



No. 4 Spring 2004

Report on Club meeting

The meeting was held at Durbanville Library on 14 August 2004. Over 80 members attended the meeting, despite the stormy weather. Arrangements for the Show were discussed and we were addressed on preparing plants for the Show, on naming and registering plants and on Conservation issues relating to Clivia.

2004 Show

- The show schedule for entry has been distributed by Joy.
- Everybody is encouraged to show the plants that they are proud of. Last year Ian Brown persuaded some who had brought plants for display only, to show them, and they won prizes. So don't be shy – Ian or any of the Committee members will help you to decide.
- If you want to help with the posters for the show please contact Claude Felbert for the Southern Suburbs and Gerrit van Wyk for the Northern Suburbs.
- Ian Brown urgently requires volunteers to help with the show. Please give him a call (689 3901) if you can assist in any way.
- A special Show edition of *Cape News* will be brought out after the Show.

Preparing your plants for the show

By Jim Holmes

Jim suggested that you pick your show plants exactly 1 month before the show. The new buds should still be well down in the crown if you want them to be perfect at the show. To ensure that your flowers come through at their very best you may want to give them a potassium rich food such as Chemicult Hydroponics mixture. A teaspoon to a pot, immediately watered to avoid any chances of root burn.

Look for well-balanced plants that have unblemished leaves with a pleasing appearance. A maximum of 3 plants per category can be entered. Where appropriate you may want to trim back damaged leaves. Clean them thoroughly with a 50% milk and water solution, starting from the stem and gently, but firmly, rubbing both the top and bottom of each leaf. Plants should also now be moved indoors to avoid rain damage.

As the umbel develops you may want to stake it. This is permissible and indeed desirable, especially when transporting them to the



Photo: Loukie Viljoen

The 2002 Cape Clivia Show Best on Show from Felicity Weeden - C. miniata 'Foxy Lady'



The 2002 Cape Clivia Show Runner Up from John Winter

show. Please note that an unstaked flower of equal quality will get the judges vote. If it is an important section the judges are entitled to request the removal of the stake upon judging.

If a plant is to be judged on its flowers, 50% of the flowers must be open. Only two spent florets are allowed and if the flower has been damaged in transit to the Show, the damaged part must be placed on the pot.

Entries for the first flowering class must show only the very first flower of the plant.

Photographic workshop

On the 4th September Claude Felbert will run a special photographic workshop in Bergvliet. Please contact him at (083 261 8863) to get directions and to reserve your place. Our next photo competition is just around the corner and with all the flowers on their way this is your chance to join in the fun. Our next competition's closing date is the 31st March 2005. The entry form will be on the Clivia Society's Internet soon.

Don't forget that the judges work on points alone. Make sure that you know how this works and ensure that you don't lose unnecessary points.

On staging your plant ensure that you position it with its "right" side to the judges. Put it in a saucer of the same colour as the pot.

Claude Felbert has kindly offered to take photos of your winning plants at the Show.

Progress report on finger printing the *C. Gardenii* complex

By Ferozha Conrad, Leslie Hill Molecular Systems Laboratory, Kirstenbosch.

Due to the difficulties encountered in fingerprinting species of *Clivia* using AFLP markers we have now adopted a phylogeographic approach to infer recent evolutionary history within the genus. This involves analysis of polymorphism in DNA sequences from multiple individuals of *Clivia* throughout its geographic range. To date two non-coding plastid regions have been sequenced from 31 individuals representing all five species. Preliminary reconstruction of a 'haplotype network' using these data suggest that *C. gardenii* in particular has a complex evolutionary history, in one case sharing haplotypes with *C. miniata*.



[Is this a C. gardenii? It is a sucker of a plant collected by Fred van Niekerk in the Mtentu River in the Eastern Transkei, given by him to Ian Brown. Fred first thought it might be a C. nobilis but now believes it could be a new species which he would like to call 'Maxima'. EDS]

Breeding broad leaf yellow *Miniata*

By Mick Dower

In an illustrated article in the first Cape News (Autumn 2004) Sean Schickerling reported on pollinating a short, broadleaf, orange flowered, prize winning parent with a narrow leafed Gert Wiese yellow. The progeny were all short, broad leafed, some shorter than the mother. Sean asked that this be explained and whether short leaves or broad leaves were inherited from the pod or pollen parent or the result of mutation of the genes.

