

handle with care

By Bruce Wright

Care and handling products: what's in them and what they do.

SO FAR, WE'VE LOOKED at flower physiology and talked about how to be sure you're starting out with the very best quality flowers you can buy, from the moment they arrive in your shop. Once they're in your care, how do you keep them as fresh as possible?

From one point of view, it's all about choosing and using correctly the professional products that have been developed to help you with this task. There is a perhaps bewildering plethora of products to choose from, with different claims and benefits. So, before we even discuss the steps you need to take in the flower shop to give your cut flowers the gift of long life, it's helpful to review the products you'll be using. We'll define some of the terms used to describe their ingredients and effects.

The products described here are limited to those designed for use by the retail florist, although you should certainly be asking your suppliers about their use of care and handling products designed for them.

Floral cleaners

Examples: *Chrysal Cleaner*, *Floralife D.C.D.® Industrial Cleaner*, *Syndicate Sales Fresh-n-Clean®*

Cleaners are first on the list because they are the foundation for all of your care and handling practices. Unless you keep your buckets and work surfaces, your cutting utensils and cooler as free as possible of bacteria, you will be undermining the rest of what you do to keep flowers fresh. "Fill a spray bottle with ready-to-use sanitizer and use it all day long," recommends Gay Smith, technical consulting manager at Chrysal USA: at the beginning of the day and several times during the day, every time you clean a surface in preparation for the next task.

Many florists use chlorine bleach for this purpose, or products with chlorine bleach as

the active ingredient. Chlorine is cheap, and it is effective as an antibacterial agent. It has some drawbacks, however. It is a harsh, corrosive chemical that can damage clothing and irritate the skin. Not surprisingly, it can be harmful to flowers if not properly diluted and rinsed.

But the main problem with chlorine is that it's a volatile chemical whose action is short-lived. Professional floral cleaners rely instead on quaternary ammonium compounds, which are more stable and have a residual effect. The "quats," as they are called, continue their disinfectant action for as long as two weeks (not that you should wait that long between uses!). Since they pose no danger to flowers or to you, you can even spray them on a surface without drying it off afterward for a more concentrated effect. (Note, however, that just-cleaned buckets should always be allowed to dry before stacking them. And while we're on the subject, Floralife's Carol Schram reminds florists to clean the outsides as well as the insides of buckets, precisely because they will likely be stacked.)

The name of Floralife's product, Formula D.C.D., stands for disinfects, cleans, deodorizes, and this is what a floral cleaner should do—with the emphasis on effective, long-term disinfectant action.

Hydration solutions

Examples: *Chrysal Clear Professional #1*, *Chrysal RosePro Hydration Solution*, *Floralife Quick Dip® Instant Hydration*

"Precise measurement is important. Underdosing and overdosing both can actually do more harm than good."

Pretreatment, *Syndicate Sales Hydraplus®*, *Syndicate Sales HydraQuik®*

What does a hydration solution do? These products are intended for flowers that have been shipped or stored dry. True, those flowers should have been kept well chilled, which slows down their metabolisms and keeps them from breathing out (transpiring) too much moisture. Nonetheless, over time—often as much as a week or nine days in transit from South America, for example—they become limp and dehydrated. Hydration solutions help get the stem and leaves and bloom full of water again. Some florists use the term "hardening off", which is apt, because dry stems and leaves that fill with water go from floppy to firm.

The key ingredients are: an acidifier, because a low pH is crucial to the flower stem's ability to take up water; an antibacterial agent, so that bacteria won't clog the lowest cells in the stem and prevent water from moving up the stem; and a surfactant, often called a "wetting agent" in product descriptions. A surfactant (the word comes from the meaning, "surface-active agent") actually lowers the surface tension of water, which is surprisingly strong: "You can float a needle on top of still water," Gay points out. "That's the surface tension holding it up." Breaking down that surface tension gets water more easily into the stem.

Holding and vase solutions (the next product categories on our list) also contain an acidifier and an antibacterial agent. Surfactant is one thing that makes hydration solution dif-

ferent; the other is that hydration solution contains no sugar. Flowers that have been shipped or stored dry will eventually need sugar to fuel their metabolism, but what they need first is a good drink. Sugar can actually slow down the flow of solution through plant cells. Holding and vase solutions, which do contain sugar, can also function as hydrators and work fine for many flowers, if the flower has not been under stress. However, for flowers that have been dry-shipped and dry-stored, use of hydration solution is certainly the most efficient way to re-start flow.

Hydration solutions come in two kinds. First to be developed were solutions of the type that take 45 minutes or a couple of hours to do their work, depending on the product, with the flowers at room temperature. These solutions are still in use by growers and some retailers; some do prefer them. Clearly, this longer period of time allows the flower to hydrate while it is actually immersed in the solution.

Then along came Floralife's Quick Dip®, a ready-to-use product that requires just a one-second dip of the cut stems before they are then placed in either a holding solution or a vase solution. Retail florists, in particular, liked the convenience of kick-starting hydration with a procedure that takes hardly any time.

Some kind of hydration solution is ideal for any flower that has been out of water, but some flowers benefit more than others. These include roses, gerberas, hydrangeas and other woody-stemmed flowers, and any "wilt-sensitive" flowers. (Many of these are also among the more expensive, premium flowers, so a little extra effort is worth the time and expense if it reduces shrink—which it does.) Chrysal makes a hydration solution called RosePro which can, however, benefit other sensitive flowers as well. Chrysal also promotes the use of chlorine pills at this stage (*Chrysal Professional Gerbera*) with flowers that are particularly susceptible to bacteria, or likely to harbor bacteria, like gerberas with their hairy stems.

