Handling Specialty Cut Flowers

North Carolina State University Report for 2006

John Dole and Erin Y. Possiel

North Carolina State University

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Each year we test a sampling of the new cultivars that are included in the ASCFG National Cut Flower Trials and, occasionally, other species we are growing in our cut flower plots. This year we screened 14 new cut flower species/cultivars. The species with the longest vase life was *Eucomis* 'Sparkling Burgundy'. This plant produces tall flower spikes of small greenish white flowers on a burgundy-colored stem. We have had this plant in the trials for three years and the clumps keep getting bigger every year; this year we had enough stems to officially test the vase life. Interestingly, this species does best in just water, with a vase life of up to 43 days. The use of holding preservative reduced the vase life to 34 days, which, of course, is still much longer than the vase life of most flowers. Thus, eucomis could be used in arrangements with other flowers even with the use of floral preservatives. The use of a hydration solution resulted in a vase life of 19 days and the use of both hydration and holding solutions produced the shortest vase life of 11 days.

Other cultivars with a vase life longer than 14 days included *Echinacea* 'Comet', lisianthus 'ABC White', pepper 'On Top Round Red', *Physocarpus opulifolius* 'Diabolo' and rose Kolster cultivars. For the latter species, we tested the large red rose hips, which lasted 24 to 26 days. These cultivars make great cuts that can be harvested in the fall. The plants have been vigorous and easy to grow, producing large quantities of hips on long arching stems. Plants produce runners so place them in an area were they can be contained.

This year we had three sunflowers in the trials and they produced rather typical results, responding well to holding preservatives. 'Solara' had the longest vase life, 12 days, and 'Sunrich Orange' the shortest of the three at 10 days. 'Premium Lemon' was in the middle at 11 days. To put these cultivars in perspective, of the 14 sunflower cultivars we have tested over the last four years, most had a vase life using floral preservatives of 8 to 11 days. Only three have produced a vase life over 14 days long (again, using floral preservative): 'Sunny', 'Terra Cotta' and 'Sunbright'.

This year we answered part of the question that has been bothering us: how do our results compare to commercial situations? Because we have a limited number of stems, we place one stem per jar when testing the vase life. Of course, in commercial situations many stems are put (crammed, sometimes) into a bucket. Thus, we tested the effect of putting 1, 3, 5, or 10 stems in a jar. With sunflower 'Sunbright', the longest vase life was 15 days with one stem per jar. The remaining treatments all had a vase life of around 13 days. With zinnia 'Benary Dark Red' the effect was more dramatic; the vase life dropped from 15 days for 1 stem/jar to 11 days for 10 stems/jar. Thus, we can say that our testing method of putting one stem/jar adds two to several days to the vase life.

The Details

Field-grown flowers were harvested at the optimum stage of development into buckets of tap water. The stems were processed, sorted and placed in the following treatments:

- Hydrator only
- Holding preservative only
- Hydrator followed by holding preservative
- Distilled water only

Floralife Hydraflor 100 (hydrator) and Floralife Professional (holding) were used. Where appropriate, stems were treated in the Hydraflor 100 for 4 hours and those in the Floralife Professional were treated for 20 hours. After treatment, stems were placed in tap water at 68±4F under approximately 200 ftc light for 12 hrs/day. We expect that similar products from other companies would provide similar results. Because of limited flower numbers we are not able to test all products at this stage of evaluation. For most species we test 15 stems per treatment but will occasionally use 11 to 14 stems per treatment if we do not have enough stems. In the case of *Eustoma* 'ABC Lavender' and *Eustoma* 'ABC White', however, we had only 8 and 6 stems per treatment, respectively.

The Fine Print

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 a little cooler than a typical home 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 one to several 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 6 days for a typical grower, and flowers lasting 15 to 18 days would probably last 10 to 14 days. We especially want to note that when many flowers are added together in a vase, it only takes one or two "dirty" flowers to reduce the vase life of everything in the bouquet.

For several cultivars, we also listed the minimum vase life. We harvest and test 40 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.

Our Results

***Cleome* 'Sparkler Lavender'**

The vase life was a short 5 to 6 days regardless of treatment. Flowers tended to shatter quickly. Minimum vase life was 1 day.

