

LOGAN & DISTRICT ORCHID SOCIETY INC.

NEWSLETTER



May
2017

Foundation Date January 1976.

Thelymitra ixioides

Spotted Sun Orchid

ORCHID SPECIES BULLETIN. VOL. 45 No 4 April 2017
by Gary Yong Gee



To see the rest of
this article it is
available on the
ORCHID SPECIES
BULLETIN. VOL.
45 No 4 April 2017.

New members are
always welcome

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Win Watts Ph 3805 6197

Next Monthly Meeting:

Tuesday 16th May 2017

Commencing at 7.30pm.

Logan Central Community Centre
Cnr Jacaranda Ave & Wembley Road
Logan Central.

Next Committee Meeting:

Tuesday 6th June 2017

Commencing at 7.30pm.

Logan Central Community Centre

Cycnoches barthiorum G.F.Carr & Christenson was described by George Carr and Eric Christenson in Orchids published by the American Orchid Society in 1999. The specific epithet honours Andrea Niessen's aunt Annelies Barth and grandfather Erich Barth, for their contributions to growing Colombian orchid species.

Cyc. barthiorum belongs to *Cycnoches* section Heteranthae, which produce male flowers that look vastly different to the female blooms. Male flowers are borne on long pendent racemes with several to many on the stem. Female blooms are generally carried on separate racemes, often on different plants that are growing in strong light. The short upright stems with female blooms are few-flowered and the flowers are larger than the male ones.

An epiphytic plant, *Cyc. barthiorum* produces cylindrical to spindle shaped pseudobulbs that are up to 18 cm long and 17 mm broad. The newly grown pseudobulbs bear 7-10 thin pleated elliptic-lanceolate leaves that are 6-24 cm long and 2.5-5 cm broad. Its leaves are soon deciduous after flowering.

Male flowers on pendent inflorescences that are up to 17-20 cm long are produced from the upper nodes of the newly matured stem. The raceme of *Cyc. barthiorum* bears several to as many as 15-26 non-resupinate male flowers that are 3-6.5 cm across. Pale olive green, the rear of the sepals and petals are suffused with reddish-brown, which suffuses through to the front. In addition, the sepals and petals are boldly marked with dark maroon spots. The lip is unusually shaped like a water droplet caught in slow motion. It is white with a greenish base that is boldly spotted with purple to maroon. The apical white portion is margined or spotted with purple to red. Its slender greenish column is marked or spotted with purplish mahogany to maroon. The male blooms last for about 2 weeks and produce a faint scent of fresh cut grass or perhaps moth balls. The female flowers of *Cyc. barthiorum* are carried on a short upright stem that is about 5 cm long, with an average of two blooms. These large flowers are non-resupinate and are 8-9 cm across. The greenish sepals and petals are flushed with brown in the upper portion with brown blotches towards the base. Its glossy pale yellow convex lip is margined with brown to maroon at the apex. The base of the lip is green with maroon spots and blotches. Its stout greenish column is mostly covered with maroon and has maroon spots at the apex.

Work Roster for May 2017

Hall Set-up at 6.30pm

Those that can come early.

Supper: Marj Dawson and Maria Jovinov.

Editorial

This month we have the usual format, Page 1, at the April meeting the judges did not nominate a Special Interest Plant of the month or a Cultural plant, I have used the photo and description from the ORCHID SPECIES BULLETIN. VOL. 45 No 4 April 2017 by Gary Yong Gee to complete this page, Page 2 the upcoming shows, the guest speaker for May will be Ken Webster about the Australian Orchid Council. Page 3 has the minutes from the April meeting and the Committee Notes for May. Page 4 has the benching results for April and Page 5 has the photos of the winning plants, Page 6 has info about a talk by Fred Clark that will be at Ipswich, this is not to be missed and more on the display at Centro Shopping Centre. Page 7, has the Saturday Cultural Information Meeting, also the news about the stocks of bark, Judges for the May meeting and a little bit of life, on page 8, a note by Dr. Noel Grundon about watering and fertilising. Page 9 an Article by Dr. George Tsambourakis on Breeding Orchids.

The Mothers Day display at Centro is a goer, setup will be on the Wednesday before Mothers day which is on May 14th and will run till the Saturday afternoon, more info throughout this Newsletter, as the shops all stay open from 8 or 8.30am till 9.00pm. attendance may be required during these hours.

Reg

How to start a fight

When our lawn mower broke and wouldn't run, my wife kept hinting to me that I should get it fixed.

