

handle with care

By Bruce Wright

Keep flowers fresh by making the most of your cooler.



WHAT DO POSTHARVEST experts say is the single most important factor in keeping cut flowers fresh? You guessed it: the chill factor.

Research has clearly demonstrated the paramount importance of maintaining the “cold chain” as a flower makes its way on the journey from the grower to the flower shop. But the cold chain doesn’t stop there.

Your floral refrigerator is possibly the most important tool you have for extending the life of your cut flowers. It’s worth your investment of time and money to keep it sparkling clean and in good working order.

It’s not just the cool...

Temperature is so important because it affects everything else in the life of a flower: water loss, flower opening, stem bending, petal wilting, flower fall, the possibility of botrytis infection, and more, including how cut flowers and plants respond to ethylene. Ultimately, of course, the temperature at

which cut flowers are stored also affects consumer buying decisions—and retail florist profits, as a report on the Chain of Life website (www.chainoflife.org) points out.

But temperature control isn’t the only concern when you purchase and maintain a floral refrigerator. What makes a floral refrigerator different from any other kind? Humidity and air flow. If you shop on the Internet, you are all too likely to find unscrupulous suppliers selling beverage coolers as floral coolers, warns Richard Rosenfeld at Bush Refrigeration. And a beverage cooler is designed to stay dry: If you’re a beverage retailer, you don’t want all those cardboard boxes and carrying cases to get soggy and fall apart.

In a well-designed floral cooler, by contrast, “everything’s been engineered for a balance of temperature and humidity,” explains Steve Lemieux of SRC Refrigeration. Humidity is not controlled separately, but the capacity of the evaporation system in the cooler is balanced with the power of the condensing unit (which controls the temperature) to keep humidity high, even as the temperature drops.

Flowers need fairly high humidity. By the same token, they need gentle airflow (a fast breeze can dry them out, even in the cold). “As you get into larger coolers, especially”—which require more refrigeration power and more air circulation because of the size of the box—“we use special, low-velocity coils that have a lot more surface area, so you can blow the air through them more slowly and still maintain the temperature,” says Steve.

The final features that might distinguish a top-notch floral refrigerator would be an ethylene gas filter and a temperature and humidity monitor. Ethylene filters can be purchased separately, although they are sometimes sold with the cooler as well. (More on ethylene in a later installment of this series.) For roughly \$200, you can buy a temperature and humidity monitor that will log both measures every 15 minutes and report them to a database that you can check from your computer at home—just in case there are power fluctuations or other problems such that you can’t sleep for thinking about that case full of wedding flowers you just processed for the weekend.

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Good buys

In purchasing a floral cooler, “insist on a five-year warranty on your compressor, and insist on some type of labor warranty,” says Richard at Bush Refrigeration: “either 90 days for walk-in coolers or one year for self-contained coolers.”

Installation is also an important consideration for the long life and proper functioning of your floral cooler. If good piping practices are not followed, warns Steve—again, especially in the case of a larger cooler—foreign material can get into the system. Liquid can make its way back to the compressor. “A bad install can end up killing the system,” he says.

On the other hand, if you are purchasing a smaller walk-in cooler, Richard argues, “our technology allows our customers to assemble these walk-ins by themselves, without getting charged an arm and a leg by an outside installer. Even the refrigeration system can be pre-charged and ready to go when it arrives at your destination.”

Take care

Regular preventive maintenance not only cuts down on repair bills and forestalls any disastrous malfunction—without it, even the best-designed and -installed floral cooler can be vulnerable to temperature swings and other erratic performance. Whether you choose to do it yourself (entirely possible) or hire an outside service company, you should be doing the following:

- **Once a month, clean the condensing unit.** The condensing unit “is the heart of your walk-in cooler,” as a blog entry on the SRC website explains. It contains the compressor, condensing coil, and condensing fan motor. It may be located on top of the cooler, in a remote location, or even underneath the cooler.

Cleaning it should take only about 15 minutes. First, shut the power off to the unit. Then, use a power vacuum, like a Shop-Vac, to blow away accumulated dust and debris. Reverse the airflow (or use com-

pressed air) to get a blowing motion, which tends to be more powerful and effective than vacuuming alone.

- **Once a year, clean and sanitize the evaporator fan assembly.** This assembly is located inside the walk-in cooler. It circulates the air and removes the heat. It also collects water and drains it away. Again, be sure to shut off the power first. Also, removing the drain pan will allow easier access to the components of the assembly.

- **At least once a year, clean and inspect the seals on the cooler doors.** (You may want to do it at the same time as you clean the evaporator fan assembly.) The seals should be pliable and make a tight seal against the cabinet. If they are torn or brittle, you should have them replaced.

- **At least once a week, clean all surfaces: walls, floors, shelves.** You may need to do this more often, depending on the traffic through your cooler. It’s a good idea to clean the outside surfaces as well. Many florists use a mild bleach solution; even more effective is a quaternary ammonium-based, professional floral cleaner, as discussed in the February 2011 issue of *Flowers&*.

How cold is cold?

The Chain of Life White Paper quoted earlier recommends that cut flowers and potted plants (except for tropical species) should be, upon harvest, “cooled rapidly to proper temperatures (normally 33-35 degrees F) and maintained at appropriate temperatures (no higher than 41 F) throughout the cold chain.”

This recommendation suggests a range of acceptable temperatures. Postharvest care expert W. Kurt Schroeder AIFD, AAF, PFCl, of South Jersey Floral Company in Deptford, New Jersey, recommends 34-36 degrees F. “Flowers don’t freeze at 32 degrees F—they freeze at about 29 degrees,” he points out, so there is no risk of freezing at these temperatures. In terms of extending flower life, once you get above 33 degrees F, the lower the temperature, the better.

The reality is that, for better or worse, most florists do not keep their refrigerators quite as low as 34-36 degrees F. That’s probably because, as Steve Lemieux concedes, “Every degree you go down, operating costs go up

quite a bit.” There is a significant difference in cost between 34 and 38 degrees, he says. “When we install a floral cooler we’ll set the temperature at between 38 and 40,” which he thinks is the average. “We tell people to tweak it slowly as you go along, find the best set point.” (He warns that once the right set point is found, florists should *not* make adjustments—for example, to compensate for high cooler use during holidays. Such adjustments can lead to freeze-ups when the equipment has had time to stabilize.)

Isn’t it better to invest in the higher operating costs that will keep your cooler temps low and your flowers fresher, longer—not just in the shop, but in your customer’s home? That’s for you to decide.

A big factor in the cost of operating a floral cooler is the doors in a display cooler that may open and close all day long. “Every door puts a huge load on the system,” says Steve, “about 1,000 BTU. If you have four glass doors across the front, that’s a lot different from all solid walls, and you need a much more powerful system for that.” Of course, a larger cooler also requires more power. If you have the option, maintaining separate coolers for longer-term storage versus for flowers that are ready for immediate sale might be helpful in keeping them fresh, while keeping costs at a minimum.

The bottom line, however, rests on the fact, supported by market research, that flower longevity is what consumers care about most, and they’re willing to pay for it. Shouldn’t you be? 🌸