



# monthly bulletin vol. 44 no. 9

## september 08

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**Meetings held at the Uniting Church Hall, cnr. Flora and Merton St., Sutherland on the Second Monday of the Month. All Visitors Welcomed. Visit our Website on [www.ssos.org.au](http://www.ssos.org.au)**

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### Minutes from the August 08 Meeting.

The President in declaring the September Meeting open, extended a warm welcome to all present, both members and visitors. The minutes of the last meeting, as printed in the Bulletin, as being accurate was passed on the motion of M. Errington.

### Correspondence.

St. Ives Orchid Fair 15<sup>th</sup>. – 17<sup>th</sup>.August.

Orchids in the Wetlands. 19<sup>th</sup>. – 21<sup>st</sup>.  
Sept.Sandgate.

### New Members.

To our new members, Anna Kalamiotis, Algia Vasiliou, and Roberto Bisetto. We extend our congratulations, please don't hesitate to ask for any help.

This evening Bob Moar and See Ting Ho will be our guest speakers on ten Orchid Plants suitable for novices to grow.

Murray then reminded the meeting that we were again having a stall at the Engadine Public School Fete on the 20<sup>th</sup> Sept. Time 9.00 a.m. to 3p.m. Set-up 7:00 a.m. 15% commission applies.

The order of Co-co Chips has been completed. Murray Shergold ( Easy Orchids) because of a mix-up, has kindly donated 5 blocks towards our monthly raffle prizes.

Our Spring Show is upon us again on the 4<sup>th</sup>. –7<sup>th</sup>. Sept. at Swanes Nursery, set-up from 1 p.m Wednesday 3<sup>rd</sup>. Plants to be received from 4:30-6:30 pm. Our Show Secretary, Diane Hannah has a roster for volunteers to work from Thursday to Sunday, even if only for a short time, please consider . Don't forget your booking in sheet and

cards. Two writer/runners are also required at the judging on Wednesday evening.

DON'T FORGET, the sales table, plants will be sold at the usual commission.

**The Sharkies Spectacular in October.** We need a volunteer Co-ordinator and workers to help on the display. To the many members who took the Maiden Hair ferns, these will be required for the display also. If you have experience, or would like to help in any way , please check with Louise.. With regret, Lydia OLVER passed away recently. Both she and husband John( deceased) joined in 1984. Our condolences were extended to her family.

**Lucky Plants.** J. Hart, P. Wheeler, S. Crosby & T. Costa.

**Plant Raffle.** M. Hannah, M. Hitchcock, visitor M. Dmiel, N. Roper, M. Toparis.

### Dates to Remember.

3 rd. September SET-UP SSOS Spring show , SWANES NURSERY.

4 th. – 7 th. Sept. SSOS Spring Show, SWANES NURSERY

8 th. September SSOS Monthly Meeting. Point Score.

20<sup>th</sup>. September Engadine School Fete. Plants accepted from 7 a.m.

9 th. October SET-UP "Sharkies"

10 th – 12 th. October “Sharkies” Southern Spectacular.

13 th. October, SSOS – Monthly Meeting, Point Score. Guest Speaker. Murray Shergold ( Easy Orchids ) Madagascar.

Murray gave a short plant description prior to supper being taken on some of the plants benched.

After supper, See Ting Ho gave his talk and this was followed by Bob Moar, the basis of both talks follow. At the conclusion, Murray thanked them both and declared the meeting closed

See Ting talked about the following 5 :

Cymbidiums - cool growing, filtered light, protect from strong sun during the summer period. Water Every 2-3 days but in winter once a week is fine. Free draining mix is important. Mainly flower from April through to September. Miniature, intermediate and standard sizes are available.

Cattleyas - all Cattleyas that have Laelia and Sophronitis in their parentage can be grown cold. Look for cluster types and bifoliate leaves. Fertilise at half strength.

Softcanes – flowers along stem. The new growth this year will produce next year’s flowers. When new growth appears, fertilise and water until Anzac Day, then stop fertilising or flowering nodes will turn into keikis(growth). Do not use slow release fertiliser. Grow hanging up, with lots of light.

Paphiopedilum – both insigne and villosum grows well for beginners. Fertilise at half to quarter strength with 75% - 80% shade. Don’t water in crown of plant as rot may start. Any water collected can be soaked up with a tissue. Grows into specimen plant quickly.

