Items that affect the growing of Orchids. (Visual)

By Gary Hodder

Problems that affect Orchid growth

Sap Feeding Insects

- Scale
- Mealybug
- Aphids
- White Flies
- Spider Mites
- Thrips

Damaging to New Growth

- Cold Wet Weather
- Sunburn
- Fertilizer Burn
- Salt toxicity
- Trace element deficiency
- Watering

Chewing Pests

- Snails and Slugs
- Caterpillars
- Roaches
- Grasshoppers
- Dendrobium Beetles
- Ants
- Rats and mice

Fungi

- Glomerella Fungi
- Crestor Dendrobii
- Colletotrichum Fungi
- Phyllostichum Fungi
- Phytophora Rot (Brown Rot)
- Pythium Rot (Black Rot)

Viruses

When spraying chemicals onto orchids always remember the following hints:-

- Many chemicals work better if mixed in water with a pH below 6.0.
- Never spray where the air temperature is above 25 degrees C.
- Always check to make sure the wetting agent is not petroleum based.
- Never spray chemicals on the flowers or buds as they will mark.
- Never use sprays that have been mixed more than 8 hours.
- If you use dishwashing liquid as a wetting agent it will raise the pH level.
- If spraying for nocturnal insects spray at sunset or later
- Spray all surfaces of the orchid not just the upper surface of the leaves.
- Most fungicides work best by themselves read the label.
- Read the directions on the contained before using the product.
- When spraying aggressive chemicals always use protective clothing

Sap Feeding Insects

Handy Control Guide

In most cases it is better to use an eco friendly spray such as Pyrethrum, Eco Oil or Eco neem. However some alternate ways for small numbers of insects are as shown below:-

Scale :- Squash or scrape off scale with a cotton bud on stems or the underside of leaves.

Mealy Bug :- rub with isopropyl alcohol on a cotton swab to remove the bugs.

Aphids :- Spray soapy water on the Aphids to kill them

White Fly :- Attract with sticky traps like the Insect Glue Trap.

Spider Mites :- Kill spider mites with any combination of soap and water, or a mixture of dish soap and vegetable oil

Thrips :- Use a Malathion ,Confidor or Success sprays as neem oil is not registered to kill Thrips

Scale on Orchids

Scale insects belong in the same category as Mealy bugs. Their favourite positions are leaf axils, the undersides of leaves and on bulbs. If untreated scale has the potential to kill an orchid. When scale numbers are low they may be rubbed or picked off of plants by hand.

Adult females lay eggs underneath their protective covering which hatch over a period of one to three weeks. The newly hatched nymphs (called crawlers) migrate out from this covering and move about the plant until a suitable feeding site is found. Chemical control is by eco-oil or Confidor.

Mealybug on Orchids

Mealybugs can be found on all plant parts, but especially roots, rhizomes, pseudo-bulbs, and the underside of leaves. They are adept at hiding on roots and rhizomes deep in the potting media, in crevices and under sheaths. Unlike scales, mealybugs wander in search of feeding places and will leave plants.

Mealybugs need to be dealt with as quickly as possible. Once established, they become harder to eliminate. They can be quite active and quickly infest nearby plants,

Chemical control is by eco-oil or Confidor.

Aphids on Orchids

These insects are easy to spot. Their rapid reproduction and development quickly produces colonies, which feed on the parts of the plant receiving the most nutrients. They can be found on new growth, at the base of buds, on flowers and on the undersides of leaves.

Aphids have sucking mouthparts that they insert in the tender tissues of orchid blossoms and the undersides of the foliage. They feed by draining juices from the plant, but they cannot digest everything they eat, so they leave a sticky, sweet substance called honeydew on the foliage and blossoms. Chemical control by eco-oil or Pirimor.

White Fly on Orchids

Whiteflies harm orchids by sucking the juices out of the leaves and flower buds, causing them to turn yellow and drop from the plant. This feeding occurs during both the nymph and adult stages of the Whitefly. Heavy whitefly infestations can cause severe damage over a period of time.

