



## Cultural Requirements of Cattleya

By Ned Nash

The species and hybrids of the *Cattleya* (KAT-lee-a) Alliance are likely the most popular orchids. Even the most passing acquaintance with this group makes it easy to see why. Dedicated species growers appreciate the vast diversity in sizes and shapes, ranging from tiny *Constantia cipoensis* to the enormous *Schomburgkia tibicinis*. Within *Cattleya*, plants range from the 6-inch-tall *Cattleya luteola* to *Cattleya guttata*, which can be more than 5 feet tall when in flower. More than 100 years of hybridizing in this group has led to a diverse array of shapes, colors and sizes. Add to these desirable traits the relative ease of culture and an adaptability to almost any climatic region, and it becomes clear why Cattleyas are considered the ideal beginner's orchid.

While greenhouse conditions suit Cattleyas best, development of smaller-growing hybrids permits the windowsill hobbyist to indulge in these rewarding orchids. The compact hybrids, in many cases, have the advantage of a species background that renders them more tolerant of cooler and/or warmer conditions than the more traditional types. Although both longtime hobbyists and the relative newcomers are enjoying the popularity of the trend toward miniaturization, to many growers the word *Cattleya* will always stand for the large, frilly orchid seen in corsages.

Forty-eight species of *Cattleya* are native to the middle elevations of Central and South America. An understanding of their native habitat and the conditions under which they occur is invaluable to elucidating their cultural needs. The majority of this group grows as epiphytes on the forest fringes or high in the canopy where they receive strong but dappled sunlight. Because their thick, fleshy roots are largely exposed, owing to their epiphytic habit, the plants have adapted to alternating wet and dry periods. The pseudobulbs are a hedge against this occasional dryness. Plants receive a mild but constant supply of nutrients from many sources, including leaf detritus and animal droppings that are washed from above by the frequent light rains. The temperature and humidity remain fairly constant both because of the particular climatic regime and because of the mitigating influence of the forest itself.

These interrelated factors contribute to raising Cattleyas successfully. Cattleyas will perform well under a wide range of conditions, so it is up to the grower to develop keen observational skills to determine when the plants are satisfied.



**Temperature and Humidity**- Temperature is related to the light regime under which the plants are grown. In nature, the environment is moderated by the overall influence of the forest. Both gentle air movement and the constantly changing amount of light dictated by the foliar cover contrive to keep air temperatures in the 75 to 85 F range. At night, the foliage tends to keep radiant heat from escaping, creating a mild night temperature around 60 F. This day-night differential is equally essential to the health of cultivated plants. Cattleyas in cultivation need a 10- to 15-degree difference between night and day. This means that an optimum range might be 60 F nights and 75 to 80 days. Meeting these needs is dictated by geographic location. In many regions, nights may be in the high 60s for weeks on end; in others, the days may never reach 60 F. In these cases, both common sense and pocketbook will dictate keeping the differential in line with the naturally occurring conditions.

Another factor to remember is the plants' background. Many of the dwarf types stem from species with more need for cooler conditions. A majority of the standard yellow-flowered Cattleyas prefer warmer conditions. There are usually microclimates in any growing area where these peculiarities can be accommodated – closer to the heater, nearer the cooler. Young seedlings prefer to be warmer, gradually being moved into normal conditions as they mature.

Adequate humidity is essential. A range from 40 – 60-percent relative humidity is recommended. While relative humidity is naturally inversely proportional to temperature, the reverse is needed by Cattleyas. That is, the humidity should rise with the temperature to prevent the plant from being stressed by transpiration. In greenhouses, under-bench misting activated by a humidistat is a practical solution. An alternative is to spray the walks and benches with water. In the home, place plants on a grid over a water-and-gravel filled tray, or mist them.

**Light**- Cattleyas grow and flower best with strong, dappled sunlight. The most common cause for failure to flower is insufficient light. Growths and flower spikes should develop straight and strong without the need for staking. Foliage should be medium olive green. If the growths are weak and floppy, and the foliage a very dark green, the light is insufficient. Conversely, if the foliage is more on the yellow side and quite hard, the plants may be receiving too much light. While it will flower, the plant is probably being stressed and will not perform to its optimum.

In the home, Cattleyas prefer an eastern, western or lightly shaded southern exposure. The smaller-growing hybrids and species are much more satisfactory for the windowsill. Both the dwarf hybrids and younger seedlings can get along with, and indeed generally prefer, lower light than do the larger types.