Coelogyne – eg. cristata, flaccida and hybrids Unchained Melody. Grow hanging, fertilise same as cymbidiums, flowers in Spring, grow to specimen size.

Bob talked about the following 5 :

Oncidiums – plants that naturally grow in high altitude regions, grows well in Sydney in a bush house. Bob uses coco-chips, bark and pebbles, with 50% shade. Keep moist in summer but dry

out through winter. Onc. ornithorynchum is a very popular and attractive orchid to grow.

Native Orchids – grow in the bush house and on trees. Bulbophyllum shepherdii requires some sun, mainly shade. Sarcochilus hartmanii in nature grows on cliff faces, but can be successfully grown in coco-chips with 50% shadecloth. Fertilise half strength. Dendrobium gracilicaule, tetragonum grows on bark not cork. Hang on wall of bush house. Cym. madidum grows well with other natives while Cym. suave needs to be hung up. Don’t use tap water only tank water. Bob mentioned that a well known native grower crushes a vitamin C tablet and sprinkles on his suaves.

Lycaste – eg species bradeorum, a native of Columbia, Equador and Peru. Grows well in shadehouse with cymbidiums. Pot up in coco-chips with half strength fertiliser. It loses its leaves, then new growth and flower spikes appear.

Zygopetalum – eg Z. mackayii and hybrids grow well along with cymbidiums, Paph. insigne and species cymbidiums, under 50% shadecloth. Most are perfumed.

Stanhopea - can be grown in bush house or hanging under trees. Line hanging basket with coconut fibre, paperbark or sheets of newspaper. Mix of coco-chips and bark. All flower at different times of the year. Flowers last only a few days and have a strong perfume.

### Judges Roster for September.

	TEAM 1	TEAM 2	TEAM 3
LEAD JUDGE	K WILSON	E BEEHAG	I CHALMER
JUDGE	N ROPER	G HART	W CHAPMAN
JUDGE	S T HO	J HART	D BROOKS
ASSOC.	J MOSS		
WRITER	J ROBINSON	S CROSBY	M HITCHCOCK

### From the Secretary’s Bag.

We would remind all members and the visitors to please sign the Attendance Book at the entrance to the hall.

Member Ken Hancock, has terra-cotta pots for free. If interested see George Birss.

### Editor’s Corner.

We have received the current A.O.C. Standards and as soon as we can we will print the rules on STAKING.

**MONTHLY JUDGING RESULTS**

For : Aug-08

**OPEN JUDGES CHOICE**

Winner Sarco. Norma 'Kalaru' N Roper

**INTERMEDIATE JUDGES CHOICE**

Winner Coel. cristata G Birss

**NOVICE & JUNIOR JUDGES CHOICE**

Winner Dendrochillum tenellum D Coulton

**CLASS # 1 AUSTRALIAN NATIVES**

1st Den. speciosum S T Ho  
 2nd Den. tetragonum J Moss  
 3rd Pter. concinna J Hart  
 4th Pter. curta J Hart  
 5th Dock. teretifolia T Thorburn

**CLASS # 2 SPECIES PAPHIOPEDILUM**

1st Paph. venustum K Wilson  
 2nd Paph. venustum G Hart  
 3rd Paph. wolterianum S T Ho  
 4th Paph. victoria-regina S T Ho

**CLASS # 3 CATTLEYA OVER 110mm**

1st Bc. Dream Trader J Hart

**CLASS # 4 NOVELTY PAPHIOPEDILUM**

1st Paph. Ma Belle G Hart  
 2nd Paph. Maud Read S T Ho  
 3rd Paph. Makuli x (Red Glory x Fremont Peak) S T Ho  
 4th Paph. Primecolor S T Ho

**CLASS # 5 CATTLEYA OVER 80 TO 110mm**

1st Sc. Dals Choice J Hart  
 2nd C. walkeriana x Lc Nippon S Crosby/T Costa

**CLASS # 6 PAPHIOPEDILUM**

1st Paph. Malvena Sasso S T Ho  
 2nd Paph. Neridah S T Ho  
 3rd Paph. Coorong x Sparsholt S T Ho  
 4th Paph. Mem. Jack Carrett G Hart