As the insects do their damage, you'll notice mottled or yellowing leaves, new growth that's failing to thrive, and the tell tale cloud of white. If not curtailed, whiteflies overtake and weaken your orchid to the point of killing it.

Chemical control is by eco-oil or Confidor.

Spider mites on orchids

Spider mites spin silken webs on the undersides of leaves. These are easy to see if you mist the foliage with water and hold the plant up to the light. You might even see the tiny mites walking along their webs.

Spider mites can be an especially tricky pest on orchids since they are so small they can build up a big infestation before a grower even notices a single mite.

Chemical control is by eco-oil or Confidor.

Thrips on Orchids

Helionothrips errans thrips

Thrips are very small and may go unnoticed until significant damage has been done to your orchids.

Onion thrips

Thrips can be controlled by neem oil at the rate of 5ml per 1 ltr of water and sprayed over both sides of the orchid leaf.

Chemical control is by Success or Confidor.

Damage caused by Thrips

They most often attack buds and new growths with their rasping mouthparts, sucking the plant sap Plant leaves may turn pale, splotchy, and silvery, then die. Injured plants are twisted, discoloured and scarred.

Thrips on flowers can be eliminated as soon as you see signs of damage by using a mild insecticide like insecticidal soap or neem oil, or Success or by pruning the flowers**.**

Chewing Pests

Handy control guide

The best way to kill these chewing insects is to pick them off by hand or use an approved product specifically formulated to kill them as manufactured by Yates , Eco Organic garden, Defender, or Bayer.

- ***Snails and Slugs :-*** Use eco friendly snail and slug pellets
- ***Caterpillars :-*** Oil Spray. Combine 2 tablespoons canola oil and 1 teaspoon liquid soap with 2 cups warm water.
- ***Roaches :-*** Spray your orchid Garlic or rosemary oil at the rate of 170ml per 9 ltr of water and 5ml of dishwashing soap
- ***Grasshoppers:-*** Spray your orchids with a mixture of 1 part apple vinegar with 3 parts water and add 5ml of dishwashing soap
- ***Dendrobium Beetles :-*** There is no product in Australia registered to kill Dendrobium Beetle
- ***Ants :-*** Spray your plant with a mixture of:10 drops dish soap 1/2 teaspoon cinnamon extract 2 cups tepid water
- ***Rats and mice :-*** Remove the rats and mice with humane traps, or use repellents to keep the rats and mice away.

Snails and Slugs on orchids

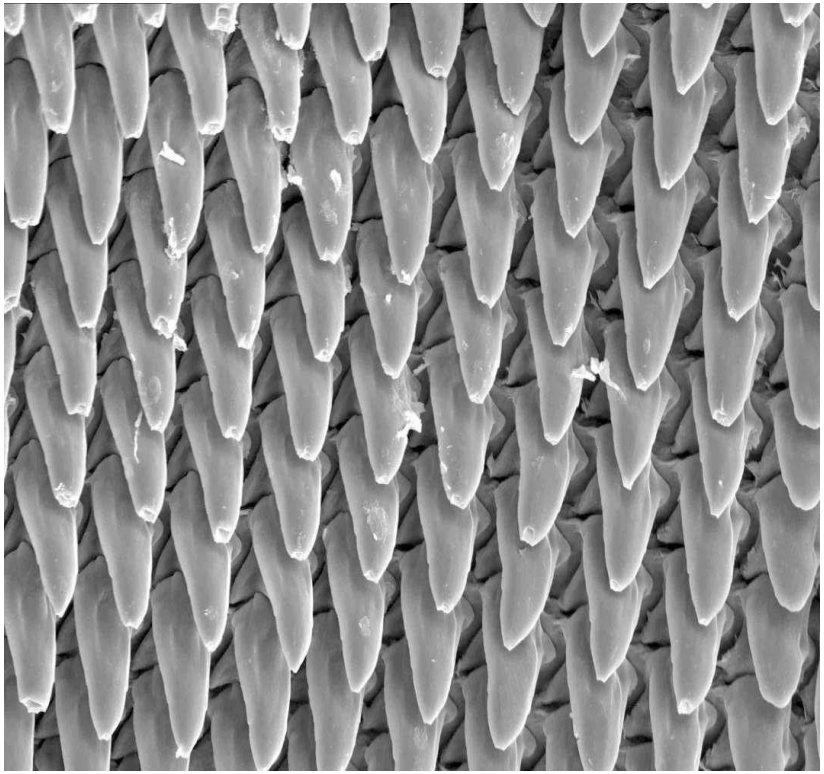
When slugs and snail feed, they rasp with thousands of tiny teeth called radula. The easiest way to determine if it is a snail or slug is to look for the tell tail sign of a silver trail of glistening slime on the flower, the top of the media or the leaves.

