

Report on Club meeting

- The Club Meeting on 29 May, 2004 was attended by a record 86 members and the raffle of over 30 quality donated plants raised a record R1794.
- The dates for the **next meetings** are 14 August in the Durbanville Library and 20 November at Kirstenbosch, followed by the end of the year social at the Stone Cottages.
- The **Show** will be held at the Bellville Civic Centre on 18 & 19 September.
- **Workshops** will be held on 31 July (Northern Suburbs) and 7 August and 23 October (Southern Suburbs)
- Colour Charts, Seedling and Seed lists are available through Joy.
- *Cape News* is available in colour to all members who give Joy their e-mail addresses. Greyscale (ie good black and white) copies are available to all who send Joy a stamp addressed long envelope per copy or an A4 envelope for more than one copy, at no further cost. All contributions to *Cape News* must be sent to Joy or to Mick Dower.

Visit By Jim Shields

Jim Shields is a past President of the International Bulb Society and the current President of the Clivia Society of North America. He is on a months visit to South Africa with his wife Irma. He will talk to our members, illustrated by slides, at the Stone Cottages on **Wednesday, 9 June at 12 noon**, followed by a finger lunch hosted by the Club. Please phone Joy if you will be there to facilitate catering arrangements. You are of course free to bring your partner.

We welcome Elsabe Gelderblom of Farm Design & Marketing, to the *Cape News* team. She is responsible for its new professional graphic design.

Photo Competition

The prize winners were Tony Barnes of New Zealand, Ken Smith of Australia and Ian Coates of England. There were some very good photos submitted by South African growers also but they all disqualified themselves by using unprintable backgrounds!

Clivia Society AGM

John Winter has been nominated an Honorary Life member of the Society

Our Club has made the following proposals to that meeting:

- The Society's Newsletter should also be issued in electronic format and copied in greyscale to those members who do not have e-mail.
- The following research projects should be considered:
 - A paper for laymen on clivia genetics.
 - A research paper on the inheritance of clivia flower colours to help us to select the correct parents for breeding.
 - Research into dormant and aborted clivia buds to promote better flowering.
 - The Clubs should assist their members to have their individual problems researched at the Club's expense but, if the published result is found to be for the benefit of all, the Society must reimburse the Club.
- Only plants considered worthy of naming by a technical committee of our Club should qualify for name registration by its members.
- Hard copies of Yearbooks which are out of print should be printed.

Is 'swamp' gardenii a new species of clivia?



In the latest **NewZletter** (the newsletter of the New Zealand Club) Keith Hammett described very succinctly the 5 species of Clivia, but added the possibility that 'swamp gardenii' was a new clivia species, which was then still to be named. We see that in the draft report since received from Roger Dixon on Clivia standards, this is now being called *C. paludosa*, presumably because of its assumed swamp background. However, we understand that that name is not official.

We must sound a note of caution about this. The research into the gardenii species is far from complete. Very few of the gardenii look alike, whether they grow in the habitat on dry ground or in a swamp. It could well be that it is an 'aggregate' species.

Keith's 'swamp' gardenii was collected in the Eastern Transkei by Professor J.N.Eloff, the then Director of the National Botanical Institute, and D. Botha. The accession record No.KBG 133/1986 at Kirstenbosch records that it was found in a "humus rich", "moist/damp" location (without any reference

to a swamp) in the "Mkambati Nat. Reserve" at 3122" 30'S 2952"30'E. on map 3129BD. Reference to that map shows that the location is in fact south of the Reserve in an area described as "cultivated fields."

Keith says he grew his plants from seed of this gardenii given to him by Graham Duncan at Kirstenbosch in 1994. We believe it was not isolated, but growing in the vicinity of other gardenii.

In *Herbertia* 57 (2002/3) on page 41, B. J. M. Zonneveld of the Institute of Molecular Plant

Sciences at Leiden University reports on an investigation done by him into 'The Systematic Value of Nuclear DNA Content in Clivia' using material supplied by Keith inter alia, including the "Robust Gardenii" or 'swamp clivia'. He concludes, inter alia, that

".. the DNA values of the clivia species are very close overall, suggesting that they are strongly related.....In particular, the DNA content of *C.gardenii* and "Robust Gardenii" with 35.7 and 36.4 pg are nearly identical.

