



# Nz CLIVIA CLUB INC

## NEWZLETTER

Volume 5.3 Winter 2007

## Gardenii Day a Hit!

A great day was had by all at the recent get-together held at Dr Keith Hammett's gardens.



In full stride - Ian Baldick speaking to one of the groups.



Clivia robusta

## Big Berry Winner



Lindsay Hatch was our big berry winner with a total of nineteen seeds in the berry.



Interspecific from the gardens.



In the forestglade – one of the groups being shown some of Keith's clivia collection.

### **AGM & Interspecific Show**

Come along to Joy Plants on the 25<sup>th</sup> August, 1.00 am.

There will be a garden ramble so take suitable shoes, and bring folding chairs if you want to sit during the presentations.

Clivia mirabilis is approved!  
The new clivia is now on the list for importation into NZ.



How many pixels is yours?- David Brundell and Barry Fergusson comparing cameras.



Cyrthanthiflora.

## KiwiClivia 2008

We have had a great response from our overseas friends to date, with a good number of people showing interest in visiting in October 2008 for our Show and Tour around the North Island to various Clivia Gardens and events.

We are now working on the 'Best Roads' to travel, ensuring lots of fun on the way for all. It is now timely to seek interest from NZ members who will join us on this tour with our visitors. We do need to start collating prices but these often are based on the number of people attending. We plan to use a 42 seater coach, and having every seat full will mean lower costs for all. Reasonable quality accommodation will be organised so we are all in one place at the same time. This strengthens friendships as we get to know each other. Of course, the main topic will be Clivia; each hearing what others are doing.

For other members living along the way of the tour, we really look forward to you joining us at organised special events. Although these details are not complete we know there will be some event in the Tauranga area, Rotorua and of course New Plymouth.

We would appreciate hearing from members who may wish to join our tour. This is not a commitment at this stage, just a show of interest. Contact: [KiwiClivia2008@xtra.co.nz](mailto:KiwiClivia2008@xtra.co.nz) or drop a line to NZ Clivia Club, 13 Wickstead Place, Massey East 0614. Auckland.

**Look forward to hearing from you.**

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George Mann Pastel Princess



Umtumvuna Light Pink



Toshi Pink



Cameron Peach

## A Question of Pink.

David Olsen has asked me to speculate how best to approach the breeding of a "true pink" *Clivia miniata*. Presumably, he means a pink with a white background, rather than yellow, and that salmon pink will not satisfy him. (Yes, indeed. -Editor)

The successful breeding of plants and animals has taken place for many centuries. Indeed, many of our useful breeds of domesticated plants and animals were developed long before scientists started to determine the underlying mechanisms.

Science is undeniably useful, especially when dealing with useful traits such as crop yield, which can be measured objectively. It can also be particularly helpful in determining barriers to breeding and seeing if such barriers might be overcome. As in all areas, money counts and in today's world where the market place rules, money is only invested in areas of science which look as if they may produce a profit and preferably as quickly as possible.

The ornamental plant industry deals with a mosaic of many plants. Compared to major agricultural crops, not one of these plants is either high volume or high value and consequently, very little research money or breeding effort is invested in them. Many new ornamental plants are the result of finding chance seedlings or mutations in commercial crops or are the result of hobby breeding by enthusiasts.

To a large extent, breeding ornamental plants is more art than science and we can and must fall back on classical breeding methods to work towards our goals. The first essential of any breeding programme is to accurately define a goal. Without a precisely defined objective, there can be no breeding programme.

When this has been done, it is important to check around the world to make sure that such a plant does not already exist. Once satisfied that one is not reinventing the wheel, potential parents that possess appropriate traits, need to be identified and acquired. Only then can crosses be made and populations of offspring established. In the case of *Clivias* we will need to wait at least three years for the first plants to flower and perhaps ten or more years for a whole population to have flowered. Most often it is necessary to progress to subsequent generations to get close to the goal; so start young and be patient.