***Cleome* 'Sparkler White'**

The vase life was 8 to 9 days regardless of treatment, a little longer than cleome 'Sparkler Lavender' but still quite short. Flowers tended to shatter quickly. Minimum vase life was 5 days.

***Echinacea* 'Comet'**

The longest vase life, 18 to 21 days, occurred when flowers were harvested into water and then held in holding preservative. The other treatments produced a vase life of 16 to 17 days. The minimum vase life was 8 days. It was hard to determine when this species was ready to be thrown out, as the petals gradually turned green but did not drop.

***Eucomis* 'Sparkling Burgundy'**

The large and striking flowers were negatively affected by floral preservatives. The longest vase life, 43 days, occurred when stems were cut into water and kept in water the entire time. The petals would drop but the stem and peduncles were a purplish color and continued to look attractive. The use of holding preservatives reduced the vase life to 34 days, which, of course, is still much longer than the vase life of most flowers. Thus, eucomis could be used in arrangements with other flowers even with the use of floral preservatives. The use of a hydration solution resulted in a vase life of 19 days and the use of both hydration and holding solution produced the shortest vase life of 11 days. Minimum vase life was 6 days for stems in one of the preservative treatments and 12 days for stems held only in water.

***Hydrangea* 'Limelight'**

Hydrangea 'Limelight' was selected the ASCFG Fresh Cut Flower of the Year for 2006, a well deserved award. This plant can be picked at three different stages: 1. When the youngest florets are still green in the center of the head; 2. When all florets are mature and bright white; and 3. When all florets are well past mature and are tinged with pink and/or green. The youngest stage generally has the shortest vase life and that is the stage we tested. We found that none of the treatments made any difference, with the vase life averaging 11 days. Minimum vase life was 6 days.

Lisianthus 'ABC Lavender'

The longest vase life, 12 days, occurred when stems were treated with both hydrator and holding solutions. The shortest vase life occurred with the stems treated only with water. The other two treatments produced intermediate results. Minimum vase life was 5 days in the water only treatment and 7 days when a preservative was used.


'On Top Round Red'

Lisianthus 'ABC White'
All treatments produced a vase life of 14 to 16 days, regardless of treatment. Minimum vase life was 7 days.

***Lobelia* 'Compliment Mix'**
The longest vase life, 11 days, occurred when a holding preservative was used. Otherwise vase life was 9 to 10 days. Minimum vase life was 6 days when a holding preservative was used, otherwise it was 3 days.

Pepper 'On Top Round Red'
The longest vase life, 16 days, occurred when stems were treated with water and the shortest, 14 to 15 days, occurred when stems were treated with hydration solution. However, this was a difficult species to assess because the foliage began to wilt very quickly regardless of treatment and we judged the stems on the condition of the fruit. Most growers will want to strip all the foliage or as much as possible. Minimum vase life was 10 days.

***Physocarpus opulifolius* 'Diabolo'**
For this cultivar we cut the long stems of bronze foliage. The flowers are short lived and the clusters of small fruit are interesting, but they are bronze and not very noticeable in the similar-colored foliage. Vase life was a long 18 to 22 days for all treatments. Those held in holding solution had the shortest vase life, 18 to 19 days, while those in held in water had a vase life of 20 to 22 days. Minimum vase life was 12 days.

Rose Koster cultivars
For these plants we tested the large red rose hips. This planting is a combination of two cultivars and we are not sure what cultivars the original plants were so we included some of both in the test. We did not see any difference between the cultivars. The vase life averaged 24 to 26 days and the treatments had no effect. Minimum vase life was 16 days.

Sunflower 'Premium Lemon'
The longest vase life, 11 days, occurred when stems were first placed in hydrating solution and then in holding solution. The shortest vase life, 8 days, occurred when stems were placed only in water the entire time. The other treatments were intermediate. Minimum vase life was 6 days.

Sunflower 'Solara'
The longest vase life, 12 days, occurred when stems were first placed in hydrating solution and then in holding solution. The shortest vase life, 9 days, occurred when stems were placed only in water the entire time. The other treatments were intermediate. Minimum vase life was 7 days.

Sunflower 'Sunrich Orange'
The longest vase life, 10 days, occurred when stems were first placed in either water or hydrating solution and then in holding solution. The shortest vase life, 9 days, occurred when stems were placed in either water or hydrating solution and then in water. Minimum vase life was 7 days.


'Sunrich Orange'