Coffee grounds scattered on top of the media or around the base of the pot will deter slugs and snails.

Snails and Slugs on orchids

As you can see a Mollusk does not have to start to chew on the edge of the leaf as the design of the Radula allows it to start anywhere on a surface.

This is a magnified photograph of the Radula of a Mollusk which rotates in a circular motion hence no need to start devouring the orchid leaf at the edge.



Caterpillars on Orchids

The White cabbage butterfly (Pieris rapae) will lay eggs on the orchid leaves and the eggs will hatch to produce the green caterpillar.

Normally these caterpillars will chew the leaves from the under side so that they are not easily detected from above.

Caterpillars on Orchids

Caterpillars will eat orchid blooms and new growths simply by crunching and digesting all the orchid tissue suited to their tastes. Tender young bulbs and blooms disappear but a tell tail sign will be their droppings on the top of the media.

Caterpillars are immature stages of moths and butterflies, can do significant damage to orchid plants. They can destroy not only flowers, but soft leaved orchids as well.

Cockroaches on Orchids

Cockroaches feed at night and enjoy munching on flowers, flower buds and new leaves**.**

Typical of the damage the Cockroach will do overnight chewing on the leaves.

Grasshoppers on orchids

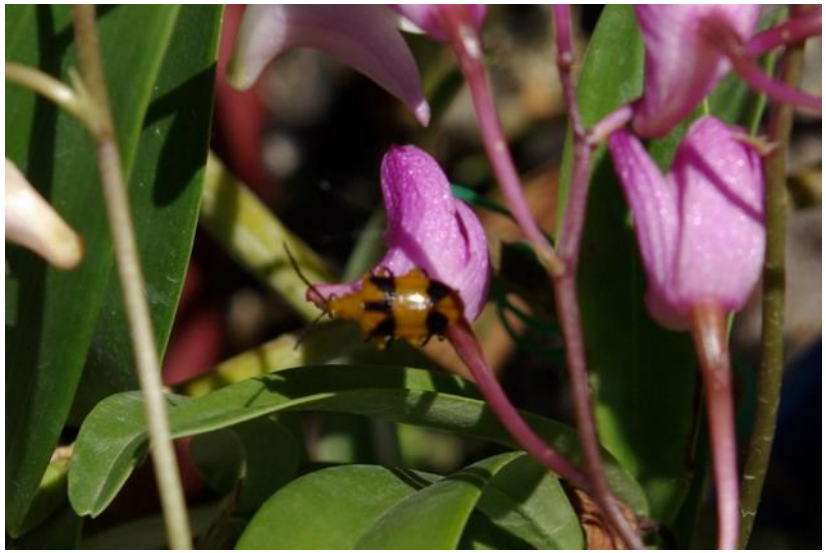
Grasshoppers eat orchid blooms and new growths simply by crunching and digesting all the orchid tissue suited to their tastes. Tender young bulbs and blooms disappear overnight with no telltale droppings (as in caterpillars) or silver trail (as for molluscs).

The photograph below shows the damage done to the new flower buds and the base of the raceme

THE DENDROBIUM BEETLE.

Dendrobium beetle is a difficult pest to control. There is no product registered to control this pest. The adult beetle will lay its eggs on the new growth and in the pseudou bulbs where the larvae will hatch and begin to eat.