The New Zealand *Clivia* Club did have the foresight to have a series of pigment analyses conducted a few years ago when the ability to have such work carried out in New Zealand still existed. These basically confirmed the pigment model presented by Harold Koopowitz in his book *Clivias* (2002), and expanded our knowledge to some extent. The results were reported in *Clivia* 8 (2006).

In essence, when we view an orange *Clivia*, we are looking at yellow carotenoid pigments in the deeper cell layers of the tepals, through red anthocyanin pigments in the surface layers. For a *Clivia* bloom to appear yellow, the anthocyanin pigments must be absent.

From the few analyses that were carried out, we know that there are different numbers of carotenoid pigments (yellow) and anthocyanin pigments (red) and that the concentration of these varies from plant to plant.

More pigments, more concentrated = darker  
Less pigments, less concentrated = paler

Remember that the expression of colour in petals is not like mixing paints. If we want a clear pink we require the absence or lowest possible level of carotenoid pigment as background. The level and number of anthocyanin pigments will then determine whether a bloom is pale or dark pink.

In an ideal world, potential parents would be analysed chemically to specifically determine their pigment profiles, so that the most promising combinations might be selected accordingly.

In reality, we will need to use our eyes and select the palest creams that we can find as one parent. Unhappily, selecting the parent that will donate the anthocyanin will be more difficult without analyses, as the anthocyanins will mask the underlying carotenoids. At a guess, I would suggest selecting from the palest pastels (most dilute orange) that Tony Barnes has produced, because we know that these have the lowest carotenoid levels.

Carotenoid pigments have physiological functions over and above imparting flower colour, so we should be mindful that if we reduce carotenoid levels too much, there is the possibility that flowers and even whole plants might, for instance, show a greater tendency to scorch.

It has been suggested that it might be useful to look at other flowers as models to provide clues. Different plant families have substantially different pigment systems, so if we were to do this it would be most logical to confine ourselves within the *Amaryllidaceae* to which *Clivia* belongs. The most obvious close relative is of course *Amaryllis belladonna* otherwise known as naked ladies. It would be very interesting to carry out pigment analyses on some of the very clear pinks that occur in this species.

Other possible routes towards different flower colours in *Clivia* include mutations, induced either by radiation or chemicals, and molecular genetic modification.

In practice, mutation breeding has proven to be a blunderbuss approach with very few successful outcomes, while genetic modification has received a very low level of public acceptance.

In any case, both approaches require a high level of scientific input, well beyond our current means.

Keith Hammett.

12 August 2007



### **STOP PRESS - Clivia mirabilis**

We are pleased to report that the Environmental Risk Management Authority (ERMA) has approved the Club's application for the importation of C mirabilis, and it has already been included by MAF in their Plants Biosecurity Index. This means that now all Clivia plants and seed can be imported into New Zealand.

This has been a long process which involved an initial application, a consultation process with Maori Iwi, and then a final application with comment on the Maori response. Thanks to all involved in the application and to ERMA who patiently guided us through the process.

The application and approval can be viewed on ERMA's website [www.erma.govt.nz](http://www.erma.govt.nz).

In the light of this favourable decision the Club has arranged to place an early bulk order for hard-to-come-by C mirabilis seed for delivery in February/March 2008. Seeds will cost the Club R40.00 each and after allowing for postage and distribution costs, the seeds will be available to members @ \$10.00 each. Members who wish to take advantage of this arrangement should complete the application form enclosed with this newsletter and mail it together with your cheque to reach the Secretary by not later than 31<sup>st</sup> August 2007.



### **Big Berry Hopes**

Lindsay Hatch was our Big Berry winner with 19 seeds in the berry, but this is still a bit behind some of our overseas friends. These are photos from an e-mail sent by James Abel to the clivia-enthusiasts web-site.