**CLASS # 7 CATTLEYA INTERGENERICS (Up to 70mm)**

1st Pot. Free Spirit J Hart

**CLASS # 8 CATTLEYA UP TO 80mm**

1st Slc. Dals Buddy S Crosby/T Costa  
 2nd Lc. Maris Song x Slc. Dals Ruby S Crosby/T Costa  
 3rd Sc. Lana Coryell S Crosby/T Costa

**CLASS # 9 AUSTRALIAN NATIVE HYBRID**

1st Den. Graeme Banks P Wheeler  
 2nd Pter. Hoodwink J Hart  
 3rd Den. Natalie Jane Wood P Wheeler  
 4th Den. Duno Lucky Zip P Wheeler  
 5th Den. King Zip D Wood

**CLASS # 10 SPECIES ASIAN**

1st Dendrochilum copelandii S T Ho  
 2nd Dendrochilum rhombophorum S T Ho  
 3rd Dendrochilum pulcherrimum G Hart  
 4th Dendrochilum stanophyllum S T Ho  
 5th Dendrochilum wenzelii S T Ho

**CLASS # 11 PHALAENOPSIS**

1st Depts I-Hsin S Crosby/T Costa  
 2nd Phal. Candy Stipe x schilleriana S Crosby/T Costa

**CLASS # 12 SEEDLING**

1st Sarco. Norma N Roper  
 2nd Sarco. Carnival N Roper  
 3rd Paph. Crescent Meadow x Huddle S T Ho  
 4th Den. Gulginni P Wheeler  
 5th Paph. Sarah Robertson x Glass Diamond D Wood

**CLASS # 13 ONCIDIUM**

1st Onc. Twinkle R Moar  
 2nd Onc. Twinkle x ornythorhyncum K Wilson

**CLASS # 14 NOVELTY PHALAENOPSIS UNDER 75mm**

1st Phal. Brother Little 'Spotty' S Crosby/T Costa

**CLASS # 15 ONCIDIUM INTERGENERIC ALLIANCE**

1st Wils. Hilda Plumtree J Moss  
 2nd Colm. Wildcat S Crosby/T Costa  
 3rd Burr. Nelly Isler S Crosby/T Costa

**CLASS # 16 MISCELLANEOUS**

1st Zygo. Blue Blood N Roper  
 2nd Coel. Unchained Melody R Ettrick  
 3rd Lyc. Jackpot D Wood  
 4th Coel. Louis Forget G Hart

**CLASS # 17 DENDROBIUM HYBRIDS**

1st Den. Dals Pixie x Dals Wonder S Crosby/T Costa  
 2nd Den. Chao Praya x Samsak S Crosby/T Costa  
 3rd Den. Dals Jazz K Wilson  
 4th Den. unknown R Moar

**CLASS # 18 VANDACEOUS NOT VANDA**

1st Asco. Princess Mikasa S Crosby/T Costa

**CLASS # 19 MASDEVALLIA & DRACULA SPECIES**

1st Drac. cordobae G Hart  
 2nd Masd. macura G Hart  
 3rd Masd. angulata R Moar  
 4th Masd. picea R Moar

**CLASS # 20 INTERMEDIATE CYMBIDIUM 60 TO 90mm**

1st Cym. Freeling C Fraser  
 2nd Cym. Shoalhaven S Crosby/T Costa  
 3rd Cym. Gigli C Fraser  
 4th Cym. Dag x Hasel Tips L Gannon

**CLASS # 21 ODONTOGLOSSUM INCLUDING ODONTIODA**

1st Vulst. Attunga Terrace D Wood

**CLASS # 21A PLEUROTHALLIDINAE HYBRIDS**

1st Masd. Hani 'Burnt Ornage' x triangularis W & J Chapman  
 2nd Rest. pelyx x elegans J Moss  
 3rd Rest. pelyx x elegans N Roper  
 4th Rest. antennifera x eseobariana N Roper

**CLASS # 21B LAELINAE SPECIES**

1st Oerstedella centradenia G Hart  
 2nd Soph. coccinea G Hart  
 3rd epi. imatophyllum alba G Hart  
 4th Enclyclia cochleata R Moar

**CLASS # 22 MINITURE CYMBIDIUM UNDER 60mm**

1st Cym. Orkney 'Pink Heather' W & J Chapman  
 2nd Cym. Girraween 'Lena' C Fraser  
 3rd Cy., Ruby Eyes 'Red Baron' E & A Marks  
 4th Cym. Dr Baker 'Bewitched x Music Notes' S Crosby/T Costa

