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The **Cut Flower**

Q U A R T E R L Y

Association of Specialty Cut Flower Growers Inc.

for growers of field and specialty greenhouse cuts

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The Cut Flower

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FROM *the President*

Vicki Stamback

First of all, I would like to thank Dave Dowling for all of his years of service he has given to the ASCFG. Dave, we all appreciate everything you've done, thank you.

I am certainly looking forward to 2010, and hope you are too. I'm excited to be your new ASCFG President. We have a great team between our Board members and the ASCFG office with Judy and Linda. The entire ASCFG membership is such an amazing group. I am looking forward to collaborating with you all to take advantage of the many good things that have gone before that have positioned the ASCFG to be the prominent cut flower organization in the U.S. We have so many opportunities in front of us and I think we can take advantage of them.

We live in an amazing time. Have you ever taken a few minutes to investigate things you really weren't familiar with just to see what else is going on around you? I know I can become pretty isolated and focused when dealing with the flowers, so it's good to explore topics seemingly unrelated to flowers that can have a huge impact on your business and your life.

One day last year I was on my way to a flower talk and decided to visit the bookstore at the airport and see if anything looked interesting to read during the flight. Well, the magazine *Entrepreneur* caught my eye. I purchased it and before I reached my destination, I had read every word from cover to cover. I was so impressed with the articles and information, I came home and bought a subscription and have been happy with every issue since.

Another magazine that always has great business information is *Forbes*.

In the last *Forbes* there was an article on the most powerful people in their fields. As a flower grower, there were two groups that caught my attention; one was the 7 most powerful people in Energy. These people were chosen "by power not just measured in petro-dollars but in the ability to change, for better or worse, the fundamental nature of the energy supply chain". Powerful words if you ask me. This was a varied group of people from leaders of different countries whether it was because of their control over energy or, in the case of China, because of their expanding growth and energy use. "China has spent 100 billion in the last 3 years buying oil resources around the world. This impacts what the value of the oil in the ground is worth".

There was only one alternative energy person mentioned and that was T. Boone Pickens and his energy plan. Nothing involving sustainable energy was mentioned. Alternative energy should be a very hot topic for ASCFG members as it does take energy to operate greenhouses and to run a business. I know that I have watched my electric bill go

from \$50.00 a month to \$450.00 a month currently. As I grow my business and add greenhouses, this will continue to rise. I personally am looking into what alternative energy choices I have and what impact they will have on my business, now and in the future.

The other group was the 7 most powerful people in technology. In this group you see the familiar words Twitter, Facebook, This WEEK in TECH, LinkedIn, Apple (Industrial design), TED Conference and the names of the people who founded them. These people were chosen because they "were people with the visionary insight and foresight to think about technology in a way that goes beyond now and today. They figured out a way to make us all more connected and their ideas and inventions have filled voids in the Web and in life, impacting hundreds of millions of people worldwide".

Imagine impacting hundreds of millions of people worldwide. What if, as flower growers, we in the ASCFG started thinking along those lines? What kind of impact could we have in flower production? What kind of impact could we have on others around our towns, our country or around the world?

What kind of voids can we fill in our industry?

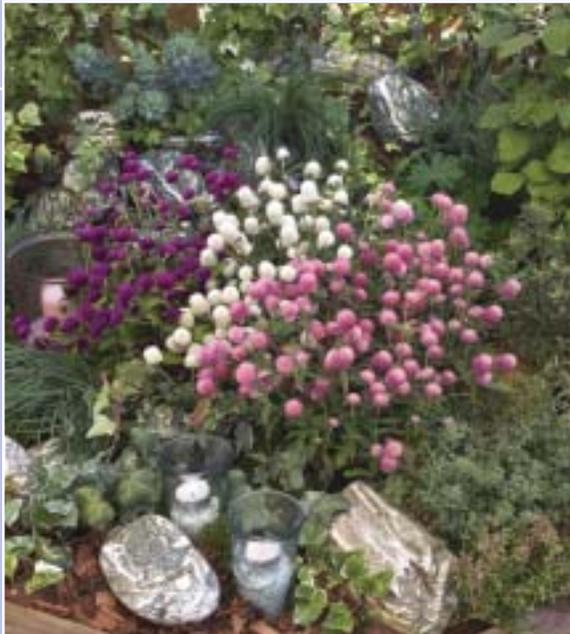
It's fun and exciting to think about. With the many talented people in the ASCFG, I have no doubt we have the capacity to make huge impacts in the flower business. It's going to be a great year and these are exciting times to be thinking of the positive impacts we can make as members of the ASCFG.