Wu Jin (Xuzhou) 27 seeds

### **IN SEARCH OF THE PERFECT GROWING MEDIUM**

Since arriving in New Zealand seven years ago I have been searching for the ideal medium for growing clivia, one in which the plants thrive but the weeds don't. I've tried different commercial potting mixes, mixed them with coarse barks and pumice, but somehow the liverwort, mosses and ferns seem to thrive and the clivia don't. But I'm getting there.

One of the problems with pumice in the mix is that it tends to be crushed rather than sifted whole stone. The crushed pumice is inclined to disintegrate and powder over time, and I'm not sure that this is beneficial to the mix.

Some years back in my South African life I attended a talk given by Prof. Mark Laing, Professor of plant pathology at University of Natal, Pietermaritzburg. I quote some of the interesting things he had to say as contained in the booklet 'Hints on Growing Clivia' put out by the Northern Clivia Club:

*"If you mix media with different particle sizes, the result is called a matrix. What happens is that the small particles fill the pore spaces of the big particles, making a dense mixture. This is the secret of concrete: sand particles fill the spaces between gravel chunks, and the cement then binds them in place. Drainage from pure sand or pure gravel is high. But if they are mixed in the right ratio, drainage is reduced to very little. So the principle is that when we mix particle sizes of a growing medium, we reduce oxygen content and drainage, and increase water-holding capacity. So if you add, say, sand to a bark medium, we make it heavier, with less oxygen and it drains LESS well."*

My gut feeling is that crushed pumice tends to contribute to a concrete like mix. Anyone planted their plants in concrete lately? What happens is that the water erodes passageways through the mix or down the insides of the pots through which the water runs away without really dampening the medium.

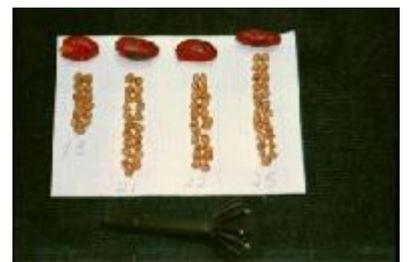
In my 15 years of growing clivia some of the best grown plants that I have seen are those of Brian Tarr, Curator of the Pietermaritzburg Botanic Gardens. Brian uses 100% well-composted bark (South African Pine) which he then sieves to remove the fines so that nothing can clog up the medium. His plants thrive and it takes years for the medium to break down.

This is what Prof. Laing had to say about pine bark:

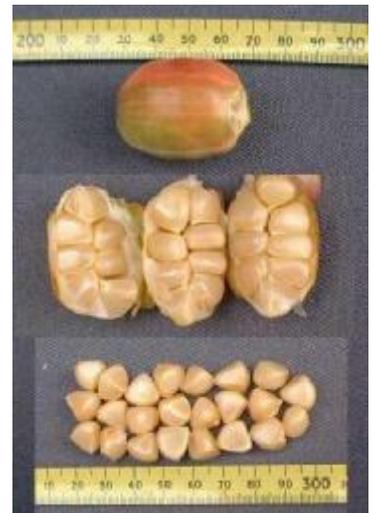
*"In the composting process the bark is degraded to a lignin core, the biodegradable cellulose and hemicellulose being decomposed by bacteria and fungi. The result is a black, odourless medium with excellent physical and chemical properties, namely, physically stable, no toxins, good drainage and oxygen content, and good cation exchange capacity (how much fertilizer the medium absorbs and then releases to the plant). It is also completely free of plant diseases and nematodes.....Mature clivia prefer a coarse medium."*

A few years ago I complained to Dalton's about the quality of the growing media here in New Zealand. They suggested that I try a product they call "CAN mini-chip" which is a coarse composted bark with individual chips about 10cm in diameter, very similar to that used by Brian Tarr. I tried two mixes for a year experimentally, the one mixed 50:50 with pumice and the other 100% Mini-chip. The latter produced the best results and over the past year I have switched entirely to using the product and feel it meets Prof. Laing's specification above.

