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Editorial:

This edition has been produced without the assistance of a graphic expert but we hope that the next Edition will revert to that higher standard.

“First soft drenching winter rains” Clivia Members meeting - 4 June 2005

Despite the first soft drenching winter rains that fell the previous night, a surprisingly large number of members turned out for this meeting held in the Gold Fields Centre at Kirstenbosch. For this they were amply rewarded with an exciting meeting full of highlights. The meeting was chaired by John vd Linde.

The meeting started off with John vd Linde giving feedback on the recent Clivia Club's AGM which he and Claude Felbert attended in Pretoria. John also told the meeting that John Winter was away on leave after being responsible for shipping all the *Mirabilis* seedlings all over the world. John gave the meeting details of where all the seedlings went. He stated that this distribution will no doubt play a very important role in ensuring the future for the specie.

Members who brought plants for display or the raffle were given an opportunity to enlighten the meeting on their plants. Some very interesting plants were on display and points were made.

Johan Schoombee then gave the first of a series of PowerPoint presentations. This one had Red and Bronze Clivia's as their subject, some of which are illustrated here.



Gert Wiese's bright red



Inferno



Toy Jennings'
Red Coromandel



Felicity Weeden's 'Red Lady'



It was apparent that those present thoroughly enjoyed the presentation. Members were encouraged to focus on these rare plants in their breeding programs.



Henriëtte Ströh's Orang/red



Johan Schoombee's Red

Coen and Diné Calitz ' " Freiburg Abend Danz"

Johan Schoombee next told the meeting that the **2005 Show team** and the roles they would play were as follows:

Johan Schoombee :	Show Manager with overall responsibility for the Show and for the Show entries in particular
Claude Felbert:	Responsible for the marketing and posters
Mick Dower:	Responsible for the judging
Gerrit van Wyk:	Responsible for the show exhibition
Ian Brown:	Responsible for the finances and logistics

He also requested the members to volunteer their services and help making the Show a success.

After tea, Jan Tolken from Effekto gave us an informative and entertaining talk on the correct use of poisons. He taught us about the colour coding of poisons. He emphasised the use of protective clothing and gear when working with poison. He discussed the main Clivia pests and how to deal with them. Many questions were asked and it was clear that all enjoyed the spontaneous and humorous interaction.

The meeting closed well past the scheduled time of 12:00.

(Report by Johan Schoombee)

CLIVIA SOCIETY AGM

Claude Felbert attended the Clivia Society AGM in Pretoria, representing the CCC, and carrying the proxies of the other CCC representatives who were unable to be there.

John van der Linde, of our Club, was also there, as Clivia Society Vice Chairman to Chris Vlok, who was in the Chair. The two of them reported back on the proceedings. Two full sets of the documents were handed to our Secretary Joy Woodward, on their return from Pretoria, one for John Winter, as Chairman, and the other for the Club, which is thus available from Joy to members who are interested. There is a great deal of detail, which will not be repeated here. All the reports and minutes are also published on the Clivia Society Website: www.cliviasociety.org

All the various reports, which had previously been distributed, were taken as read. Not all were discussed.

A sincere vote of thanks to John and Joy and their helpers for all that had been done to grow and distribute the C. Mirabilis seedlings was passed, with acclamation.

Three people were made Honorary Life Members, namely Meg Hart, retiring Editor of the CS Newsletter, and Connie and James Abel.

Three new Clubs were welcomed into the Society. They had previously been the George, Metro and Bloemfontein Interest Groups.

The Financial Statements for 2004, Budget for 2005, and Treasurers Report were approved.

The existing Executive Committee will continue in office. Nominations to six sub-committees were accepted. The only occasion on which there was a vote was for the editorship of the Newsletter. Roger Fisher (NCC) was elected to succeed Meg Hart.

Gerrie Brits, on behalf of the new Garden Route Club, offered to host the 2006 AGM in George. This offer was accepted with thanks.

(Report by John van der Linde).

(A full copy of the Reports presented at the Meeting and its Minutes is available from our Secretary, Joy Woodward.Eds)

Growing Clivia mirabilis

(Extracted from the SANBI website www.sanbi.org. Eds)

Growing *Clivia mirabilis* has been a steep learning curve. I have found that it is very important to bear in mind the climatic conditions under which this species grows in the wild. Discovered in the Northern Cape near Nieuwoudtville the area experiences a semi-arid Mediterranean climate with winter rain of approximately 400 mm (16 inches) a year, dry summers, light frost in winter and maximum temperatures of up to 45 C in summer.