Inspect your orchids in the evening and early morning and remove them manually. Have an Ice Cream container handy when inspecting the foliage so you can successfully capture the beetles as they fall off the leaf into the container, Then spray with a fly spray in the container.



Ants on Orchids

Ants don’t really harm orchids, but they do farm aphids, so their presence in any number, especially when coupled with aphids, is a bad sign.

Ants can be a real problem if you intend to bring your flowering orchids indoors so an ideal remedy would be to sprinkle an ant powder around the base of the pot. Mortein Insect Control Ant Sand or Yates ant and roach dust are commercial available

Rats and Mice

Rodents when active and hungry do awesome amounts of damage. The best way to eradicate these rodents is to place rat bait in small containers to detect if they are being eaten, or a quicker way is to use a rat or mouse trap.

This is a result of a rodent attach over night where the pseudo-bulbs have been completely severed and only the lower section remaining.

Damaging to New Growth

Handy Control Guide

- ***Cold Wet Weather :-*** In winter never water in the afternoon only early morning.

- ***Sunburn :-*** Never allow orchids to be in direct hot afternoon sun.

- ***Fertilizer Burn :-*** Never apply manufacturers full strength fertilizer always use half strength twice as often. (Apply weakly weekly) i.e. 1gm per ltr for liquid fertilizer

- ***Salt toxicity :-*** Once a month flush water through all pots to remove fertilizer residue that will build up.

- ***Trace element deficiency :-*** Apply regular applications of trace elements in powder form or twice a year spray a solution of 0.3% (3gm per ltr) Epson salts mixed in water. Just before a heavy rainstorm sprinkle 50% Blood and Bone and 50% Dolomite but make sure that it is washed through the pot.

Cold wet weather

The affect of cold wet weather on the leaves of an Oncidium Orchid.

If the cold weather is too severe then the whole plant will be affected and the plant will die as you can see below.

Sunburn on Orchid leaves

This photograph shows the affect of sunburn on the leaf recently where the leaf tissue has not started to break down.

This photograph shows the affected leaf after major sun burn damage and the leaf tissue has broken down

Fertilizer Burn on Orchids

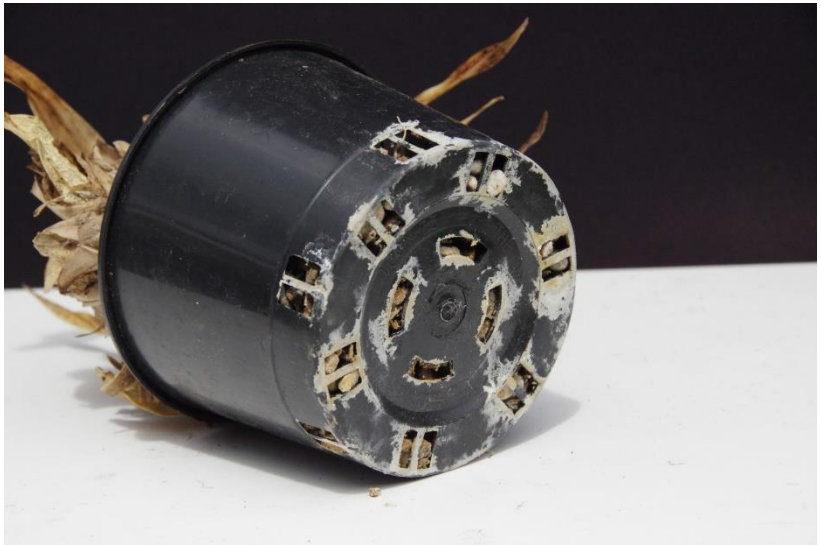
Often if the fertilizer is too strong then the flower labellum will discolour

As a result of fertilizer burn the tips of the leaves turn brown and die

Salt build up

Photograph showing salt build up on the drainage holes of an orchid pot. When it becomes this bad I suggest that before the orchid dies it be repotted into a new pot and the old pot soaked in a bleach or sterilizing solution.

Salts present in your water supply and added by fertilizers accumulate over time. Salt build up looks like whitish to brownish crusts on the medium and around the pot base.



