

Floral Care And Handling Q & A With George Staby

After 12 years as a university professor and another 28 years as a researcher and consultant, Dr. George Staby offers his unwavering views on top post-harvest factors affecting floral crop quality and profits.

BY E. SHAUNN ALDERMAN

You may have been one of his students at Ohio State University or you may have attended one of his seminars at Ohio Florists' Short Course or the Super Floral Show. You may have heard him speak in Colombia, Ecuador or Holland or you may have read his telling words here in PRODUCE BUSINESS. In this final interview before his official retirement, George Staby discusses floral care and handling practices.

PB: There seems to be a continual blame game about certain topics between floral suppliers and retailers. What should retailers not request from bouquet suppliers?

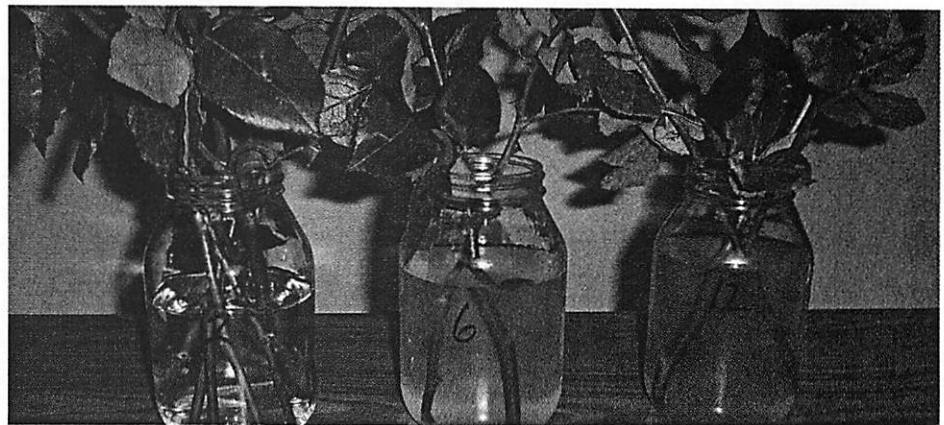
GS: Retailers should not request ice, gel and/or water picks for incoming dry pack shipments. Having one or two ice packs in shipping boxes and placing cut flowers in some sort of a water delivery device does not compensate for poor temperature management and is often a waste of time and money, and can give both senders and receivers false securities.

PB: Retailers watching the bottom line must be persistent in their fight against shrink. What is the importance of immediately removing plant sleeves when product arrives in the stores?

GS: Leaving any type of plant sleeve — plastic, fiber or paper — on plants after arrival can only decrease plant quality due to increased ethylene production, low light levels, less air circulation and increased chances for grey mold (*Botrytis*) development.

PB: At what temperature should most cut flowers, such as roses, chrysanthemums, astrolemeria and carnations, be upon store arrival?

GS: They should be between 32° and 36° F. Tropicals, such as anthuriums and gin-



The roses on the left are in a container with the correct amount of flower food in the water. If containers are dirty or if too little flower food is used, bacterial growth will cause cloudy vase water resulting in reduced flower life.

ger, should be between 55° and 65° F. When possible, measure the flowers per se. If flower temperatures are outside of these ranges, they should be rejected, or at least monitored closely for possible subsequent damage. In addition, measure and record incoming growing media temperatures of potted plants and make similar accept/reject decisions using appropriate temperature thresholds.

PB: With focus on quality and keeping consumers coming back for more, what should retailers require related to temperature management?

GS: Retailers should require time/temperature indicators with all shipments, including pots and cuts. Time/temperature indicators that have been proven effective for floral crops or data loggers should be required in all potted plant and cut flower shipments in order to document cold chain issues. Namely, there are no excuses for not monitoring tem-

peratures during distribution and for not taking action when the data becomes available.

PB: You are known for your strong stance on cleanliness. Since keeping it clean can save retailers money and prevent product loss what is your advice?

GS: Maintaining clean buckets, vases and all solutions in which cut flowers are placed is critical. Always clean buckets after every use and never put fresh flowers into already used solutions or, for that matter, in plain water. If you are not willing to drink out of a bucket, it is too dirty for flowers.

PB: Retailers dealing with labor cuts have certain tasks that must be met no matter if the floral department is understaffed. What is the bottom line recommendation for handling incoming potted plants?

GS: Irrigate all incoming potted plants with water containing an adjuvant (a wetting agent). No matter the moisture level of the growing media, irrigate all plants using

water containing an adjuvant such as Aqual-Gro Soak at manufacturer's rates listed on the label.

PB: The fungal disease Botrytis, commonly called grey mold, can cause real problems and cost retailers money. How can retailers reduce the significant damages often inflicted on flowers and plants by grey mold?

GS: In order to control Botrytis or any disease, one first has to know if the damages were caused by this pathogen. Unfortunately, about half of the time, this disease is misdiagnosed. Namely, people say it is Botrytis when, in fact, another problem is present. Therefore, the first step that should be taken at grower or retail level is to determine if the symptoms seen were caused by Botrytis or something else. There is a Botrytis test kit on the market specifically designed for this purpose. It works similarly to a home pregnancy test. (See www.pocketdiagnostic.com to learn more about this test kit.)