For various reasons plant growers all have their own methods, be it climate, local conditions, personal choice or how advice from others is interpreted. Over the past two years I have cul-

tivated the seedlings of *C mirabilis* and I have not found this as easy as growing other Clivia species. The following information results from my experience and hopefully these suggestions and comments will be of assistance to first-time growers of the plant.

I have found the seedlings of *C mirabilis* prone to root and stem rot. They have been grown in two different media.

- a growing medium consisting of three parts milled pine bark (5 mm) plus two parts milled pine needles and a pelletised organic fertilizer added. (I grow all of the other species of Clivia in this medium without any rotting problems)
- a medium consisting of clean coarse sand added to the above medium in equal parts. This mixture resulted in far less root rot.

The seedlings have been grown in two tunnels, one of which is warmer as 2 of the seed beds are heated. For the last 4 months all the seedlings have been fed with calcium nitrate and some with Peters Professional and they respond well to feeding.

To reduce the possibility of root or stem rot I suggest the following:

- Use 8 mm composted milled pine bark (I would not add organic fertilizer to the mixture) A mixture of equal parts milled pine bark and clean coarse sand is also ideal.
- Water sparingly (once every 2 weeks or less depending on the weather). Check the growing medium before watering and, if moist, delay watering until medium is damp.
- Stage pots on a generous layer of course grit or on wire mesh staging to ensure that all surplus water is able to drain freely from the bottom of the pot.
- Plant the seedlings at a depth where the base of the stem is level with the surface of the growing medium.
- Repot every 9 months with fresh growing medium to ensure a well aerated medium providing sharp drainage.
- Feed plants once a month with a general inorganic fertilizer.
- Plants that have lost their roots completely should be treated with a fungicide and then planted in clean sand where they will develop new roots. The sand needs to be kept moist.

Once the seedlings reach a height of 400 mm and a stem diameter of approximately 15 mm they appear to overcome their susceptibility to root and stem rot. The plants grown in the warmer tunnel have grown more rapidly and I suggest if growers are able to provide heating a minimum of 15°C in winter and a maximum of 28°C to 30°C in summer will speed up growth rate. Once the plants reach flowering size do not provide any heat because a cold spell will stimulate flowering. The seedlings have not been exposed to direct sunlight and only once mature would I consider the plants ready to be exposed to direct sunlight. Although there are plants in the wild growing in full sun the majority grow in the shade and in my opinion the latter plants are a better quality. Although *C mirabilis* experiences light frost in the wild I am yet unable to comment on how sensitive they are to frost.

In conclusion, I hope these comments will be helpful and that you will enjoy the rewards of growing a new species.

John Winter: May 2005

A LAYMAN'S UNDERSTANDING OF CLIVIA COLOUR INHERITANCE

(This replaces the second part of Rudo Lötter's interesting talk at the March meeting and is compiled by Mick Dower, with comments and additions by Johan Spies and Coen Calitz)

After the discussion on interspecifics (as reported in Cape News 6) there was little time to fully cover the very interesting topic of colour inheritance of interest to all of us. An understanding of colour inheritance is essential for everyone to assess the potential of seeds and plants when buying them and when deciding what seed to breed.

We were unfortunately unable to obtain the full text and pictures of Rudo Lotter's talk and the limited time did not allow us to take sufficient notes to convey properly the gist of his talk to those of our members who were unable to attend the meeting. Rudo will also not let us have a copy of his disc, apparently because he is checking out with others what he told us.

Furthermore, our approach is rather to raise questions through Cape News for our members to answer and to add, and share, their own knowledge and experience. What follows, therefore, are some thoughts on Colour Inheritance, distilled and simplified from Harold Koopowitz' 'CLIVIAS' and including what we could note from what Rudo said.

Our main objective is to provoke corrections, and amplification, of this simplification from those of our readers who have better knowledge or understanding and wider experience. To that end it has been reviewed by Johan Spies.

One must start with the **first basic concept**, i.e. that genes inherited from both parents influence colour.

But the physical and chemical environment in which these genes work, also determine the quality and characteristics of the flower. This brings to the fore the old conundrum of Nature vs. Nurture. The environment before and after birth can only work within the potential supplied by the genes, but many conditions can lead to defects or illnesses. If some damage or unfavourable vector influences the development, the *genotype* will be superior to the *phenotype* (that is, what you actually see). These differences, sometimes shown as special colour blotches or white patches, will not be reproduced in the offspring or even when the plant is restored to health. In this way, some special shapes, colours and patterns have been observed in Clivia. Great care should be taken when exorbitant prices are asked for these unique specimens. Next year they may be quite ordinary. This, however, is a topic for another day and we return to the inheritance issue.

A plant is made up of cells and these **genes** are to be found in both the nucleus (like the yolk of an egg) and in structures called plastids in the cytoplasm (like the egg white) of every cell (more than 99% of all genes in an organism are present on the chromosomes in the nucleus).

