



## Southern African Bulb Group

www.sabg.tk

# SABG Newsletter no. 31 August 2015

Newsletter Editor: Richard White [sabg@rjwhite.tk](mailto:sabg@rjwhite.tk)

## Contents

News.....	1
Dates for your diary.....	1
From the Editor.....	1
<i>Newsletter format</i> .....	2
Bulb & Seed Exchange.....	2
<i>Wants and spares list</i> .....	2
Requests for help.....	2
<i>Suggestions for future speakers</i> .....	3
<i>Request for Nerine drawings</i> .....	3
<i>Snippets for the Newsletter</i> .....	3
Future SABG meetings.....	3
<i>The next SABG meeting</i> .....	3
<i>SABG Spring 2016 meeting</i> .....	3
SABG Library.....	3
<i>Gladiolus species</i> .....	4
“Liquid Smoke” Flavouring as a Cheap Germination Enhancer.....	4
Your SABG Committee.....	7

## News

- Urgent – see the Bulb & Seed Exchange section below, as the deadline for details of any bulbs or seeds you would like to donate for the benefit of other members is quite close (Thursday 20th August).

- Sunday 17th April 2016: SABG Spring Meeting, Winchester

## Dates for your diary

- Thursday 20th August: deadline for Bulb & Seed Exchange
- Sunday 4th October: SABG Autumn Meeting, Winchester
- Saturday 17th October: NAAS/SABG visit to the *Nerine* display at Exbury

## From the Editor

The Newsletter Editor has changed. David Victor has decided to call it a day and devote more time to Geraniaceae, and I have offered to attempt to carry on his excellent work on the Newsletter. David wrote:

“The time has come for me to move on to pastures new. For the past five years I have gained a great deal of pleasure from writing the Group Newsletter and arranging for speakers at our meetings. Looking back on it, I think that we have had a great run of speakers and some really interesting articles in the Newsletter. So, I’m pleased with the results and hope that you have been too.

“I am certain that Richard will make a fine new Editor for the Newsletter and wish him all the best for the future. However, you are all left with one issue that is still to be resolved: who is going to find and book speakers for meetings? I have left a filled “order book” for the next year, but someone needs to step forward to take on the role for the future. And that means now, as speakers have diary dates that stretch a year ahead. It is not a difficult or even demanding job: my guess is that it took less than a couple of days a year, in total. What is more, the other members of the Committee are very good at suggesting possibilities. So, someone, please step up to the plate.

“All my best wishes to the Group for the future.”

The Committee joins me in thanking David for all his hard work for the Group; we wish him the very best for the future, and hope that he will still be able to come to our meetings when he has a chance.

David mentioned the need for people to suggest speakers for future meetings. That's not just for the Committee, you can help too. You'll see we have various appeals for help in this newsletter. The SABG exists for the benefit of its members, not just for the Committee, nor does the Committee necessarily have more knowledge and expertise than you do (certainly not, speaking for myself personally!)

I should add that, in offering to the Committee to *edit* the newsletter, I expressed the hope that I wouldn't have to *write* all of it, as many others have much more knowledge and experience than I do. So let's have your input – it will be most welcome.

## Newsletter format

You'll notice that the newsletter format has changed. Do let me know what you think, so I can tweak it in future. For the majority of you, who receive it by email, you will find it is now provided as a PDF file, which means you will not require any proprietary software such as Microsoft Word to read it.

Two columns are supposed to be easier to read, by making lines shorter. Hopefully it will also be readable on mobile phones and tablets as well as on traditional computers and on paper. Please let me know if you have any difficulty reading it, as I might be able to investigate alternative formats. For those who are interested, I edit it using Libre Office software in Linux on a desktop computer.

## Bulb & Seed Exchange

The Group will be running its Annual Bulb and Seed Exchange again this year. Bill Squire, our Chairman and the organiser of the exchange, will be in South Africa during the period in which we normally organise the exchange, so the deadline for initial information from donors is rather tight this year.

So, could donors please either send their donations of bulbs or seeds or a list of their intended donations to Bill, to arrive by Thursday 20th August at the very latest. Please note that the 20th August date is essential for Bill to complete his tasks before he leaves.

