

TOUGH CARNATIONS STILL NEED TLC

> The carnation is one of the top-selling flowers in the floral industry. The fact that it can tolerate long storage conditions in a tight bud stage and still last and look great has contributed greatly to its popularity. Whether a standard or spray, the carnation's range of colors, forms, fragrance, ease of handling and long life provide florists and consumers with a quality, versatile flower.

This hardy flower, however, does have an enemy that will drastically reduce vase life: ethylene. Blooms will wilt prematurely if exposed to ethylene, which arises from ripening fruit, decaying floral material, combustible gas engines or within the flower itself. The use of anti-ethylene compounds such as STS or 1-MCP (EthylBloc) by the grower can prevent injury and increase vase life up to three-fold. Some newer cultivars are less sensitive to ethylene than the standard 'sim' types. That doesn't, however, mean you can skip anti-ethylene products after harvest.

Carnations have been genetically modified to exhibit blue/violet-purple coloring, and in the mid-1990s, the Australian company Florigene introduced the first "super-hybrid" mini carnation. These unique shades of purple were derived from the blue genes of a common garden petunia. The Florigene 'Moon' series of carnations offers these novel shades of purple. These varieties also require ethylene protection and should be handled like all other carnations.

8 CARDINAL RULES OF CARNATION CARE

1. Buy only flowers pre-treated with anti-ethylene agents.
2. Storage temperature should be 33 F to 35 F.
3. Cut stem above the stem node.
4. Hydrate in freshly made solutions.
5. Display away from ethylene sources.
6. Sell at the proper stage of bud development.
7. Maintain in flower food.
8. Supply flower food packets to customers.



DEATH BY ETH When carnations are exposed to ethylene like these 'Dusty Catina', on the right, blooms will wilt prematurely. The photo was taken four days after exposure to 1 ppm ethylene at 70 F for 24 hours. The plant on the left was not exposed to any ethylene.

As with all cut flowers, we recommend processing upon arrival, as it is not known how long flowers have been in transit or stored prior to arriving at your shop. While you can store carnations, you and your customers will enjoy them the longest when flowers have been stored less than three to five days.

If you need to hold them upon arrival, do so at 33 F to 35 F. Higher temperatures can increase the flowers' sensitivity to ethylene. That's why processing upon arrival is always the best route.

Re-cut each stem just above one of the nodes that run up the flower's stalk. This allows for optimum water movement up the stem. Remove any leaves below solution level. If the flowers are wrapped in plastic, remove the sleeves to prevent condensation and provide better air circulation to inhibit disease. Place stems directly into either a freshly made hydration solution overnight, if it has been stored out of water, or a flower-food solution. Check the level of solutions daily, as the flowers will initially take up a large amount of solution to quench their thirst.

Carnivorous Habits

You'll bolster the flower opening of carnations that arrive as tight buds by using a flower-food solution and keeping the

carnations at room temperature under normal room lighting. If flowers arrive fully open, hold in a flower food solution at 33 F to 35 F to preserve freshness until date of purchase.

For maximum vase life, florists should purchase standard carnations in the bud stage and miniature or spray carnations when at least one flower on the stem is open. Always supply flower food packets to your customers, as carnations benefit enormously from the use of flower food. Not only will flowers last longer, but the food will keep bacteria under control in the solution. Keep flowers away from drafts, excessive heat and direct sunlight.

When properly cared for, flowers can last from seven to 21 days or even longer depending on cultivar, harvest stage, storage and transit conditions, and/or anti-ethylene treatments. Some genetically engineered cultivars last 24 to 26 days in water with no flower food or other chemical treatments. But until all cultivars are of that caliber, follow the cardinal rules of carnation care. 🌸

Terril A. Nell, Ph.D., AAF, is chair of the department of environmental horticulture, and **Ria T. Leonard** is a research associate at the University of Florida in Gainesville. The authors acknowledge the American Floral Endowment for support of this research.