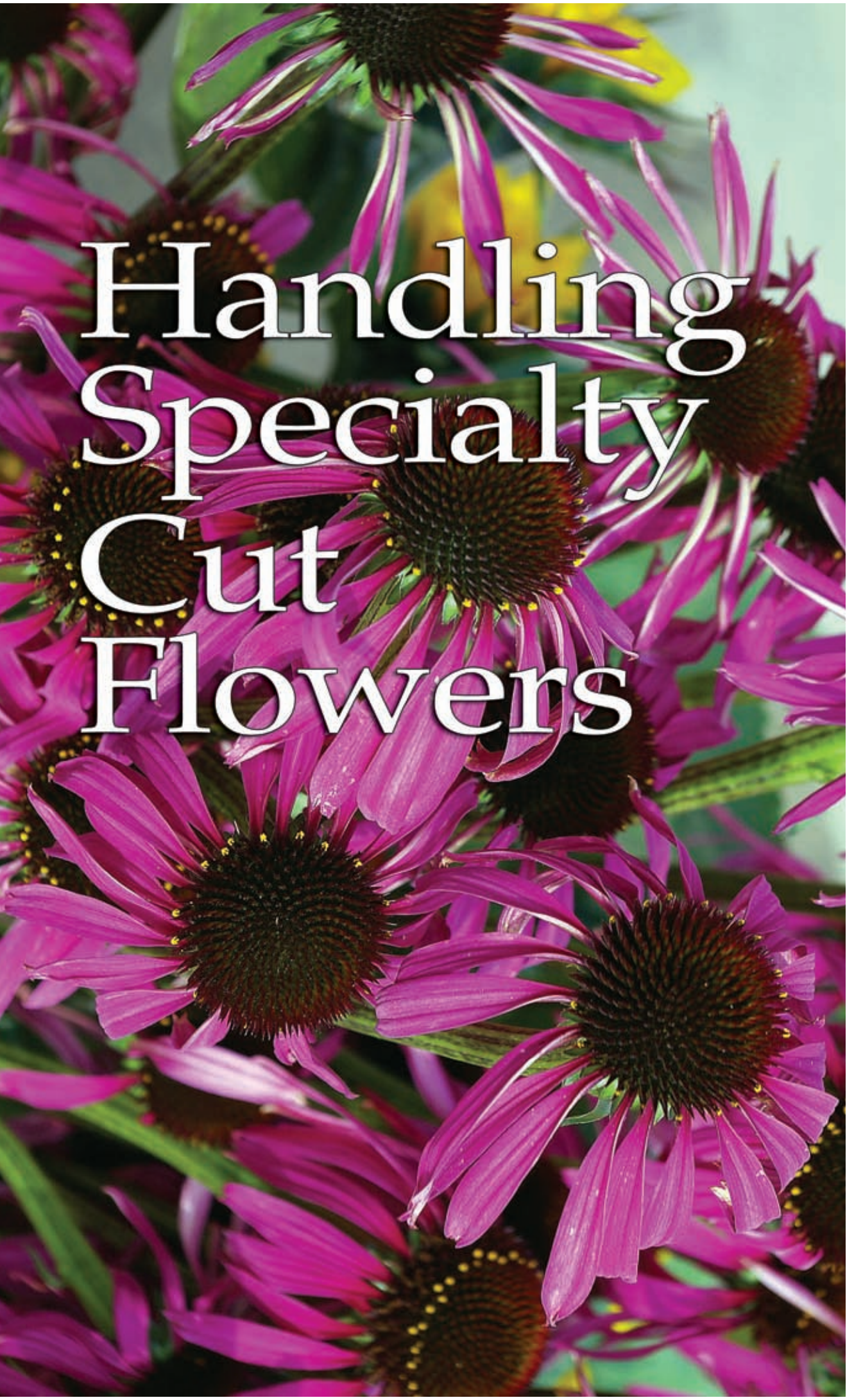
Handling Specialty Cut Flowers



Echinacea 'Comet'.

The Association of Specialty Cut Flower Growers, North Carolina State University and additional cut flower growers tested the postharvest life of a sampling of new cut flower cultivars. Read on to learn more about the results.

By John Dole, Erin Possiel and Ingram McCall

The demands are great for a cut flower to be successful. It must sell well; have long, strong and easy-to-harvest stems; be productive; have manageable insect and disease problems; flower in a relatively short period of time; and have a long postharvest life. Of course, few cut flowers have all these characteristics, but one of the most important characteristics is postharvest life.

The Association of Specialty Cut Flower Growers (ASCFG), North Carolina State University (NCSU) and cut flower growers from all over North America conduct trials of new cut flowers. Each year we test the postharvest life of a sampling of the new cultivars included in the ASCFG National Cut Flower Trials and, occasionally, other species we are growing. We select cultivars that did the best in the NCSU portion of the trials. We screened 14 new cut flower species/cultivars this year.

A Long Vase Life

Eucomis 'Sparkling Burgundy' had the longest vase life. It produces tall flower spikes made up of small, greenish-white flowers on a burgundy-colored stem. We have had this plant in the trials for three years now, and the clumps get 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. Using holding preservatives "reduced" 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. ➧

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Hydrangea 'Limelight'.