Bill and Alice will then arrange for the list of available material to be emailed out to Members later. Should you want a list sent to you by post, please send an A5 self-addressed envelope, with the correct postage attached. Bill's email address is [billsquire@sky.com](mailto:billsquire@sky.com). His postal address is 8 Benmoor Rd, Creekmoor, Poole, Dorset, BH17 7DS.

After you have received the list, please send any requests for material to Bill, so that he can start the despatch process a few days after he returns at the end of September.

## Wants and spares list

In addition to the organised Bulb & Seed Exchange, following David's suggestion in the previous newsletter, if at any time you have spare plants, bulbs or seeds to give away, or there are plants you are wanting, just let me know and I'll list them in the newsletter. It will then be up to you to get in touch with donors or recipients, so please give me your preferred contact details (email, phone number or postal address). As this newsletter goes on the Web, I won't publish address, email or phone details in the newsletter unless you specifically ask me to do so; otherwise, I will put donors and recipients in touch with each other by email.

## Requests for help

No, don't skip over this section! You may be able to help the SABG very easily. The SABG Committee is always on the look-out for suggestions and offers of help, however small. You can email, phone or write to any members of the committee with suggestions, or just mention them at one of our meetings. SABG Committee members are listed at the end of this newsletter.

In particular, there are the following pleas for help:

## *Suggestions for future speakers*

One of the tasks of the Committee is to arrange a speaker for each meeting. We want to make the meetings as informative and enjoyable as possible for those who attend, but we don't know everyone who might have something interesting to tell us about, so suggestions from members for future speakers are always welcome. It would be especially helpful if you already know the person, but don't worry if you don't know them personally, the Committee will contact them.

## *Request for Nerine drawings*

Andrew Lanoe, an SABG and Nerine and Amaryllid Society member in Guernsey, would like to know whether anyone in the SABG is an artist and can volunteer to draw some pictures of Nerines (for free) for use by the NAAS. If you can help, please let me or another Committee member know.

Of course, we would also greatly appreciate anyone who could provide drawings of any South African bulbs for us as well – to add to our drawing of a *Lachenalia* which we use as a logo on our newsletters, web-site and other documents.

## *Snippets for the Newsletter*

Ideas, notes, photos and or even articles for our newsletter are always welcome. You don't have to prepare them in any special way, and needn't spend ages refining them, I will happily edit them for the newsletter. Just send me an email (my address is at both ends of the Newsletter!)

For example, I have some photographs of the rare and recently described *Prototulbaghia siebertii* in flower in cultivation in Germany, which will appear in the next newsletter. But a plant doesn't have to be rare to get into the newsletter!

## **Future SABG meetings**

### *The next SABG meeting*

Our next meeting will be held on Sunday 4th October at our normal venue, the Badger Farm Community Centre near Winchester. Directions are shown on our web-site at [www.sabg.tk](http://www.sabg.tk). As in previous meetings, the doors will open at 10.00, with the speaker taking the stage at 11.00. The meeting will close at 16.00.

Our speaker will be Julian Sutton, who runs the

Desirable Plants nursery in Totnes with his wife, Sarah. We still have to finalise a title, but with his expertise in Western Cape plants it is likely to have a close connection to the plants that interest members.

As in all meetings, there will be a display table for any plants that you bring along to show Members. We hope to organise one of our informal discussions periods during the afternoon, so that Members can show their plants and answer any questions other might have. If any of you have slides or JPEG images of plants that you would like to show, please bring them along.

There will also be a sales table where you can offer material for sale on an 80:20 Member to Group basis, i.e. the Group takes a 20% commission to help cover the hall hire costs etc. Please include a second label in each pot, showing the price and your initials, so that we can settle up easily at the end of the day.

There will be a lunch break from approximately 12.30 until 14.00. For those of you that have not come before, it's worth adding that many Members bring their own food so that they can have the opportunity to chat to others. Alternatively, the Sainsbury's supermarket is based on the same site.

As usual, the charge for the meeting will be £3.00 each, payable at the door. If you add your car registration number to the list, there is no charge for parking.

## *SABG Spring 2016 meeting*

The Spring SABG meeting is on Sunday 17th April 2016. Jonathan Hutchinson will speak about his trip to Ethiopia.

## **SABG Library**

An opportunity has arisen to start a Group Library of books which members can browse at meetings, and possibly borrow from one meeting to the next. Details have yet to be finalised, but it is hoped to acquire some books on South African bulbs and wildflowers shortly.

