

Special Research Report #446: Postproduction

Best Practices: New Specialized Treatments for Fresh Cut Flowers

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BACKGROUND

There are a myriad of quality issues that reduce the postharvest performance of fresh cut flowers, but can be overcome with specialized treatments. New products and formulations are continually becoming available to the industry, however, objective testing is needed to evaluate their effectiveness.

This report summarizes the results of our tests on several new commercially available products designed to improve quality and vase life of many cut flower species.

MATERIALS AND METHODS

All product tests were conducted in accordance with label instructions. Flowers were either treated directly at the production site or upon arrival to the University of

Florida Postharvest Laboratory. Subsequently, quality and vase life were evaluated under simulated consumer conditions of 70 °F, 70 ftc (12 hr/day) and 50±5% relative humidity.

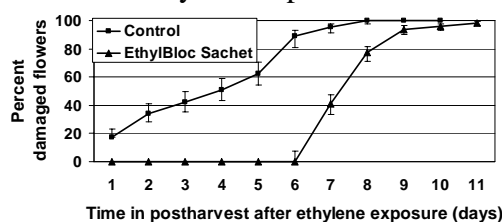
RESULTS

Anti-Ethylene Treatments

In addition to STS, Chrysal AVB, and EthylBloc™ gas, the latest anti-ethylene product is the EthylBloc™ sachet. It is a new form of delivery of EthylBloc™ gas (1-MCP), which is designed to treat flowers in boxes during transport.

Our tests on Roses, Lilies, Delphinium, and Orchids show that the EthylBloc™ sachet is very effective in preventing ethylene injury. Flower drop was prevented on Delphinium when treated with the EthylBloc™ sachet in a box for 7 days at 35 °F and then exposed to 1 ppm ethylene for 24 hours at 70 °F (Fig 1.).

Fig. 1. EthylBloc™ sachet protected Delphinium flowers from ethylene exposure.



The EthylBloc™ sachet was also effective in protecting Delphinium flowers from internal ethylene production. Pretreated flowers never exposed to external ethylene lasted longer than the control flowers (Photo 1.).

Photo 1. EthylBloc™ sachet protected Delphinium flowers from internal ethylene.



No sachet With sachet

EthylBloc™ sachets placed into boxes containing cut orchids and transported from Thailand prevented ethylene induced flower death when exposed to 1 ppm ethylene for 24 hours at 70 °F 7 days later (Photo 2).

Photo 2. EthylBloc™ sachet effects on 'Sanan' orchid.

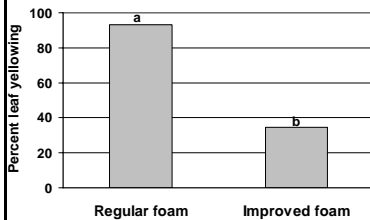


No sachet With sachet

Leaf Yellowing Treatments

A new option for retail florists is an improved OASIS® Floral Foam with Floralife® Technology manufactured by Smithers-Oasis Company. Our tests showed a significant reduction in leaf yellowing of Alstroemeria when maintained in this improved foam (Fig. 2). It also was effective on Tulips and Chrysanthemums but was not effective on Lilies.

Fig 2. Improved OASIS® floral foam reduced leaf yellowing on Alstroemeria.



Within 7 days, Alstroemeria leaves became yellow/brown when not maintained in the improved OASIS® foam (Photo 2).

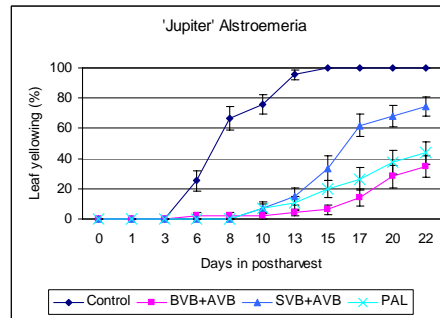
Photo 2. The new OASIS® foam reduced leaf yellowing on Alstroemeria.



Regular foam Improved foam

Other products that were effective against leaf yellowing include hydrating stems in Chrysal BVB, SVB or Floralife PAL (Fig 3).

Fig. 3. Pulsing solutions on leaf yellowing of Alstroemeria.



Specialized Solutions and Flower Food

Pretreating 'Meriva' Gerbera with Chrysal Professional Gerbera Pretreatment Tablet for 2 days at 42 °F increased vase life by 43% (9.2 days) compared to flowers held in water (Photo 3).

Photo 3. Pretreating Gerbera increased vase life 9.2 days.



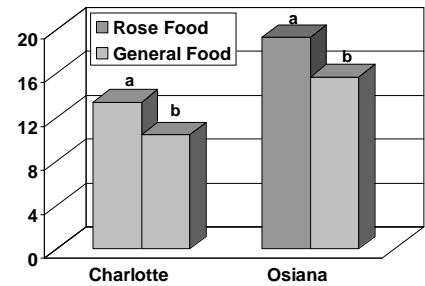
Control Pretreatment

No bacteria were detected in the pretreatment solution after hydrating for 2 days, while 950,000 cfu/ml of

bacteria were found in water controls.

Our tests on new foods specifically designed for Roses increased vase life by 3 days (22%) for 'Charlotte' roses held in Floralife Premium Rose Food and 5.6 days (26.5%) for 'Osiana' held in Chrysal RosePro when compared to general flower foods (Fig. 4).

Fig. 4. Special Rose foods improve Rose vase life.



CONCLUSIONS

Many postharvest problems such as ethylene injury, leaf yellowing, bacteria contamination and reduced vase life can be overcome by treating flowers with specialized products. This begins with the growers and ends with consumers.

IMPACT TO THE INDUSTRY

Providing high quality, long lasting flowers will stimulate consumer purchases.

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