But, somehow I always had something else to take care of first, the shed, the boat, making beer. Always something more important to me. Finally she thought of a clever way to make her point.

When I arrived home one day, I found her seated in the tall grass, busily snipping away with a tiny pair of sewing scissors. I watched silently for a short time and then went into the house. I was gone only a minute, and when I came out again I handed her a toothbrush. I said,

"When you finish cutting the grass, you might as well sweep the driveway.

And that's how the fight started

The doctors say I will walk again, but I will always have a limp.



Web Address:
www.lados.org.au



Facebook Address:

To link to our [Facebook](#) page. Place mouse on Facebook operate Control key and click on left mouse button.

COUNCILLOR

Phil Pidgeon

Division 9

Proud to support the Logan and District Orchid Society



FOR ANY HELP WITH COUNCIL MATTERS

Telephone: (07) 3412 5509
Mobile: 0411 869 109
email: philpidgeon@logan.qld.gov.au

SHOWS TO COME

Aspley O. S.	13 May, Community Hall, Edinburgh Castle Rd. Wavell Heights.
Ballina & Dist O. S.	11-13 May, Ballina Fair Shopping Centre
Bundaberg O. S.	12-14 May, Bundaberg Civic Centre
Casino & Dist O. S.	25-27 May, St Marks Hall, Barker St Casino
Gold Coast O. S.	12-13 May, Pines Shopping Centre
Redcliffe Dist O. S.	11-13 May, Redcliffe Municipal Library
Toowoomba O. S.	13 May, St Pauls Church James & Phillip Sts

GUEST SPEAKER FOR THE MAY MEETING

The Guest Speaker for the May meeting is Ken Webster explaining the role of the Australian Orchid Council, Awards of Excellence and a new Judges Training Course.

MINUTES LOGAN AND DISTRICT ORCHID SOCIETY INC. GENERAL MEETING 18th APRIL, 2017

OPENING: President Ken Martin opened the meeting at 7.30 pm.

WELCOME: to members, visitors and our judges Don Nitschinsk, Michael Billiau, Jeanne Rutherford and Maree Illingworth. Associates are Gordon Grant and Jan Teufel.

APOLOGIES: as per register.

MINUTES: The minutes of the March 2017 meeting published in the April Newsletter were passed on a motion by Alfred Filia and seconded by Kurt Raup.

CORRESPONDENCE INWARDS and OUTWARDS: Accepted. Moved Julie Copley-Bishop. Seconded by Mary Wenck.

FINANCIAL STATEMENT:

Treasurer Doug Mogg moved and Jim Zimmerman seconded that a statement showing balances of: - General Account: - \$10,535.77 Investment Account: - \$6,406.87 be accepted and that the following account be accepted for payment: - R. Illingworth \$46.00 postage.

NEW MEMBER: Ian Williams was welcomed to the Club.

GENERAL BUSINESS:

Ken Martin thanked Doug Mogg for supplying his many flowering Dendrobiums for our display at the Brisbane Orchid Society Show. Thanks to members who helped set up the display which won a Second Prize. Well done. After being circulated the roster is now filled for the April 22nd (Saturday) Bunnings Sausage Sizzle two sessions (7.30 – 12 and 12 – 4.30). Thank you.

Roster circulated for the Centro Mother's Day Stall from the 10th to the 13th May. Helpers are still required to fill the remaining slots. Location change closer to the front entrance of the Centre (smaller space). Flowering orchids are required for sales. Ken advised members to talk to Win Watts of her positive experience in helping out at last year's stall.

SHOW: No report

WEB MASTER: Kurt Raup advised that the Club badges had been ordered. They would be available on the trade table.

TRADE TABLE: Adrian Bergstrum discussed that he was attempting to streamline the pots to one brand. Also, the supply of cork would not be replaced. The remainder would be priced on demand at the trade table.

LIBRARY: Olympia advised the meeting of the three journals now available for lending.

Kitchen duty: for the 16th May meeting: Marj Dawson and Maria Jovinov.

The New Growers' Group Co-ordinator Reg Illingworth: advised the meeting that the Group's last topic was well received. The next meeting's topic will be Nomenclature which would be advisable for the Show Stewards to attend. The following meeting will be on grooming plants for the Show.

Guest Speaker: The quest speaker was John Roberts who gave an informative and interesting talk on Bigibbum Dendrobiums. This was accompanied by colour slides with examples highlighting the problems in the flowers that may be encountered in line breeding. He also gave cultural advice with member's orchids benched on the night. Members also asked questions that John responded to from his experience.