This is due to the generosity of Janet Wall, whose father, Brian Wall, was an enthusiastic grower of South African bulbs, and other plants including orchids. His death in April 2013 was recorded in the IBSA Newsletter for that month by Alan Horstmann, who wrote:

“It was with great sadness that we heard of the sudden death of long time IBSA member Brian Wall in Cheshire, England, after a short illness. Brian was an

excellent grower of South African bulbous and cormous plants. He started off growing only fragrant gladioli such as *Gladiolus uysiae* and *Gladiolus orchidiflorus*. Brian was a great friend of Andries de Villiers and, while John Manning was working on '*Gladiolus in Southern Africa*', he used to bring gladiolus seed to Andries. Andries then distributed this seed to his group of "expert" growers. This group included Brian Wall in Crewe in the north of England. Soon we realised that he had more success with these plants than the rest of us in sunny South Africa. While working in the UK I visited Brian and Kathleen at their home. I was amazed to see his well-organised greenhouse, which by now even had crinum and moraeas as well as babianas growing side by side with his prized gladioli."

Kathleen continued to tend the plants until Simon Goodenough, the curator at the National Botanic Garden of Wales ([www.gardenofwales.org.uk](http://www.gardenofwales.org.uk)), collected them for the South African biome in their Great Glasshouse ([www.gardenofwales.org.uk/garden-map-features/garden-features/35-the-great-glasshouse](http://www.gardenofwales.org.uk/garden-map-features/garden-features/35-the-great-glasshouse), the largest single-span greenhouse in the world, designed by Norman Foster). They missed a few bulbs, which she continued to care for until she died in May 2015.

Rachel Saunders of Silverhill Seeds put Janet in touch with Audrey Cain, and Janet offered her father's books to the group, hence our plan to start a library. I am going to collect the books and the remaining plants next week, so more details will follow at our Autumn Meeting and in the next Newsletter.

### *Gladiolus species*

Here are two photos of *Gladiolus* species in habitat in South Africa. They were sent by Cameron McMaster to Janet Wall to use at her father's funeral to show his interests (see above), and she passed them on to me.



(above) *Gladiolus carneus* near Napier, South Africa, 16th November 2006



*Gladiolus rudis* at Fairfield, a farm near Napier, 8th September 2007

## "Liquid Smoke" Flavouring as a Cheap Germination Enhancer

by Paul Cumbleton

It is well known, especially in areas often affected by natural wild fires, that the germination of some plant species is enhanced by chemicals in smoke. Some of the best-known examples within the South African flora that respond to smoke treatment include ericas, proteas and restios. Smoke can contain literally thousands of chemicals and it took many years of research before a significantly active chemical was isolated and shown to be effective in enhancing the germination of some species. The breakthrough came in 2004 when two teams of scientists independently discovered the chemical and published papers<sup>1,2</sup>. The chemical belonged to a group of compounds called butenolides and the specific one involved was subsequently called Karrikinolide (KAR). This chemical has since been synthesised, along with other analogues of it, all of which have shown activity in promoting seed germination in smoke-responsive species.

### What to Use as a Smoke Treatment?

When trying to germinate plants known to be responsive to smoke, many amateurs have used "smoke discs" – these are filter papers impregnated with smoke. You simply put the filter paper in water to dissolve out the chemicals and then use the resulting solution to treat

the seeds. You can buy these smoke discs easily on the Internet. One example comes in packets that look like this:



However, these discs are quite expensive. There is a much cheaper alternative available – a food flavouring known as “Liquid Smoke”. This is produced by burning selected woods and passing the resulting smoke through water. It is used for flavouring things such as barbequed meats. Various brands are available and each produces a range of flavours made with differing woods. One recommended type that has been researched and used by scientists is Colgin Mesquite Liquid Smoke. You can buy this in various delicatessens, some supermarkets or over the Internet.

The product is shown in the next column.

**What Effect does it have?**

The precise effect varies enormously, but here is just one example: In one set of experiments<sup>3</sup>, scientists used this to see what effect it would have on the germination of a grass known as Piligrass (*Heteropogon contortus*). They used a 1% solution (i.e. 1 part of the liquid smoke flavouring to 99 parts of water) and soaked the seeds for 15 minutes before sowing. Of untreated seeds only about 1% germinated, whereas about 40% germinated of the ones treated with the liquid smoke.