This is not to say that readers should all switch to this medium. It has its drawbacks. Dalton's only supply it in 27m3 loads or 1m3 bags, which may be a bit much for the hobbyist. I still get weeds, but not to the extent before. However, I thought that the principles outlined would be of interest. Personally I would like to add a little pumice to the Mini-chip. If only I could source sifted whole-stone product which wouldn't clog the mix. But if it works for you – STICK WITH IT.



Viv Elliott(Joburg, SA) 25



J & C Abel (SA) 23 seeds

**A KIWI HERITAGE PLANT  
EXTRACT FROM A LETTER DATED 4<sup>TH</sup> JUNE 2007 FROM MISS  
E.C. HARRISON-SMITH**

"I am glad to know you have the "Tremough" Clivia (named by me after the old home that was my grandfather's, then ours) I don't know where the plant came from. It could have been from Norfolk Island as Grandfather, Captain Tilley, sailed the "Southern Cross II" for Bishop Patterson. The headquarters of the mission was at Norfolk Island. We also have a Dietes Iris we called the "Norfolk Island Iris". As they are both South African plants they may have come by way of Norfolk Island.

Grandpa also had relatives with a tea plantation in Ceylon. They would have gone home to England by way of South Africa and could have taken plants back to Cornwall and "Tremough", Grandpa's old home. I'm sorry I can't be more helpful. All I can be definite about, they were big plants when I was small. I am now nearly 93."

(Miss Harrison-Smith is perhaps our oldest member at 93 and now lives at Pukenui, north of Kaitia. The cyrtanthiflora she has named her "Tremough Clivia" has been in the family for going on 100 years. Some members were fortunate enough to get an offset when she made some available through the Club a few years ago. The plant is typical of the Australasian cyrtanthiflora that is fairly common here in the North Island.



'Tremough' Cyrtanthiflora

# What's Happening

## Interspecifics Show & AGM.

Saturday 25<sup>th</sup> August at 1.00pm. (time changed from that previously advertised).

Come along to Joy Plants, 78 Jericho Road, Pukekohe East. Enjoy the interspecific breeding discussion and slide show, and the Garden Ramble. You are welcome to bring and display any clivia you have in flower.



## Auckland Show

Saturday 29<sup>th</sup> September, 9.00am to 4.00pm.

Botanical Gardens, Hill Road, Manurewa.

Audio visual presentations through the day, New varieties and colours!

Clivia and related plants will be on sale. Members are encouraged to bring and display their special clivia.



## Tauranga Show

Saturday 6<sup>th</sup> October – 9am to 4.00pm, at Plant Struck Nursery, 139 Te Puna Road, Te Puna,

Tauranga.

Audio visual presentation/ Workshop 11.00am and 3.00pm. New varieties and colours! Clivia and related plants on sale.

Members are encouraged to bring and display their special clivia.

### Germination of clivia seeds:

Clivia seeds need a temperature of from 18° to 25°C to germinate well. Extra warmth can be provided by germinating in a hot water cupboard or on top of your fridge (fig.6), channelling the heat rising up the back.

Some find it best to germinate the seed prior to potting up. An easy method is to germinate them in sealed plastic trays (take-away trays or Tupperware) between layers of damp paper towel. Place a layer of damp paper towel on the floor of the tray (fig.1), then place the seeds on another layer of damp towel and fold the towel over (fig.2&3), placing an identification label on top. Then repeat the process until the tray is filled (fig.4) and seal the tray to retain the moisture (fig.5). (Just like children germinate beans at playschool) The little radicle will appear in two or three weeks. Keep the seeds in their trays until the little root is about 2cms (1 inch) long, by when it should start developing fine furry hairs on the tip and the first leaf will start emerging. Then plant the seedling up in a little pot or seedling tray using a good seedling mix. Just prick a hole with a pointed stick and pop the root in, leaving the seed itself resting on the surface. Shake the pot or tray to compact the mix around the root rather than firming by hand.

It works for some and should work for you.