Many thanks John for the presentation.

JUDGES' CHOICE AWARDS: Gordon Grant assisted by Phil McCallum announced the winners of tonight's benched plants. Well done.

CULTURAL AWARD: No award granted.

SPECIAL INTEREST AWARD: No award granted.

Exhibitor's prize: ticket no. 57 blue.

POPULAR VOTE

Open	<i>Gomesa Alasuka 'Claire'</i>	T & B Pritchard
Intermediate/Novice	<i>Vanda Two Tone Wonder</i>	R. Hocking

Raffle winners were drawn.

Meeting closed at 9.15 pm

Many thanks to all who helped on the night

Julie Copley-Bishop *Minutes Secretary*

MAY COMMITTEE NOTES

At our last committee meeting it was discussed whether the format for the Mother's Day Centro Stall should be changed next year due to the lack of response for helpers for the 10th to the 13th May. With late night opening of centres the problem has arisen of not being able to fill the roster fairly.

The committee offered their thanks to the members who contributed their time and efforts in making our last Bunning's Sausage Sizzle such a financial success (\$1,017 profit). Congratulations and well done.

The committee advises that the club badges are still in the process of being delivered.

Thanks to Win Watts for organizing the roster for the supper helpers at the general meetings.

The planning for our annual Orchid Show on the 26th and 27th August this year is ongoing with a committee meeting on the 28th May at Merv Stewart's place 2pm.

Julie Copley-Bishop *Minutes Secretary*

JUDGES CHOICE RESULTS FOR APRIL, 2017

1 DENDROBIUMS:		17 SPECIES EXOTIC MONOPODIAL:	
1	<i>Den. Chao Praya Fragrance</i>	Mogg D	1 <i>Aer. quinquevulnera</i> Mogg D
2	<i>Den. Garnet Jewel</i>	Mogg D	2 <i>Angcm. longicalcar</i> Roberts J N
3	<i>Den. White Fantasy x Asternova Snow Princess</i>	Martin C	
2 CATTLEYAS Over 100mm:		18 INTERMEDIATE CATTLEYA ALLIANCE:	
1	<i>Rlc. Glenn Maidment</i>	Gill C & M	1 <i>Rlc. Excellent Zaoh 'Green Fantasy'</i> Filia A & K
2	<i>Rlc. Sanyung Ruby 'Kuans Lung'</i>	Mogg D	2 <i>Rlc. Donna Kimura 'Paradise Tami' x Brunswick Gem</i> Filia A & K
3	<i>Rlc. Alma Kee 'Tipmalee'</i>	Gill C & M	3 <i>Rlc. Deception Inkspot</i> * Filia A & K
3 CATTLEYAS 60-100mm:		19 INTERMEDIATE DENDROBIUM ALLIANCE:	
1	<i>C. Dal's Choice 'Jimar'</i>	Zimmerman J & M	1 <i>Den. Woo Leng 'Blue Lip'</i> Morrison H
2	<i>Rly. Red Stella</i>	Zimmerman J & M	2 <i>Den. Unknown</i> Morrison H
3	<i>Lc. Angel Heart 'Hihimanu'</i>	Martin K	3 <i>Den. Unkown</i> Morrison H
5 CATTLEYAS Novelty or Cluster:		20 INTERMEDIATE ANY OTHER GENUS:	
1	<i>Gct. Starrlyn 'Jimar'</i>	Zimmerman J & M	1 <i>Ons. Wildcat 'Doris'</i> Filia A & K
2	<i>Rth. Lois McNeil</i>	Zimmerman J & M	
3	<i>C. Unknown</i>	McCallum P	
6 PAPHIOPEDILUM:		21 NOVICE CATTLEYA ALLIANCE:	
1	<i>Paph. Maudiae</i>	Tierney M	1 <i>Rlc. Redland Gem 'Pride' x Serene Sunset 'Sensation'</i> Watts W
2	<i>Paph. Jogjae x farrieanum</i>	Tierney M	
3	<i>Paph. Unknown</i>	Tierney M	
8 VANDACEOUS ALLIANCE Flowers over 40mm:		22 NOVICE DENDROBIUM ALLIANCE:	
1	<i>V. Thai Classic 'Golden Yellow'</i>	Mogg D	1 <i>Den. Fantasyland 'Princes'</i> Watts W
2	<i>V. Pakchong Blue 'Giant Blue'</i>	Mogg D	2 <i>Den. [(Autumn Show 'Giant' x phalenopsis 'Clifton') x Dal's Maree ?]</i> Jeffrey K
3	<i>V. Viraphandhu Beauty x coerulea</i> *	Cook D	
10 ONCIDIINAE:		23 NOVICE ANY OTHER GENUS:	
1	<i>Gom. Alosuka 'Claire'</i>	Pritchard T & B	1 <i>V. Two Tone Wonder</i> * Hocking R
2	<i>Mps. Prelapsaran</i>	Mogg D	2 <i>Lsz. Lava Burst 'Puananii'</i> Crosby S
3	<i>Onc. Sharry Baby</i>	Krishnamoorthy Dr S & M	3 <i>V. Unknown</i> Simons J
11 MISCELLANEOUS LARGE 50mm and over:		Cultural Award	
1	<i>Bulb. Wilmar Galaxy Star</i>	Illingworth R & M	<i>None Granted</i>
15 AUSTRALIAN NATIVE SPECIES:		Special Interest Plant of the Month	
1	<i>Bulb. schillarianum</i>	Asquith D	<i>None Granted</i>
2	<i>Den. bigibbum</i>	Pritchard T & B	
16 SPECIES EXOTIC SYMPODIAL:		Popular Vote—Open	
1	<i>Bulb. grandiflorum</i>	Illingworth R & M	<i>Gom. Alosuka 'Claire'</i> Pritchard T & B
2	<i>Eria. convallarioides</i> *	Krishnamoorthy Dr S & M	
3	<i>Gom. radicans</i>	Copley-Bishop J	