We referred these questions to Shige Sasaki asking him what the experience has been in Japan.

We then referred his replies to Professor Johan Spies of the Dept. of Plant Sciences: Genetics (62) at the University of the Free State for comment.

Their replies have been as follows:

1. In Shige's view Sean's mother plant must have strongly dominant genes for short and broad leaves to have produced only short, broad leaf seedlings when pollinated with a narrow leaf because, in his experience, a broad leaf pollinated with a narrow leaf usually does not produce only broad leaf offspring.

Johan comments that in the early years of genetics it was believed that certain genes are expressed 'more strongly' than others (dominance/penetrance of genes).

It has been established subsequently that this is not actually the case. Two different factors play a role. Firstly combination by, or inter-action between, different genes plays a major role in how a gene expresses itself. Consequently there is no such thing as 'more strongly dominant'. How the gene combines with other nuclear genes

(in both mother and father) or with the cytoplasm (in the mother) can play a role but, unfortunately, this can not be predicted by the breeder yet. Johan is researching the inheritance of characteristics such as broad leaves in *Clivia*, but it will be some 15 years before final results are known.

2. Shige believes that the short leaf and the broad leaf can be inherited from the pollen parent because he has bred a few broad leaf yellows by pollinating a Group 1 yellow with a Daruma.

Johan comments that it is very unlikely that the broad leaves are inherited from the pod parent, but, as mentioned under 1 above, the cytoplasm, which is in the pod parent, may provide a better background for the relevant gene to express itself. Likewise, short leaves cannot be inherited from one parent only.

Johan Schoombée has bred very narrow leaf and very broad leaf seedlings by selfing his Chang Chun broad leaf as illustrated below.



Johan Spies comments that selfing does not necessarily produce seedlings which look just like the parent – that would be like saying that if a brother and sister mated they would produce children who look like the grandparents. Selfing does show however what genes are possibly unrevealed by the parent – no more than that.

3. Our readers are referred to Johan's article in Yearbook 6 on broad leaf inheritance in *Clivia* for a comprehensive discussion of this subject.
- 4.1 Shige tells us, however, that in Japan broad leaf yellows are being bred by pollinating darumas with Group 2 yellows and sib crossing the F1's, but that this does not work if Group 1 yellows are used. He



Shige Sasaki's short, broadleaf yellow miniata

suspects that this is so because the yellow colour gene and the broad leaf gene are on the same chromosome in Group 1 yellows, but on different chromosomes in Group 2 yellows.

Thus

42 Daruma x Group 1 yellows = narrow leaf orange flower or broad leaf orange flowers in both F1's and F2's.

43 Daruma x Group 2 yellows = narrow leaf orange flower or broad leaf orange flower, but sibling crosses of these F1's produce broad and narrow leaf yellows and oranges.

Johan comments that this experience in Japan confirms the hypothesis which he has put forward in the article referred to above, namely that in Group 1 yellows, the yellow mutation gene is linked to, and inherited with, either the gene which produces narrow leaves or the controlling gene which suppresses the

broad leaf gene from expressing itself. However, in Group 2 yellows there is no such link and consequently both the yellow mutation gene and the genes for producing broad leaves can be inherited by, and expressed in, the offspring.

Thus, if Sean pollinates his short broad leaf orange with a Group 2 yellow and sibling crosses the F1 seedlings, the F2 generation will probably include a percentage of short, broad leaf yellow flowering plants. The short, broad leaf seedlings which he has produced from pollinating it with a Gert Wiese Yellow (a Group 1 yellow), will have orange flowers, as will their seedlings, even from sibling crosses.

For those of our readers who are not familiar with these terms, Group 1 Yellows are the '100% yellows' which produce only yellow offspring when selfed.

Group 2 yellows are self-sterile and/or will produce orange flowered seedlings when pollinated with Group 1 yellows. They can be tested by pricking their flowers with a pin – a red spot will appear.

For a full explanation of the genetics of these two groups see pp. 130 to 134 of Harold Koopowitz' book.