**Is it Useful for Bulbs?**

While this information may be of use to those of you who grow ericas etc, is it of any use specifically with the bulbs that most of us grow? The brief answer is “maybe”.

In addition to plants known to be dependent on smoke-aided germination, Karrikinolide has been shown to affect a wide variety of plants that are not dependent on the effects of smoke for germination, so it may be worth testing its effects on almost any species. Of South African plants tested by scientists, most geophytes do not show any improved germination when treated with liquid smoke. Just a few examples of those that do not respond include *Aristea major*, some *Romulea* & *Geissorhiza* species, and some species of *Moraea*, *Albuca*, *Agapanthus*, *Watsonia*, *Cyrtanthus*, *Kniphofia* and *Bobartia*. One or two however do show a response, such as *Aristea africana* and *A. racemosa* and *Wachendorfia* species.

However, this is not a simple story. The concentration of the chemical used and the method and duration of application can affect what happens and many experiments done so far have often used just a single strength or method of application and for a single length of time. Varying these may have produced differing results. The picture is also complicated by the fact that other factors such as temperature, light and the dormancy state of the seeds all interact with each other and can influence whether or not the smoke has an effect at any particular time. So there is plenty of room for further experimentation!

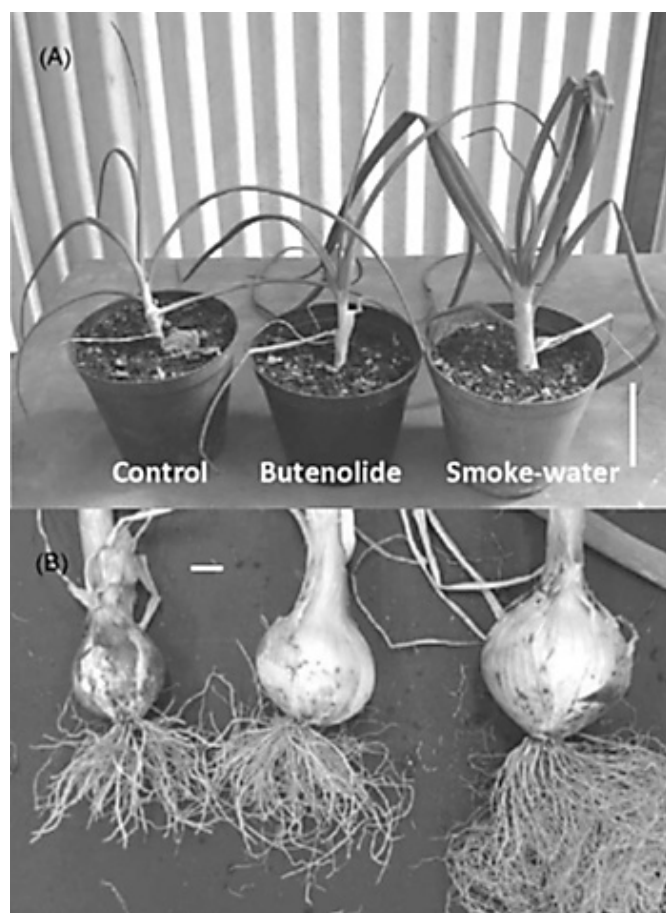
**Effects on Growth**

As well as affecting germination, smoke treatment has been shown to affect the subsequent growth and yield of some crop plants. For example scientists studied its effects



on growth of Papaya seedlings<sup>4</sup>. They transplanted seedlings into peat-filled pots that were saturated with different concentrations of smoke-water (0%, 1%, 2%, 3%, 4%, 5%, 7%, or 10%, v/v). Summarising the findings they said that “Results showed that all growth parameters increased significantly compared with the control. In addition, smoke-water treatments consistently and significantly increased the percentage of nitrogen in roots and shoots and significantly increased the percentage of magnesium in shoots. In these experiments, smoke-water ... promoted multiple growth attributes such as chlorophyll content and seedling vigour index at all concentrations in papaya seedling production.”

Of more interest to us is perhaps an experiment<sup>5</sup> done with onions which are of course true bulbs. Onion seedlings were watered with smoke water twice a week during their growing season, or with a butenolide or with just water as a control. This picture shows the visible results:



More specifically some of the results were:

- Smoke-water-treated onion plants had a significantly higher number of leaves compared with untreated plants, and these leaves were all longer than in the untreated plants.