Trace element deficiency

Generally a deficiency of trace elements is indicated by discolouring of the leaves

This Orchid is deficient in magnesium as shown by the yellowing on the end and along the edges of the leaves. A quick method to overcome this problem is to mix Epsom Salts crystals and spray over the orchid.

Watering

More orchids die by incorrect watering than any other cause.

Water your orchids only when they need it. Plants need water for the process of photosynthesis. They need water when they are in active growth and they need water when they are transpiring heavily. From this it could be said that for plants under shade-house conditions, it is almost impossible to over-water in summer and conversely it is almost impossible to under water in winter. This is assuming of course that the orchids have adequate drainage. Water should never be able to pool in pots. Here are some precautions to overcome problems with watering of orchids.

1) Never water any orchids when the ambient temperature is above 30 degrees. The best method is to wet the ground under the benching, this will increase the humidity and cool the plants down.

2) Never water an orchid if the ambient temperature is below 10 degrees. Orchids don't mind being cold. They don't mind being wet but when you combine the two ie. cold and wet it is a disaster and chances are that they will die.

3) Never allow water to collect in the new growth where the leaves join the canes as the water will pool and fungus will develop and this area will go black and the leaf will die and drop off.

4) With Phalaenopsis orchids it is better to immerse the pot in an ice cream container so that the water only reaches just below the level of the potting media top level for half an hour then let it drain. This will prevent crown rot which will kill the orchid.

Fungi

Handy Control Guide

Fungi attack various parts of the plant, including roots, stems, leaves, and flowers. Destructive by themselves, fungal attacks also leave the plant vulnerable to opportunistic infection by bacteria and not one fungicide will kill all fungi.

- ***Glomerella Fungi :-*** move from water supply or stop watering. Spray with Mancozeb or Captan
- ***Crestor Dendrobii :-*** Chemical control of fungus is best done with drenches of Carbaryl, Permethrin, Imadichloprid, Diazinon, or Malathion,
- ***Colletotrichum Fungi :-*** Spray with a suitable fungicide containing copper or quaternary ammonium compounds,
- ***Phyllostichum Fungi :-*** spray with a Mancozeb or Eco fungicide solution to manufacturers instructions
- ***Phytophora Rot (Brown Rot) :-*** water the potting media do not water the leaves spray with Anti-Rot
- ***Pythium Rot (Black Rot) :-*** A solution of 1.5 gm Condy's crystals in 1 ltr water sprayed over the orchid.
- **Remember Fungicides will not control Bacterial diseases** use Copper Oxychloride rate 1.5 gm mixed thoroughly plus1.5gms Zineb mixed thoroughly and put both in 1ltr water and left for 3 hours before spraying.

Glomerella Fungi

Glomerella is a fungus that relies on splashing water, either from rain or from watering, to move from plant to plant. It germinates in water on the surface of the plant and enters through damaged plant tissues.

Glomerella leaf spot can be controlled by removing infected plant parts and keeping the surface of the plant as dry as possible as it is spread by water.

Cerostora Dendrobii Fungi

Good plant

6 weeks later

Cerostora Dendrobii Fungi

The first symptoms are yellowish to pale brown, oval to elongate spots first noted on the under surface but soon showing on both leaf surfaces.
Later the spots enlarge, become tan with a purple border, 5-50 mm in diameter. This fungus continues to produce its spores for a considerable period of time and, if not controlled, may infect new leaves as they develop and will eventually kill the orchid

Colletotrichum Fungi

This fungal disease infects the aerial portion of the plant. This pathogen causes a chlorotic mottling on the upper surface of the leaf, with corresponding patches of fine tiny spots occurring on the leaf underside.

To solve this problem have good air movement, lower temperatures (if possible) and increased light may help reduce the spread of this disease. The pathogen is most active in warm weather when light is low and moisture is high.