There is a useful list of Group 2 yellows on page 16 of the Society's Winter Newsletter. 'Cynthia's Best' is also known as 'Holl' or 'Gibello' or 'Swellendam' yellow. Other Group 2 yellows are 'Auriel Batten Yellow', 'Butter Yellow', 'Port St John's Yellow', 'Floradale Transkei Yellow' and 'Oribi Gorge Yellow'.



C. miniata 'Floradale Apricot'

Registration of Clivia cultivar names: *Why and How?*

By Joan Sadie

Why do we name plants?

Cultivation of plants has been going on since ancient times as man has grown plants for food and other uses. In the development of cultivars there is a need to have a means of identification and reference to the cultivars. The earliest record of published cultivar names found was done by the Roman Marcus Cato in about 160 B.C. From the 16th century onwards Europe experienced a huge plant introduction from the Near East, especially in ornamentals. These plants had to be identified by names and to provide order in this process, Linnaeus published his *Species Plantarum* in 1763. He distinguished between wild plants and those in cultivation, however stated that he only provided for the wild plants. Alphonse de Candolle was the first person to really provide for plants of horticultural origin and devoted a special article to it in his *Lois de la Nomenclature Botanique*, published in 1862. Since then the importance of special rules for the naming of cultivated plants was realised and eventually,

in 1953 an independent set of rules, the International Code of Nomenclature for Cultivated Plants, was drafted and published (in short "Cultivated Code"). The Cultivated Code has been revised several times and the 7th edition has just been published. The main aim of rules is to promote order and stability in the naming of cultivars, especially where there is an international interest and the plants are exchanged between countries and continents.

What is a cultivar?

"A cultivar is an assemblage of plants that has been selected for a particular attribute or combination of attributes and that is clearly distinct, uniform and stable in these characteristics and that when propagated by appropriate means retains those characteristics." (Cultivated Code 2002). In other words, a cultivar is not a single plant, although it has its origin as a single plant. The single plant which is selected from the breeding stock for its particular features, is the mother (source) plant which has to be multiplied in a manner which will result in a group of plants that are all look-alike, expressing the same characteristics as the mother plant. In the case of *Clivia* the multiplication has to be vegetative. Due to the heterogeneous nature of *Clivia*, the recombination of genes following pollination will result in a progeny that will express different characteristics, even when a flower is self-pollinated. Therefore the seeds of the mother plant (e.g. 'Amy's Delight') cannot be claimed to be that cultivar, but only referred to as "seed of 'Amy's Delight'". The only exception to this will be in a case where the population of source plants is homogeneous.

Important to note however, is that an assemblage of individuals grown from seed derived from uncontrolled pollination, may be considered a cultivar if these plants as a group are clearly distinct, uniform and stable in the expression of their characteristics, even though the individuals may be heterogeneous.

No-no's for a name

The Cultivated Code deals with the naming of cultivars in Chapter 5, Articles 18 to 20. The most important rules can be summarized as follows:

The name you choose for your new cultivar should not have been used previously; otherwise it will be duplication and only lead to confusion. It has happened in other plant groups that different people used the same name for different cultivars prior to the existence of the international register. In the one case the name was changed and in the other case the cultivar was discontinued.

A cultivar name should not be protected, e.g. in terms of the Trademarks Act, as the cultivar name has to be free to be used in connection with that cultivar, even after protection such as a Plant Breeder's Right on the propagating material has expired.

The name should be different from other names and not liable to lead to confusion, even with common or botanical names of other genera and species.

The name may not consist solely of descriptive words, e.g. 'Double Red'. The merits of the cultivar should also not be exaggerated in the name.

Words such as "selection", "mixture", "strain", "cross", "sport" etc. may not form part of the cultivar name. Punctuation marks should not be used, except for the apostrophe ('Jeanne d'Arc'), the comma ('Sing, Sing, Sing'),



Clivia 'Golden Sunset'

exclamation mark ('Oh Boy!'), full-stop ('E.A. Bowles') and the hyphen ('Pom-pom').