CORRECTION TO PLANT TAGS

Would all Members who will bench orchids at any future meetings, please change their plant tags as necessary, so that we do not have to do these alterations continuously.

Changes are marked in Red and with an *

Tabling Statistics are not available with the new procedure

First placed orchids at the April meeting photos by Reg Illingworth



1. Dendrobium
1st. *Den.* Chao Praya Fragrance
Mogg D



2. Cattleyas – Over 100mm
1st. *Rlc.* Glenn Maidment
Gill C & M



3. Cattleyas – 60mm to 100mm
1st. *C.* Dal's Choice 'Jimar'
Zimmerman J & M



5. Cattleyas – Novelty or Cluster
1st. *Gct.* Starrlyn 'Jimar'
Zimmerman J & M



6. Paphiopedilum
1st. *Paph.* Maudiae
Tierney M



**8. Vandaceous Alliance Flowers
over 40mm:**
1st. *V.* Thai Classic 'Golden Yellow'
Mogg D



10. Oncidiinae
1st. *Gom.* Alosuka 'Claire'
Pritchard T & B



11. Miscellaneous Large 50mm and over:
1st. *Bulb.* Wilmar Galaxy Star
Illingworth R & M



**15. Australian Native
Species:**
1st. *Bulb.* *schillarianum*
Asquith D



**16. Species – Exotic
Sympodial**
1st. *Bulb.* *grandiflorum*
Illingworth R & M



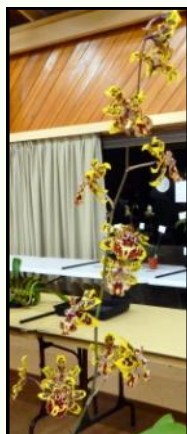
**17. Species – Exotic
Monopodial**
1st. *Aer.* *quinquevulnera*
Mogg D



**18. Intermediate Cattleya
Alliance:**
1st. *Rlc.* Excellent Zaoh 'Green
Fantasy' Filia A & K



19. Intermediate Dendrobium Alliance
1st. *Den.* Woo Leng 'Blue Lip'
Morrison H



20. Intermediate Any Other Genus:
1st. *Ons.* Wildcat 'Doris'
Filia A & K



21. Novice Cattleya Alliance
1st. *Rlc.* Redland Gem 'Pride' x Serene
Sunset 'Sensation' Watts W



22. Novice Dendrobium Alliance:
1st. *Den.* Fantasyland 'Princes'
Watts W



23. Novice Any Other Genus:
1st. *V.* Two Tone Wonder
Hocking R

Sunset Valley Orchids Inc.

Sunset Valley Orchids is dedicated to the breeding of new orchid hybrids. Our breeding lines are focused on three primary areas: 1: vigorous, robust, and compact growing plants; 2: new flower colours and shapes; and 3: AOS award quality flowers.

Our primary efforts are focused on hybridizing of Cattleya Alliance, Catasetinae, Australian Native Dendrobiums and Paphiopedilums. We also are working with several other groups, like Sarcocylus, Zygopetalum Alliance, and Stanhopea and their relatives.

