialist nurserymen in Eastern Australia, and with *Verticordias* the selection of host species compatible with the particular scion is becoming better understood.

Doug McKenzie had found *Darwinia citriodora* appropriate for many species but not for those in Section *Pennuligera*. For many of these *Chamaelaucium uncinatum* seemed a more compatible host.

I believe the selection of host material may have some implications other than for scion compatibility. I note a comment by **Neil Marriot** in a recent Victorian APS Newsletter. After the disastrous fires last year which decimated his *Grevillea* collection in Western Victoria, he found some grafted plants had recovered with growth from the rootstock, while some others had died completely. He felt that more research was needed regarding host species.

On a slightly different vein and closer to our climatic conditions in Sydney region, I have suspected that the host species used, although proven compatible with a particular *Verticordia* scion, may on occasion, not be completely appropriate for all soil types and consequently, not be the complete answer.

Examination of plant labels for *Verticordias* does frequently offer the advice to grow the grafted specimen in well drained sandy soils. In our area such soils are not as prevalent as in some other Australian areas. Plant label advice also on occasion refers to faster early growth and flowering of grafted specimens

From my experience with grafted *Verticordias* the label advice re faster early growth and flowering appears to be true, reasonably irrespective of soil type. Some growers then may be happy to use them on this basis, even given reduced longevity

The label advice re soil and drainage certainly seems appropriate but I believe it might be desirable to also name the host species of the grafted specimen. The purchaser would then be in a position to assess if the grafted specimen might be suitable for long-term establishment in his particular situation or might possibly have reduced effective life.

In questioning as above I have in mind the performance here of two frequently used host species for *Verticordias* which have reacted to particular soil or weather conditions when grown on their own roots.

Firstly *Chamaelaucium uncinatum* has generally adapted well to deep, well drained conditions but has often failed after early apparent establishment in heavier soil types.

Darwinia citriodora has generally adapted well to a range of soil types, except that when dry seasonal conditions prevail the foliage sometimes shows adverse reaction from moisture loss. Recovery is quick however with return of moister weather conditions. Whether or not this characteristic would effect the scion of a grafted specimen may require further testing. Alternatively perhaps, the answer may be to water more frequently in suspect drier weather conditions

John Edmonds-Wilson, Coonalpyn, South Australia, who is growing many grafted specimens in his developing garden, also recently commented to me a feeling that more research may be required on this subject of host species.

As with **Dick Mills**, mentioned earlier, John has accepted the grafted challenge and is now producing many of his own grafts. With some species of *Verticordia* he has found it desirable on occasion to resort to intergrafting the host before final scion graft

Brett McDonald, Miga Lake, near Horsham, Victoria has also been developing his grafting skills and reports as follows:-

"I have been growing Verticordias for only a few years with help from Max Hewett, John Edmonds-Wilson, John Barries and Dick Mills. I graft onto a hybrid Wax which is a cross between *Chamaelaucium floriferum* and *C. uncinatum*, called C.Meringue Mist:-

I now have the following grafted Verticordias :-

Vert. spicata, *argentina*, *chrysostachys*, *comosa*, *grandis*, *ovalifolia*, *lepidophylla*, *albida*, *dichroma*, *muelleriana*, *oculata*, *etheliana* and *grandiflora*."

I suspect we will be hearing a lot more from Brett.

MEMBER REPORTS

Graham Eastwood, Batemans Bay NSW recently reported that following prolonged dry conditions water restrictions in his area have now been completely lifted. Despite the earlier dry, however he has not lost any of his Verticordias.

With no deaths over the last 12 months his current list, (5/07) is as follows:-

Vert. staminosa var. *cylindracea* ssp. *erecta*--- 6 on the verge of flowering

Vert. chrysanthella---6 healthy specimens

Vert. densiflora---2

Vert. plumosa---2. One with earlier severe die back is now (27/3) fighting back with ample new growth

Vert. mitchelliana---2

One each of the following--- *V. densiflora* var. *cespitosa*, *V. galeata*, *V. monadelpha* pink.,

V. helichrysantha, *V. drummondii* and *V. fastigiata*.

A three year old seedling of *V. pennigera* flowered but made no growth thereafter although it has remained healthy. I discovered it had been completely surrounded by the roots of a *Banksia elderiana* I re-potted it but do not intend to replant until early spring.

Ted Newman, Dural NSW, is creating a very large, ambitious garden including many heath species. His property is in a ridge situation with generally a rather shallow soil profile of yellow loam with smallish ironstone inclusions. There is some variation in the soil however which is evidenced by stands of tall timber of varying type including Angophora, Stringybark, Ironbark, Turpentine and Blackbutt.

The garden area has been worked over with earth moving equipment and garden beds have been elevated generally to about 300mm. Because of the size of his garden he has adopted a policy of not artificially watering after early establishment, hence, as might be expected there have been a few losses from the drought conditions of recent times with subterranean moisture gradually disappearing.

Ted generally plants with surface mounds mulched with quartz gravel and with adjacent shallow depressions

In certain areas, mainly close to his home, house drainage has been directed and the resultant growth has been phenomenally good due to the resultant moisture in the lower soil strata.

Many areas of his garden however do not enjoy this moisture advantage and as noted above there have been relatively few losses. Smaller heath species such as Verticordia have been hanging on regardless and I would venture a forecast that when and if this drought cycle passes his garden will develop its full potential.

On a recent inspection however two Verticordias in particular interested me. A three or four year old *Vert. staminosa* subsp. *staminosa*, which previously had been making very good growth in an exposed dry situation, had suddenly lost all leaf green and appeared dead. It was a grafted specimen on *Darwinia citriodora* host. In my comments above about grafting host species, I referred to the apparent vulnerability of this particular species when grown on its own roots under certain conditions and I have wondered if this apparent loss might support these thoughts

The second Verticordia example which has particularly interested me was of *Verticordia monadelpha* which had been planted, on its own roots, in 1996. It was in an exposed, elevated and rather dry situation but had never appeared really vigorous. In fact it had generally looked to be on its way out but each season managed to summon its energies to present a few leaves and flowers, and this year, in continuing to do so it has commanded my respect and thoughts

Max Ewer, Avenue Range, South Australia, reports collecting a few grafted Verticordias at the last Adelaide plant sale to add to his Verticordia collection.