Melbourne Clivia Group Inc.

May 2012
Vol. 5.3

Message from the President

A stimulating meeting in April was led by Erika van der Spuy on the flowering of the *Clivia* species and interspecifics - specifically the timing of flowering and some of their characteristics. It took the form of group work which seemed to work well and also facilitated the participants of the respective groups getting to know each other better. Various growing tips were also shared during the evening, for example, we learned from Vu Dang that a specialist orchid breeder in Japan recommends the spraying of plants on very hot days only after sunset rather than late in the afternoon when it is still hot and which can lead to the emergence of fungal problems.

The first raffle prize of a *C. caulescens* was won by Andrea Whitty (well done again Andrea), and Lynn Rawson and John Bannenberg took home seedlings grown by Haydn Lomas from seed distributed at an earlier MCG meeting. From now on, John Trotter has kindly agreed to manage the selling of raffle tickets and hopefully will be assisted by one or two other members from time to time. The MCG is always grateful to receive donations of plant material (plant, seedling or seed) for the raffle. It is good for us to know in advance if something will be donated, but alternatively you can bring the contribution on the evening.

Lynn Rawson, who is managing the Trading Table this year, has included a note in this newsletter about the selling of plants and seeds at our meetings. It is good to see members at meetings actively chatting about *Clivia* topics, viewing our regular display of plants and also taking advantage of the Trading Table to either buy or sell.

As mentioned at the last meeting, the MCG plans to commence a growing competition with special *Clivia* seedlings to be supplied to those members who attend the meetings, the cost of which will be covered by the club. Vu Dang is currently arranging to source the seedling material from a grower and we hope to have them ready for distribution at the June meeting. If they do not arrive in time, we will distribute them at the July meeting. No further distribution will be made after that time. In the subsequent months, we will be able to compare our individual cultivation methods as we grow these seedlings to maturity and through the process should be able to learn from each other. Thank you Vu for arranging this initiative.

By the time this newsletter is distributed, the sub-committee meeting for CLIVIA EXPO (to be held on Saturday 22 September) will have taken place. Michael Barrett, Vu Dang, Hadyn Lomas, Lynn Rawson, George Simmler and I will meet later in May to commence this year's planning of our major event. We hope to be able to distribute copies of this year's flyer, being prepared again by Vu, to members at the June meeting.

The MCG will participate once more in the Pakenham Garden Expo which will take place on 1 and 2 September at the Pakenham racecourse. Free seed was very popular last year and we gave demonstrations throughout the day on the preparation and planting of seed. This occasion also allows us to advertise our own CLIVIA EXPO.

As I write this introduction in mid-May, I am enjoying flowers on a number of *C. gardenii* as well as some interspecifics, mainly *miniata* x *caulescens* but also an odd *miniata* x *nobilis*. Our next meeting on Friday 15 June (7:30) will take the format of a workshop on interspecifics and we are delighted that Kerrie McElroy from NSW will outline her own experiences of breeding and growing interspecifics. Please do bring along any interspecific plants which you have for our display table. In addition, if you have photos which you would like to share (as well as or instead of plants), these can be pinned easily on our new corkboard.

I look forward to our next meeting and hope that others also do so. Helen Marriot

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Editor's Message

This newsletter contains the talk a reprint of an article I wrote about two years ago regarding drainage. The weather has been very wet of late, and I believe it is a pertinent subject, especially for those who grow their *clivias* outside or in a shadehouse with a permeable roof.
Good drainage is critical to the success of growing *clivias*, particularly if they are grown in pots, so I trust that some of you will find this a useful reminder.

Greg Anderson of Toowoomba is also advertising seeds from the well-known Anderson Peach series, so contact Greg if you would like to buy seeds from these delightful peach *clivias.*

Autumn Care of Clivias

Autumn is moving into winter now, with higher rainfall than in previous years, so ensure that your pots are well drained. It is now the time for snails and slugs to reappear, so keep a watchful eye out for these.
Ensure your plants are in a free-draining mix to avoid fungal and rot problems occurring.