In recent years, orchid hobbyists from around the world have realized how rewarding the Catasetinae can be. Sunset Valley Orchids is the top breeder of this group, and our plants are being grown by orchid enthusiasts worldwide. The development of the "blackest orchid seen," Fredclarkera After Dark (Mo. Painted Desert x Ctsm. Donna Wise), captured a great deal of attention, and the next generations of Catasetinae hybrids will be even more spectacular!

Our Cattleya breeding program has been developing for over 35 years, and our efforts have developed many new and unique hybrids, resulting in hundreds of AOS awards. At Sunset Valley Orchids we take a different approach: we hybridize for the orchid hobbyist, not the mass market. This strategy requires that we stay at the forefront, breeding the newest and most promising hybrids available. Our specialty is compact sized cattleyas, plants that are less than 12" tall at maturity and bloom in 4" pots. We also breed miniature and standard sizes, specializing in easy-growing plants that produce flowers in new and exciting colour combinations.

All of our orchid hybrids are grown from seed, and we raise them to maturity in our 45,000 sq. ft. of greenhouse space (just over an acre). At Sunset Valley Orchids we take pride in offering only the best grown plants. We have a rigorous selection process, and only the strongest plants are advanced through each phase of the production cycle. This process starts in the lab with replating, deflasking, and up potting, and carries through to maturity. This rigorous process means that we offer only the healthiest, most vigorous plants for sale. Please take some time to look at our orchid listings and the pictures of the parents. You will see that our breeding stock is exceptional. This is an exciting orchid hybrid list with high potential for excellence.

I enjoy talking orchids. **Fred Clarke**

Fred Clark of Sunset Valley Orchids, 1255 Navel Place, Vista, California, will be attending the Tropical Queensland Orchid Council Conference in Townsville on the 9-11 June 2017 to present lectures on his breeding program and will have flasks for sale. On his way there he will be attending the Ipswich general meeting on the 7th of June and present two lectures.

Entry is by Gold coin and a supper will be served.

The Ipswich Society would like to know approximately how many will be attending for catering purposes and would appreciate a donation of cakes, slices etc to assist in this.

Please let Jan McKenzie know if you are planning to attend, "It will be worthwhile."

Ipswich Society meet in the Humanities Centre on the ground floor of the Ipswich Council Chambers, Cnr Nicholas and South Sts. There is ample parking at the rear of this building with entry on Roderick St.

Phil McCallum will be attending and would like to organize a car pool.

Maree and myself will not be attending as we will be on our way to Townsville for the Conference and will attend the lectures there.

Our President Ken Marin has asked me to remind everyone that the stall at Centro Shopping Centre will be set up on Wednesday afternoon the 10th of May and run till the Saturday afternoon before Mothers Day.

If you have any plants in flower you do not want or have been growing for sale this is a very good place and in the past flowering plants have sold well.

If you have any spare time a helping hand to man the display would be appreciated see Ken Martin and put your name down on the roster.

This display is a very good lead up to our show in August which will be a great show, the enthusiasm is starting to build already.

Judges for the May Meeting

There will be four Judges and any associate Judges that request to observe the procedure.

If there are sufficient plants on the benches the Judges will operate in 2 teams.

The allocated Judges are Don Nitschinsk, Michael Billiau, Reg Illingworth and Adrian Bergstrum.

The scheduled associates are Jan Teufel and David Poulgrain

Members wishing to help with the stewarding please see Maree as she will be selecting them on the night.

POTTING SUPPLIES

ORCHIATA Bark is available FROM Ken Martin, Phone 3341 5474. 9 Dianna Street UNDERWOOD.

It is available in 4 sizes, Small 6-9mm, Medium 9-12mm, Large 12-18mm and Extra Large 18-25mm.

