

Postharvest Treatment of Specialty Cut Flowers

North Carolina State University Report for 2008

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Each year a simple postharvest test is conducted on the most promising species/cultivars from the Seed, Perennial, and Woody Trials. This year we screened 16 new cut flower species/cultivars. Many of the species/cultivars had a vase life over 14 days, which is optimum for marketing and consumer enjoyment, including *eucomis* ‘Sparkling Burgundy’ leaves, geranium ‘Citrus Spice’, lisianthus ‘Arena White’, lisianthus ‘Cadence Yellow’, lisianthus ‘Vulcan Yellow’, sunflower ‘Carmel’ and sunflower ‘Tavor Joy’. All but one of the remaining species had a vase life of 10 days or more, which is the minimum for wholesale production and handling.

For longevity in the vase, you cannot beat the two cut foliage in the trials. In previous years we tested the vase life of cut *Eucomis* ‘Sparkling Burgundy’ flowers. These tall and spectacular spikes have a wonderfully long vase life of 42 days when placed in plain water. Both hydrator and holding solutions were detrimental, however; if a holding solution was used, vase life dropped to a yet outstanding 29 days. The cut foliage performed equally well, lasting at least 35 days. We say “at least 35 days” because that is when we stopped the study – all the leaves were still acceptable, although they had become greener and less burgundy. Some of the leaves formed roots, which needless to say, really messes up the data.

The geranium also performed quite well. Typically, the leaves on cut stems of scented geraniums rapidly turn yellow. ‘Citrus Spice’ also turned yellow, however, at a much slower pace and the stems lasted 17 to 23 days. Keep in mind that it is difficult to determine when a stem is too yellow to be considered unattractive and be terminated. Thus, the vase life might be longer or shorter for you. This species can be used to add fragrance to bouquets and none of the treatments appeared to affect the vase life.

Of the flowers, few species can match the vase life of lisianthus. Cut stems of most cultivars easily last 10 days and many regularly last over 14 days. If I want to bring flowers to someone and I definitely need them to last, I choose lisianthus. We had five lisianthus cultivars in the trial this year and all of them had the expected long vase life. Lisianthus typically do best when treated with a holding preservative but none of the cultivars in this year’s trial were affected by floral preservatives, possibly due to

the fact that the vase life was already quite long.

Sunflowers were quite popular in the ASCFG trials this year and, consequently, we had many of them in the postharvest trials also. All eight performed well and lasted at least 10 days. As with lisianthus, sunflowers typically last the longest when treated with a holding preservative and this was evident in three of the cultivars.

How we conducted the studies

Field-grown flowers were harvested at the optimum stage of flower development and immediately placed into tap water (0.21 EC, 6.1 pH). Subsequently, stems were sorted and placed in the following treatments:

- Hydrator only
- Holding preservative only
- Hydrator followed by holding preservative
- Distilled water only (control)

Floralife Hydraflor 100 (hydrator) was used at 8 mL/L and Floralife Professional (holding) was used at 10 mL/L. After treatment, stems were placed at 68±4°F under approximately 200 ftc light for 12 hrs/day. Minimum vase life for each cultivar was recorded when the vase life of the first stem was terminated.

Our testing methods tend to produce the maximum vase life, which tells you the potential vase life of each species. We cut and process the stems rapidly, put one stem per jar, and use a postharvest temperature that is cooler than a typical home in the summer time (and warmer in the winter, but the field trials obviously take place in the summer). These procedures were set up to provide a consistent environment so that anyone else should be able to repeat our work and get the same results. All of these factors typically add about 1 to 3 days to the vase life of some species compared to that of a typical cut flower producer. For example, flowers with a vase life of 6 to 8 days in testing would probably last 5 to 7 days for a typical grower and flowers lasting 16 to 18 days would probably last 13 to 15 days.

For several cultivars, we also listed the minimum vase life. We harvest and test up to 60 stems per cultivar and present the average vase life. With some cultivars most of the stems died about the same time. However, with other cultivars the flowers were terminated over a long period – thus the vase life of some of the stems was much shorter than the average. In those cases, we have included a minimum vase life.

What we found out

Eucomis ‘Sparkling Burgundy’ leaves The leaves in all the treatments were still acceptable at 35 days after harvest. Some of the leaves formed roots while in the vase, so we terminated the study at that time.

Geranium ‘Citrus Spice’ Vase life was 17 to 23 days and unaffected by hydrating and holding solutions. Minimum vase life was 8 days.



Lisianthus ‘Vulcan Yellow’

Lisianthus ‘Advantage Cherry Sorbet’ Vase life was 13 to 14 days regardless of treatment. Minimum vase life was 8 days.

Lisianthus ‘Arena White’ Vase life was 15 to 16 days regardless of treatment. Minimum vase life was 11 days.

Lisianthus ‘Cadence Yellow’ Vase life was unaffected by hydrating and holding solutions and ranged from 13 to 15 days. Minimum vase life was 10 days.

Lisianthus ‘Twinkle Pink Improved’ Vase life was 10 to 12 days regardless of treatment. Minimum vase life was 7 days.

Lisianthus ‘Vulcan Yellow’ A vase life of 16 to 17 days occurred when a holding solution was *not* used. Vase life decreased to 14 to 15 days when a preservative was used. Minimum vase life was 7 days.

Snapdragon ‘Calima Deep Rose’ Flowers lasted 8 days when a preservative was used, regardless of hydrator use. Minimum vase life was 4 days.

Sunflower #565 Vase life was 10 to 11 days regardless of treatment. Minimum vase life was 8 days.

Sunflower ‘Arbel’ Flowers lasted 12 days when a holding solution was used without a hydrator. Minimum vase life was 7 days.

Sunflower ‘Carmel’ Vase life was 14 to 15 days regardless of treatment. Minimum vase life was 9 days.

Sunflower ‘Galilee Adami’ Vase life was longest, 12 days, when a holding preservative was used without a hydrator. Overall, holding solutions extended vase life while hydrating solutions shortened vase life. Minimum vase life was 3 days.

Sunflower ‘Sun4U Bicolor’ Vase life was unaffected by hydrating and holding solutions and ranged from 10 to 11 days. Minimum vase life was 7 days.

Sunflower ‘Sun4U Lemon Yellow’ A vase life of 12.5 days occurred when a holding preservative was used, regardless of hydrator use. Minimum vase life was 7 days.



Eucomis ‘Sparkling Burgundy’

Sunflower ‘Sun4U Orange’ Vase life was 11 to 12 days regardless of treatment. Minimum vase life was 8 days.

Sunflower ‘Tavor Joy’ A vase life of 15 days occurred when a holding solution was used, regardless of hydrator use. Minimum vase life was 9 days.