



Nz CLIVIA CLUB INC

NEWZLETTER

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KiwiClivia 2008 tours prove popular



Tour Route



Diana Holt, KiwiClivia Co-ordinator

The KiwiClivia tour is filling up fast. Lots of Aussie clivia fans are coming to our shores, as well as US, South African and European visitors. Diana Holt and Tony Barnes are doing a great job organising the event, and as we get nearer to the start date they will let you know how you can help to make it a success.

QSM for Keith



Dr Keith Hammett has received the Queen's Service Medal for services to Horticulture, in the New Year's Honours. This is certainly a well deserved honour. Dr Hammett has been involved in the breeding of many plant species, but we know him for the contributions he has made towards growing and breeding clivia in New Zealand. Congratulations from us all!

We can look forward to articles on some of the recent NZ clivia pioneers from Keith, some of those who laid the foundations for the great array of clivias we now have access to in the gardens and collections of the country.

AUCKLAND MEETINGS

Firstly, please note that there will not be a meeting on Saturday 23rd February as stated in the 2008 Diary published in the previous newsletter. So the first meeting for this year will be on Monday evening, 7th April at 7.00pm at the AHC Hall, Western Springs.

Your committee is examining ways of making future meetings more meaningful for Auckland members and any suggestions you have would be much appreciated. Just let us know.

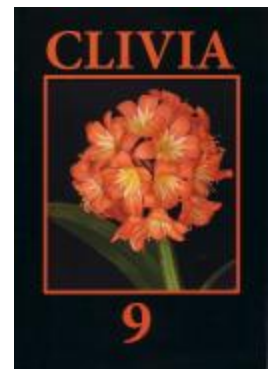
As a first step it has been decided that there will always be a sales table, clivia only, at future meetings. Many members have purchased seed from all over the world and have seedlings surplus to their needs. Others would like to have the opportunity of buying rare plants at a reasonable price, so please bring along any you would like to sell. The usual 10% commission will accrue to the Club.

There will also be a 'show & tell' table for members to exhibit any clivia plants of interest. There won't be much in flower on 7th April, so please bring along your variegated and foliage plants, like Chinese & Japanese Darumas, etc. We'd love to see them.

2008 seed catalogues will start becoming available over the next few months (I see the Cape Clivia Club seed list is already out), so David Olsen & Alick McLeman will lead a discussion on the germination of seed and potting up of seedlings as the main agenda item for the 7th April meeting, but any matters of interest may be raised in general. See you there.

A must for your clivia book library.

Many interesting articles including pieces from our own Rex Williams and Tony Barnes along with so many beautiful photos of flowers, some that we can only dream about at this stage. Learn more about how to breed different colours and green throats. This is truly a book that will be reread often.



\$20 plus postage of \$3.50 - \$23.50
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HOT ON THE TRAIL OF HISTORY

Our librarian, Diana Holt, has a sister who has lived on Kawau Island in the Hauraki Gulf for the past 10 years. Because of Diana's interest in clivia her sister was excited to report that there are large clumps of clivia growing on the island. Initially it was thought that these might be the original 'Van Houtte' *C. cyrtanthiflora* introduced into New Zealand.

(Van Houtte was a famous horticulturist and editor of various horticultural journals in Belgium and France at the end of the 19th Century. The original, and strictly speaking only, *C. cyrtanthiflora*, was given the cultivar name "Van Houtte" in his honour. From work done by Dr Keith Hammett and others on chromosomes he is pretty sure that we have this specific genotype here in New Zealand, as well as plants from subsequent generations.)

However it turns out that the clivia are in fact *C. gardenii* and we publish below with permission of the author, Mike Wilcox, an article on the Kawau Island clivia that appeared in the Auckland Botanical Society Journal recently.

Now this is where the account gets really interesting. History buffs will know that Sir George Grey was Governor of New Zealand in the 2nd half of the 19th century at which time he brought many plants from around the world into New Zealand. He established beautiful gardens with these plants at Mansion House on the island. However back then Sir George was also Governor in South Africa at which time he had a close friend who shared his interest in flora and fauna. And his friend's name? Major Robert J Garden, who discovered and after whom *C. gardenii* was named in the 1850s.

Could these be descendants of the original *C. gardenii* discovered by Major Garden and that he perhaps gifted to Sir George?

Watch this space as Diana digs into the archives at Mansion House when she can get a little time away from KiwiClivia2008.

Clivia gardenii wild on Kawau Island

Mike Wilcox

The genus *Clivia* belongs to the family Amaryllidaceae in the order Asparagales, and comes from southern Africa. The Amaryllidaceae are usually bulbous herbs that can be recognised by their rather fleshy and 2-ranked leaves and their scapose umbellate inflorescence of generally large flowers with an inferior ovary. *Clivia* is one of the more primitive genera of the Amaryllidaceae and is in the tribe Haemantheae. These have neither bulbs nor rhizomes, but possess an abundance of thick rope-like roots. They are evergreen, and have predominantly orange, red or salmon coloured flowers.