The **nuclear genes** are inherited from both parents. They are in chromosomes, every one of which comprises two strings of genes (like beads) twisted together with every gene in each string paired up with a gene in the other string. The genes in every pair work together.

On fertilization following pollination a process called meiosis takes place where the chromosomes and genes of each parent split into two halves. One half from each parent recombines with one half from the other. They fuse to form the nuclei of the offspring. But during this recombination, the genes form different pairings. Because these new pairings are different from both parents the offspring all have a different genetic make-up. The different pairings working together in the nucleus of every offspring, express themselves in every offspring differently from the parents and therefore there are differences between all the offspring – just like our own children.

This splitting and recombination of nuclear genes also occurs when a plant is ‘selfed’, i.e. pollinated with its own pollen

The **plastid genes** in the cytoplasm are inherited only through the mother.

All these genes express themselves in the characteristics of the plant as we see it– shape of leaf and colour and shape of flower, for example. These are the end result of a great number of strings of chemical reactions brought about by the genes, called ‘pathways’.

The **next basic** is that in every clivia flower petal there are two outer layers and one inner layer.

The colour in both outer layers is the result of the production of a chemical called anthocyanin in those layers and these are invariably orange to red. Anthocyanin is water soluble. Its production is brought about by the nuclear genes inherited from both parents.

The colour in the inner layer of the petals is usually yellow and is the result of the production of chemicals called carotenoids which are oil soluble. These are produced by the plastid genes inherited from the mother but, as we will see, this is controlled by nuclear genes.

Thus, in the most common orange clivia, the most normal nuclear genes inherited from both parents produce anthocyanin with red to orange colour in the outer layers of the petals with the plastid genes producing carotenoids with yellow colouring in the inner layer. If no anthocyanin is produced in the cells in the throat of the flower, the outer layers there are like glass so that only the yellow inner layer is seen. In the rest of the petal the inner yellow colouring will shine through the outer layers and make them look more orange than red.

The **next basic** is that it is not only the genes which produce anthocyanin or carotenoids which influence the colour of the petals, but also other nuclear genes (inherited from both parents) which control whether anthocyanin or carotenoids are or are not produced in the petals, and how much is produced (‘controller’ or ‘suppressor’ genes) and in which cells in the petals they are produced, e.g. bicolours and picotees and polychromes (‘pattern’ genes).



Coen and Diné Calitz’ ‘Spanish Dance’ – a bicolour



Helen Marriott's photo of a Laurens Rijke's picotee



Mick Dower's 'Autumn Splendour', a polychrome

The working of these genes is influenced by the presence of certain metals. The gene may need a certain element to produce a certain result and in the absence of that element, even with the gene present, the expected result will not be obtained. We return to this when discussing red flowers.

The **final basic** is that **abnormalities** can occur in the nuclear genes and these abnormalities are inherited. One or both parents may have genes that have become defective as a result of mutation. Chance mutations may also occur. In future, with the vast possibilities of genetic manipulation, some Clivia with strange characteristics may occur.

As we have said all these genes work in pairs. Such a defective gene may be only one of a pair, but because they operate together, the pair will perform its normal function because the good gene will compensate for the defective one. But if both genes in a pair are defective this will result in the total non-performance of the function which that pair should help to achieve.

However, on pollination all these pairs of nuclear genes split up and recombine into different pairings in the offspring.

That also means that, when recombining in the offspring, a good gene from one parent can pair up with one of a pair of defective genes from the other parent, curing the defect. But the defective genes from pairs in both parents which have one defective and one good gene can also pair up resulting in a wholly defective pair and therefore in the total non performance in the offspring of the function which that pair should help to achieve.

Recombination in the offspring therefore affects both the ability of the gene pairs to express themselves, and how they express themselves, in the production of colour.

Such recombination of genes into different pairings also occurs when a clivia is selfed. Some clivias are self-sterile but if not, self-pollination will result in the offspring inheriting two strings of genes from every chromosome of the parent which recombine into pairings different from the parent, including mutated or defective genes.

All these different genes work together with different results in different plants, depending on what combinations of genes the plant has inherited.

Yellow Flowers

All of this is best illustrated by **how the yellow flower in clivia is inherited**. The flower is yellow because both of the genes in one of the pairs active in the pathway for the production of anthocyanin in the outer layers of the petal have mutated. This results in a “block” in that pathway so that no anthocyanin is produced. The outer layers of the petals are then like glass through which we see only the inner, yellow layer.

If both parents have such a pair of defective genes and they are in the same place (“locus”) on the same chromosome in both parents, then, when the strings of genes from the parents recombine after pollination, the same pairing takes place at that locus and the offspring are yellow flowered.

