

True Blue Cattleyas

Ervin Granier's Quest for the Perfect Flower

TEXT BY DOWNS MATTHEWS/PHOTOGRAPHS BY ERVIN GRANIER

SOMEHOW, MEMBERS OF THE *Cattleya* alliance were behind the door when the color blue was handed out. Nature gave cattleyas more than their share of colors from the short end of the spectrum, and they knew what to do with them. But the closest she came to blue was "orchid," defined in *Webster's* as "a bluish to reddish purple."

To hybridizers such as Ervin Granier, the absence of true blue in most cattleyas came not as a misfortune but as a challenge. In 1991, he set out to correct Nature's oversight.

A native of Vacherie, about 70 miles north of New Orleans, Ervin graduated Louisiana State University with a Bachelor of Science degree in chemistry. For most of his career, he worked as a chemist and chemical engineer for a company, now known as Syngenta, that manufactures herbicides and insecticides.

Ervin and his wife Carol, members of the Baton Rouge Orchid Society, make their home in St. Gabriel, Louisiana. When they embraced orchids in 1987, Ervin built two greenhouses providing 2,200 square feet (204 sq m) of growing area and stocked them mostly with cattleyas. So far, he has received 134 AOS awards.

In his quest for the true blue cattleya, Granier has received 65 awards for flowers described by judges as lilac blue, blue lavender, blue violet, pastel blue, purplish blue, indigo blue, blue lilac and wisteria blue. Clearly, he is getting there.

To gain insight into Granier's exciting breeding program, I sat down with him to ask about blue cattleyas.

Cattleya Granier's Pride 'James', AM/AOS (Minerva × walkeriana), is among the many blue-flowered cattleyas hybridized and grown by Ervin Granier.







Cattleya Granier's Pride 'Hillary', HCC/AOS
(*Minerva* × *walkeriana*)



Cattleya Granier's Pride 'Mallory',
HCC/AOS (*Minerva* × *walkeriana*)



Cattleya Granier's Pride 'Patty', AM/AOS
(*Minerva* × *walkeriana*)



Cattleya Granier's Pride 'Gran Jennifer',
AM/AOS (*Minerva* × *walkeriana*)

Tell us about your greenhouses.

They are made of polycarbonate plastic, located in the open, with no shade from any direction. They receive sunlight from dawn to dusk. I measure the amount of light on the plants with two different light meters, which register about 4,000 foot-candles in the middle of the day.

How do you control light and shade?

Two years ago, I noticed that light intensity in the greenhouses was down because the polycarbonate was discoloring with age. At that time, I lessened my shade cloth from 50 percent to 30 percent. I knew this would increase the heat in the greenhouses so I added more fans. On most of the roof areas, the shade cloth lies flat on top. I raise a top vent that lifts the cloth about 18 inches (45 cm) above the rest of the roof area. The vent creates air currents that hold air temperature at ambient levels. I also open five vents near the tops of the greenhouses and open a couple of side doors and one at the end. With the circulating fans, this keeps air moving and creates convection currents.

What about cooling?

At one time, I had a cooling pad, but it was ineffective because the normal humidity here is so high, in the 90s F. Interior temperatures usually run three to four degrees above ambient. If it is 94 F (34 C) outside, it will be 97 to 98 F (36 C) inside. I know this is quite hot, and my plants do suffer. In fact, with such high heat and humidity, it is almost impossible for us to stay in the greenhouse for long. The plants seem to adjust better than we do.

What about your watering schedule?

During June, July and August, I water on a six-day cycle. During May and September, I water every seven days. During winter, I water every two to three weeks and maintain temperatures at around 55 F (13 C).

How do you handle the watering chores?

Carol and I water the plants by hand. We don't do misting. We let the potting medium get dry between watering. To achieve aeration in the middle of the large pots so that roots dry out and don't get rot from dampness, I cut additional slots in them. With 5- to 7-inch (12.5- to 17.5-cm) pots, for example, I cut four more slots, and five in pots larger than 7 inches (17.5 cm). When you see a large

plant with a bunch of leafless pseudobulbs in the center, chances are its medium stays damp and the roots on the middle pseudobulbs have rotted.

Is there a reason for watering by hand?

It gives us control over the water. I adjust my watering solution by adding phosphoric acid to bring the pH down to 5.5 to 6, just slightly on the acid side. The lower pH lessens the chance of calcium and magnesium deposits on the side of the pot and on the plant roots, as well.

What fertilizers do you use, and when do you fertilize?

We fertilize with every watering. We don't use fancy orchid fertilizers. Instead, we like 20-20-20, with micronutrients added. These don't actually enhance flower color, but allow the color to develop to its maximum potential. In early spring, when new growths begin to emerge, we change to a fertilizer with a slightly higher nitrogen content, such as 30-20-20. I add 1 pound (.45 kg) of fertilizer to 30 gallons (114 L) of water in a large tub. This mixture siphons out at the ratio of 16 to 1, using fresh water. Thus 30 gallons (114 L) of concentrate equals 480 gallons (1,816 L) for watering, which works out at around 50 parts per million of nitrogen.

What medium do you like for your cattleyas?