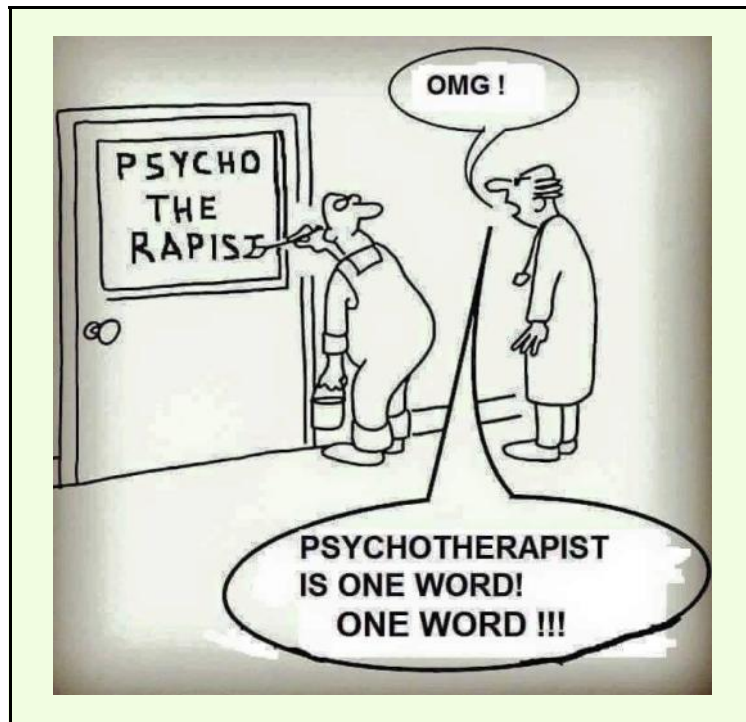
The price to LADOS members is \$25.00 per 40L bag

The Society has sourced Charcoal in 10K bags for \$25 a bag, sizes 10/20ml from Ken.

When buying a quantity of any product, Adrian has requested that you ring him so a suitable supply of stock can be brought to the hall as it makes it possible for other members to purchase product.

You can call him, Adrian Bergstrum ☎ 3805 8224 or Email abergstrum@hotmail.com. It is probably best to call before lunch as Adrian works an afternoon shift at WW bulk store.

On Another Note



The Logan and District Orchid Society Inc. Saturday Cultural Information Meeting

Invitation to all Logan & District Orchid Society Inc. members to attend the meeting of the The Logan and District Orchid Society Saturday Cultural Information Meeting, at 51 Lionheart Street, Forestdale 4118

The meeting will be at 9.30 am on Saturday the 3rd of June 2017

The topic for the June meeting is Preparing your Orchids for the Show.

Please bring along any problem plants or a plant in need of a repot and if time permits we can discuss these problems and repotting methods.

As with previous meetings it would be appreciated if you would contribute \$1.00 towards the cost of photocopying.

Our phone number is: 3800 3213

Our address is: 51 Lionheart Street
Forestdale 4118

Maree and Reg are looking forward to seeing you on the day.

When I began growing orchids in the 1960's as a raw beginner, the expert's advice on watering and fertilising orchids in all orchid journals was to water your orchids first before applying any fertilisers.

Over the intervening 50-odd years, that advice is still the one most commonly given to new growers. But as I came to know about the structure of orchid roots, and to observe the changes in the appearance of orchid roots growing on tree trunks as the first streams of rainwater flowed over them, I began to wonder if that advice made sense. Surely those first streams of rainwater flowing down the tree trunk were the most heavily charged with dissolved nutrients from the supporting tree branches or organic materials on the trunk and branches? Surely the first streams of water would enter the orchid roots first? Surely the later streams of water would contain lower concentrations of dissolved nutrients? Could the later streams of water replace those first streams, and if they could replace them, would they wash out the high concentrations of nutrients in the first streams?

Could the advice of "Water first and fertilise second" be a fact?, or a fable?, or a furphy? For years my search of orchid literature could not provide any definitive study into the rate of water and nutrient uptake by orchid roots that would provide an answer to the question -- "Water first or fertilise first?". Recently, in the newsletter of the Orchid Species Society of Victoria Inc., I noticed comment on an article by Gerhard Zotz and Arne Winkler (Zotz and Winkler, 2013) that might provide many answers. This article examined the role of the velamen, the outermost layer of the orchid root, in the uptake of water and mineral nutrients.

Structure of the root of epiphytic orchids Roots of terrestrial orchids have a similar structure or anatomy to those of other plants such as lilies, whereas those of epiphytic orchid species (and their hybrids) have a very different anatomy (Arditti, 1992). A characteristic typical of the roots of epiphytic orchids is the velamen, which is the outermost layer of the root, silvery-white to pale grey in colour when dry and greenish-white to dark grey in colour when wet. At maturity, the cells of the velamen are no longer alive and function as protective tissue. Inside the velamen are the live cells of the cortex, and inside them are the live cells of the stele. The stele contains the phloem cells that perform two-way transfer of organic materials from the roots to the stems and vice versa, and the xylem cells that perform one-way transfer of water and dissolved nutrients from the roots to the stem, leaves, flowers, and fruit. Arditti (1992) provides many cross-sectional views of the root structure of a number of orchid species for readers wanting further information.