If, when such a parent is selfed, all the offspring are yellow flowered, such a parent is known as a “pure breeding yellow”.

But some orange flowered parents when selfed also produce a percentage of yellow flowered offspring. This is so because they carry only one of the defective genes at that locus, but the other, being normal, dominates it and the pair therefore together play their normal role in the production of the orange/red anthocyanin pigment. However, on recombination after selfing the defective genes at that locus will form pairs in some of the offspring and they will flower yellow. In the other offspring the genes at that locus will recombine in pairs of two good genes, or one good and one defective gene, - they will all flower orange/red because the dominant good gene ensures that they will produce anthocyanin. Such parents are called “**split for yellow**”.

Mendel discovered that this could also be achieved by crossing a plant with normal dominant genes (a blue sweet pea) with a white sweet pea - white because it had a recessive gene. In the first (“F1”) generation all the flowers were blue because in the plants which had inherited a recessive gene when the genes inherited from the parents recombined into pairs, that recessive gene was dominated by the “blue” gene in the pair.

However, when those sibling F1’s were crossed, the recessive genes in 25% of the offspring with recessive genes inherited from the F1 parents paired up and their flowers were white.

In clivia this means that you can select a normal orange flowered plant with superior flower and leaf shape and cross it with a yellow which has lesser quality flowers and leaves. By sibling crossing their offspring, 25% of the F2 generation should be yellow flowered and hopefully have inherited also the superior characteristics of the orange forefather. Some of the best yellows have been bred in this way.

“Hopefully” because, as Harold Koopowitz has emphasized in his work on ‘Clivias’, “the idea of a single gene determining flower colour – as taught in high school Mendelian genetics – is a great oversimplification” (p.130). As emphasized above the ‘colour’, ‘controller’ and ‘pattern’ genes all work together in different combinations inherited from their forebears to produce different results.

Group 2 Yellows

It was found that some yellows, in particular 'Natal Yellow', did not self and when pollinated with 'pure breeding' yellows produced



Fred van Niekerk's photo of a Giddy Natal Group 2 yellow

only seedlings with pigmented stems i.e., they reverted to orange flowers. This meant that both of the pair of mutated nuclear genes in the 'Natal Yellow' responsible for its flower colour had paired up with normal nuclear genes inherited from the 'true breeding' yellow, as if they had been pollinated with a normal orange. However, when pollinated with other yellows



Auriel Batten's photo of her Dwesa, Transkei Group 2 Yellow

from Natal and from the Transkei, 'Natal Yellow' produced only green stem seedlings, i.e. yellow flowered plants.

The experts worked out that the explanation for this was that, since 'true breeding' yellows all had their pairs of mutated nuclear genes at the same locus (place) on a chromosome, the pair of mutated nuclear genes responsible for the yellow flower in 'Natal Yellow', the other yellows from KZN and the Transkei must have their pairs of mutated nuclear genes at a different locus. When crossed with each other those pairs recombined at their different locus, but when crossed with 'true breeding' yellows, the mutated gene inherited from each parent was at a different locus and therefore recombined with a normal gene resulting in orange flowers.

What needs to be explained, however, is why red marks appear in the petals of Group 2 Yellows when they are damaged by rain or a pinprick, for example. That never happens with Group 1 Yellows and indicates that anthocyanin is being produced in the petals of Group 2's. It has been suggested, therefore, that there may be another explanation for their yellow flower, namely that they have normal colour genes but their controller genes suppress the production of anthocyanin and are stimulated to produce it when the petals are damaged.

These differences in the Group 2 yellows has led some breeders to wonder whether it could stimulate different gene combinations in other clivia, including those which are 'different in other respects, e.g. picotees, bicolours, polychromes, etc.. This may result in different flower colours or colour patterns. It is also hoped that it could result in 'wild' genes that could have interesting, and hopefully desirable, results.

Thus Mr. Koike in Japan has succeeded in breeding broad leaf yellows by using Group 2 yellows where others have failed when using Group 1's. The explanation offered is that the pair of genes responsible for the yellow flowers in Group 1's is situate close to the pair of genes responsible for their narrow leaves and on the same chromosome, so that both pairs of genes are inherited together. However, this is not so in the Group 2's, so if you pollinate a broad leaf orange with a Group 2, select and grow the broad leaf F1 seedlings and sibling cross them, you can expect a Mendelian 25% of broad leaf yellows in the F2 generation. They will be Group 2 Yellows.

