

# Special Research Report #410: Postproduction

## The Three C's of Success with Fresh Cut Flowers (2) – “Cleanliness”

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### BACKGROUND

In the floral industry, there is increasing competition. It seems that everyone from supermarkets to discount warehouses are selling cut flowers. With this increased competition, retail florist must prove to consumers that their flowers are “a cut above the rest.” The question is – how?

One of the most important factors in marketing high quality, long-lasting cut flowers is a clean environment. Cut flowers are living organisms that, like humans, require hygienic conditions to stay healthy. No Doctor would dream of keeping a filthy office full of dirty tools. Likewise, florists should not disregard the cleanliness of their shop. Just like people, cut flowers kept in unsanitary conditions are prone to diseases and premature death. The simple

guidelines provided below ensure the health and vase life of fresh cut flowers.

### SOURCES OF CONTAMINATION

#### *Tools of the Trade*

Re-cutting the stems of flowers is an important step in flower processing. (See Special Research Report #411) The bottom 1 to 2 inches are likely clogged with microorganisms or air bubbles when flowers arrive in the shop. Cutting the clogged portion of stem is not only crucial to the life of cut flowers, but also it is important not to introduce new microbes. Cutting tools must be washed and sterilized at least once a day, preferably more, to reduce the chances of spreading infections. Also, dull blades can also cause problems by crushing stems and causing them to release increased amounts of sap. Therefore, it is prudent to keep all clippers, scissors, and knives sharp and clean.

Cutting stems in air is okay, but cutting underwater can increase initial rehydration. The benefits of cutting flower stems underwater are negated, however, if stems are cut in dirty water

(Table 1). Cutting stems underwater does not increase vase life for most flowers, but initial water uptake may be higher.

Table 1. Bacterial counts in cutting water (propagules/ml) initially and after 300 and 600 cut stems.

Water sample	Bacteria count
0 stems cut	55
300 stems cut	$1.47 \times 10^5$
600 stems cut	$6.34 \times 10^5$

Re-used water, like that used in many commercial flower cutters, contains all the sap and microbes from previously cut flowers. Cutting in dirty water can reduce vase life and quality (Fig. 1 and Table 1).

Fig. 1. Vase life of cut roses is reduced when cut in dirty (reused) water

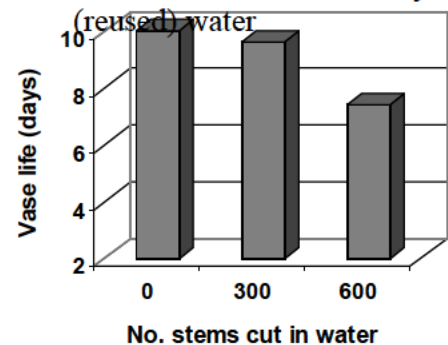
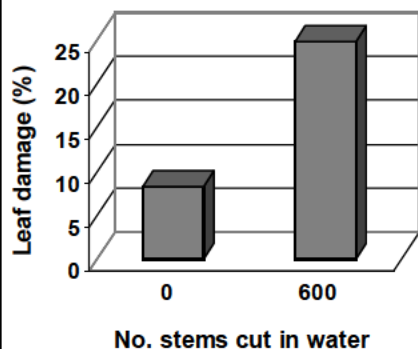


Fig. 2. Leaf damage increased on Chrysanthemums when cut in dirty water.



The likelihood of infections and blocked stems increases when clean water is not used. When cutting stems underwater, be certain to use fresh water for each bunch of flowers.

### **Buckets**

It is important to clean and disinfect buckets and tubs between every batch of flowers processed. Flower stems contain cells full of sugary sap that is released when flowers are cut. This sap bleeds into solutions in buckets where it serves as food for yeast, and other microorganisms found on cut flower stems, causing them to multiply. These organisms are absorbed into the stem where they block water uptake. The larger and more plentiful the organisms, the more clogged the flower stems become.

Use a commercial anti-bacterial cleaning solution and a brush to sterilize and scrub buckets. Clean and

sterilize buckets in one step by submerging them in a detergent that contains a disinfectant. When using a non-sterilizing detergent, dip buckets in a solution of 1 part bleach to 10 parts water. Also, use white buckets to make cleaning simple - dirt is easy to see on the lighter colored surface.

To make sure that they remain clean, do not place clean buckets on the floor before stacking. The floor is rife with microbial organisms. Either stack buckets as soon as they are removed from the cleaning solution so that only one bucket touches the ground or place buckets on a cleaned and disinfected cart to dry before stacking.

### **Coolers**

Another spot for problematic organisms is the cooler. If coolers are not cleaned properly, they can become a haven for spores of the "grey mold" (*Botrytis*). Be sure to sterilize the floors, shelves, and walls of coolers with either an anti-bacterial cleaner or a bleach solution (1 part bleach to 10 parts water) every 4 to 6 weeks or sooner, if needed. In addition, dead flower parts such as dropped leaves and petals should be removed from coolers on a daily basis.

### **CONCLUSIONS**

Cleanliness is a necessary ingredient in all aspects of floral practices. It eliminates

microbial contamination and diseases and maximizes quality and vase life. The guidelines listed below will help to ensure a clean environment.

### **Cleanliness Guidelines**

- \* Wash hands frequently
- \* Sterilize cutting tools
- \* Change cutting water for each bunch of flowers
- \* Keep buckets clean
- \* Keep coolers clean
- \* Remove dead flower parts

### **IMPACT TO THE INDUSTRY**

Success in floral retailing is dependent upon providing quality products to the consumers. Keeping shops clean allows florists to provide consumers with flowers that are alive and thriving. Flowers processed and stored in a clean environment reflected their treatment with higher quality and longer lasting flowers. This translates into satisfied customers and repeat business for floral shops.

**For additional information contact:**

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