GeoSeed

Gomphrena 'Audray Pink' and 'Audray Purple Red'

Can be used both for fresh and dried arrangements. It is an excellent tall specialty cut flower that withstands hot and humid conditions. Plant height: 30-40 inches.



Sunflower 'Sunrich Lemon Summer'

This was bred to produce top market quality, pollen-free flowers even under hot summer conditions. 'Sunrich Lemon Summer' flowers 5 to 10 days earlier and is 15-20% shorter than the standard 'Sunrich' varieties. Plant height: 31-51 inches.

Gomphrena 'Las Vegas Series'

A quick crop (9-11 weeks) available in 3 bright colors: 'Pink', 'Purple' and 'White'. Although a knee-high hedger, try it as a field grown cut flower using close spacing. Plant height: 16-20 inches.



Lisianthus (Eustoma) 'Vulcan Purple Picotee' II

Selected for its high quality, large cup-shaped flowers on strong, sturdy stems. It also has a uniform and stable purple rim. The extra thick, firm petals are more durable in shipping and give a long vase life. Plant height: up to 48 inches.



Physostegia 'Crystal Peak White'

A 2010 Fleuroselect Gold Medal Winner. Its deep leaf color and non-fading bright white flower spikes do not brown as they age, setting it apart from the competition. Plant height: 16 inches.

Rudbeckia 'Denver Daisy'

Selected for its extreme heat tolerance, summer-long flower power and ability to stand up under extreme weather conditions. Extra strong stems will not flop over in wind. Plant height: 18-20 inches.



Zabo Plant



Oriental Lily 'Ariosto'

By far one of the largest and nicely-shaped white flower Orientals you can find on the market. It can have a very soft pink blush on the edges of the flowers in lower light levels. Stems are strong and leaves are dark green, with no scorch at all. This variety is for exclusive top market growers only! Floral designers love this one for large dramatic arrangements. A 16/18 size bulb will give you 3-5 blooms but an 18/20 can provide about 4-6 blooms.

Oriental Lily 'Zotina'

Another exclusively large-flowerer but in the pink-white color range. This variety is quickly becoming a favorite in Asian markets due to its flower size and color. 'Zotina' forces in 105 days and provides 3-5 blooms from a 16/18 size flower bulb and the flowers are upright on sturdy stems. You might be the first one introducing this in your markets.



LA Lily 'Pirandello'

'Pirandello' has large, deep pink flowers, and finishes in 95-days. The 14/16 size bulbs provide you with 3+ upright blooms. This variety is part of the new generation LA hybrids that provide larger and more substantial blooms than the first and second generations of LAs we have come to know.

LA Lily 'Swansea'

Many have enjoyed 'Salmon Classic' over the years, but take a look at 'Swansea'. It might not bloom in 70-days like 'Salmon Classic' but in 95 days you have another excellent salmon color LA hybrid that does provide 3-4 blooms on a 12/14 size bulb. The salmon color is special because of the dark orange stripe in the center of the flower.



LA Lily 'Timaru'

'Timaru' is the purest white LA hybrid available. Although the flowers are a little out-facing it does out perform all the other white LAs in our test greenhouse. A 3+ bud count is produced from bulb size 14/16 and bigger and 'Timaru' can be forced into bloom within 95-days. This one is in the market for the long run.



LA Lily 'Trebiano'

Known for its high yields, 'Trebiano' is named after this vigorous growing grape variety known across the Tuscany region of central Italy. It produces strong stems with 3+ blooms from a 12-14 size bulb and bigger. Coming from the same breeder as 'Timaru' this variety also has a bit of out-facing flowers, but the cool green color is so unique that it makes it stand out in any arrangement or floral display. Cool-green is the fashion color now specially in western Europe, and it is coming our way. This Zabo exclusive variety is worth your trying, you will not be disappointed.

PanAmerican Seed

Dianthus 'Sweet Red with White Eye'

Suitable for cut flower greenhouse and tunnel production, this addition gives professional cut flower growers strong and straight stems and shiny leaves. No vernalization required to produce unique, sweetly fragrant flowers. The flower head is packed with vibrant, red-with-white-eye, lasting blooms. Field-grown plants are very uniform in height (18-36") and flowering time. Taller growth is achievable from early fall-transplanted, greenhouse-grown plants. It makes an excellent focal flower as well as bouquet filler, and has a long vase life.