However, this does not explain the Group 1 very broad leaf yellows which people like Joe Dana have had for years in the USA. We do not know how they were bred, but Johan Spies

in Yearbook 6 on p.37 tells us that in linked genes a crossover sometimes occurs and that this may have happened in those plants to the link between the genes for yellow colour and the genes for narrow leaves.

The fact that there are so many possible combinations of genes which can influence flower colours and colour patterns does make prediction of how they are inherited difficult. But do not be dismayed! What we must always remember is that 15 years ago nobody really knew how to breed yellows. Now all of us can do so with absolute certainty. That has come about through the trial and error approach of many followed by expert analysis and explanation of successful results.

The same is happening right now with breeding other colours and we all need to share our experiences so that we can learn to achieve with other colours what has been achieved with yellows.

We will tell you in the next installment how easy it is to breed Group 1 Peaches, and what the prospects are for other peaches, pinks and pastels and darker reds and deeper yellows and how to use green throats.

We are sure every one of you has his own viewpoints and beliefs on this issue. We would therefore welcome your comments, experiences and questions on this topic. We are all, to a greater or lesser extent, dabbling in genetics, so we might as well begin to understand what we are doing – and if we share our knowledge and experiences we will all learn a whole lot faster!

CLIVIA HABITAT COLLECTION IN THE NETHERLANDS

Here in the Netherlands we only have a small group of clivia enthusiasts although hundreds of thousands of *Clivia miniata* plants are produced for the European potplant market. These plants are produced from seed, and strains are developed that flower within three years. Special material and species other than *miniata* are not sold in the flower shops.

In the Netherlands *Clivia miniata* is very well known, but is often as an old-fashioned plant that grandmother used to have. In winter we have temperatures below zero, so *Clivia* is only kept as an indoor potplant. In the old days *Clivia miniata* had its special place in a room of the house that was minimally heated. So the plant got its cold and resting period in wintertime and in February, when the flower stalk appeared, the flowering *Clivia* was the pride of many a housewife. Times have changed and with most houses having a central heating system, it is difficult to give the plants their low temperature resting period. This is one of the reasons that the interest in *Clivia* faded over the years.

We *Clivia* maniacs in the Netherlands would very much like to promote growing *clivias* as a hobby. Mr. Geralt Joren is conservator at the Hortus Botanicus of the Vrije Universiteit van Amsterdam (Free University of Amsterdam) and is also a member of the *Clivia* Society. At the end of 2004 Gerald received approval from his board of directors to go ahead and maintain a comprehensive collection of *clivia* plants from known habitat locations in the wild. Maintaining such a collection would give us a great opportunity to promote all the known *Clivia* species, and form a good 'home-base' for a Dutch or European *Clivia* Society.

While brainstorming about the possibilities of a *clivia* collection in the Netherlands, the main aims for starting a collection soon came forward. Just like many other plant species, *Clivia* species are under great pressure in the wild as a result of habitat destruction and the indiscriminate collection of plants for medicinal purposes. Although *Clivias* have been under cultivation in Europe for many years there is no substantial botanical collection of *clivia* material

from various habitat locations. In our opinion it is of utmost urgency that we start working on a substantial botanical collection of Clivia species in its various natural forms as it occurs in its natural habitat. If one looks at the international developments in the world regarding plant species, a Clivia collection in Europe would be of great significance for safeguarding the genetic diversity of the species.

The Hortus Botanicus of the Vrije Universiteit van Amsterdam would very much like to take the initiative in setting-up and managing a specialised Clivia plant collection. Maintaining, ensuring and safeguarding a gene bank of Clivia species from known populations in habitat would be the main goals of such a collection.

We started by contacting the NBI in South Africa and we are very pleased that they are willing to help us. To start such a collection with the very limited funds available we also need to call in the help of our fellow enthusiast around the world.

We need plants or seeds from all the Clivia species. It is of great importance that we know the exact habitat location where the material was collected. We can pay for the transportation costs and phytosanitary certificates if needed.

So, if you have material to spare we would greatly appreciate your help.

You can contact me at a.v.voorst@freeler.nl or even better Geralt Joren at info@hortus.nu.nl

Thank you.

Aart van Voorst

(Our members are encouraged to support this initiative, but on the understanding that plants donated will not be used, directly or indirectly, for any commercial purpose. Eds.)

Clivia Shoots / Clivia Spruite

Compiled by Coen Calitz

This is intended as a forum for our shared passion. Please contribute any brief snippets or reactions to anything in this newsletter or anywhere in the Clivia world.

(Your personal observations and experiences are especially welcome and valued.)

2005 Show

Please remember your show in September. Note the *YOUR* in the first sentence! Are 19 exhibitors in a club as large as ours really enough?

