

Cattleya orchid growing in the Riverina region of NSW

Cattleyas are a very large group of tropical orchids and part of the Laelinae family. They are from wet forests in tropical America from Costa Rica to Argentina and grow from sea level to 15000m. They are usually found growing in the tops of tall trees (11). In addition to more than 100 natural species there are also a large number of hybrids with Cattleya in their parentage. The Cattleya hybrids can differ significantly in their growing requirements depending on the species used in the crosses. Cattleyas are either epiphytes or lithophytes in their natural environment. Brazilian bifoliate autumn-flowering types tolerate cooler conditions if kept dry while dormant (2).



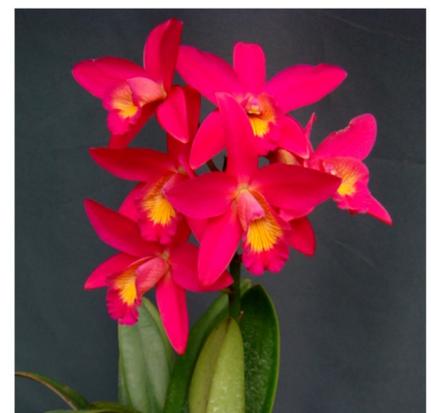
Most Cattleyas are best grown in a glasshouse in the Riverina climate where temperature and humidity requirements are more easily satisfied. There are however, many cool growers, particularly from Brazil, that can be successfully grown in a protected shade-house or verandah without additional heat. Brazilian cold hardy species that are reputed to tolerate winter temperatures down to 0°C include *C. intermedia*, *bicolor*, *elongate*, *forbesii*, *loddigesii*, *percialiana*, *walkeriana*, *guttata* and *leopoldii* (4).

Cool growing Cattleyas are successfully grown in a plastic covered shadehouse without additional heat at nearby Beechworth (Vic), which is 300m higher than Wagga Wagga, with minimum temperatures 2-3°C lower.

Miniature Cattleya typically have *Sophronitis* in their parentage, which conveys greater cold tolerance than the larger *Brassolaeliocattleya* (Blc) Cattleyas. *Sophronitis coccinea* is a cool growing Brazilian cattleya (5). Most hybrids in the *Sophracattleya* (Slc) group should be relatively cold tolerant and suitable for growing in a well protected shadehouse in the Riverina. The Bribie Island web site has an excellent guide for growing miniature Cattleyas although the recommendations will need to be modified for the colder Riverina climate (9).

Temperature requirements.

The majority of cattleya hybrids prefer a temperature range of 12 to 24°C. Most prefer a winter minimum night temperature of 8-12°C but tolerate occasional temperatures as low as 4°C if kept dry and the exposure is not prolonged (1, 6). However yellow and blue flowering hybrids require a higher winter minimum temperature of 10°C (1). The Brazilian bifoliate autumn flowering types and members of the *Sophracattleya* family will mostly tolerate cooler temperatures in winter providing they are **kept dry** (2, 6). As a generalisation it is thought that most bifoliate (two leaves/bulb) cattleyas tolerate lower temperatures than the unifoliate (single leaf) types. Some Brazilian cattleyas have survived temperatures as low as -5°C (5) but this is unusual and even cold tolerant types should not go below 1°C. Cattleyas will grow and flower better, however, if winter temperatures are higher (1). Plants are also more likely to tolerate low temperatures if



Miniature Lc Chiou Hsian

daytime temperatures are higher (>15°C). Young plants should also not be exposed to very low temperatures below 8°C (6).

All cattleyas need a difference in day-night temperature range of about 10-20°C. If daytime temperatures are too high this will result in die back of the tips of young growth.

High humidity and increased air movement can mitigate the effects of high temperatures.

Light

Most cattleyas enjoy medium to high light levels (1, 6) equivalent to 2000-3000fc (4,7) or about 50-70% shade in summer in the Riverina region but higher light (3000-4500 fc) in the cooler winter months (1). Under optimal light the plant leaves are a light green colour and sometimes with some purple markings on the leaves (1). If the plant is yellowish green or developing black spots on the leaf surfaces facing the sun, they may be receiving too much light, but if it's a deep green and failing to flower it may be receiving insufficient light (7).

Always avoid direct sunlight that will burn the leaves.

Humidity and air movement

They need good air movement and humidity year round. They require moderate to high humidity in summer but low humidity in winter. Daytime humidity in summer should be between 50 and 80% but less than 50% at night (6, 7). Misting is beneficial during very hot periods or where humidity is low (6). Sitting the plants in water holding trays filled with gravel, but not in the water, is an effective way of increasing humidity (7). Fans can be used if air movement is not adequate, particularly on very hot days.

Plants should be watered early in the day during colder months so the humidity is lower when temperatures decline at night. Cool damp conditions at night can cause spotting of flowers (6).

Water

The watering frequency depends on the potting medium and weather conditions. Over watering is a frequent cause of plant death. It is better to underwater than over water. Plants should be watered **only after the potting medium has become dry** (7, 10) otherwise they will rot. The outer layer of the roots, the velamen, absorbs water. When it is fully charged with water no gas exchange occurs with the air leading to rot (1).

Daily watering may be required in very hot weather in summer but this can be reduced when the weather is cooler. Normally watering every 3-4 days is adequate in warmer months. Plants in heated glasshouses will need to be watered more frequently.

Avoid watering on cold overcast days.

Pseudobulbs should not be allowed to shrivel as this indicates insufficient water or humidity. Plants should only be watered occasionally every 3 to 4 weeks while they are dormant over winter. Dormancy can last for 2 to 6 weeks in hybrids and several months in species (1).