Phyllosticta Fungus

Spotting from Phyllosticta may start anywhere on the leaf or pseudo-bulb. The lesions are tiny, yellow and slightly sunken. As they enlarge, they become round to oval. With age, they turn tan to dark brown and develop a slightly raised,

Its presence may indicate insufficient light or cold wet conditions in the orchid house. Spray with a suitable fungicide containing copper or quaternary ammonium compounds,

Phytophora Fungi (Brown Rot)

One way to overcome Brown Rot or also known as Crown Rot is to always water the orchids at the potting mix and not over the leaves where the water will collect and start the rot.

Crown rot can cause immense damage to an orchid and must be treated immediately. One solution is to use hydrogen peroxide (3%). You can treat the crown rot with full strength hydrogen peroxide, repeating every 2-3 days until the rot no longer fizzes and bubbles .

Pythium Fungi (Black Rot)

The infection often starts in the roots and may spread upward to the base of the pseudo-bulb or leaf, which can cause the leaf to fall from the plant with a slight jarring.

The disease is highly contagious and will spread from plant to plant from splashing water. It can be treated with a solution of Condy's crystals in water

Virus

Keeping a virus free collection does not come easy, but it can be achieved with some effort. There are many ways to stop virus getting into your collection as shown below.

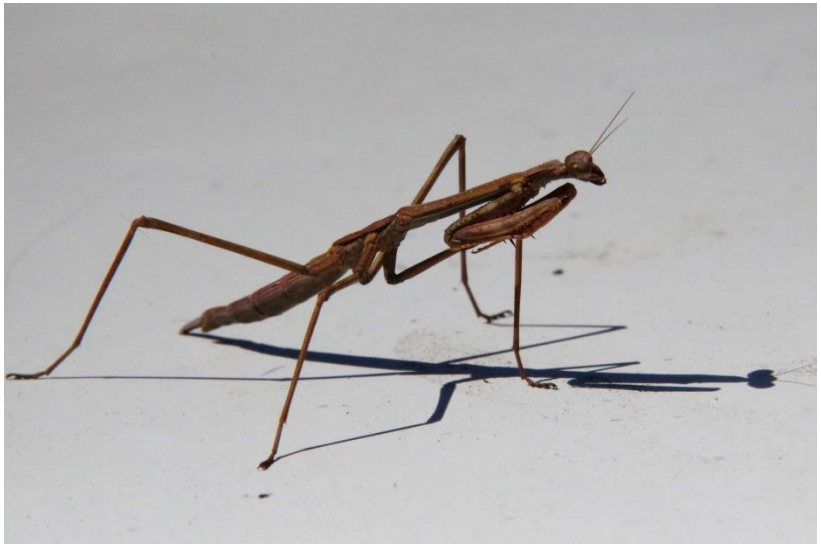
- Only purchase healthy plants
- Good sanitation within the orchid house
- Always sterilize your cutting tools between orchids
- Use clean newspaper on the bench for each plant when repotting
- Remove all insects as they can carry virus
- Wash hands after touching each orchid
- Do not reuse old potting media

You cannot do anything about a plant once it is infested with virus. There is no treatment and no cure, so you must at least isolate an infected plant from non-infected plants, and preferably destroy it by burning or wrapping it in plastic placing in the garbage bin and not the recycled bin.