This suggests that they may be the same species and that "Robust Gardenii" is at most a variety of *C. gardenii*, as also indicated by their low sequence variation for the ITS and the 5S r DNA regions (Ran et al., 2001b)"

Keith also maintains that this 'swamp' gardenii also has other features and morphological differences which distinguish it from 'other' gardenii, as follows, which we must also question.

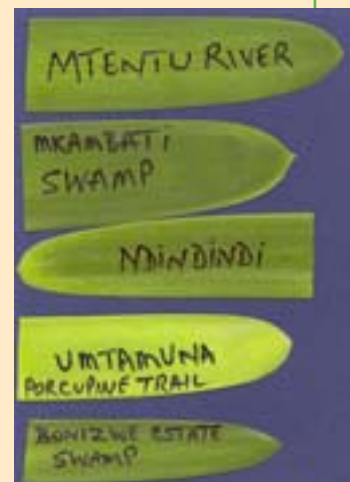
Thus, we do not share Keith's experience that the 'other' gardenii "are almost invariably found associated with rock outcrops on well drained soil", and some 'other' gardenii also have inflorescences as unimpressive as that of the 'swamp' gardenii.

'Swamp' gardenii can also not be distinguished by "...the stigma and stamens being retained within the flower tube, barely protruding at most". The gardenii shown on the centre page of Yearbook 4 and reproduced on the left, all grow in swamps and some do have exerted stigma and stamens.

Likewise, we disagree that "having a tall stiff habit and rounded leaf tips quite distinct from the very pointed lax leaves of *C.gardenii*" is a valid distinction.

As illustrated here, many other gardenii (including those on dry rocky slopes, such as at Umtamvuna) also have "a tall stiff habit with rounded leaf tips" while swamp gardenii can have "pointed lax leaves" (e.g. Bondizio's Estate).

Let us rather be patient, therefore, and wait until all the research has been completed before recognising any such 'new' species.



Research into the C. Gardenii Complex

Our Club has contributed financially to research by the National Botanical Institute Research Centre at Kirstenbosch into the C. gardenii complex to establish whether it is one species, despite the wide range of leaf and flower forms and colours. It has been suggested, for example, that 'Swamp' gardenii is a different species.

Ferozah Conrad from the Research Centre at Kirstenbosch explained to the meeting that they had tried to fingerprint 10 different forms of gardenii from the wild by using the

Amplified Fragment Length Polymorphism (AFLP) method. They had found, however, that this did not work, even with amplification primers for large genomes obtained from the Jodrell Laboratory at Kew. The reason was that the Clivia genome is too large (2C 35.26 pg) for this method.

They are now considering using the Microsatellite method, but this will require setting up the lab. to do cloning, which is time consuming and expensive and must be weighed up with other priorities.

2 Photos of
'Painted Face'



HEIN GREBE'S VISIT TO CHINA

Hein Grebe continued to enthral the meeting by taking us with him on an illustrated guided tour of Singapore, China and Tibet. On clivia, he showed us pictures of a variegated form which has part of the leaf 'Painted Face' and the other part is variegated. These are called 'Lovebird' and are shown here. Hein has been breeding clivia since 1993 and will be arranging a visit to China in April next year to see, in particular, the Beijing Flower Show. Anybody interested can contact him at hgrebe@pgwc.gov.za.



Left: 3 Photos of 'Lovebird'



Middle: Variegated. Bottom photo: A selection of variegated clivia with a Lovebird at the bottom of the picture.

Pollination

By Ian Brown

Clivia seed appears to be ripening earlier this year. The marvellous variety of shapes and colours of the fruits always fascinates me. In examining the seed heads I realised that the shape, colour and size of different fruits on



one plant gives a good indication of whether the flowers have been uniformly pollinated. This can help to prevent the problems that **Coen Calitz** referred to in the last *Cape News*.

The accompanying photographs show clearly that some fruits are widely different from others – some are much smaller and others ripen late. The small ones and late ripeners might well have been self-pollinated accidentally. To ensure that one's seed is what one intends, all fruit that doesn't fit the normal pattern should be discarded, or its seed sown separately. On plants with more than one flower spike, the fruits on the two heads will usually differ if different pollen has been used. This will also be seen where a variety of pollen is used on one head.



Careful pollination, labelling and observation of the fruits should result in the production of seed that has been accurately crossed.

