

Postharvest Treatment of Specialty Cut Flowers

North Carolina State University Report for 2007

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Each year we test a sampling of the new cultivars included in the ASCFG National Cut Flower Trials and, occasionally, other species we are growing in our cut flower plots. This year we screened 15 new cut flower species/cultivars. The species with the longest vase life was pepper ‘Cappa Topfruit White/Red’. This plant produces moderately short stems which are ornamented with multicolored fruit at the top. Fruit color progresses from light yellow to a rich yellow to orange to red. This species does best in only a holding preservative, with a vase life of 18.4 days. When a hydrating solution was used in conjunction with the holding preservative, vase life dropped to 14.7 days. Without a holding preservative, vase life was reduced to 14.6 days without a hydrating solution and to 13.9 days with a hydrating solution. As a group, peppers are notorious for having foliage that rapidly yellows. We kept the foliage on the stems during the postharvest test to see if this cultivar would break with that tradition. Alas, it did not. We based the postharvest life on the fruit quality so the vase life is still accurate but the foliage should be removed at harvest as with other cultivars.

Other cultivars with a vase life longer than 14 days included lisianthus ‘Wonderous Purple’ and lisianthus ‘Fioretti Green’. The latter species produces numerous sturdy, bell-shaped flowers that hold their shape well. Vase life termination results from a browning of the flowers. The homeowner could easily remove the expired flowers and extend the vase life by days. Also, stems were a bit on the short side as they were grown in the field. We would expect taller stems in greenhouses or high tunnels.

This year we had two sunflowers in the trials and they produced predictable results—responding well to holding preservatives. ‘Orange Glory’ had the longest vase life, 12.7 days, and ‘Tosca’ had the shortest at 11.5 days. These cultivars performed slightly better than average. Over the last five years, 17 sunflower cultivars have been tested and most had a vase life of 8 to 11 days with the use of floral preservatives. Only three have produced a vase life over 14 days long (again, using floral preservative): ‘Sunny’, ‘Terra Cotta’, and ‘Sunbright’.



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 44 hours. After treatment, stems were placed in tap water at $68\pm 4^{\circ}\text{F}$ 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 10 to 14 stems per treatment if we do not have enough stems. In the case of snapdragon ‘Chantilly Orange’, sunflower ‘Tosca’, larkspur ‘Cannes Crystal Pink’, larkspur ‘Cannes Purple Picotee’, and *Leycesteria formosa*, however, we had only 9, 8, 7, 7, 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 takes only 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 30 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

Dianthus ‘Bouquet Rose’

The vase life was about 11 days regardless of treatment. This flower was one of our favorites from the summer. The multicolored blooms made a nice bouquet on just one stem. Also, the plant produced well throughout the summer.

Dianthus ‘Fandango Crimson’

The vase life was 9 to 10 days regardless of treatment, a little shorter than dianthus ‘Bouquet Rose’, but still reasonable. This species had a wonderful, rich color, but was not as sturdy as ‘Bouquet Rose’. Minimum vase life was 3 days.

Heptacodium miconioides

The longest vase life, 11.5 days, occurred when this species was placed in a holding preservative, regardless of hydrator use. Without a holding preservative, vase life only slightly decreased to 10.5 to 11 days. This species was very brittle and shattered readily.

Larkspur ‘Cannes Crystal Pink’

The vase life was about 9 days for all treatments except only a hydrator, which resulted in a vase life of almost 7 days. Minimum vase life was 4 days when only a hydrator was used. Otherwise, minimum vase life was 6 days. This species had a tendency to become very dry and shatter.

Larkspur ‘Cannes Purple Picotee’

The vase life was 7.5 to 8.5 days regardless of treatment. As with ‘Cannes Crystal Pink’, minimum vase life was 4 days. This species also had a tendency to become very dry and shatter.

Leycesteria formosa

The vase life was 11 to 13 days regardless of treatment. This species was difficult to determine vase life on as there was significant spider mite damage at the time of harvest. It was unclear whether vase life declined due to the spider mites or if it was a natural decline. However, this species showed potential to be an interesting new cut.

Lisianthus ‘ABC 1-3 White’

The vase life was 9 to 10 days regardless of treatment. Minimum vase life was 5 days.

Lisianthus ‘ABC Lavender GX91863’

The vase life was 9 to 10 days regardless of treatment. Minimum vase life was 2 days. As with many lavender-colored lisianthus, buds that open after harvest tend to be white or pale colored.

Lisianthus ‘Fioretti Green’

The vase life was 15.5 to 16.8 days regardless of treatment. Minimum vase life was 5 days. Also, one stem lasted as long as 33 days!

Lisianthus ‘Ruffle Blue’

The vase life was 11 to 12 days regardless of treatment. Minimum vase life was 4 days.

Lisianthus ‘Wonderous Purple’

The longest vase life, 16.5 days, occurred when flowers were not held in a holding preservative. When they were placed in a holding preservative, vase life dropped to 14 days.

Pepper ‘Cappa Topfruit White/Red’

The longest vase life, 18.4 days, occurred when harvested into water and then held in a holding preservative. Vase life dropped to about 14 days when exposed to other treatments. The fruit was very showy, but the leaves quickly dropped from the stem. As a result, we judged the stems on the condition of the fruit. Most growers will want to strip all the foliage or as much as possible. Also, the pedicels had a tendency to wilt, thereby causing the fruit to fall downward instead of being held upright.

Snapdragon ‘Chantilly Orange’

The longest vase life, 7.5 days, occurred when a holding preservative was used, regardless of hydrator use. Without a preservative, this species lasted just 4 to 5 days. Furthermore, this species wilted readily.

Sunflower ‘Orange Glory’

The longest vase life, 12.5 days, occurred when a holding preservative was used. Without a preservative, this species lasted 9.5 to 10.5 days.

Sunflower ‘Tosca’

The longest vase life, 11 to 11.5 days, occurred when placed in either water or a hydrating solution and then a holding preservative. Without a preservative, this species lasted 9.5 to 10 days. Minimum vase life was 5 days.