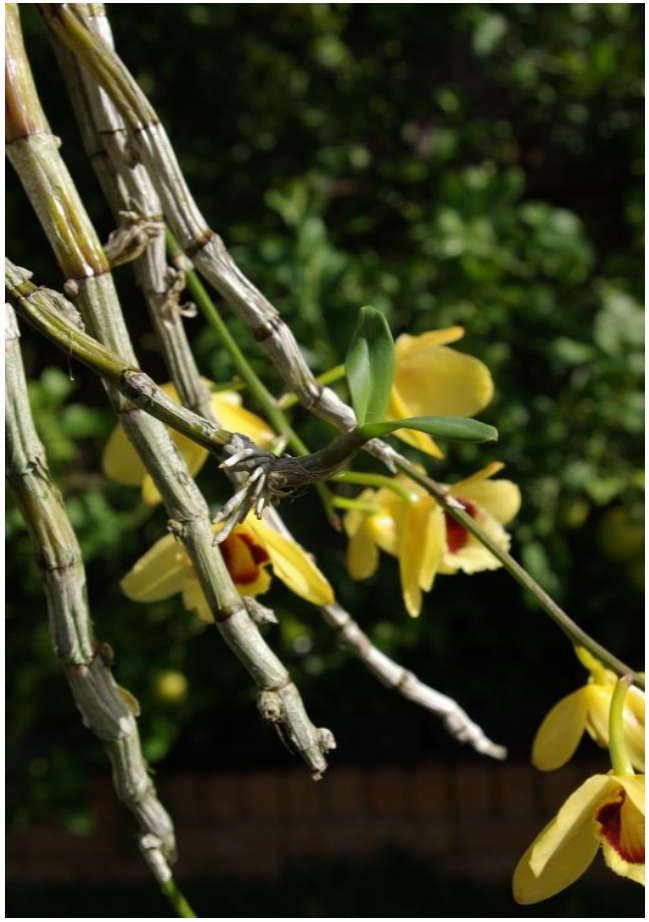
Do not discourage your friends
Not all insects are your enemy.

Mantis have enormous appetites, eating various aphids, leafhoppers, mosquitoes, caterpillars whitefly and other soft-bodied insects when young. Later they will eat larger insects, beetles, grasshoppers, crickets, and other pest insects.

Praying Mantis are strictly carnivorous in nature. Some mantis species have the ability to move their head by 300°, a unique adaptation which gives them a greater range of view. More than 2000 mantis species are found in the temperate and tropical regions of the world.



Simple method of increasing your collection



ACKNOWLEDGEMENT

I would like to acknowledge the following people as without their help and assistance this presentation would not have been possible.

Mr Alan Merriman

Mirann Orchids Blue Mountains N.S.W.

Mr Graeme Davies

Thank you for your attention and interest

THE END

SAFETY DATA SHEET
Campbells Diamond Blue

Date of Issue: January 2017

1. IDENTIFICATION

Product Identifier:	**Campbells Diamond Blue 19-2.5-17**
Other Means of Identification:	
Recommended Use of the Chemical and Restrictions on Use:	Fertiliser. Restricted to professional users.
Details of Manufacturer or Importer:	Campbells Fertilisers Australasia 16 Raymond Road, Laverton North, Victoria, 3026 Phone: (03) 9931 2211 Fax: (03) 9931 2201 www.campbellsfert.com.au
Emergency Telephone Number:	(03) 9931 2211 (business hours only 8.30 am to 5.00 pm) 0418 350 726 (after business hours) Poisons Information Centre 13 11 26

2. HAZARD(S) IDENTIFICATION

GHS Classification:

mixture

Label elements:

Signal Word

Warning

Hazards Statements

H272 – May intensify fire. Oxidizer

Precautionary Statements – Prevention

P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P221 - Take any precaution to avoid mixing with combustibles.

P280 - Wear protective gloves/protective clothing/eye protection/face protection

ADG Classification:	Classified as Dangerous Goods according to Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition. Refer to section 14

The photographs below show the results of fertilizing.

All 4 seedlings are from the same pod and the plants fed in different ways. The plants were all Den speciosum var. speciosum “Dreamtime” crossed with Den speciosum var. speciosum “Heather” AM/ANOS and were obtained from Ross & Ronda at Cedarvale Orchids at the Southern Orchid Spectacular in 2016.

The pot on the left was given no fertilizer at all.

The next pot was only given Blood and Bone on top of the potting media.

Then the 3rd pot was fed with a fertilizer readily available to the general public, mixed with water and sprayed on the plant.

The last plant was fed with a specialised commercially available fertilizer, having an N.P.K. 19:2.5:17 plus trace elements but is not available to the general public. This was mixed with water and sprayed on the plant.

ORCHID AWARDS RECEIVED
By Gary Hodder in 2018

Leila purpurta var atropurpurata
"Terry" ACC/AOC

Dendrobium chrysotoxum var suavissimum
"Garlor" ACM/AOC