Last year I was reluctant to prepare plants as we had been away the weekend before the show and I did not consider my plants to be good enough. When Ian Brown called me the Monday morning, asking about my entry form and I had all these excuses, he quietly landed a telling blow: *"Will we have a show if we all said that?"* Touché, Ian!

I am sure each member has at least one special plant that can be entered. Come on, just DO it!

(And remember it was Coen and Diné who won "Best on Show" last year! Eds.)

Adopt a retirement home

Many of us have family or friends in retirement homes, hospitals and frail care centres. These people are often relatively immobile and deprived of much beauty of flowers. I am sure we all have too many flowers for our lounge, entrance hall or stoep. Would it not be possible to place a flowering Clivia in the entrance hall, lounge or dining room of such an institution? You can fetch it again after flowering – and perhaps bring another. You will enrich the lives of folks less fortunate than yourself. (Just a warning: leave specific instructions about watering. Staff often diligently water daily!!)

Illustrated talk by John Winter

John Winter repeated the address which he gave at the Clivia Symposium at Huntington in California earlier this year on *The variation of Clivia Miniata in the Wild* at the monthly meeting in July of the Winelands Branch of the Botanical Society. It was very well received and will be the highlight of the next meeting of our Club at Durbanville on 13 August.

BioBuild Centre at Stellenbosch Botanical Gardens

Deon Kotzé, ex Kirstenbosch, is the livewire curator of the Stellenbosch Botanical Garden (Hortus Botanicus). This small but rich piece of plant paradise is located in the heart of town and has become internationally famous for the succulent collection and other special plants. Although administered by the Stellenbosch University, their funds are limited. Deon has now renovated an old store room to house the BioBuild Centre to generate funds, but also to make plant products and products of natural material available to the public. All products sold must be organic, eco- and environmentally friendly with an emphasis on that which is unique and indigenous to Africa. "Something to be proud of and that you would wish to be part of your personal space". (Now, what fills these requirements better than Clivia?)

Some products sold are organic garden products, cosmetic bio-products, bush teas, aloe products and obviously, plants. There is a great demand for special plants, seedlings and seeds. The garden sells some garden variety Clivia very cheaply, but would be very much interested in selling flowering Clivia, young plants and seed of especially yellow and pastel Clivia. If you are interested in selling your plants or seeds on consignment at the garden, or if you have developed a special cosmetic from Clivia, you can contact Deon at 021 808 3054, dkotze@sun.ac.za or vjc@sun.ac.za

The garden also has a small conference centre and a very pleasant restaurant under the canopy branches of some giant trees, surrounded by birdsong – much better than the noisy, smelly street cafe's just a few blocks away. In season, there are cascades and splashes of thousands of Clivia in unexpected corners and nooks under the cool roof of trees. Do visit the Garden - entrance is free! Bring your visitors and consider making some of your plants available for sale. We can all benefit!

Victorian Peach

When the first pictures of the Victorian Peach appeared on the Internet Enthusiasts discussion site in 2004, it created an immediate flurry of interest (and envy!) The name does not refer to the famous Queen (or the era of frilly opulence), but rather to the breeder, Victor Murillo, who quietly grew

and selected a wholly new line of absolutely magnificent Clivia. The best flowers are a solid single colour varying from a very light apricot, almost beige, to a dark rich yellow reminiscent



of a good Dutch Gouda cheese and even a rich Caramel. Victor has up to now given no information about the parentage, but the compact, symmetrical growth, with hard, rough semi-broad

Dark peach triangle leaves, suggest the European/Belgian Hybrids as forefathers. The colour seems to originate from the Group 2 yellows. *(Joe Dana in California has reported that some appear to be Group1 and some Group2. As discussed in the article above on colour inheritance, this will affect their breeding potential, so let us all share our experiences with them ! Eds.)*

We all look forward to seeing the real flowers

The Clivia community in the Cape has experienced a mass immigration of some 50 or more of these plants from the USA grower Victor Murillo. This bodes well for the next shows, where we expect fierce competition for the Margaret Blazer trophy dedicated to the best Peach on show.

One note of warning needs to be sounded, however. There will no doubt be active (hysterical?) trade in plants, offsets, seed and pollen. Prices will inflate as demand rises. But growers should not disregard their accumulated knowledge of Clivia. All Victorian Peach are not equal and necessarily of good health, shape, colour and vigour.

A last comment: As this is probably the result of a long line breeding, should we not try to keep the line pure by carefully pollinating siblings? Very interesting plants may arise from crossing with Group 2 yellows and South African Peaches, but this should be carefully recorded, marked and limited.