The green root tips seal over when plants are dormant (6). The time when they are dormant varies with plants with some starting new growth in autumn and grow into winter (3).



Green root tips

Increase watering frequency when green root tips reappear.

Potting medium

Cattleyas need good air circulation around the roots and good unimpeded drainage (10). This is best satisfied by a coarse bark perlite mix with some growers also including charcoal.



Large coarse-rooted hybrids prefer a coarser bark while finer-rooted hybrids with *Sophronitis* in the breeding need a finer mix (1).

Repotting is best performed either just before or when new roots first appear from new growths but will not be damaged and new shoots have developed (1,7, 10). Any old roots that cannot fit in the new pot or aerial roots can then be trimmed back when repotting. Aerial roots are not used to growing in compost and will probably die if placed in compost (10).

While most Cattleyas can be grown in squat pots, a few such as those from the *Brassavola* and *Rhyncolaelia* genera which have a rambling habit prefer to be mounted on slabs of tree fern or other absorbent material (1). Most Cattleyas can be grown on cork or bark slabs in the glasshouse where humidity is higher and this overcomes problems with rotting due to poor drainage.

Many bifoliate (two leaf) cattleyas resent repotting unless new roots are being formed and should not be disturbed until new roots appear (7).

To avoid subdividing or disturbing a plant, and if the potting mix is not degraded, they can be potted-on in their existing pot and placed, pot and all, in a larger pot with the gap filled with bark and perlite (4).

Fertilizers and Insecticides

Liquid fertilizers should be applied at half strength regularly during the growing season (about every 3rd watering) with a high nitrogen fertilizer during active growth (30-10-10) but changed to a high phosphorus/potassium fertilizer (10-30-30) during flower bud development (10). No fertilizer should be applied while the plants are dormant (1). Some growers however advocate always using low N fertilizer as excess N can cause vegetative production instead of flowers and blind (empty) sheaths (7). Over feeding can lead to loss of roots and the death of the plant (7). Burning of leaf tips can be caused by excess Na (sodium) or Ca deficiency.

Malathion is considered safe to use for sucking insects (10).

Varieties for the Riverina region of NSW

Most cattleyas can be grown successfully under glasshouse conditions in the Riverina where low temperatures, frost and low humidity can be eliminated. A few cool growers cattleyas and their hybrids, particularly those with *Sophronitis* and *Laelia* in their crosses can be grown in a protected shade-house without additional heat.

For a detailed list of the best varieties for cool growing conditions experienced in the Riverina region of NSW refer to the excellent books, "Growing orchids in cool climate Australia" and the "Australian Gardening Flora's Orchids" listed in the references below (1,2). Local growers are also a good source of cool growing plants.

The intergeneric Laelia hybrid *Laeliocattleya* Ballet Folklorico Eloquence HCC/AOS also has a reputation for being a good cold grower and is readily available.

Cattleyas and hybrids that have tolerated temperatures below 0°C in Victoria include *Cattleya loddigesii*, *C. intermedia* and *Sophranitis coccinea* (see Pascoe below (5)). There are also a number of cattleya hybrids that have proven cold tolerant (see Cold Hardy Cattleyas growing guide on this web site (8)).

Intergeneric cattleya hybrids

Hybrid species containing *Cattleya* in their parentage include;

- *Brassolaeliocattleya* = (*Brassavola* x *Laelia* x *Cattleya*),
- *Potinara* = (*Brassavola* x *Laelia* x *Cattleya* x *Sophranitis*),
- *Laeliocationia* = (*Laelia* x *Cattleya*, x *Broughtonia*),
- *Laeliocattleya* = (*Laelia* x *Cattleya*)
- *Soprocattleya* = (*Sophranitis* x *Laelia* x *Cattleya*)



Minature Lc Polestar x
Lana coryell

Acknowledgements and further reading:

This fact sheet has drawn on information by local growers and the references listed below.

1. Growing Orchids in Cool Climate Australia (2nd Edn) by MJ Fraser, J Wright, W Ferris (2013).
2. Gardening Australia Flora's Orchids. ABC Books (2005).
3. Orchids, A Practical Handbook. By B and W Rittershausen (2001).
4. Santa Barbara Orchid Estate web site.
http://www.sborchid.com/culture.php?culture_title=Cattleyas
5. Cold tolerant Orchids of the Cattleya Alliance by R. Pascoe.
<http://www.oscov.asn.au/articles/catcold.htm>
6. Cattleya culture in Melbourne by B Walker.
<http://www.oscov.asn.au/articles4/catculture.html>
7. Cattleyas for the beginner. The American Orchid Society.
<https://www.aos.org/Default.aspx?id=449>
8. Santa Barbara Estate. Cold Hardy Cattleyas.
http://www.sborchid.com/sboe_collection.php?collection_genus=Cattleyas&collection_short_name=Cold%20Hardy&collection_name=Cold%20Hardy%20Cattleyas
9. Minature and novelty Cattleyas. Bribie Island Orchid Society.
<http://www.bribieislandorchidsociety.com/wp-content/uploads/file/orchidgrowing/Miniature-and-Novelty-Cattleya-Orchids.pdf>
10. Cattleya culture-part 2. American Orchid Society.
<http://www.aos.org/Default.aspx?id=453>
11. What orchid is that? Edited by A. Pridgeon. Weldon Publishing.

Your comments and suggestions on cultural guide are welcome. Email your comments to dearconsultingservices@gmail.com

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These notes are intended as a guide only and are composed from available information and local experience. The Wagga Wagga Orchid Society and its members are not responsible for any loss or damage.