[To make sure that he does not supply wrong seed, Ian throws those divergent seed away. It would be helpful for those of our members who want to keep all their seed if some of our readers would do a carefully controlled test by growing those divergent seed separately from the 'normal' seed taken from the same seedhead to establish whether that seed is in fact divergent, or whether the ovum bearing the fewer seeds is simply not as fruitful, but will produce the same progeny, as the others. EDS]

Why do leaf tips die back?

Professor Johan Spies of the Department Plant Sciences: Genetics (62) University of the Freestate, Bloemfontein has reacted as follows to Dickie Gunston's article on clivia leaf point dieback in Cape News No1 on p.6:

The leaf points of most of the Giddy plants that I have seen, die back. I see that one of your members, Dickie Gunston, maintains that this is a fungal disease. I must differ. Wijnand Swart has studied a number of my plants, and also plants that John Winter and Brian Tarr sent to us. He has not been able to isolate a fungus or a bacteria from any of those leaf points. Furthermore, if you crumble those leaf points and try to contaminate "normal" leaves with them, the "normal leaves" do not get "die-back". There is another underlying cause in many plants for this symptom (eg root rot or mealy bug). In my opinion there must be a genetic factor at play (which would explain why it is more prevalent in some clivia plant forms than in others).

Tests that I have done indicate that it is a symptom of a nutritional deficiency. Die-back of leaf points occurs where there is a deficiency of magnesium, calcium and micro-elements. There is a slight colour difference with each of these three deficiencies, but this is very difficult to describe. However, we are still working on an investigation into nutrition deficiency and hope to describe it later in a Newsletter or the Yearbook.

The 'cure' mentioned by Dickie can possibly mean that the underlying Fusarium-root rot has been cured, or that the fungicide contains the very element in which the plant is deficient.

[This shows yet again how deficient our knowledge of Clivia is and how much research must still be done.]

Correct soil pH, (amongst others), will ensure healthy and contented clivias

By Dickie Gunston

Soil acidity and alkalinity are measured against the pH scale. The letters pH stand for “Potential of Hydrogen”. The full scale runs from 1-14, but most garden soils are within the range 4,5 to 8. The neutral point on the scale is 7,0. Readings below this denote acid soil, above means alkaline.

The majority of plants thrive in slightly acid soil (pH 6,5) though there are exceptions. Clivias can tolerate a wide scale of pH level of 3,5 to 6,5. The ideal pH would be 4,3 to 5,5. The ideal pH for variegated Clivias on the other hand, is neutral, about 6,5 to 7,0. To establish the soils acidity level you can use an inexpensive pH testing kit, readily available from garden shops.

Such kits are easy to use. Small soil samples are shaken with a chemical, such as “Barium Sulphate”, which stabilizes the suspended soil while an indicator dye changes colour, depending on the amount of acidity around it. The result is compared with a colour coded chart to give an approximate indication of the soil acidity. From the reading you can assess what needs doing, if anything.

Agricultural Lime is used to bring an acid soil to near the neutral point; it is more difficult to turn an alkaline soil into an acid one.

To lower the pH (increase Acidity), apply aluminium sulphate, finely powdered sulphur, or specific fertilisers which increase acidity such as ammonium sulphate or ammonium

nitrate. Mulches, especially of pine needles will also lower the pH of the soil over time.

Electronic pH meters fitted with a probe for pushing into the soil, give instant readings. They don't necessarily give better information than the simple pH testing kit and you might be better off buying a complete soil testing kit. In addition to the pH level, this will tell you the level and concentration of major plant food in the soil - nitrogen, phosphorus, and potassium - and help you decide on the most appropriate fertiliser treatment.

To summarise : Get the soils pH right - Correct feeding program - Fertilising - GOGGA FIGHTING - and you will have success in cultivating, propagating and growing.....SHOW STANDARD CLIVIAS.

[See also the article by Pierre de Coster on page 37 of Yearbook 4 on the correct pH for clivia and the use of calcium carbonate ('lime') and magnesium carbonate ('dolomitic lime') to correct it. EDS]

Breeding Broad Leaf Yellow Miniata

Following on Sean Schickerling's article in Cape News No 1, we have been given some very interesting practical advice on breeding broad leaf yellow miniata which we will consolidate after we receive further expert genetic advice. It will be included in a special issue of **Cape News**, probably during the second half of July, well in time for this breeding season.

Cape News/Kaapse Nuus

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