**CLASS # 23 SPECIES OTHER THAN ASIAN OR PAPHIOPEDILUM**

1st Angcm. giryanae S Crosby/T Costa  
 2nd Mormolyca ringens S Crosby/T Costa  
 3rd Max. variabilis G Hart  
 4th Max. variabilis G Hart

**CLASS # 23A OTHER PLEUROTHALLIDINAE SPECIES**

1st Rest. contorta G Hart  
 2nd Rest. hermsleyana G Hart  
 3rd Rest. sanguinea N Roper  
 4th Rest. hemsliana 'Cow Hollow' N Roper  
 5th Rest. ligiae N Roper

**CLASS # 24 STANDARD CYMBIDIUM**

1st Cym. Luminess C Fraser  
 2nd Cym. Cauldron 'Golden Delight' C Fraser  
 3rd Cym. Valley Olympic 'Lachie' C Fraser  
 4th Cym. Coraki Gold '10s' S Crosby/T Costa

**CLASS # 24A NATIVE SARCANTHINAE HYBRID**

1st Sarco. Yvonne 'Pink Cups' N Roper  
 2nd Sarco. Yvonne 'Pink Cups' N Roper  
 3rd Sarco. Tigress x hartmannii S Crosby/T Costa  
 4th Sarco. Jill S T Ho

**CLASS # 25 NOVICE - PAPHIOPEDILUM**

1st Paph. Invincible B Zammit  
 2nd Paph. Venushold M Hitchcock

**CLASS # 26 NOVICE - CYMBIDIUM**

1st Cym. Ice On Fire 'Nikietta' D Coulton  
 2nd Cym. Unknown M Hitchcock  
 3rd Cym. Rubby Eyes 'Tetra Baron' M Hitchcock  
 4th Cym. Bulbarrow 'Our Midge' M Hitchcock

**CLASS # 27 - NOVICE - NATIVE & NATIVE HYBRID**

1st Den. Tyabb D Coulton  
 2nd Den. Class x Zip M Hitchcock  
 3rd Den. kingianum M Luk

<b>CLASS # 29 NOVICE - MISCELLANEOUS</b>	
1st Coel. Unchained Melody	B Warren
2nd Coel. Unchained Melody	M Luk
3rd Phal. Pico Pink	M Luk
4th Zygo. Blue Blood	D Coulton
<b>CLASS # 30 NOVICE -SPECIES</b>	
1st Dendrochilum tenellum	D Coulton
2nd Dendrochilum tenellum	M Hitchcock
3rd Paph. Villosum	D Coulton
<b>CLASS # 31 INTERMEDIATE - PAPHIOPEDILUM</b>	
1st Paph. fairrieatum x Hsinying Maru	G Birss
2nd Paph. Somers Isles x Holdenii	G Birss
<b>CLASS # 32 INTERMEDIATE - CYMBIDIUM</b>	
1st Cym. Sarah Jean	D & M Hannah
2nd Cym. Unknown	G Birss
3rd Cym. Cherry Blossum 'Profusion'	G Birss
<b>CLASS # 33 INTERMEDIATE - NATIVE SPECIES &amp; NATIVE HYBRID</b>	
1st Pter. curta	G Birss
2nd Den. Rutherford Sunspot x Rutherford Blushing Br	D & M Hannah
3rd Den. kingianum	G Birss
4th Dock. striolata x fuliginosa	G Birss
<b>CLASS # 34 INTERMEDIATE - CATTLEYA</b>	
1st Cat. Unknown	G Birss
<b>CLASS # 35 INTERMEDIATE - MISCELLANEOUS</b>	
1st Masd. Bella Donna x urusalpinx	G Birss
<b>CLASS # 36 INTERMEDIATE - SPECIES</b>	
1st Coel. cristata	G Birss
2nd Phal. hieroglyphica	G Birss
3rd Masd. torvanensis	G Birss
4th Aeringis lyaloides	G Birss

## Black Spots on Orchid Leaves

### By Brian Milligan

Virtually everyone who grows orchids has experienced black spots on the leaves of their plants. Zygopetalums are particularly prone to spotting but many other genera (especially those with broad, thin leaves) occasionally develop black leaf spots. Once these spots have developed, there is nothing one can do but wait for the affected leaves to fall naturally or perhaps to trim them with sterilized scissors if only a few leaves are affected. Leaf spotting seems to occur to a lesser extent if the plants are grown with good air circulation and watered early in the day so the the foliage becomes dry before nightfall. Surprisingly, other orchids, such as cymbidiums growing beside the zygopetalums are generally unaffected.