Cheaper Confidor

As first reported in the Cape Clivia News 6, the generic equivalent of Confidor has been registered in the first week of July and will come on the market very soon. The name is KOHINOR 350 SC, and although the price has not yet been determined, it is expected to be about 60% of Confidor. You or your local supplier can call TERASON in Stellenbosch, or the head office in Paarl. They may be prepared to supply in smaller quantities than the 1 or 5 or 25 litres usually supplied to agricultural customers. You can also obviously co-operate with a few fellow growers (but first obtain an accurate measuring device, not one that is marked by guesswork. The fortunate members who shared Confidor with me last year, each got an early Christmas present of about 100 ml!) Get rid of those mealy bugs now!

(My sincere thanks to Elzette Giliomee of Terason, Paarl, who went to a lot of extra trouble to obtain this information for us).

Results of Research on Diseases afflicting Clivia

You may be aware that the Clivia Society has sponsored research on the diseases afflicting Clivia at the University of the Free State. The results will be reported in the next Yearbook due this month.

It seems that very few, if any, fungi or bacteria are carried inside the Clivia leaves or stems. Infection may be wholly secondary after stress caused by physical damage, insects, sunburn, flood or drought, chemical burns, etc. So, if your plants are well cared for and healthy, they will not be susceptible to diseases.

But.....Out of the blue, a healthy plant will sometimes show symptoms. One vexing problem is the gradual yellowing of a leaf from the tip in a definite line down the leaf. I have succeeded in stopping this by breaking off the leaf a centimetre or two below the wavy line, but this disfigures the plant. One knowledgeable grower thinks this yellowing is the result of an algae combined with a bacteria. Why this combination is not clear, but he has found PHYTEX (200 SL, #L5263, active ingredient Potassium Phosphonate, marketed by HORTICURA to be absolutely effective in stopping the yellowing.



The imported plant



Sick



leaves

The imported plant shown was received by Coen with healthy roots but leaves with signs of bacterial and fungal problems, including the one described above. He removed all the affected leaves and it recovered fully. Eds.

Please let us have your thoughts, experience and comments.

Eco-friendly ant poison

Ants are serious pests in Clivia. They make nests in your pots, carry aphids around and may also farm mealy bugs. As mentioned above, keeping your plants healthy can eliminate a lot of spraying and damage afterwards. A new poison called MACFORCE is carried by the ants to their nests, killing the whole nest and eggs inside. This even works for the tiny black Argentinian ants, which is such a pest in our gardens and houses. It is supplied by WPK Agri-mark.

How are your Mirabilis doing?

Most of you bought Mirabilis from SANBI. I was pleasantly surprised at the beautiful greyish green of the leaves and the prominent silver line down the middle of the leaf, combined with the dark magenta of the bases and backs of the leaves. Two out of every 3 have these very attractive markings. I cannot wait to see what will be transmitted during crosspollination.

You must remember the conditions under which *Mirabilis* grow in the habitat. Cool to very cold and dry for a large part of the year, with strong rain quickly draining away. The rest of the year hot and dry. In my opinion *Mirabilis* should be kept or allowed to dry for a much longer period than other *Clivia*. They should then be dunked in a large tub and be allowed to drain and to dry again. I have heard of some *Mirabilis* that have already flopped over, diseased at the stem. I am looking after a dozen *mirabilis* for friends from New Zealand and the USA and am keeping them under a roof on a covered stoep, where the nights are cold and the days warm and dry. When spring comes I will move them to a dry, warm position.



(See also the above article by John Winter on growing mirabilis seedlings. Eds.)

By the way, I was told that no *Mirabilis* in cultivation has made any suckers. What is your experience?

Do you really need Sunlight liquid and special germination techniques?

One very well known and highly successful *Clivia* grower (both in quantity and quality) scoffs at the need to wash seeds in Sunlight Liquid and at all the special techniques and places used to germinate *Clivia* seeds. He simply washes the seeds and puts them on the surface in ordinary damp sandy growth medium in seed trays. This is kept in the general growing area (quite warm) and left alone. Germination % is as high or higher than special warming boxes, fish tanks, margarine boxes on top of refrigerators, bank bags, Perlite etc.

Comments?

For myself, I experienced frequent loss of seeds to fungus before we came upon Sporekill and I would not run the risk of losing valuable seeds (which do seem to be susceptible to fungus when the root emerges) by not treating my seed with a solution of one drop of Sporekill in one litre of water. This year I have also discovered that they germinate very well in damp coconut fibre soaked in that Sporekill solution. Mick Dower.

Prof M P de Vos (1912 – 2005)

A leading Botanist and Academic recently died quietly in her sleep in Stellenbosch. She was one of the foremost experts on bulbous plants, especially *Romulea*. She was also very fond of and took a great interest in *Clivia*.