The correct way to write a cultivar name, is to include it in single quotation marks. Double quotation marks and the abbreviations cv. and var. are not to be used within a name to distinguish cultivar names from other words. The full name (generic name) of a cultivar consists of the genus with the cultivar name, e.g. *Clivia* 'Amy's Delight' or *Clivia miniata* var. *citrina* 'New Dawn'. When a cultivar has resulted from a crossing between two species, the name is not written *Clivia miniata* x *C. gardenii* 'Saint Thomas', but merely *Clivia* 'Saint Thomas'. The details of the parentage will be contained in the Register or publication of the description.

The Application form to register a name

The application form is available from the Internet web-site of Ken Smith, the Registrar for the International Clivia Register.

The address is:

<http://www.cliviasmith.idx.com.au>

Alternatively, people who do not have access to the Internet, could contact me for the forms.

The form is straight forward and comes with explanatory notes attached to it, explaining what is required at the different sections of the form. However, if anybody would want more information on any aspect of cultivar registration, please feel free to contact me.

References

Stearn, W.T. 1986. Horticultural survey of the naming of cultivated plants. *Acta Horticulturae* 182, p. 19-28.

International Code of Nomenclature for Cultivated Plants, 7th Edition. 2004.

If you have plants that you want to register please contact:

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Conservation legislation and Clivia



Robin Jangle was previously employed by Nature Conservation but is now in the private sector. He was to explain to the meeting the conservation laws affecting Clivia, in particular *C. mirabilis*.

Robin was unable to present his talk in person, but provided information on which **John van der Linde** based the following presentation.

The Western, Northern and Eastern Cape Provinces all share the Nature Conservation Ordinance, no. 19 of 1974, as their controlling legislation. This Ordinance lists activities that require permits, how to obtain these permits, schedules of protected and endangered flora as well as activities that constitute an offence. The following is a brief summary:

1. Clivia are protected flora.
2. Permits are required to sell protected flora.
3. Permits are required to harvest plants or any parts thereof from the wild, an exception being seed, which only requires a letter of donation from the landowner.
4. Permits are required for the moving of protected or unprotected flora (including seed) across Provincial or National boundaries.

The new Act on Biodiversity (which has not replaced the 1974 Cape Provincial Ordinance) states that permits will be required for certain activities and plants, but does not yet state which plants and what activities – this will be published within the next 12 to 18 months as Regulations. So for now we need not be concerned about that aspect of it. More important detail will emerge later. What is of importance at the moment is the spirit under which this Act was written – South Africa's biological resources are viewed as being of high value to the country which can be

responsibly used to further economic growth. Some are protected and some, of course, are endangered. As an aside, South Africa is a signatory to the International Convention on Biodiversity. We are just one of the many countries now introducing similar national Biodiversity legislation.

So what does all of this have to do with Clivia growers/breeders/sellers? A strict interpretation of these two pieces of legislation is that anyone who sells Clivia (including seed) should have a permit from Cape Nature Conservation to do so. Furthermore if one exports plants outside of the provincial or national boundaries then one also requires a permit to do so. In practice, this legislation has not been strictly enforced in the Western Cape with regard to plants and seed not taken from the wild.

So how does one gain access to Clivia mirabilis, other than through the channel described below? One could find a landowner who has plants on his property and acquire seeds from him by means of a letter of donation. But one would still require a permit to remove them, if they are to be moved across provincial boundaries. They can still refuse you a permit and then it is back to square one. The feeling of the authorities is that this is a resource that needs to be protected, and hence they and the NBI have come up with an innovative solution to take pressure off plants in the wild.

As you know, seedlings of *C.mirabilis* will be marketed in 2005 by NBI on behalf of N. Cape Nature Conservation. Full details will be published well before the time, so that members of the public, including Clivia Club members, can apply for plants.

Finally, it clearly is important that we should be watching out for the regulations under the Biodiversity Act, when they are published.

[This topic was also discussed by Keith Rose in the Correspondence section of the Clivia Club Newsletter, Volume 8, Number 2, WINTER 1999, pp. 10 & 11, under the title Propagating and selling Clivias - the legal route . It seems likely that most Clivia will be exempted under the new Regulations.EDS]

Feeding for multipetals and other exotic clivia, and to stimulate flowering

By Mick Dower

In Yearbook 5 on page 42 Prof. Hannes Robbertse explained how new leaves in a *Clivia* grow in fours from an apical meristem and that, in a mature *Clivia*, the apical dome is 'converted' into an inflorescence bud. There are 2 or even 3 such growth spells every year but "further development of the inflorescence bud and ultimately flowering, depends on environmental factors and nutrition".