Kevin Walters Memorial Trophy

Jeanne Marten of Toowoomba has sent to the MCG a special trophy she had made in honour of her late cousin, Kevin Walters.
She has suggested that this trophy be inscribed each year with the winner of the People's Choice Award at what is to become our annual CLIVIA EXPO.
Thank you, Jeanne, from all of us at the Melbourne Clivia Group.

FROM THE TRADING TABLE
LynnRawson would like to remind you all to bring any plants or seeds for sale to the Trading Table.

The Trading Table, with an array of clivias for sale.

Events & Contacts

NEXT MEETING
Friday 20th April 2012
7.30 pm
Uniting Church,
Cnr Burwood Hwy & Blackburn Rd,
Burwood

15 June 2012 – Interspecific Workshop
Kerrie McElroy

20 July 2012 – Tips and Tricks

17 August - Workshop for CLIVIA EXPO
22 September 2012 - CLIVIA EXPO

19 October 2012 –TBC

November End of Year – TBC.

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Di Mathews
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Please let us know if you have any other news or items of interest to share.
Deadline for next issue -15 July 2012

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Potting and Drainage

Di Mathews

This is a re-print from an earlier issue.
The weather has been much wetter than in previous years, so I felt it was a pertinent subject to re-visit.

This is a very important issue for *clivia* growers, and I would like to acknowledge the work of Paul Cumbleton, who comes from Middleton, UK, and works at the Royal Horticultural Society Wisley Garden. Much of the following talk is taken from introductory lectures that he gives to new garden students.

In the wild, many *clivias* grow in an environment where the water drains very quickly – this is called "sharp" drainage, and results in numerous air spaces around the roots. Wild *clivia* do not normally send their roots down into the soil, but rather send them more laterally through the leaf litter on the forest floor.
When we put them into an artificial environment, such as a pot, we need to try and provide similar growing conditions where the potting mix we use holds sufficient water for the plants' needs, but drains away quickly to leave a lot of air spaces.

The percentage of volume of a medium that contains air after it has been saturated and allowed to drain is called Air Filled Porosity.
The majority of plants need 10% - 20%, while *clivias* need about 20% or over.
Good drainage equals good aeration.

Drainage depends on two factors –

- Gravity, which pulls the water down
- Hydraulic Head, the force pushing it down – fluids flow from a higher to a lower gradient.

AIR SPACES

Roots take up not only water, but also oxygen. Roots are normally covered by a thin film of water, and the oxygen has to diffuse across this film before it can enter the root. Oxygen diffuses relatively slowly, so the more water around the root, the longer the time it takes for the oxygen to diffuse across.
If the roots are starved of oxygen due to too much water, they are unable to metabolise and perform their function, one of which is to take up water.

The symptoms of over-watering and under-watering are the same – if there is too much water, the roots cannot take up oxygen, and the plant wilts. If the plant is under-watered, there is not enough water to supply the plant, and it wilts.

In the case of *clivias*, if there is too much water, the roots will also be subject to rot.

FACTORS AFFECTING DRAINAGE

Pore size – the pores are the spaces between and within the solid parts of a medium – they contain air and water.
The pores can vary greatly in size. The relative numbers of large and small pores, and how they are arranged will determine the rate of water movement
through the mix, and will also determine how much water and oxygen are retained.
Small pores are called micropores, and they hold onto water more strongly due to capillary action.
Large pores are called macropores, and they drain most of their water, leaving oxygen in its place.
It is possible to alter these pore sizes by adding coarse materials, for example, coarse grit. The addition of fine particles, however, such as sand, will just fall into the larger spaces, filling them up and clogging the mix, further reducing drainage.

The quantity of grit or large particles added to the mix must be enough to exceed what is called the "threshold proportion" – this is where there is just enough of the coarse particles or grit for the particles to touch each other. To exceed this proportion, more large particles or grit must be added so that new macropores are created that will drain readily. To achieve this, you need about 30% - 50% of grit / coarse particles in the mix.

Pot depth – if you put water into a pot, the excess comes out the bottom of the pot due to a combination of gravity and the hydraulic head. As the water drains, a point of equilibrium is reached, where the gravity and hydraulic head are unable to push any more out. This means that at the bottom of the pot, there is a layer where all the pores are filled with water – this is called a 'perched water table' and is true of all pots, regardless of the mix used.