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 24-26 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 rose hips on long, arching stems. The plants produce runners, so place them in an area were they can be contained.

Trialing Sunflowers

There were 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' had the shortest at 10 days. 'Premium Lemon' was in the middle at 11 days.

To put these cultivars in perspective, of the 14 sunflowers we have tested over the last four years, most had a vase life using floral preservatives of 8-11 days. Only three have produced a vase life of more than 14 days (again, using floral preservative): 'Sunny', 'Terra Cotta' and 'Sunbright'.

Trial 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 these 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 Hydraflor 100 for four hours and those in Floralife Professional were treated for 20 hours. After treatment, stems were placed in tap water at roughly 68° F under approximately 200 footcandles for 12 hours per day. We expect 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 11-14 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 eight and six stems per treatment, respectively.

Comparing Results

This year we answered part of a question that has been bothering us: How do our results compare to commercial situations? Because we have a limited number of stems, we put one stem per jar when testing vase life. Of course, in commercial situations, many stems are put (crammed, sometimes) into a bucket. Thus, we tested the effect of putting one, three, five 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 one stem per jar to 11 days for 10 stems per jar.

In general, our testing methods tend to produce the maximum vase life. We cut and process

Evaluating Cut Coleus

Coleus offers a great diversity of color, leaf sizes and leaf shapes for cut flower growers. Coleus has the advantage of not only serving as filler foliage but also adding color to bouquets or arrangements. In a recent cooperative study between North Carolina State University (NCSU) and Oklahoma State University (OSU), 37 cultivars of coleus and perilla were evaluated for stem length, productivity and postharvest life.

Unfortunately, all cultivars wilted readily after harvest and many did not rehydrate well. None of the cultivars tested at NCSU tolerated 41° F cold storage or being shipped dry. However, the stems of many of the cultivars readily rooted within a week in water, which allowed the stems to last a long time. Floral preservatives either had little effect or were detrimental.

Overall, many of the cultivars at both OSU and NCSU produced acceptable results. The most productive cultivars at OSU were 'Swinging Linda' and 'Yin and Yang', both of which also rehydrated after harvest and did not wilt later.

At NCSU, the best overall cultivar was coleus 'Freckles'. It produced more than 18 stems per plant, which averaged 20 inches long, and lasted more than 19 days in water. Perilla 'Black Star' and 'Magilla' had the longest vase life and were the most durable but were not as productive as many of the other cultivars. 'Appaloosa' and 'Saturn' both produced plenty of long stems, but the postharvest life was not as good.

In summary, coleus hold much potential as cuts due to the great colors, easy production and large number of harvestable stems. However, the problem continues to be postharvest, and there is much work to be done on this potential crop.

Perilla 'Black Star'.

Coleus 'Freckles'.

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 anyone could repeat our work and get the same results.

All of these factors typically add two to several days to the vase life compared to that of a typical cut flower producer. For example, flowers with a vase life of 6-8 days in testing would probably last 4-5 days for a typical grower, and flowers lasting 15-18 days would probably last 10-14 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.

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

The Results

Cleome 'Sparkler Lavender'. The vase life was a short 5-6 days regardless of treatment. Flowers tended to shatter quickly. Minimum vase life was one day.

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

Echinacea 'Comet'. The longest vase life, 18-21 days, occurred when flowers were harvested into water and then held in holding preservative. Other treatments produced a vase life of 16-17 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. Minimum vase life was eight days.

Eucomis 'Sparkling Burgundy'. Floral preservatives negatively affected the large, striking flowers. 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 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. Minimum vase life was six days for stems in one of the preservative treatments and 12 days for stems held only in water.

Hydrangea 'Limelight'. Hydrangea 'Limelight' was voted the 2006 ASCFG Fresh Cut Flower of the Year, and it is a well-deserved

Eucomis 'Sparkling Burgundy'.

award. This plant can be picked at three different stages: when the youngest florets are still green in the center of the head, when all the florets are mature and bright white and 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 six 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 five days in the water-only treatment and seven days when a preservative was used.

Lisianthus 'ABC White'. All treatments produced a vase life of 14-16 days regardless of treatment. Minimum vase life was seven days.

Lobelia Compliment mix. The longest vase life, 11 days, occurred when a holding preservative was used. Otherwise, vase life was 9-10 days. Minimum vase life was six days when a holding preservative was used; otherwise, it was three days.

Pepper 'On Top Round Red'. The longest vase life, 16 days, occurred when stems were treated with water; the shortest, 14-15 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 also are bronze and not very noticeable. Vase life was 18-22 days for all treatments. Those held in holding solution had the shortest vase life, 18-19 days, while those held in water had a vase life of 20-22 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 24-26 days, and the treatments had no effect. Min-imum 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, eight days, occurred when stems were placed only in water the entire time. The other treatments were intermediate. Minimum vase life was six 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, nine days, occurred when stems were placed only in water the entire time. The other treatments were intermediate. Minimum vase life was seven 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, nine days, occurred when stems were placed in either water or hydrating solution and then in water. Minimum vase life was seven days. GPN

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