- In smoke-water-treated plants, dry leaf weight was significantly higher than the untreated plants.
- Smoke-water treatment of onion plants resulted in significantly larger and heavier bulbs compared to untreated plants.
- Smoke-water-treated plants significantly increased both absolute growth rate and harvest index in comparison to untreated plants.

## Using Liquid Smoke

I have not yet experimented myself to see if any of the bulbs I grow may respond in a similar manner, but the results shown above are surely tempting to give it a try and you may well think the same. In the experiments I have read about, the concentrations used vary quite a lot so it would be worth trying differing ones. The typical range used is anywhere between a 1% (1 part Liquid Smoke to 99 parts water) to a 10% solution (10 parts liquid smoke to 90 parts water). For germination, methods varied from soaking seeds in the solution for anywhere between 15 minutes up to 24 hours, or sowing as normal but then watering the seeds in with the Liquid Smoke solution. For growth promotion, water at whatever interval you choose right through the growing season.

If any of you do choose to experiment, please share your results with the rest of us via the newsletter!

## References

1. Flematti, G.R., Ghisalberti, E.L., Dixon, K.W., Trengove, R.D., 2004. A Compound from Smoke That Promotes Seed Germination. *Science* **305** no. 5686 p. 977
2. Van Staden, J., A.K. Jager, M.E. Light, and B.V. Burger. 2004. Isolation of the major germination cue from plant-derived smoke. *S. Afr. J. Bot.* **70**:654–659
3. Baldos, O.C., DeFrank, J. and G. Sakamoto. 2011. “Improving germination of pili grass (*Heteropogon contortus*) seeds using liquid smoke flavouring” [Online, technical poster]. Available for free at: <http://paperzz.com/doc/609592/-heteropogon-contortus--seeds-using-liquid-smoke-flavoring>
4. Jenjira Chumpookam, Huey-Ling Lin<sup>1</sup> and Ching-Chang Shiesh. Effect of Smoke-water

on Seed Germination and Seedling Growth of Papaya (*Carica papaya* cv. Tainung No. 2). *HortScience* June 2012 vol. **47** no. 6 741-744

5. M.G. Kulkarni, G.D. Ascough , L. Verschaeve , K. Baeten , M.P. Arruda , J. Van Staden. “Effect of smoke-water and a smoke-isolated butenolide on the growth and genotoxicity of commercial onion” *Scientia Horticulturae* **124** (2010) 434–439

For those wishing to dig into this subject in more depth, the best recent summary of the state of our knowledge about smoke effects on plants is the book “Ecology of Plant-Derived Smoke: Its Use in Seed Germination” by Lara Jefferson, Marcello Pennacchio and Kayri Havens-Young, published by Oxford University Press USA 978-0-19-975593-6, 27 March 2014. This book:

- Gives 1355 species accounts of plants, with information on how the seed of species interacts with various types of smoke.
- Examines plant-derived smoke as a tool for promoting seed germination and growth.
- Is a continuation of the research presented in “Uses and Abuses of Plant-Derived Smoke” published in 2010. Both books are the first of their kind in what is now an ever-expanding and exciting field of research. This volume focuses on the use of plant-derived smoke as a tool, used for promoting seed germination and growth.

*Paul Cumbleton 2015*

## Your SABG Committee

### Chairman

Bill Squire [billsquire12@ntlworld.com](mailto:billsquire12@ntlworld.com)

### Treasurer

Rodney Sims [rodney.sims@tiscali.co.uk](mailto:rodney.sims@tiscali.co.uk)

### Secretary & Membership

Alina Hughes [abmhughes@gmail.com](mailto:abmhughes@gmail.com)

### Newsletter and Web editor, Committee minutes

Richard White [sabg@rjwhite.tk](mailto:sabg@rjwhite.tk)

### Meeting hall bookings

Audrey Cain [audrey@cain.net](mailto:audrey@cain.net)

### Seed & bulb exchange

Bill Squire [billsquire12@ntlworld.com](mailto:billsquire12@ntlworld.com)

Alice Vanden Bon [alice.vanden.bon@ntlworld.com](mailto:alice.vanden.bon@ntlworld.com)

*Unless otherwise stated, material in this newsletter is by Richard White ([sabg@rjwhite.tk](mailto:sabg@rjwhite.tk)) and is Copyright © 2015, Southern African Bulb Group.*