Uptake and loss of water by the velamen of epiphytic orchids. It had been suggested in 1940 by F.C. Wendt, cited by Zotz and Winkler, that the dead cells of the velamen act to trap the first relatively nutrient-rich flush during a rainfall event. While others had made similar claims, data on the role of the velamen in the actual uptake of water, and any dissolved mineral nutrients, were unusually limited. Zotz and Winkler used 11 orchids [*Miltonia x bluntii*, *Caularthron bilamellatum*, *Phalaenopsis* hybrid, *Oncidium ramosum* (Syn. *Gomesa ramosa*), *Dendrobium ochraceum*, *Dendrobium fimbriatum*, *Cattleya* (Syn. *Guarianthe*) *skinneri* f. *alba*, *Oncidium enderianum* (Syn. *Gomesa enderianum*), *Bifrenaria tyrianthina*, *Doritaenopsis* (Syn. *Phalaenopsis*) 'Malibu Queen'] to examine the uptake of water by velamen. They found that dry velamen filled very fast with water. After 15 seconds it was 82% saturated, and fully saturated after 1 minute. Water loss from fully saturated velamen was slow, and the velamen retained water for more

than 1 hour in most tested orchids when they were grown in a greenhouse in conditions resembling those of tropical lowlands. Uptake and loss of mineral nutrients by the velamen of epiphytic orchids.

Only one orchid, *Phalaenopsis*, was used to study the uptake of radioactive phosphate and radioactive rubidium (in nutrient uptake studies, Rb^+ is an analogue for uptake of potassium). Rapid uptake occurred of phosphate and rubidium dissolved in the water in the velamen. This absorption occurred almost equally throughout the entire length of the root from the root tip to the root base. Radioactive phosphate added to the root tip was detected 5 cm further down the root after 2.5 hours, and in the stem after more than 8 hours. However, no comments were made about the possibility that freshly applied water would leach mineral nutrients from velamen saturated with water and mineral nutrients before the mineral nutrients could be moved into the stem.

The take home messages.

I am indebted to an anonymous member of the Orchid Species Society of Victoria Inc. for the following three take home messages (OSSV, 2015):

1. When watering, the roots of your mounted epiphytic orchids will be 80% saturated with water within 15 seconds and 100% saturated within 60 seconds. You don't need to water excessively to maximise your plants uptake of water, thus saving water.
2. Water evaporates slowly from the velamen. Thus if you have an automated watering system or misting system bear this in mind when setting the timer.
3. The velamen is a wonderful storage system for positively charged ions such as ammonium, many phosphates and trace elements thus supporting the proposal to fertilise with weak solutions. [Correction: A number of mineral nutrients including nitrates, phosphates, sulphates, borates, chlorides, and molybdates are negatively charged ions (Grundon, 2016). Fortunately, Zotz and Winkler used negatively charged phosphate and positively charged rubidium to show that the velamen can absorb and store ions of both electrical charge.: N. Grundon]

To these three messages, I would add two more:

4. "Water first and fertilise second", is it a fact?, or a fable?, or a furphy? Perhaps it is a furphy! If you wish to get mineral nutrients into the root, i.e. into the velamen, then fertilise first. Or better still, apply mineral nutrients with every watering as a weak solution of inorganic fertilisers.
5. Even if you employ the "weekly weakly" fertilising routine (i.e. fertilising each week with a weak solution of inorganic fertilisers), it is a good cultural practice to regularly flush the growing media, perhaps every 2 or 3 months, to remove any build-up of unused salts in the media.

Dr Noel Grundon FAOC

4 Orchids Australia, April 2016

Atherton

Breeding

By Dr. George Tsambourakis

Charles Darwin expressed the view: *'It's not the strongest species that survive, nor the most intelligent, but the most responsive to change'*. Two further phrases originate from Darwin's theory of evolution.

The Survival of the Fittest. The means of natural selection.

The Survival of the Species. The importance for the evolution that species survive.

The world of the living is under the influence and control of two very powerful forces. One of the two is the natural desire to multiply (survival of the species), and is based on **In-Breeding** or **Line Breeding**.

Simple organic forms, more often than not, multiply by division. Cells divide, normally into two identical cells. Occasionally, an individual new cell, responsive to change, will evolve and differ indistinctly from other previous cells in order to survive. Life forms of today evolved over a period of tens of millions of years from the primitive forms of yesterday.