ABC Lisianthus

PanAmerican Seed lists six exciting new additions to its ABC series of double lisianthus. ABC series consistently demonstrates less rosetting sensitivity in both plug and finish stages, increasing the total number of salable plants and reducing or eliminating the need for GA spraying. These include '1-3 Misty Blue', '2-3 Misty Blue', '2-3 Misty Pink', '1-3 Green', '1-3 Yellow,' and '2-4 Yellow Improved'.



1-3 Green

1-3 Misty Blue

1-3 Yellow

1-3 Misty Pink

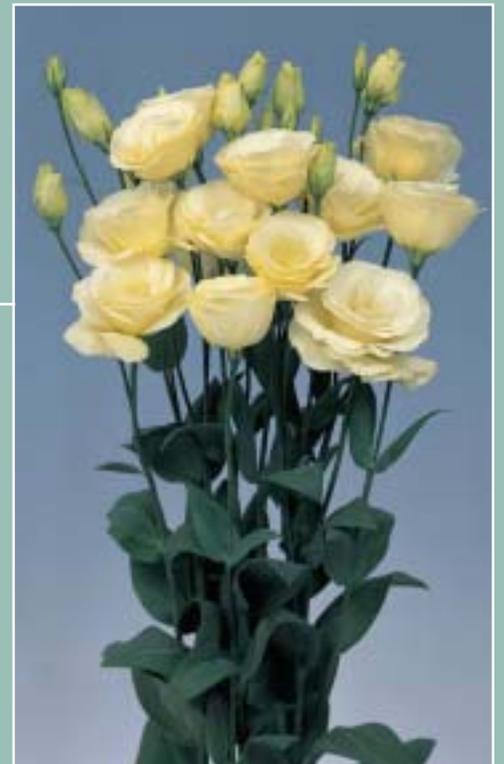
Goldsmith Seeds



Dianthus 'Fandango Crimson Picotee'

This interspecific cultivar adds texture and volume to bouquets. Plants grow to 16-18 inches, and are tolerant of fusarium.

Sakata Seed



Mariachi Yellow Improved

The Mariachi series from Sakata Seed America offers an innovative "quadruple" flower for more volume in mixed or solid bouquets. With an intricate flower shape, strong stem, more effective plant habit, strong peduncles and an impressive number of large flower buds, this series is a preferred selection. Reaching 3 to 4 feet tall, 'Yellow Improved' is the most recent addition to the series.

American Takii

Snapdragon 'Chantilly Yellow'

The Chantilly series is an open-faced, Group I-II snapdragon, with a longer vase life than other varieties. It is extra early and blooms 110 to 130 days after sowing. Stem length is 4 to 4.5 feet (120-140 cm). Yellow is the newest addition, bringing the number of colors available in the series to eight.



Kale Lucir Series

This new series introduces shiny-leaved cut flower kale to the market. Lucir has round leaves that have a distinctive shine. Bred for cut flower use and similar to the cut flower kale Crane series, Lucir is available in red and white.

Lisianthus 'Arena III Red' and 'IV Arena White'

Two new colors are being added to the Arena series, including red, a difficult color to find in a lisianthus, and white. The Arena series is less sensitive to short stem length under long-day conditions, is less sensitive to rosetting in plug cultivation, and has very double flowers on strong stems. The colors that make up the series are classified by group, with group I being the earliest to flower, group IV the latest.



Lisianthus 'Vulcan F1 II Deep Purple'

With the addition of 'Deep Purple', the Vulcan series now has 5 colors. The Vulcan series is less sensitive to short stem length under long-day conditions, is less sensitive to rosetting in plug cultivation and has thick, cup-shaped flower petals which improves its transportability.



Callistephus Nina Series

This new spray-type aster series features an abundance of semi-double blooms on vigorous plants. Excellent for mixed bouquets. The series is releasing with three colors: rose, salmon pink, and white.



King's Mums

'Evan's Dream'

A huge, attractive, light pink spider with a white center, this impressive cultivar was developed from a Japanese seedling by Ted King. It attracted constant attention at the 2008 and 2009 King's Nursery display in Clements. Tall. Best grown as a disbud.