I prefer a medium that does not break down. Some of my plants have been in the same medium for more than 12 years. I believe that if you repot a plant because of medium degradation, you disturb the roots, which sets it back. My medium is made up of two parts charcoal, two parts sponge rock and one part of a good grade of Canadian peat. I adjust the amount of peat slightly depending on how moist I want the plant to be.

What type of pots do you use?

I use plastic pots up to 6 inches (15 cm) and, when they need larger pots, I use clay pots.

What's your practice in potting?

I fill in the bottom of the pot with styrofoam peanuts and add 3 to 4 inches (7.5–10 cm) of medium on top. That way, when you need to repot later, you can move the intact rootball to another pot and fill in around it with new mix. This makes repotting easier on both you and the plant.

Do you repot when your plants outgrow their pots?



Cattleya Granier's Felicity 'Blue Honey Pie', AM/AOS (Minerva x Caribbean Sea)



Cattleya Granier's Felicity 'Blue Sugar Plum', AM/AOS (Minerva x Caribbean Sea)



Cattleya Granier's Felicity 'Blue Honey Plum', AM/AOS (Minerva x Caribbean Sea)



Cattleya Granier's Charm 'Blue King',
AM/AOS (Minerva x *warscewiczii*)



Cattleya Granier's Charm 'Blue Flame',
AM/AOS (Minerva x *warscewiczii*)



Cattleya Granier's Blue Surprise 'Princess',
AM/AOS (Minerva x Sapphire)

Yes. I contend that cattleyas should not be potbound, so I give them plenty of room. As long as the plant is growing satisfactorily, I leave it alone. But when it shows signs of crowding, I move it to a new pot two or three sizes larger.

Do your blue cattleyas experience any ailments? If so, what are they and how do you control them?

Thrips breed in the floor of my greenhouse. I spray to keep them under control. Occasionally mealybugs will appear and I use alcohol in a spray bottle for that. I have to weed for oxalis.

Can the true blue cattleya be created?

The potential is there for cattleyas that have the chemical make-up necessary to achieve blue colors. As a chemist, I know that only a slight

manipulation of pH or other components can cause colors to vary significantly and lead to better blues. Proper plant nutrition goes a long way toward accomplishing this. Color changes depend on how the plant assimilates micronutrients and on combinations of micronutrients that change the plant's internal chemistry. Simple methods that work on other plants, such as hydrangeas, don't work with orchids. Internal changes of pH in orchids must be accomplished genetically through hybridization.

What factors do you consider when you choose plants to make a cross?

Foremost is the color exhibited by the parents. Not all cattleyas contain the building blocks for blue, but some do. I pick the best of those. After that I look at form, growth habits, coloration

as the plant dries, parentage and pH of the flowers. Obviously, you must select plants that have what you want. Someone who knows the chemistry and understands how to manipulate it to bring out blue colors will make improvements, although it is a slow process. Each cattleya generation takes about seven years from cross to flowering.

What are some of the species and hybrids you've used to make crosses with blue flowers?

I use *Cattleya* Minerva 'Grand Wisteria', HCC/AOS (*bowringiana* x *loddigesii*). This plant has been a great producer of bluish cattleyas worldwide. I have used it in 10 crosses and it has produced 38 awarded offspring and one Award of Quality. Twenty-four of the awards are AM awards for a 63



Cattleya Granier's Blue Elegance 'Mary Kay', AM/AOS (Minerva × Mrs. Myra Peeters)

percent AM to HCC ratio. Like itself, it produces offspring that generally bloom twice a year and has a good aroma.

What are some of the grexes you've created that you consider to be your best?

The grexes *Cattleya* Granier (Valentine × Joan Landsberg) has eight awards; *Cattleya* Granier's Pride (Minerva × *walkeriana*) has received 11 awards, including four AMs, six HCCs and one Award of Quality; and *Cattleya* Granier's Charm (Minerva × *warszewiczii*) boasts six awards: five AMs and one HCC. *Cattleya* Granier's Felicity (Minerva × Valentine) was probably the greatest cross percentage-wise, because only six seedlings were produced and five received an AM award and one a HCC.

How about a short list helpful to hybridizers?

1) Learn some advanced organic chemistry, or get help from an organic chemist. 2) Study genetics for an understanding of how to manipulate plant internals such as pH and other genetic factors. 3) Fertilize your plants with the proper nutrients, which means adding metal ions such as molybdate, tungstate and others not found in sufficient quantities in commercial fertilizers, while avoiding toxicity problems. 4) Find a support group of people who want to develop a better blue cattleya. 5) Be prepared to spend the money needed to sustain a long-term technical project. 6) Budget the time required to see it through; it takes seven years to work with just one generation. 7) Search for and acquire



Laeliocattleya Granier's Dream 'Elaine', AM/AOS (C. Minerva × Lc. Granier's Blue Dream)



Cattleya Granier's Blue Elegance 'Jewel', AM/AOS (Minerva × Mrs. Myra Peeters)

plants having the necessary genetic background.

Do you have confidence in your program to create the true blue cattleya?

Yes, because I know it can be done. I would never have started my hybridization work if I thought cattleyas lacked the chemicals necessary to produce a blue flower. What would the world be like today if no one had an innovative spirit?

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