Eric Heine's new shade houses

We all know the excellent plants Eric has produced since he became active in the *Clivia* community. During the last few years it has been very difficult for him and his trusted colleague Harry Muller to care for his plants. His stock was distributed over 4 different localities, many kilometres away in different directions. As Providence has decided he should stay on in his present house, he has now started moving his thousands of *Clivia* back home. They have

now built an extremely neat and spacious shade house and are in the process of constructing another large tunnel. He is online to produce even better Clivia, winning many more prizes at the Show and delighting his many friends and clients with even more magnificent plants.

Interest in Clivia in Hermanus

Felicity Weeden held the first meeting of a new interest Group at Hermanus on July 9th and is planning a mini-show there.

There are already several serious growers and much public interest there and in surrounding Betty's Bay and Grabouw, with many beautiful gardens. Your support and active participation would be most welcome. Contact Felicity at 028 316 3092.

WHAT!! Another (7th) Clivia???

The 6th Clivia was announced only about 6 months ago.

Rumour has it that another Clivia has been discovered in the wild! In another most unlikely place! Watch the developments.....

ENTHUSIAST GROUP HINTS

Pollination

Joe Dana in California has always in the past, religiously pollinated each and every flower repeatedly - at least three times over the duration of the flowers peak.

He had the pleasure of spending time with Rudo Lotter during the post Huntington Clivia Symposium tour in California. One of the things Joe learned was that Rudo only pollinates his flowers once. He was amazed by this statement. He thought he would give it a try and jeopardize his harvest percentage just this once.

All his flowers which bloomed previously to the post conference tour (and Rudo's advice) were pollinated repeatedly as usual and the flowers which bloomed after the post conference tour were only pollinated once.

Looking at his berries which are swelling more and more daily, Joe says that he can honestly make the statement that there is literally no difference between the plants which were pollinated repeatedly as opposed to the plants which were pollinated only once. He has the same small percentage of aborted fruit and the berries are as large from the first group as the second group.

Albinism and Variegation.

Chris Ong in Sydney, Australia has had 30 years experience in Scientific Agriculture research and believes that there are two main types of albinism and of varying degrees. The two main types are those that lack the genes for making chlorophyll (inherited from the mother) and those that have "lazy" genes for chlorophyll (which would be albinos that have inherited chlorophyll producing genes from their mother but the production of chlorophyll is suppressed by nuclear genes inherited from either parent). He believes that the second type can all be saved if we can "awaken" or "trigger" these genes to produce chlorophyll.

As advised in Cape News 6, you can check whether your seedlings are albino because they have "lazy" genes for chlorophyll by feeding them with Epsom Salts (magnesium sulphate). If they "green up" they could survive but will be slow growing. If they don't, they have inherited the genes which cannot produce chlorophyll and will not survive.

Linda Eastman of New York has given us an old formula for stimulating the production of chlorophyll as follows:

1 tsp (5ml) Epsom salts; 1 tsp (5ml) saltpetre; ½ tsp (2.5ml) ammonia; 1 gal (4.5L.) water
Mix well and use as a normal fertilizer.

It will also promote the growth of healthy green leaves in all your plants and is apparently very good for tomatoes!

The explanation for the difference referred to by Chris Ong is that variegation is inherited in seedlings only from a variegated mother plant - seed from a non variegated mother pollinated with pollen from a variegated father will not produce variegated offspring.

But, while many might expect that to breed the best variegated clivia you should choose parents with the most marked variegation, in fact this will result in a large percentage of albino seedlings, sometimes even 100%.

This happens because plastid genes unable to produce any chlorophyll are inherited from the mother and nuclear genes which suppress the production of chlorophyll can be inherited from both parents.

You will get a full range of variegated patterns in seedlings by pollinating a pinstriped or thinly striped mother with pollen from a non-variegated father which has the better leaf shape or flower form that you would like to see in the offspring, along with the variegated leaves. *Mick Dower*

COMING EVENTS

The next **CLUB Meeting** will be at Durbanville on 13 August at 9am where John Winter will repeat the address which he was invited to present to the Clivia Symposium at Huntington in California earlier this year on ' *The variation of Clivia Miniata in the Wild* ' and Johan Schoombie will continue his PowerPoint presentation of clivia photos.

Workshops will be held on 20 August at 9am at Kirstenbosch and at 3pm at Gerrit van Wyk's home.

A **Display** of clivia will be held at the Sanlam Hall at Kirstenbosch on the weekend of 27-28 August. All are welcome to participate by displaying their prize clivia, then in flower but too early for the Show, under their own names. **These will include habitat plants such as those from the Appleblossom complex.** There will also be facilities to sell plants, seed and seedlings. Please arrange with John Winter, Mick Dower or Ian Brown.