In order to counteract this problem, you can either put the pot into sand, or use a capillary mat – this will, in effect, increase the depth of the pot as the water is pulled into the sand / mat that is touching the bottom of the pot, and cause the excess water to drain away.

For many years, people used to commonly put a layer of very coarse material i.e., stones, small rocks, pieces of broken terracotta pots called crocks, etc in the bottom of pots to "improve" the drainage.

The reason for this was never fully explained, but was accepted as conventional wisdom, and was even advocated in gardening books and television programs.
It is still recommended on the gardening sites on the internet.

It was assumed that the bigger materials would assist drainage due to the bigger air spaces – this is true of the materials if used alone, but the dynamic changes when you begin to add layers of materials.

Drainage is actually slowed by this, and water accumulates at the boundary between the two layers
If there is a medium with small pores above medium with large pores, the water has difficulty crossing the boundary. There is insufficient pull for the larger pores to pull the water from the smaller pores, and the water is held by capillary action. The water drains to the interface between the two layers, where it slows and may even stop, until a sufficiently large hydraulic head has built up again to push it through the boundary – i.e., watering. For this to happen, the mix above has to again be completely saturated, and this therefore creates poorer drainage.

When this occurs, the perched water table that was explained earlier, has now been forced to form higher in the pot, and we now have a raised perched water table, where there is even less volume of pot to contain well-aerated mix.

DEMONSTRATION OF A PERCHED WATER TABLE

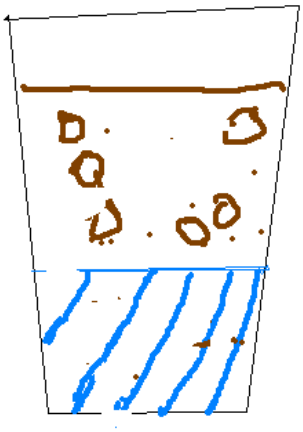
In order to clearly demonstrate the concept of a perched water table, two rectangular sponges were used.
The sponges were both saturated with coloured water - one sponge was stood vertically to approximate a long narrow pot, and one sponge was stood on its long end, to approximate a squat pot.

When the sponges were fully saturated with water, they were allowed to drain freely.
The water drained, leaving a band of water in each sponge –i.e., some water remained in each sponge, with no impediment to the drainage.

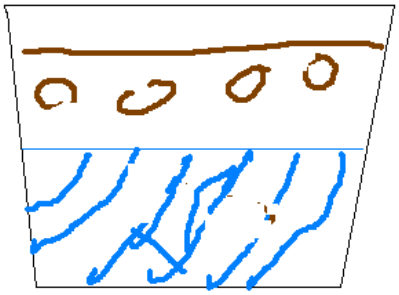
The level of water that remained in each sponge was at about the same level in each, despite one sponge standing on its end, and the other on its side.
This means that the squat sponge actually held more water than the tall narrow sponge.
To show this more clearly, if you turn the squat sponge on its side, so that is stands vertically, it will drain more water, so that the band of water is the same depth as that of the long sponge.

This demonstrates that the horizontal sponge held more water than the vertical sponge.

The water behaves the same way in pots – there is a band of water at the bottom of the pot – the perched water table, that will affect the plants grown in them, as the wet layer can become stagnant.
The shape of the pot will have an effect on the drainage – not the volume of the pot. Long pots drain better than short pots.



Long pot showing perched water table.



Squat pot showing perched water table.

The pots above show how the water drains to the perched water table, which is at approximately the same level, regardless of the shape of the pot.
In order to facilitate drainage in pots, therefore, the longer the pot, the better it will drain.

To summarise this talk – in order to facilitate better drainage for your *clivias*, it is advisable to use deeper rather than wider pots, use a mix containing 30% - 50% of coarse material, for example, a well composted orchid mix could be suitable, and do not, under any circumstances, use a layer of crocks at the bottom of the pot.
References:

Burke, D – Demonstration of sponges adapted from Don Burke Lecture.

Cumbleton, I – Talk given to trainee gardeners at the RHS Wisley Gardens, UK.

Shields, J _ Clivia website.

