
POSTHARVEST TREATMENT OF SPECIALTY CUT FLOWERS

North Carolina State University Report for 2013

Halley M. Granitz, John M. Dole, Julia Kornegay, Alicain S. Carlson, and Ingram F. McCall

Department of Horticultural Science, North Carolina State University

This project was supported by the Association of Specialty Cut Flower Growers Research Foundation, the NCDA Specialty Crop Grant Program, and numerous suppliers. The authors would like to thank Diane Mays, Blair Lane, Luna Gu, and Iftikhar Ahmad for assisting with growing and harvesting the cut flowers.

As part of the ASCFG's yearly cut flower trials, we conduct vase life studies on cultivars and varieties that show potential as future mainstays on growers' lists. This year, thanks to a joint NCDA and USDA grant, we also had the opportunity to evaluate some cultivars already widely grown in North Carolina. A total of 19 annual and perennial cut flowers from 12 different genera were evaluated for postharvest vase life.

What We Did

Trial varieties were planted sixteen plants per plot, four plots per variety. All marketable flowers were cut, measured, and recorded in the field up to three days per week. Up to 60 stems per variety were sorted into four uniform groups and bundled for postharvest vase life evaluation.

Bundles were placed into their first solution, hydrator (Floralife Hydraflor 100 Pretreatment at 1 ounce per gallon) or no hydrator (deionized water) for four hours. Then they were transferred to a second solution: holding solution (Floralife Professional Fresh Flower Food at 1.3 ounces per gallon) or no holding solution (deionized water) for 48 hours. Hydrators are intended to promote rapid water uptake and do not include sugar, while the holding solutions have sugar to promote long vase life. The four resulting treatments were:

1. Hydrator only (no preservative)
2. Holding preservative only (no hydrator)
3. Hydrator, then holding preservative
4. De-ionized water only (control)

Once pretreatments were done, each stem was placed in its own mason jar with 300 mL of deionized water to simulate conditions in consumers' homes. Temperature was kept steady at $68 \pm 4^\circ\text{F}$ with 200 fc light for twelve hours per day. Stems were checked daily and terminated once they reached an agreed-upon stage of expiration, usually when greater than 50 percent of petals were desiccated or heads bent over to less than a 90-degree angle. Vase life was recorded for all stems.

What We Found

Amaranthus 'Elephant Head'

This beefy, wine-hued amaranthus performed best with a holding solution, lasting an average of almost twelve days. Hydrating solution showed a lesser effect, extending vase life by less than one day.

Aster 'Lady in Black'

This is a large, mounding perennial aster with deep purple foliage and a fine texture. 'Lady in Black' is a nice filler with its dark purple leaves and multitude of tiny pink flowers. Expect it to last around nine days in the vase regardless of treatment.

Astilbe 'Fanal'

All our astilbes were happy with the cool, rainy spring this year and were quite prolific. This was the second year in the field for 'Fanal,' and it put on a beautiful show. 'Fanal' lasted a little over 5 days in water only, and an average of 2 days longer with a holding treatment.

Celosia 'Red Flame'

'Red Flame' is a sturdy dark carmine red celosia with leaves fading from purple to green. As expected, it has quite the lengthy vase life, with a vase life of 16 days in water only. Holding solutions increased vase life by more than two days.

Dianthus 'Sweet Black Cherry'

'Sweet Black Cherry' struggled with the wet weather this spring, and though it was not as prolific as it might have been in a better year, vase life was as long as we expected. We cut this dianthus when at least three florets were open. Its fragrant, deep purple flowers lasted an average of 15.8 days regardless of treatment.

Eggplant 'Pumpkin on a Stick'

Talk about bang for your buck! 'Pumpkin on a Stick' was worth the season-long wait. The unique, orange mini pumpkins just kept going in the vase. With an average vase life of just over 36 days, this Japanese eggplant cultivar is a must-grow for fall seasonal sales.

Goldenrod ‘Fireworks’

‘Fireworks’ is a perennial favorite in North Carolina. Its open habit and hardy disposition make it an easy choice for growers. The large inflorescence can be used as a filler flower. Using both hydrating and holding solutions increased vase life from 6.7 in the control to 9.1 days with both hydrator and holding solutions.

Lisianthus ‘Arena II Blue Flash,’ ‘Arena II Light Pink,’ and ‘Arena III Baby Pink’

This year was excellent for lisianthus in North Carolina. They thrived in the cool, wet spring and early summer. ‘Arena II Blue Flash’ flowers have a lilac color fading to white toward the center. ‘Arena II Light Pink’ sports a very pale, almost white flower with a deep maroon splotch in the throat. ‘Arena II Baby Pink’ is very similar to the other pink variety, but its petals are a tad bit darker pink. It also has a maroon splotch in the throat. All had similarly long vase lives, with ‘Arena II Baby Pink’ lasting slightly longer at an average of 12 days. ‘Arena II Light Pink’ and ‘Arena II Blue Flash’ averaged 11.2 and 10.6 days, respectively. As expected, holdings treatments increased vase life by up to 3 days.