There are six species of *Clivia*, which typically grow in the cool shade of forest. The best known is the bush lily (*Clivia miniata* (Lindl.) Regel) – very commonly cultivated in Auckland gardens, with large, upright orange flowers in spring (August-October). Eastern Cape clivia (*Clivia nobilis* Lindl.) is the type species, and found in the eastern Cape Province under evergreen forest on coastal sand sites. The inflorescence consists of an umbel of 20-60 flowers borne on a peduncle about 300 mm long. The tubular, pendulous flowers are dark orange with green tips, but vary from pinkish yellow to dark red. *Clivia mirabilis* Rourke, only described in 2002, is unusual in that it is found on dry sites. *Clivia caulescens* R. A. Dyer is one of the rarer species. The other two species are swamp clivia or Pondoland clivia (*Clivia robusta* B.G. Murray, Ran, de Lange, Hammett, Truter & Swanevelder) described in 2004, and it's smaller cousin, Major Garden's clivia (*Clivia gardenii* Hook.), which is the subject of this article.



Fig 1. *Clivia gardenii*, Kawau Island, 31 May 2005

Clivia gardenii is cultivated in Auckland by *Clivia* enthusiasts, and it is represented in the Auckland Botanic Gardens. Keith Hammett has made a hybrid, "Winter Glory" by crossing *C. miniata* x *C. gardenii*, flowering June-July. The flowers of *Clivia gardenii* appear in late autumn/early winter and are pendulous, orange in colour, the petals tipped with green, and stigma and stamens strongly exerted. The bright red fleshy berries follow the flowers and are eaten by birds.



Fig 2. *Clivia gardenii*, Kawau Island, 31 May 2005

On 31 May 2005 I found *Clivia gardenii* at Mansion House Bay, Kawau Island. It was growing in colonies under pines, not far from the Mansion House, but far enough to suggest the plants were wild (AK294269).



Fig 3. *Clivia gardenii* fruit, Auckland Botanic Gardens, 4 June 2005

Citation:

Wilcox, M.D. 2005: *Clivia gardenii* wild on Kawau Island. *Auckland Botanical Society Journal* 60(2):158-159.

The Importance of the Flower Pedicels in Selective Breeding of Variegated Clivia

By John van der Linde

Synopsis: *It appears that the degree of variegation in the pedicels (stalks) of the flowers of variegated clivia may be the best guide for pollinating them to produce desirable variegated progeny with few albinos.*

Much has been written on what type of variegation should be selected in the parent plants to avoid albinos when breeding variegated clivia. For example, it has been suggested that selling a variegated plant can result in 100% albinos. More recently there has been a discussion by members of the Clivia Enthusiasts Group about the possible relationship between variegation in the mother plant's leaves and fruit and that in the leaves of plants grown from the seed in each fruit.

Following a conversation with Harold Koopowitz at the Pietermaritzburg International Clivia Conference in September 2002, I did an experiment. I wanted to study the extent to which variegation in a mother clivia plant, carried up the stem (peduncle), through the stalks (pedicels) bearing the flowers, and eventually to the fruit, influenced variegation in the leaves of the resulting seedlings.

I pollinated a plant with variegated leaves. This is an extremely vigorous and attractive light orange, which is split for yellow. I harvested the fruit in 2003, carefully noting the extent of variegation on each fruit and the pedicel bearing it. I germinated and planted the seeds in seed trays, separated into the fruit/pedicel categories described below. In April 2004, i.e. about 6 months after planting, I potted up the seedlings and noted the results. I have dug up my notes from which I have compiled the summary below:

I had used three different pollens. The first pollen was from a good broad-leaf orange, with no variegation in its leaves. The resulting seeds, from non-variegated fruit borne on a variegated pedicel, gave me 9 seedlings, of which 4 had "good" (as subjectively defined below) variegation, 2 had slight striping, 2 had no stripes, and one was an albino, which I took to mean a plant which I assessed as having no further chance of survival due to an insufficiency of chlorophyll in the then existing leaves.

Secondly I self-pollinated a flower on a non-variegated pedicel. This also gave rise to a non-variegated fruit, despite the variegation in the leaves of the (mother) plant from which I took the pollen. There were 5 seedlings, none of which had any variegation in their leaves at 6 months. There were no albinos.

The remaining flowers were pollinated with pollen from a non-variegated yellow. As to inherited flower colour as indicated by stem colour, half of the resulting 74 seedlings had pigmented stems and half had green stems, as expected.

The variegation results from that pollination were as follows:

- Lightly variegated fruit on variegated pedicels gave me 17 seedlings, 11 of which had leaves with "good" variegation, 2 were slightly striped at 6 months, one had no stripes, and 3 were albinos.
- Heavily variegated (subjectively defined by me as having a significant amount of striping wider than pin-stripe) fruit was borne (as Harold Koopowitz had led me to expect) on pedicels which were also heavily variegated. There were 22 seedlings, 5 of which had "good" variegation, one slight striping, and - significantly - 16 were albinos.
- Non-variegated fruit borne on non-variegated pedicels gave me 35 seedlings, 15 of which had "good" variegation, 12 had slight striping, and 4 had no stripes. There were 4 albinos.