Maxilarias, even those grown in heated glasshouses, are also renowned for their propensity for leaf spotting. Again it may be minimized by providing good air circulation and avoiding wetting the foliage when watering. Some dendrochilum species with broad leaves, for example *Dendrochilum macranthum* (formerly known as *D. magnum*) also seem to be particularly susceptible.

Black leaf spots are generally attributed to attack by fungi or bacteria but this general observation is not particularly helpful, as there are a host of different fungi and bacteria, many requiring a different fungicide or bactericide for their control. I spray the orchids in my glasshouse once or twice a year with a systemic fungicide called Bavistin® FL but still experience some leaf spotting; possibly a range of different fungicides would provide better control.

While some fungal infections that attack orchids spread rapidly and are often fatal to the plant, the type of leaf spotting described above is, in my experience, seldom fatal. Like the common cold, it seems to be a perennial problem that the orchid grower must accept as one of the hazards of our hobby.

## Black Spots on Paphiopedilums

### By Graeme Banks OAM

Question : I have trouble with black spots on the leaves of my paphioedilums. What can I do to prevent this unsightly problem occurring?

Answer : This is not an uncommon problem, especially in areas where one finds black spot fungus on roses grown in the garden. The spots on the paphiopedilum leaves are closely related to the black spots on rose bushes, and both are controlled by the same treatment. The black spotting does not kill paphiopedilums per se, but has a cumulative effect in that the plants are weakened and thereby made susceptible to other diseases.

Black spot appears only in warm weather, especially when the humidity is moderate to high, which in Sydney covers the period from early October to late April. Protective spraying is required throughout this period. Once the spots have appeared, the damage cannot be reversed but spraying will stop the spots from spreading.

We spray Mancozeb®, according to the manufacturer's instructions, every 10-14 days over all visible plant surfaces. Spraying every ten days is best but, so that we don't forget, we prefer to spray every second Saturday. There is a related product (Mancozeb Plus®) but we prefer Macozeb® for both our paphiopedilums and roses!

## **Coelogyne cristata: SOME CULTURAL TIPS** by Brian Milligan

Coelogyne cristata is one of the first species recommended to new orchid growers, yet not all succeed in growing and flowering this attractive Indian species well. Unless certain cultural practices are followed, at least three problems may be encountered, namely, bulb shrivelling, failure to flower and shortened flower life.

The first and most serious problem is shrivelling of the pseudo-bulbs and failure of the plant to thrive. In most cases, this is due to the loss of active roots; as a consequence, the plant is unable to take up sufficient water to sustain growth, no matter how often it is watered. Dividing Coelogyne cristata into excessively small pieces is a major cause of bulb shrivelling. This species is unusual in that it takes several years before its new growths develop roots. Each division must comprise at least four pseudo-bulbs, preferably five or six, for it to have enough roots to sustain vigorous growth. Plants with shrivelled pseudo-bulbs are best restored to health by re-potting them in Sphagnum moss. After a year or two, they may then be returned to a more conventional bark-based potting mix. I find that my plants grow better and are less likely to experience bulb shrivelling if I incorporate a little chopped Sphagnum moss in the pine bark potting mix, so that it dries out less rapidly after being watered.

Regular watering during the growing season (summer and autumn) is important. In nature, Coelogyne cristata's habitat receives at least 25 mm of rainfall every day during the hot, monsoon season, and thus in cultivation this species benefits from daily watering during summer. During the resting season (winter), C. cristata requires little water. Some growers withhold water to the point of bulb shrivelling to promote flowering in spring but I find it unnecessary to go to such extremes, and water my plants once each fortnight during winter.

Although C. cristata flowers better in some years than in others, some growers have difficulty in flowering their plants at all. This is understandable in the case of growers who live in coastal or northern districts, or those who try to grow the species in a heated glasshouse, because it's well known that C. cristata must experience a relatively dry, cool or cold winter to promote flowering. For that reason, the best specimen plants usually seem to be grown (under cover) in Victoria or Tasmania.