An important note for those contemplating growing Cattleyas in the home (under lights or at the windowsill) is the

importance of light quality. Increased quantity (longer hours) of light will not compensate for poor quality light. Overlong day length (more than 16 hours) can result in stress symptoms: weak growth, tip burn and failure to bloom.

**Watering**- In nature, the exposed roots of Cattleyas enjoy a rather rapid cycle of wetting and drying. Although the bulk of cultivated plants are grown in pots, this wet-dry cycle must be duplicated by allowing the plants to become nearly dry before watering. Most new growers tend to err on the side of too much water rather than too little. An old saying goes, "When in doubt, don't." However, common sense is again the watchword here. Do not allow pseudobulbs to shrivel from lack of water before any is applied.

There are several good diagnostic techniques for determining the amount of water left in a given pot. When in need of water, the pot will usually be lightweight. Insert a freshly sharpened pencil into the pot in question. If the point is dry when removed, the plant needs water. A circle of moisture left underneath a pot indicates that the plant is moist enough for the time being. It has been recommended that each plant be individually checked for moisture content before watering. This can be very bothersome and time-consuming. Grouping pots of similar size permits development of an economical watering schedule. In general, mature plants need water no more than once a week. Smaller and younger plants may need it more often, so observe.

**Fertilizing**- The single best piece of advice that can be given about the feeding of Cattleyas is to do it "weakly, weekly." Most commercial preparations give instructions to feed every two weeks at a certain rate. Much better results can be obtained by using a dilution of half the recommended rate each week. As can be inferred from their natural habitat, Cattleyas are moderate feeders accustomed to a constantly available mild nutrient solution.

The type of fertilizer used is dictated by the particular type of mix in which the plants are potted. There are three basic types of mix: Organic, requiring no additional feeding; organic, requiring additional feeding; and inorganic, requiring addition of all nutrients. For many years, Cattleyas were potted in osmunda, which required no additional fertilization for the plants to flourish. Fir bark and tree fern exemplify the second type of mix that requires a relatively high ratio of nitrogen. Today, with the harvestation of tree fern regulated and the supply of good-quality fir bark declining, much experimentation is going into essentially inert, inorganic media. Growing in such a mix is similar to hydroponics, in which the fertilizer must supply all necessary ingredients for the plant's growth.

Leach the potting mixture thoroughly every four weeks. Water the plants copiously once and then do it again. This will help to prevent a harmful buildup of salts in the potting mix.

**Potting**- Repot Cattleyas when the mix decomposes or the plant outgrows its container. These events usually occur together at two-year intervals. The mix in which Cattleyas are potted should be moderately coarse and freely draining to meet their preference for epiphytic-like conditions.

The question of when to pot a particular plant can be one of the most frustrating for new and experienced growers alike. Do not repot a plant in bud. If such a task must be undertaken to save the plant, remove the buds. Repot when new roots are seen emerging from the base of the newest growth, or ideally just before they are expected. This may be in conjunction with growth initiation, after flowering, or both. Most Cattleyas are relatively tolerant of potting any time. Certain species, notably bifoliate Cattleyas (such as *Cattleya amethystoglossa*), will not grow unless they are potted when roots are initiated. Newly emerging roots are quite brittle and sensitive to breakage so pot just before root initiation. If they are carelessly broken before they reach a certain length, that growth may never produce any new roots. For this same reason, it is important to pot the plants firmly, even if they must be staked and tied, so that the new roots are not damaged by the plant rocking in its pot.

The potting mix of choice since the late 1950s has been fir bark. In the last few years, quality has steadily declined as the supply of virgin growth trees has given way to softer-barked second- and third growth timber. The mix does not last as long. Tree fern is still widely used in the more tropical areas. New Zealand sphagnum moss was hailed as the cure-all medium several years ago, and still does a good job on smaller seedlings in pure-water areas. It has not proven as effective for larger plants in larger pots. Various media utilizing largely inert substances, such as vermiculite, charcoal, perlite, rock and the like, have been advertised and used with varying degrees of success in different environments. What works best for the grower is the best medium for the plants.

Growers who find their mix of choice more difficult to obtain are resorting by necessity to experimentation with new materials. There are several important things to remember with such experiments. First, utilize only less-than-desirable and/or duplicate plants so that an irreplaceable clone is not lost. Second, the plant(s) will take some time to react, either favorably or unfavorably, to any new medium. Give them a chance to adjust. Begin trials only after it is determined the proposed mix is convenient and easy to use; is readily available locally' and is relatively inexpensive.

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