Knowledge Sharing at April Meeting

Michael Barrett

Some members of the MCG are already aware that I am completing my post-graduate studies in Information and Knowledge Management at Monash University. I am almost finished, and what a relief it will be for me to complete it. To those who didn't know of my studies, it has been a mid-life crisis turnaround from many years in floristry which grew from my love of horticulture. I therefore took a special interest in the knowledge sharing activity surrounding the subject of April's meeting- "What Flowers When?" organized and facilitated by Erika. I wish to contextualize the activity from a knowledge management (KM) perspective.

Knowledge is recreated continuously as a result of human interactions and engagement with their environment (Nonaka Toyama and Konna, 2002,p.43)
Knowledge may also be viewed as "a dynamic human process of justifying personal belief towards the 'truth'"(Nonaka, et al., p.41). It is important to acknowledge the distinction between explicit and tacit knowledge. (Polyani (1967) as cited in Nonaka et al., p.40). Explicit knowledge is "codified and easily expressed in forms such as data, reports scientific formula, specifications and manuals". In contrast tacit knowledge is" highly personalised" and takes place to impact subjective insight, intuition and hunches" "deeply rooted in actions, procedures routines commitment, values and emotions" (Nonaka et al., p.43)

The activity designed by Erika began by forming small groups averaging five in number to work together in identifying the species from colour photocopies of flowering plants. In my group we had an expert, (Yvonne, deep knowledge yet someone who knows her boundaries), intermediates (including myself, some knowledge) and self-confessed novices (limited knowledge of *clivias*). Thus the group began to match a textual description to a picture, based on clues and using tacit knowledge (hunches and experience) with memories of explicit material(yearbooks, forum readings). In particular, Yvonne was quick to notice the notched tip of the leaf in one picture. We as a group were then able to pool our knowledge and worked in collaboration to find consensus. This consensus building was tested again as we then indicated what species flowered when on a monthly spreadsheet. In the process of discussing the task at hand, we were also requested to discover something we did not know about the others in the small groups, as well as beliefs held for a particular species. The knowledge of the group was then externalized and made explicit in written form. Erika then validated our work and we won lollies as rewards.

After all the groups had completed the process we came together to discuss our findings. We shared our new found knowledge of group members, adding to our level of "knowing" them. We then shared our "facts" of what we knew regarding on species in particular. Some members were shy, while others were happy to offer comments. This exercise was dynamic

and prompted further discussion, where others had the opportunity to add to the knowledge base privately.
We all learned something new, whether it was about a *clivia*, or more importantly for myself, about a fellow member. We internalized this new knowledge to rework it selectively (now in tacit form) with what we had believed earlier. In my group we all felt it was a very worthwhile activity, well planned and executed by Erika.

Nonaka,I, Toyama, R., and Konna, N. (2002) in Little,S,. Quintas, P., & Ray, T. (Eds.) *Managing Knowledge- An Essential Reader* pp41-67 London, Sage Publications

MCG Trading Table Lynn Rawson

In addition to the raffle, the MCG Trading Table is a means of raising regular revenue for MCG expenses such as meeting venue rental and supper items.

The Trading table also provides an opportunity for all members to share their wealth in *clivia* plants and seeds which helps in a small way to reduce growing costs.

Many MCG members have mentioned having excess seed that they cannot or don't want to raise themselves. Packaging this seed for sale is a quick way of obtaining a return with minimal cost as it saves the sellers the cost of pots, soil and transporting plants.
Good / different seed always seems to be a good seller at the Trading Table.

Presentation and labelling of plants and seeds for sale is also a good barometer of the likely sales result. If the members cannot see that the sale item is different to plants already in their collection (as indicated on a clear label) then the sales opportunity is diminished.

So help yourself and the MCG by supporting the Trading Table with regular small quantities of *clivia* plants and seeds.

If you need details regarding the Trading Table rules, this can be obtained from the MCG website. Any other enquiries can be sent to Lynn Rawson on lrawson@howardcomputing.com

Green and Green-centred Yellow Clivias

Di Mathews

An exciting colour for *clivias* has emerged in recent years, and this is the green clivia.
Green *clivias* are for the most part, really yellow *clivias* with a lot of green pigment, or chlorophyll, in them.
Two of the most well known green or green-centred *clivias* have been bred in Japan – the green Hirao *clivia*, and the TK Original, both bred by Toshio Koike .
These flowers were bred only from Group 2 yellows.
Koike has not used Group 1 yellows, such as Vico Yellow, in his breeding programs.