Having persuaded your plant of C. cristata to flower, it's important not to wet the blooms when watering. Kept dry, the flowers will usually last about a month in good condition. However, if the flowers are wet, especially during warm, sunny weather, they sometimes develop brown marks within a few days and then fall.

## **CONTROLLING SNAILS and SLUGS in the GLASSHOUSE** by Vic Pearce

Arguably, the most annoying pests in the glasshouse are snails and slugs. On most occasions you are blissfully unaware of their presence until they attack your treasured blooms, usually carrying out irreparable damage. Two varieties of snail seem to prevail in Victoria – the common garden snail and the smaller bush or garlic snail, which measures less than 5 mm across. Only one type of slug seems to cause damage. Fortunately, these pests are readily controlled by the molluscicide metaldehyde. This chemical is toxic but if the product in which it is incorporated is handled according to the manufacturer's directions, its use poses no problems. The World Health Organization Recommended Classification of Pesticides lists metaldehyde as Slightly Hazardous, with an oral LD50 of 630.

For common snails and slugs, four or five pellets incorporating metaldehyde, added to each pot, is sufficient. Bush or garlic snails present a different problem, as they hide in the potting mix and are not necessarily attracted to the large pellets. By far the best method of attacking this pest is to drench the entire pot with a metaldehyde solution, such as Snaleen®.

Research in Hawaii has shown that caffeine is both a repellent and toxicant to slugs and snails. A solution of 2% caffeine applied to the orchid potting mix was found to kill 95% of snails. It also caused slugs to leave the mix, 95% of them subsequently dying. First Rays Orchid Web Page – Home Remedies (<http://www.firstrays.com>) recommends keeping the unused coffee from your morning brew, diluting it with water (50%), adding about 30 ml of methylated spirits and spraying both plant and potting mix to kill any snails or slugs present.

# CULTIVATING MASDEVALLIAS and other PLEUROTHALLIDS

by Eric and Frances Wilde

Masdevallias and other pleurothallids are cool-growing epiphytic or terrestrial orchids from South America that grow mainly in mountain cloud forests at altitudes between 1500 and 3000 m. When grown in cultivation, they should be kept in a protected environment. either under shade-cloth or under the cover of other plants, keeping in mind that they need some light to flower well. Because masdevallias and other pleurothallids have no pseudo-bulbs in which to store moisture, the potting media needs to be kept uniformly moist - but NOT WET. It is the combination of being WET and COLD that is harmful during the winter months. They must also be protected from frosts in winter and extreme heat during summer; try to keep the temperature below 30°C. lower if possible. A water-cooled (evaporative) air conditioner can help to lower the temperature in the shade-house and it is beneficial to dampen the floor of the shade-house several times daily during hot weather.

Masdevallia have tight clusters of leathery leaves without pseudo-bulbs. The short, lateral branches bear a single lanceolate leaf up to 30 cm in length. Flower spikes arise from the terminus of the leaf stalk. Flower colour varies from white to red, yellow and purple and various combinations of these.

**Potting Mixes.** There are a number of different composts for masdevallia and other pleurothallids. Good quality sphagnum moss has been popular in the past but is now hard to get, fortunately growers can substitute moss with fine-grade orchid bark or a mixture of peat and perlite. The compost must be fresh, as masdevallias cannot survive in a sour mix or in a permanently sodden one.

**Re-potting.** Masdevallias and other pleurothallids enjoy being re-potted annually (never less often than every two years), either in autumn or spring but NOT during summer. Do not over pot, use a pot that will just accommodate the root system. If you have a plant that is suffering, leaf or root loss, it is advisable to re-pot it immediately - it is useless to waiting for spring or autumn to do so, as your plant may be dead by then!

**Fertilizing.** We prefer to use a weak high-nitrogen liquid fertilizer at alternative waterings from spring

to autumn\_ but once a month apply plain water to minimize possible salt build-up.

**Pests and Diseases.** Black marks on masdevallia leaves can be a problem, especially during summer. Spraying with a fungicide is helpful, as is running a fan or evaporative air cooler. Pests such as aphids can be dealt with by spraying with a product like Confidor, making sure to follow the instructions on the container - try to avoid spraying the flowers. For those who don't like using insecticides, carefully rub the pests off between finger and thumb.