Aggregating the results for all 74 seedlings of the same non-variegated yellow pollen parentage across the fruit/pedicel combinations, I found:

- 31 (42%) had "good" variegation, 16 of which had green stems,
- 15 (20%) had slightly variegated leaves, 5 of which had green stems,
- 5 (7%) had no variegation, 3 of which had green stems,
- 23 (31%) were albinos, 13 of which had green stems.

Now, what is "good" variegation? It depends on what each person likes - it really is "different strokes for different folks", if you will excuse the pun. I suppose I was just isolating what I considered, at the early age of 6 months, those then looking potentially most saleable on the basis of their variegation.

Would the results, particularly the percentage of albinos, have been different had I used other pollens? It would be difficult (impossible?) to tell from an experiment like mine, even if I compared the results of only two large-scale pollinations. This is because one cannot find any two pedicels that are exactly the same in order to do "like-for-like" comparable pollinations with the two different pollens; the pattern of variegation on each pedicel and resultant fruit is unique - it seems to have a major influence on the seeds inside it, regardless of any influence the pollen parent may have.

I don't want to draw general conclusions from my particular results, other than to say, in summary:

- Results will certainly vary from mother plant to mother plant.
- They may also be pollen parent influenced, but, as I said, this cannot be shown in an experiment such as mine.
- They may even vary from year to year for the same crosses.
- In my view, leaf variegation, on its own, is an insufficient guide to the variegation that can be expected in seedlings



Variegated Scape (Web Photo)



Variegated Berries (Web Photo)



Variegated Stem (Wu Jin)
Showing albino berries growing from pale part of stem.



Chinese Daruma (Rex and Dee Williams)



James Comstock plant



Akebono-Fui (Web Photo)

What's Happening

Variegated Clivia Breeding cont.

To produce statistically significant results, any experiment like this should be large scale, and good records should be kept including records of seeds that may not have germinated and seedlings that may not have survived to the date when the variegation measurements are made. My experiment did not control for this aspect. Also, categorizing the degree of variegation of fruit, pedicels and leaves is inevitably a subjective business – your ideas of “good” variegation and mine could be quite different.

It does seem possible though, right at the pollination stage, to take steps to minimize the percentage of albino seedlings that you are eventually likely to get:

Follow Harold Koopowitz' advice and look at your flowers, and the pedicels bearing them. I suggest you consider pollinating only the flowers on pedicels which are not variegated or which are only lightly variegated. As a guide, look also at the variegation on the peduncle, flowing through to the pedicels. In due course this variegation is likely to flow through to the fruits that you will obtain. Evidence from various growers, including my experiment above, would suggest that the wider the stripes flowing through to the fruit, the greater the probability of obtaining a higher percentage of albino seedlings.

Finally, I want to thank Mick Dower for the assistance he gave me in improving the initial drafts of this article.



Golden Nuggett



Green Throat Miniata



Golden Dusk



Cyrtanthiflora



Cyrtanthiflora



Yellow Miniata

Club Meeting

Join us on Monday 7th April, 7.00 pm at the AHC rooms, 990 Great North Road, Western Springs, Auckland. Seedling sales, germination demo, breeding tips and more.

Gardenii Day

Saturday 24th May

Club Meeting

Wednesday 30th July at AHC

Interspecifics Show and AGM

Saturday 23rd August

Auckland Show

Saturday 4th October

Tauranga Show

Tuesday 7th October

New Plymouth Show

Saturday 11th October

Club Meeting

Saturday 6th December

ARCHIVAL MATERIAL

It is hoped to enrich future newsletters through a series of articles on the history of *clivia* in New Zealand. Dr Keith Hammett has kindly agreed to act as Archivist to the Club and we will gradually build up an archive of historical information which will be housed with our librarian, Diana Holt.

Keith had intended to publish an article in this issue about the *Clivia* brought into New Zealand by Drs Max Goodey and Ray Freeman from about thirty to forty years ago. In doing this he thought a brief biography of the two men would be valuable. However Keith states:

“In sitting down to do this, I realised that while I have a good recollection of my dealings with these men, more specifically Max, I also realised that I know less about their background than is desirable. I did start to ask around, but the ranks of those who knew them are thinning seriously. Plus their “facts” are no more certain than mine.

I have some leads to follow and I hope that if the email for Max's son is still extant that he may contact me. Max is in Oz and I believe that Ray Freeman may be on Waiheke.”

If you are in a position to assist Keith with information on Drs Goodey and Freeman please pass the information on to Keith at khammett@clear.net.nz. We hope to see this article in the next issue of the newsletter.

In similar vein, please let Keith know if you have any other historical information related to persons and plants which have been important in the *clivia* story in New Zealand.