PB: Many retailers know not to merchandise most floral products next to apples, but as a prevention step, what should retailers require related to ethylene?

GS: Retailers should require anti-ethylene protective treatments before shipping. Namely, they should demand that ethylene-sensitive flowers and plants be properly treated with appropriate anti-ethylene products (STS/AVB or MCP/EthylBloc) prior to shipping to minimize post-harvest losses and improve shelf-life. STS should only be used with cut flowers, but MCP can be used with cut flowers, potted and bedding plants. Receivers should check to determine if these treatments were applied properly using the Florel test (see sidebar article at right).

PB: Related to shelf-life and loss prevention, what else should retailers require?

GS: Retailers should require full-strength cut flower food in wet packs and they should use the same at store level. Other than for dry-shipped cut flowers, retailers must store, display and sell flowers in full-strength flower food solutions that are prepared correctly according to label directions. This includes wet packed flowers. Do not use hydration or half-strength flower food solutions in wet packs for best results.

PB: The economy has some retailers pinching pennies at unprecedented rates. Should retailers provide consumers with floral food packets as a take-away?

GS: Providing flower food packets is a must. All bouquets, arrangements, bud vases, and loose flowers sold to consumers must include at least one 10-gram flower

Florel Test: Determining The Quality Of Ethylene-Sensitive Flowers And Plants

Ethylene is a gas often referred to as the "death hormone" because it can reduce the life of flowers and plants. Sources of ethylene gas include engine exhaust, cigarette smoke, fruits and flowers among many other sources. Symptoms of ethylene-induced damages include premature flower death (carnation, kalanchoe, baby's breath), flower fall (baby's breath, geranium, delphinium, waxflower), leaf fall (Ficus, holly), fruit fall (holly), leaf twisting (poinsettia) and leaf discoloration (dracaena, lily).

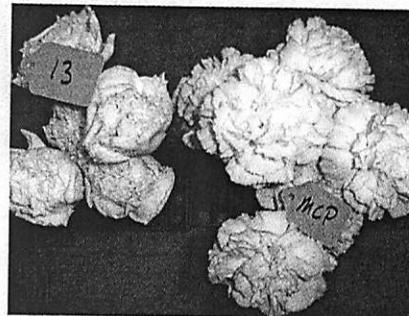
Florel is a liquid form of ethylene gas. The purpose of this test is to determine if ethylene-sensitive cut flowers and plants were properly treated with MCP (EthylBloc) or cut flowers with STS (AVB) prior to delivery to retailers. If flowers and plants were properly treated, then they will not be harmed by ethylene (Florel), resulting in more profits and repeat sales. A list of ethylene-sensitive flowers and plants is presented in the Chain of Life Network website (www.chainoflifenetwork.org) under the Floral Crops Specific section.

To run this simple and inexpensive test (five cents per test for Florel):

1) Use an Internet search engine, such as Google, and locate a place where you can buy Florel. As of mid-February, 2010, Amazon.com was selling it for \$19.49 per pint including shipping, which is enough to last for about 450 tests.

2) Add one milliliter (about 30 drops) of Florel to 100 milliliters (about 3.5 ounces) of water in a plastic spray container, similar to those used for misting plants.

3) Divide the flowers or plants to be tested into two equal groups, one that will be sprayed with Florel and the other that will not be sprayed. For cut flowers, split



The flowers on the left were not treated with MCP and all flowers were subsequently sprayed with Florel.

one bunch in half and place into separate vases containing flower food solution, while for potted or bedding plants, use at least six plants, three that will be sprayed and three plants that will not be sprayed.

4) Spray half of the cut flowers, potted, or bedding plants with the freshly made Florel solution, covering all of the flowers and leaves. Do not spray the other half of the cut flowers or plants. Discard any remaining solution.

5) For the next 24 hours, keep the sprayed and non-sprayed flowers or plants in separate areas, both at room temperature.

6) If the sprayed flowers or plants begin to die in one to three days, while the others are okay, they were not treated properly with either MCP or STS. Tell your suppliers of this finding and have the situation corrected for future shipments.

7) If after three days both the sprayed and non-sprayed flowers/plants look equally good, then they were treated properly with MCP or STS. Tell your suppliers that they did a good job! This result also could mean that the flowers and/or plants are ethylene-insensitive. In either case, the results are good!

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food packet along with the proper directions for their use by consumers. This is especially true for arrangements made in floral foam.

PB: Why is it important for retailers to know and show consumers the proper names of flowers?

GS: Retailers should purchase and market every floral crop by cultivar/variety

name. If one does not know the proper name of a floral crop, how can one determine if it should or should not be purchased again? Consumers know that all red carnations are not the same so why should all red carnations be considered the same? Mass-market flower buyers and consumers know more apple cultivar/variety names than gerbera or carnation cultivar names.

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George Staby, Ph.D. is the founder of Chain of Life Network and co-founder and president of Perishables Research Organization, both based in Pioneer, CA. He can be reached at george.staby@volcano.net or www.chainoflifenetwork.org.