## MERICLONING ORCHIDS by Julian Coker

### **Mericlone: The Technique.**

In every shoot tip and root tip there is a small area of cells that are not committed to develop into any particular structure. These undifferentiated cells of the meristematic area are the cells that make mericlone possible. The meristematic area is very small, a sphere about one millimetre in diameter. But if this region is dissected from the shoot tip and placed in a suitable nutritive medium, it is capable of producing countless reproductions of the plant from which it has been removed.

It's unnecessary to take such a small piece of tissue in the case of cymbidiums. A cube with a side length of 4 mm will suffice, provided that it contains the meristematic area. If this is placed into a nutritive medium, either liquid or solid (such as Knudson's medium), it will produce protocorm-like bodies that will eventually grow into new plants.

Aseptic procedures must be practiced at all stages, because the nutritive media are equally supportive of bacteria and fungi and these will quickly overgrow and probably poison the explant. If the excision is successful, the base of the explant will swell within 4 – 6 weeks and from this swollen tissue one or more green spherical bodies, commonly referred to as protocorms, will develop. They consist of a pith core covered by an epithelial layer.

As they grow, each protocorm will eventually produce a shoot from an area on its epithelium and this will in turn produce a root, thus yielding a new plant. However, this procedure would result in a very limited number of replications, so prior to the development of the shoot. the protocorm is cut or

crushed so that it produces a number of second-generation protocorms. This procedure is repeated until sufficient protocorms have been produced to yield the required number of plants (one per protocorm).

The possibility of mutations increases with successive replications, so a limited number of plants, ideally between 200 and 500, are made. Each plant should be an exact replica of the parent. However mutations can occur during multiplication and variation will occur. Most mutations are deleterious so these are to be avoided, although occasionally a desirable variant results.

It is undesirable to mericlone a mericlone. The original parent plant should be the only source of tissue used. Where mericlones are mericloned and these are in turn mericloned again, the incidence of undesirable mutations increases markedly. It is always the innocent orchid, not the proliferator that receives the blame when the mericlone turns out to be inferior. Try photocopying a picture and then repeatedly copying each copy. Which gives the best result?

In colchicine conversion, where the diploid state is converted to the tetraploid, colchicine is applied to the protocorm in the hope that some epithelial cells will double their chromosome count. If this occurs and the protocorm survives the treatment, a plate of tetraploid-converted cells then develops and if a leaf shoot arises from this area, then a tetraploid plant results.

Mericlone was developed by Morel as a side effect from his attempts to rid cymbidiums of virus disease. It has mixed blessings. It has made replication in many genera so easy that plants can be produced at a very reasonable cost. However, if a particular clone is over exploited it can remove its exclusivity, and that of cymbidiums in general. Always attempt purchase your mericlones from the original grower or his agent, and try to ensure that they come from a limited run of tissue taken from the original parent plant.

## **Mericlone: Application to Cymbidium Propagation**

When Morel accidentally discovered the feasibility of multiple proliferation of cymbidium tissue, he could not initially have foreseen the enormous impact that this technique would have on the genus. Although *Paphiopedilum*, *Masdevallia*,

many Australian native orchids and other orchid genera cannot currently be reproduced by mericlone, *Cymbidium* can be multiplied with great ease and with wide-reaching consequences. The first is availability and price. Prior to mericlone, multiplication of a clone could be achieved only by division and plants of a choice clones were consequently both limited and expensive. There are many stories of considerable sums of money being paid for divisions and back-bulbs of clones such as *Cymbidium* *Girrahween* 'Enid', *Cym.* *Rosanna* 'Pinkie' and *Cym.* *Balkis* 'Luath'. All this changed with the advent of mericlone. Suddenly a single lead from one of these plants could give rise to hundreds, even thousands, of exact replicas, leading to much faster distribution and lower prices. Cheap cymbidiums for mass distribution – too good to be true!

Theoretically, mericlone should produce exact replicas that are identical in all aspects with their parent. Commonly this is the case but variations do occur, especially where large numbers of mericlones are produced from the initial tissue, or where inferior techniques in the tissue culture process are practiced. Major variations are generally referred to as mutations and whilst occasionally a superior clone appears, these mutations are generally retrogressive. They commonly take the form of inferior shape, lower flower count and poor growth, yielding plants that are disappointing to all concerned. Where small numbers of mericlones (200 to 500) are produced from the original tissue, mutation should be rare or absent. However, where excessive numbers of mericlones are produced from the original source, or where protocorms are extracted from a flask and regenerated, or where mericlones are used as source material instead of the original plant, mutation can be quite a problem.