Holding solutions

Examples: *Chrysal Clear Professional 2* (in liquid form or permeable "T-bags" full of soluble powder), *Floralife Professional® Flower*

Food, *Floralife Clear Professional*® Flower Food, *Syndicate Sales Aquahold*®

Once a flower has been rehydrated—or at least prepared to rehydrate by a quick exposure of the stem end to agents that will sterilize the cut and lower its pH—that flower is ready for holding solution.

Of course, the flower might also be ready for a vase solution (the next product category in this list). It all depends on how quickly you're planning to use it. "It's just like food," Gay explains. "Are you going to eat those strawberries right away, or keep them from Tuesday for a Saturday party? Do you want to let them ripen right away, or hold them back?"

The easy way to explain the difference is that holding solutions have low sugar, which allows the flowers to develop slowly without providing a feast for bacteria, while the vase solutions have more sugar, which spurs the full development of the flower, encouraging buds to open wide. In reality, it's not quite that simple, warns Carol. "The vase solution has different chemistry as well as a different percentage of more full-bodied nutrients," she explains. But the fundamental idea is that holding solutions are for use in your buckets, when you are storing flowers in the cooler, while vase solutions are for flowers that are ready for design and sale.

It helps to remember that flowers held at low temperatures in the cooler have less need for sugar, because their metabolisms are slowed down by refrigeration, while flowers at room temperature need the full complement of the nutrients that they would receive from their root systems if they were blooming in a field or garden. Thus, holding solutions are especially appropriate for use in cold environments—but they also work in room-temperature environments. They provide just enough nutrient, acidifier, and antibacterial agent, in the right ratio, to maintain the flowers without stimulating full development.

It's important to say about both holding and vase solutions that precise measurement is essential to their effectiveness. Underdosing and overdosing can both actually do more harm than good. It's a simple matter of knowing how much product you are adding to how much water. Manufacturers have gone to great lengths to make measuring easy, with pump dispensers, sink proportioners, Floral-

"Vase solutions help a flower open, color up, produce fragrance, and maintain its beauty as long as possible."

ife's EZ Dose packets, and Chrysal's T-bags (premeasured doses that must be added to a measured amount of water).

Vase solutions

Examples: Chrysal Clear Professional 3, Floralife Flower Food, Floralife Crystal Clear Flower Food, Syndicate Sales Aquaplus®

As explained above, vase solutions are for flowers that are ready for sale or design. They contain a full complement of nutrients to help the flower open, color up, produce fragrance if that is the flower's bent, and retain its beauty as long as possible. Available as either a liquid or a powder, these are the same formulations that are made available in consumer packets of powdered "flower food" for use in the home.

Also known as full-dose flower foods, vase solutions may have other ingredients, but the essentials remain the familiar acidifier, antibacterial agent, and sugar. In the past, both holding and vase solutions tended to be translucent rather than perfectly clear. The culprit was aluminum sulfate, the ingredient used to lower the pH. Later, when arrangements in clear glass rose in popularity, suppliers found there was sufficient demand to justify using a more expensive acidifier, one that results in a perfectly clear solution. Of course, the other ingredient that keeps the solutions clear is the one that keeps them relatively free of bacteria.

Specialty formulas

Examples: Chrysal Clear Bulb Flower Food, Chrysal Professional Gerbera, Chrysal Rose Pro Vase Solution, Floralife Premium Rose Flower Food, Floralife Bulb Flower Food

We've talked a little already about special products for roses and gerberas—those finicky prima donnas of the flower world. Gerberas need a little extra antibacterial action. Even after hydration, roses continue to benefit from surfactants in their food that reduce

the surface tension of water and make it easier for plant cells to absorb it.

Bulb flowers are vulnerable to a hormone imbalance; special treatments can re-establish the balance that gets out of sync at harvest, resulting in longer vase life, enhanced color, and better leaf quality. Like the other specialty formulas, bulb flower foods have no harmful effect on other types of flowers and can even benefit them. The only reason you wouldn't use them on all your flowers is that they're a little more expensive.

Finishing sprays

Examples: Chrysal Professional Glory, Floralife Finishing Touch® *Spray, Floralife Crowning Glory*® *Solution, Floralife Clear Crowning Glory*® *Solution, Syndicate Sales Aquafinish*® *Clear*

Most finishing sprays can be described as "antitranspirants." When you spray the flower, you are giving it a light coating (described by marketers as a "liquid shield") that limits moisture loss by closing the pores. Thus, the flower stays plump and full of water longer than it otherwise would, even if it has little or no water source, as is often the case with wedding flowers. It's important to let the anti-transpirant dry on the flowers before putting a sprayed design in the cooler.

Floralife's Finishing Touch® falls in a different category, using a different technology; it's recommended especially for evergreens at holiday time. Chrysal and Floralife also make leaf shines, not to be confused with finishing sprays; the function of leaf shines is mainly cosmetic, rather than life-prolonging.

The products that are available to florists today have been tested and refined over decades of research. They're like a tool chest filled with finely engineered tools. And it doesn't even take a master craftsman to use them. All you need is the will and a little discipline to set them working for you. 🌸