Pepper 1-159252, 13-441552, 16-441575, and 22-441530-2

These four peppers thrived and produced many sturdy stems. Peppers were harvested in late August when the fruit colored up, and terminated when peppers dropped or the stems turned black. They generally lasted a day or two longer with a holding solution, while hydrating solutions were generally deleterious to vase life across all four selections. 1-159252 had an average vase life of 14.5 days, 13-441552 lasted 14.5 days, 16-441575 came in at nearly 16 days, and 22-441530-2 was the shortest at 12.2 days on average.

Phlox ‘David’

‘David’ is a familiar favorite to many gardeners due to its higher degree of mildew resistance, and it makes a great cut flower as well. Its large, white, cloudlike panicles perch atop long sturdy stems. Vase life was, on average, 10.6 days. Hydrating and holding treatments had no significant effects.



Astilbe ‘Fanal’



Salvia ‘Caradonna’

Salvia ‘Caradonna’

This perennial salvia produces copious spikes of vivid purple spires its second year in the field. Most flowering occurred in spring and fall. A vase life of 8 days was observed in water only, and holding solution increased vase life around a day.

Snapdragon ‘Chantilly Velvet,’ ‘Purple Twist,’ and ‘Pink Trumpet’

We cut snapdragons until August here in North Carolina this year. The cool, rainy weather kept them going strong months past the end of their regular harvest season. ‘Chantilly Velvet’ and ‘Pink Trumpet’ are showy, open-faced snapdragon varieties. ‘Chantilly Velvet’ has crimson flowers in the traditional shape and sturdy, tall stems. ‘Pink Trumpet’ is a baby pink hue with an ombre effect, fading to white at the tips of the spikes. ‘Purple Twist’ is a horse of a different color, with white, traditionally shaped snapdragon petals accented by purple zebra stripes. Interestingly, flowers started out with bold purple accents early in the season and were completely white when the weather warmed. In water only, ‘Chantilly Velvet’ had a vase life of 5.0 days and ‘Purple Twist’ and ‘Trumpet Pink’ lasted 7.2 days. Holding solutions were helpful in all cases, increasing vase life a little over a day for ‘Chantilly Velvet’ and by 3 days for the other two cultivars.

Genus 'Cultivar' or species	No Hydrator, No Holding (water only) (days)	No Hydrator, Holding (days)	Hydrator, No Holding (days)	Hydrator, Holding (days)	Stems Treated per treatment	Statistical Significance?
<i>Amaranthus</i> 'Elephant Head'	8.9	12.0	9.6	11.5	15	No
<i>Aster</i> 'Lady in Black'	8.3	9.7	10.2	9.4	15	Yes
<i>Astilbe</i> 'Fanal'	5.4	7.7	5.8	7.4	15	Yes
<i>Celosia</i> 'Red Flame'	16.0	18.5	13.8	16.5	15	No
<i>Dianthus</i> 'Sweet Black Cherry'	15.9	16.1	15.5	15.5	15	No
<i>Eggplant</i> 'Pumpkin on a Stick'	38.0	41.5	33.5	31.6	15	Yes
<i>Goldenrod (Solidago)</i> 'Fireworks'	6.7	8.4	8.5	9.1	15	Yes
<i>Lisianthus</i> 'Arena II Blue Flash'	8.8	11.9	10.0	11.9	9	Yes
<i>Lisianthus</i> 'Arena II Light Pink'	9.3	12.3	11.1	12.0	9	Yes
<i>Lisianthus</i> 'Arena III Baby Pink'	11.1	12.8	11.0	12.9	11	No
<i>Pepper</i> 1-159252	10.8	12.6	9.1	10.7	15	Yes
<i>Pepper</i> 13-441552	16.7	15.5	11.3	14.3	15	Yes
<i>Pepper</i> 16-441575	15.8	17.5	13.9	16.5	15	No
<i>Pepper</i> 22-441530-2	11.1	13.2	10.1	14.6	15	No
<i>Phlox</i> 'David'	10.8	11.1	9.9	10.6	15	No
<i>Salvia</i> 'Caradonna'	8.7	9.7	8.9	9.2	15	Yes
<i>Snapdragon</i> 'Chantilly Velvet'	5.0	6.3	5.0	6.5	15	Yes
<i>Snapdragon</i> 'Purple Twist'	7.2	10.0	7.1	10.5	15	Yes
<i>Snapdragon</i> 'Trumpet Pink'	7.2	10.0	7.1	10.5	15	No



NEW FOR 2014

Over 250 New Products



'White Finch' Orlaya



'Colorado Mix' Yarrow



'Red Flame' Celosia



'Cherokee Sunset' Rudbeckia

Visit Johnnyseeds.com or call 1-877-564-6697 to order your NEW 2014 CATALOG



SunflowerSelections.com
QUALITY SEEDS FOR PERFECT FLOWERS