# **New York Botanical Garden: Cattleya Orchid**

The orchid family, Orchidaceae, is one of the largest of all flowering plant families, with plants growing in many different habitats. Successful orchid culture is the result of imitating an orchid's natural habitat as closely as possible.  All orchids need appropriate light, temperature, humidity, moisture, nutrients, ventilation, potting medium, and maintenance.

*Cattleya*is agenus of often fragrant, tropical epiphytic and lithophytic plants, that is to say they grow in large clumps in fast-draining pockets of debris on trees and rocks. Native to warm forests of Central and South America, they are known for their large, colorful flowers, though great variation in type and coloration are now available to the grower. The natural setting of loose, fast-draining, growing medium, strong humidity, and bright, filtered light is also what they need to prosper in the home.

Cattleyas are sympodial orchids, meaning they grow by expanding along a rhizome, developing an increasing number of pseudobulbs. The older pseudobulbs will eventually lose their leaves and start to shrivel, but they provide nutrients that the rest of the plant takes advantage of. There are two primary groupings of *Cattleya*: unifoliates (one leaf) and bifoliates (two leaves). Unifoliates have a single, large, thick, leaf per pseudobulb and mostly large flowers of a classic corsage type. Bifoliates have a longer, slim pseudobulb and a greater number of smaller flowers on a single spike. *Catteya* and related complex hybrids mostly enjoy similar general growing conditions.

**Light:**

Light is the condition where this plant places the greatest demands on the grower.*Cattleya* require extended bright to very bright light to remain vigorous and produce flowers. Offer them bright, filtered light in the hot summer months and full light in the winter. In the New York City area, a south-facing window with a shear, filtering curtain is often best for the summer or an east or west window with extended light. An adjustment for the winter may be necessary. Protect the plant from the harshest midday sun. If your pseudobulb will not stand on its own, the plant is probably not receiving adequate light.

With the use of a light meter, you can directly measure the light exposure of a potential growing area. A bright, sunny day out of doors may measure 10,000 foot-candles, while a south-facing window may be about 5,000 foot-candles.*Cattleya* is considered a high-light orchid and requires about 2,000 to 3,000 foot-candles of light.

LED artificial light can be used to supplement light for most orchids. Increase exposure gradually and be careful not to place the light too close and burn the plant. Look for a full-spectrum light option made for plants.

**Water and Humidity:**

Orchids are killed more often by the common mistake of over-watering than anything else. *Cattleya*potting medium should be nearly dry before you water a mature plant. Watering frequency is likely to change during the year. Day length, humidity and individual heat systems will affect the rate at which water evaporates from the growing medium. During flower bud development, water more generously. Use your finger to test before you water. If in doubt, wait another day.

Always water in the morning. Place the plant in a sink and allow the water to soak through and drain out completely. It is best to use tepid water, as it will help to dissolve fertilizer salts and not shock the plant. Bark potting mix may initially repel water before it becomes saturated, so it is important to water until the bark is saturated.

Humidity in the air is just as necessary as moisture in the soil. A minimum of 50% relative humidity is required to grow*Cattleya*whereas an average home in the northeast may have humidity as low as 25%. Both heating in winter and air conditioning in summer remove a lot of moisture from the air. Supply extra humidity with humidifiers, or group plants (with space between for air to move) on a gravel-lined tray that is filled with water to increase air moisture through evaporation. You can use a simple hygrometer to assess the humidity and keep it in the 60 to 80% range that *Cattleya*prefer.

**Air Movement:**

The high humidity in tropical habitats is often accompanied by gentle and constant air movement through the locations in which these orchids grow. Stagnant, humid air is as detrimental to orchids as cold drafts. Air movement is essential, as it evaporates moisture on leaves and stems and helps protect plants from the spread of disease. If you are keeping your orchids in a closed room, an open window (when temperatures are in the target range), the movement of air from a humidifier or from a fan are an often-neglected factor in growing healthy*Cattleya*.

**Temperature:**

Most orchids need a distinct fluctuation between day and night temperatures to successfully produce flowers. These are intermediate to warm-growing orchids and mostprefer day temperatures between 70 and 85°F., with night temperatures between 55 and 65°F. The warmer growers tend to be species that grow at low altitudes, while intermediate growers are found growing in higher altitudes.

Reducing the temperature by about 5°F right after flowering is helpful. When temperatures are in the high end of the range, humidity should also be at the high end of *Cattleya*'s preference.

**Nutrition:**

Since orchid potting mediums are not composed of nutritious garden soil, the rule of thumb for orchid feeding is typically "feed weakly, weekly". For *Cattleya*, every week feeding is not needed. A balanced, powdered fertilizer (20-20-20) is best at ¼ of the recommended strength on the label, every other time you water. It's important to flush the plant out with water regularly to get rid of any residue salts left over from the fertilizer. It's better to give an orchid too little fertilizer than too much as over-fertilizing can reduce flowering. Continue feeding year-round.

**Encouraging Flowering:**

An orchid needs to have all its needs met to generate the energy necessary to flower. Adequate light, correct watering, and proper temperature and humidity levels all contribute to a flowering *Cattleya*. In nature, orchids experience a 10ºF. temperature difference between day and night. This differential is an important part of initiating flowering. For *Cattleya*, adequate light and strong humidity is essential to induce flowering.

**Care After Flowering:**

Cut the spike all the way down to the base once it turns brown after flowering to allow the plant to rejuvenate and grow for the next flowering season.The flower spikes form underneath a protective green sheath that covers the pseudobulb. The sheath splits open, the orchid flowers, and the sheath eventually dries out. Many orchid growers scrape off the papery brown sheath once flowering is completed.

**Re-potting:**

Cattleya vary in their annual schedule; some flower in spring, some in fall and others over an extended period. The new growth on a*Cattleya* comes from the base of the existing pseudobulbs. It looks like little, pointed tips when it first emerges. Once the new growth starts on the pseudobulbs, root growth follows, making it a good time to place the orchid in a new home. It is also a good time to clean up your plant and remove any old or unwanted pseudobulbs. When *Cattleya*outgrow their pots or the potting medium has deteriorated, they should be re-potted. This is best accomplished every two to three years right after flowering. Be as gentle with the roots as possible.

Epiphytic orchids require especially good drainage and good root aeration to grow. A loose, medium, bark, potting mixture is preferable for *Cattleya.*Choose a new pot that allows for continued growth. Many plants grow from a rhizome that creeps across the pot surface, so a shallow but wide container with cut outs for root ventilation is a good choice. The entire rhizome should rest on the surface for great air exposure.  Where humidity is generous, growing a mounted *Cattleya* is possible. Be sure to use only quality orchid potting mixes and never substitute landscape mulches for orchid potting mediums.

**Hygiene:**

Cleanliness is important for orchids. Wash orchid leaves occasionally with mild soapy water to reduce the harmful effects of excess debris that can slow photosynthesis and minor insect infestation. Since orchids are susceptible to viral diseases, use gloves when handling them and/or wash hands often between handling. When cutting stems always use tools sterilized in a 10% bleach solution (1 part bleach to 9 parts water) and/or alcohol, or use a clean, single-edged razor blade.

**What to watch for:**

**Rot** can develop quickly if water is left on the leaves, flowers or on the above surface plant after watering. Pat off any water that has splashed up while watering.

**A plant that does not bloom and lacks strength, with a flopping pseudobulb and dark leaves,** is probably not getting enough filtered sunlight. Test your light with a light meter and supplement with artificial light if necessary. Move plants to stronger light gradually to avoid burning the leaves.