These so-called green *clivias* are actually Group 2 yellows with a high proportion of green pigment in them, but they are commonly referred to as green.
These two *clivias* are a "strain" and not a single clone

The cultivar Hirao keeps its green colour, according to Koike, until after the pollen sacs burst, when the green colour gradually disappears until the flower finally becomes a cream colour.

Koike achieved his green flowers by using green centred dark orange flowers or bronze *clivias* in the F1 and F2 generations. He used these bronze plants as the mother plants, and used the pollen of Group 2 yellows to pollinate them with. He then crossed the F1 siblings of these crosses, and from this was able to breed the green Hirao.

.TK Original - Right

Charls Green is another green *clivia* which originally came from seed given by Nakamura to Charls Coetzee in South Africa. Charls Green is believed to be an interspecific, (C miniata X C gardenia) X Self, although there has been some discussion in recent times about whether the plant is in fact a miniata.
Charls Green is significant in that there is thought to be no yellow pigment at all in the flowers, and it is speculated that because of this, that Charls Green may lead to the breeding of white *clivias.*

Upon the initial arrival of green *clivias* in the clivia world, the plants were sold for very high prices, and they can still command a high price, although this has tempered somewhat as they have become more accessible to the enthusiast.
Seeds of many of these green plants are now available on seedlists from around the world, and are still keenly sought by *clivia* lovers.

There are other green *clivias* from Japan, such as Green Impact, bred by Toshiyuki Hosoya, which he also claims to have bred from a Group 2 yellow. Green Impact is very limited in circulation, but is held in private collections.

In China, there are also green *clivias*, particularly the green throat yellow bred by Mr Wang Diun Chan, but the prices of these can be quite exorbitant – rumours have it that the price for some of these plants in China can reach prices in excess of $10,000.

There is another type of Group 1 yellow *clivia* with a very high proportion of green In the throat . Victor Murillo from California has bred these for some years now, the most well known probably being his Green Clouds, again, a yellow with a high chlorophyll count.
The green colour is not always only carried maternally according to Victor, and he believes that his Green Clouds passes on the green colour via the pollen. Seeds from this plant are available from time to time, but offsets are very limited in the US.

Hirao Green - Right

Bill Morris has written in the Clivia Society Yearbook 9 about how to go about breeding for the green colour, and he suggests to take the path taken by Koike, whereby a bronze with a good deep green centre is pollinated with a Group 2 yellow such as Natal Yellow. Natal yellow starts off as a greenish yellow when the flower first opens, but this green fades until the flower becomes yellow.

The reason for using a bronze to produce green flowers is because the bronzes actually have significant amounts of green chlorophyll in the deeper tissues.
The first generation of the bronzes crossed with Natal Yellow (or a Group 2 yellow) will all be orange or red, but about half the seedlings will be a bronze or brownish colour. According to Bill, the chlorophyll is in the chloroplasts in the deeper layer and the chloroplasts are inherited from the mother plant, therefore the bronze flower plant should be used as the pod parent." P71 Yearbook 9.

Hirao Green - Right

The best bronze offspring from this first generation should be selected and crossed with each other ie; sibling crossed, and because they contain the Natal Yellow genes, about 25% should be non-pigmented – ie; have yellow flowers.

These first generation yellow flowers will obviously vary, but should have more green than Natal Yellow, and should hold their green colour.
To further intensify the green colour, line breeding can then be employed.
Bill believes that by utilising this method of using dark bronzes as the mother plant, rather than using line breeding of green flowers, green flowers can be produced in as little as two generations.
These green flowers will also be classified as Group 2 yellows. (Morris - Yearbook 9; Pages 70 – 71)
Understanding how these beautiful *clivias* were bred can only inspire us to try and breed our own green flowering plants, providing we are able to acquire a green centred bronze for the mother plant, and obtain some Group 2 pollen with which to pollinate it.

Photographs of Hirao Green and TK Original reproduced with the kind permission of Mary Meeker, California.