In recent correspondence with an Australian friend, who speaks Japanese and is in closer contact with Yoshikazu Nakamura than most of us, I mentioned to her that multipetal miniata seed, which Mr. Nakamura had sent me some time ago had not flowered multipetal. Apparently the same had happened in Melbourne and the explanation given was that multipetals need heavier feeding than single blooms. When I remarked that my experience had been that overfeeding resulted in heavy leaf growth and inhibited flowering, the answer was that "once a plant produces four more new leaves it will produce a flower". Consequently the plants are fed (with a slightly higher K content in the feed) when the 4 leaves appear with heavier feeding for, not only the multipetals, but also for the striped petalled plants and for plants with yellow flowers with green centres (otherwise the stripes and green centres will not appear).

Most of my miniata are producing new leaves at the moment, but many of them are not spiking yet. I will feed those now to stimulate flower production.

On **breeding** multipetals, Mr Nakamura advises that he does not pay attention to whether the stigma has 3 or 4 lobes himself, but believes that you must breed with those multipetals which have the most tepals to produce the best multipetals. He also emphasises that good fertilisation increases the multipetal trait. In addition, he claims that because the multipetal trait is easily passed on/inherited, we might also get a few multipetals from pollinating a 6-tepal flower with a multipetal.

A multipetal with 'Chrysanthemum' proportions





Neutrog BounceBack™ application for Clivia

By Daniel van Vuuren

At our meeting held at Kirstenbosch on 29 May 2004, I noticed that some members are not sure on how much BounceBack™ to apply on their plants. They asked me to supply them with some guidelines.

I suggest the following:

200mm pot – 40grams BounceBack™

300mm pot – 50grams BounceBack™

350mm pot – 60grams BounceBack™

(A cup holds about 70grams of NBB)

Repeat every two months.

If you repot, I suggest you put the Neutrog BounceBack™ as a layer inside the pot. When you do this, you can increase the application.

For normal feeding you can sprinkle it on top, but be careful not to use too much as it could form a crust or become mouldy.

When making up potting mix in bulk, add 2kg BounceBack to 1cubic metre mix; or an ordinary domestic plastic bucket holds the same quantity of mix as 2 X 200mm pots, so mix a little more than 1 cupful of BounceBack in a bucket of mix.

If you want to use a chemical fertiliser with the BounceBack, the combination will ensure that your plants can get more nutrients for a longer period.

I trust you will find this useful.

If you need any more information, I can be contacted at daniel@neutrog.co.za

(From previous discussions with Daniel and personal experience, it is clear that BounceBack should be considered as a soil conditioner, rather than a pure fertilizer. Probably the best and easiest way to apply it is to move the potting mix inwards from the rim to form a channel about 5 cms deep. This

is easy when you hold your palm on the rim and dig in your fingers and then open the hand. Also, when re-potting, after filling in and lightly pressing down the new mix at the perimeter, you can add a handful of dry BounceBack. Continue filling, or push the potting soil lightly over the BounceBack. Also please note that the dry BounceBack will expand, so be careful not to overfill your pot. And yes, it does make a crust or alarming bluish mould with long “hairs” if you put too much of it on the surface. You could also simply add BounceBack to your potting mix, but it is sometimes difficult to mix this in well.

The economy of scale also works in this case. A large bag, double the weight, cost just a little more than the smaller bag. According to Daniel, some new formulations of BounceBack will be introduced in the near future.

Instead of taking flowers or wine for our hosts, we presented a large bag of BounceBack on a visit to some friends with a new home in rather dead sand. Some two months later they called and complained that both the garden seedlings and the weeds were knee high! So it does seem to work. CJC)

Next Edition

Articles on Fungicide use in Clivia and possibly on Colour Inheritance have been held back for the next edition, which may also include articles on ensuring persistent green throats and identifying virus in Clivia.

What we need most of all, though, is for our readers to share their own experiences in growing Clivia, good and bad, with us so that we can learn from one another. EDS

Cape News/Kaapse Nuus

The views expressed in Cape News do not necessarily reflect the views of the Cape Clivia Club or its Committee.

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