Sometimes it has been found that mericlones produce a lesser number of flowers than the parent. Here it is appropriate to check the source of the mericlone to determine whether it is an original mericlone, or a mericlone of a mericlone, especially one that has not yet flowered. We have had first-hand experience with our awarded *Cym.* *Second Renaissance* 'Jenny Wren'. Our mericlones, taken from the parent plant, grow well and have two to three stems per mature bulb with 17 to 20 flowers per stem. Yet we have heard on several occasions that other clones, not derived from the original plant, have only 8 to 10 flowers per stem. We once grew a thousand plants of *Cym.* *Arcadian* *Sunrise* 'Golden Fleece', which Alvin Bryant had

mericlones from his parent plant. There was a little variation in the clones, although two exhibited superior form and more pronounced lip markings than the original. Of equal interest was the nature of the lip markings when the plants flowered at different times during the year. We have flowered different plants of this clone over every month of the year and it appears that the most prominent lip markings appear in early winter, becoming less prominent as the year proceeds. We observed the same behaviour with *Cym. Mallana* 'Caroline Hargraves' and attribute it to environmental factors, rather than mutation.

Mericlones are with us forever and if they are produced properly, that is, in limited numbers from the parent tissue, then clones should be reliable replicas of the original. If you choose to purchase copies, then let the buyer beware! The original is best but if this is not available, obtain your mericlones from the grower who first flowered the orchid or from the person he chose to market it. Do not support the production of proliferations!

## PROTECTION AGAINST DAMAGE TO ORCHIDS BY FROST

A lot of people forget that water freezes at 0 C and below, inside and outside of plants are confused about the concepts of frosts and freezing. A frost occurs when recorded air temperature minima are close to 0 C and ice crystals form on the surface of plants and usually plant tissue is not frozen. When a minimal of -2 C is recorded, especially early in the evening, plants experience a lot more stress than that of frosting. Plant tissue actually freezes solid when exposed to -2 to -5 C air temperatures for some hours and upon thawing, lethal damage occurs. Some species from cold climates can freeze solid and thaw out undamaged. There is a very real difference between a frost and a freeze and minus 1 or 2 extra degrees of exposure for an extra hour or two can result in a vast increase in the amount of damage.

There are several techniques frequently used to protect against frost, e.g. sheltering plants under various covers using fans and spraying water over them. However, a freeze requires more sophisticated methods than these, including

structural alterations to house, to be certain of effective protection.

A thermos controlled glasshouse is a useful item, but it is expensive and defeats the purpose of the cold and cool grower. He must find other strategies.

The first step is to know orchids, particularly their natural habits, and to identify species with resistance and sensitivity to cold extremes. Cold resistance is determined by the innate structure of orchids, e.g. by the presence of insulating hairs, thick cuticle and cell walls. In general, orchids from low altitudes, equatorial and temperature regions are adapted to warm conditions and are frost sensitive. If a species never experiences a frost in its natural habitat then beware of water cold extremes. Orchids from high altitudes, e.g. *Den. Falcorostrum* (often snow covered in Antarctic Beech forest), will withstand freezing conditions. However, low altitude *D. speciosum*, *D. kingianum* and *D. aemulum* will lose their leaves after freezing and if temperatures are much below zero, the pseudobulbs are frozen and buds are destroyed.

*Cymbidium madidum* is very cold sensitive and whole bulbs and plants can be lost. The best advice I can offer is that all plants in a collection should be reviewed for cold sensitivity and set aside for special housing.

Having identified a group of plants at risk, you can plan a small house or area which can be enclosed. Application of fiberglass or plastic sheeting, e.g. bubble plastic or polyscrim, to the sides and roof of a small bush house may not be too much trouble in autumn or early winter. A confined area is essential to obtain a heating effect, as most circulation of sub-zero air in an open house affords no protection at all. After enclosing the area, a small fan heater regulated by a thermostat set at between 5 and 10 C will ensure that the area remains within the range of 0 C on the coldest nights. It may only operate for a few hours during winter but this will be sufficient to protect plants whenever sub-zero minimum temperatures occur.

By Dr Peter Adams