Plants:

Since the beginning of the civilization, humans practiced plant breeding and our knowledge improved considerably over the years. To produce the desired characteristics, in the past, plants with the required desirable characteristics were selected for the breeding program. Today plant breeding is a sophisticated initiative. The aim to change the traits of plants can only be achieved by highly sophisticated, complex methods in labs, and with the use of genetics, chromosomes, etc. We can create almost anything, including dangerous to our health "monsters". I don't support the creation of genetically modified plants, especially genetically modified food crops. Flowers are the seed-bearing part of a plant and consist of the reproductive organs, Stamens (male) and/or Carpels (female). The reproductive organs are surrounded by petals and sepals and the biological function of the flower is to attract cross pollinators and influence the reproduction. After fertilization, the flower's ovary will develop into a seed containing fruit or seedpod.

Types of flowers:

Type A: Bisexual: Stamen and Carpel exist in the same flower.

Type B: Unisexual: A flower is either "Male" (has only Carpel) or "Female" (has only Stamen). Two options exist:

Option 1: ALL flowers of a plant are either "Male" or "Female". For example: Catatsetum and Pistachio Nuts.

Option 2: Some flowers of a plant are "Male", and some are "Female". The two types of flowers co-exist. For example: Pumpkin.

Type C: Sex-Switching: Plants with flowers that change during the day are also common. The sex of a flowers switches from "Male to Female" or "Female to Male" at different times of the day. For example: Avocado.

Type D: A-sexual (Sterile).

Homozygous and Heterozygous:

A plant with two copies of the same "allele", (AA or aa), is **homozygous** for that trait.

A plant that has a copy of two different "alleles", (Aa), is **heterozygous**.

Homozygous plants with desirable traits can be produced from heterozygous starting plants, if a haploid cell, with the alleles for those desirable traits can be produced and then used to make a doubled haploid. Subsequently, the doubled haploid will be homozygous for the desired traits.

Hybrid:

Normally, the word "hybrid" refers to crosses between two different species. There is no useful term that distinguishes different types of hybridization, such as crosses between species. Unofficially, the term "**Primary Hybrid**" is used by agriculturalists for crosses between two species of the same genus, and the term "**Inter-Generic Hybrid**" is used for crosses between plants of different genera.

In-Breeding or Line Breeding: Inbreeding is the deliberate mating of two parents who are related to each other

1. Self-pollination or Selfing - Some species or hybrids are self-pollinating. For example: Phaius

2. Cross pollination – Both parents derive from flowers of the same plant.

3. Cross breeding – Parents come from flowers of the same species/hybrids but originate from different plants.

Plants have two copies of any given gene, one representing the "Male" and the other the "Female". When the two are related, the two genes in the new life form, are identical copies contributed by the common ancestor. The higher the inbreeding coefficient is the more likely this is to happen. In nature, it occurs naturally in the form of self-pollination.

Line breeding almost equals inbreeding. It refers to a mating within a specific breed in which a certain number of genetic lines are available. There is no clear distinction between the two terms and there is no formal definition to separate the two. Line Breeding can reduce the genetic diversity of a population and problems associated with the small gene pool may appear i.e. increase in genetic disorders, sterility, etc.

Because the number of foundation ancestors is limited, all species trace back to one of very few ancestors and all pure breeding is inbreeding.

Note: The term "Inbreeding" isn't used when referring to mateings where common ancestors do not occur within five-generations.

Out-Breeding or Out-Crossing: Flowers may facilitate out-crossing (fusion of sperm and eggs from different individuals in a population

Out-Breeding – Hybrids: Parents originate from different species or hybrids.

Out-Breeding – Primary Hybrids: Parents originate from different species but from the same Genus.

Out-Breeding – Intergeneric Hybrids: Parents originate from species and/or hybrid of different genera.

Outbreeding or Outcrossing is a term used when two unrelated individuals are crossed to produce progeny. It is exactly the opposite of "In-Breeding or Line Breeding". In outcrossing, it is obvious that all individuals are distantly related to a common ancient progenitor and if an existing trait carries throughout a population, than all individuals can have that trait.

Cross Breeding:

The intention of crossbreeding is to create offspring that share the traits of the lineages of both parents. In plant breeding terminology, the term crossbreed or Crossbred is uncommon as it refers to an organism with purebred parents of two different breeds, varieties, or populations. Imprudent crossbreeding can produce life forms of inferior quality and can dilute a gene pool to the point of extinction.

PS: All expressed views are the views of the author. You don't have to agree with everything.