THE DIRT ON FILLERS? KILL IT

THE PATIENT **Filler flowers**
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THE SYMPTOMS **Reduced vase life and dirty vase water**

> Filler flowers add a special touch to mixed bouquets and flower arrangements. They can also introduce some unwanted qualities that can curtail the vase life of the entire arrangement, if not handled properly.

The Examination

Leaf yellowing and ethylene injury are routinely encountered with some filler flowers. But a more serious problem lurks on the stems where microbial (bacterial) contamination occurs. Filler species are notorious for contaminating vase solutions, making them turn cloudy. This is an indication of a high bacteria load in the solution. The bacteria will aggregate on both the outside and the inside of the stem, blocking the flow of solution up to the flower, where it's needed to maintain vase life.

The Diagnosis

Most filler flowers, such as gypsophila, statice, Solidago and Monte Casino asters, are field-grown and subject to soil contamination on the stems at harvest. Dirty stems loaded with bacteria are a sure way to contaminate solutions and reduce vase life of all the flowers in the vase.

We hydrated both vases in the photograph overnight but used a commercial hydration solution in the right vase to help control bacteria and plain tap water in the other vase. Eventually, the rest of the flowers in the cloudy vase also suffered a shorter vase life.

When we tested the vase solutions of mixed bouquets, especially those containing filler species, we discovered a rapid accumulation of bacteria in the vase water.

The Cures

Retail florists can also ensure clean stems prior to placing into floral hydration or flower food solutions. We have used chlorine or chlorine dioxide solution dips (Selective Micro Technologies, LLC) to effectively reduce bacteria. Specialized floral products designed to clean stems can help reduce the microbial load and prevent stem plugging so flowers stay as fresh as possible.

Although hydration and commercial floral solutions have antimicrobial components, they can still become cloudy when the bacteria load is very high. Make sure your solutions are fresh and made according to directions. Always cut the bottom one to two inches off the flower stems to remove any bacteria blockage (aka "gunk"). Unfortunately, flower food can exacerbate leaf yellowing on asparagus and leatherleaf fern, but a preservative should always be used when these fillers are included in mixed bouquets as the flowers will benefit from the use of flower food. Clean and sterilize buckets and any tools used to process flowers, before use, as well as work areas, tables and coolers.

Preventive Measures

Always unpack flowers upon arrival, separate stems to improve circulation, cut stems and quickly hydrate. It is very important to remove leaves so none are submerged in hydration or flower food solutions, because bacteria grow quickly on leaves that are underwater. Replacing solutions every 2-3 days with freshly made solutions can also help to reduce the effects of bacterial contamination, but use a clean container and cut the stems again.

Suppliers can do their part, too. At the farm level, stems need to be washed after harvest and sterilized to remove soil debris and bacteria. Growers often place flower stems into disinfecting solutions, such as Physan 20 (Maril Products, Inc.) or similar products after harvest. These products can contain disinfectants, fungicides, virucides and/or algaecides, effectively controlling a wide variety of pathogens on plant stems prior to shipping.

Filler species that are sensitive to ethylene, such as asparagus fern, gypsophila and hybrid statice cultivars, benefit greatly from pre-treatments at the grower and wholesaler with anti-ethylene compounds such as silver thiosulfate (STS) and EthylBlocTM. In addition to its anti-ethylene properties, STS has antimicrobial properties that reduce bacteria on stems and in solutions. Make sure your suppliers are adequately treating ethylene sensitive filler species.

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HEAVY CLOUDS
The vase on the left was filled with tap water, which quickly became contaminated with bacteria and turned cloudy.