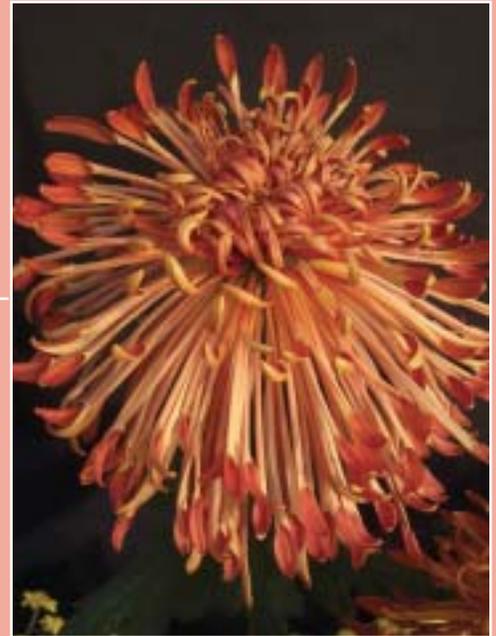


'Goldilocks'

Rich golden yellow spider of large size developed by Ted King. Strong stems hold blooms erect. Disbud to crown for earliest blooms.

'Judith Baker'

Lovely deep bronze quill hybridized by Irv Baker in California. Ease of cultivation and exhibition size blooms will make this plant a popular addition to your collection. Flower to crown or terminal bud.



'Klamath Falls'

This bright yellow anemone has a small dark center which provides an interesting contrast. Used as a cascade, it provides a beautiful yellow carpet of flowers. Medium height. Flower to sprays.

'Mancetta Sunrise'

An introduction from the U.K., this lovely anemone has bronze-colored ray flowers and yellow disc flower. Tall. Disbud to terminal bud or flower to sprays.



'Norton Vic'

A seedling from John Nevill in the U.K., this compact, purple intermediate incurve with silver back will be an attractive addition to any collection. Flower to disbud on second crown.



'Pearl Edward Shaw'

A large blush pink intermediate incurve. Paler and more pink than the color of 'Blushing Bride'. Strong grower, medium height. Flower to disbud on crown or terminal.

'Peter Magnus'

A very attractive pinkish-lavender anemone seedling from Ted King, covered with blooms for a perfect cascade. Medium height. Flower to sprays.



'Zaryah'

The glow on the horizon before sunrise and after sunset has a name in the Russian language: Zaryah. This beautiful bronzy-orange spider originated in Japan and was selected by Ted King. It is sure to become a favorite both for the show table and as a focal plant in the landscape. Medium height. Disbud to terminal bud.

Jelitto Seed

Alcea Spotlight Series

Four colors available including purple-black, red shades, yellow, and white with an egg-yolk eye. Height including flowers is 72 inches. Flowers May-October, first year flowering from seed. Zones 3-9.



Asclepias purpurascens

Brilliant purple-pink umbels, three feet tall, flowers May-August, zones 3-8.



Echinacea 'Magnus Superior'

An improved strain for the 25th anniversary of 'Magnus' introduction. 40 inches tall, July-September, zones 3-8.

Eupatorium 'Ivory Towers'

Large ivory umbels, 80 inches tall, flowering July-September, zones 4-8.



Helianthus 'Lemon Queen Strain'

Brilliant light yellow blossoms, healthy foliage, late season (August-October) bloomer, 72 inches tall, zones 4-9.



Lilium nepalense

Large greenish yellow flowers with a purple throat, 20 inches tall, flowering July-August, zones 6-10.



Typha minima

Almost round, blackish brown cobs May to September, zones 5-8.



Verbesina helianthoides

Golden ray flowers, winged stems, flowering June-August, zones 4-9.



Fred C. Gloeckner & Co.



Amaranthus caudatus 'Mira'
Exciting new red and green bicolor
amaranthus. Height 40 inches.

Setaria italica 'Red Jewel'

Easy to grow and extremely productive millet.
One planting may harvest up to 6 weeks. Long
leaves mature from green with a hint of red
to a red brown. Height up to 4 feet.



Sweet Pea Sunshine Series

A Gloeckner Seed Exclusive.
Premium cut sweet pea series.
Stronger, longer stems, with
more fragrant flowers. In three
flowering groups: spring,
summer, and winter. Pictured
are 'Spring Sunshine Peach' and
'Spring Sunshine Cerise'.



Karma Dahlia 'Karma Fiesta'

An exciting new addition to the Karma dahlia line, 'Fiesta' is bright orange with a yellow base. These vegetatively-propagated dahlias are virus indexed and come from a certified, clean mother stock program resulting in faster and higher production. The Karma Dahlia series is characterized by its strong, uniform stems, upright flowers, long flowering period, and high productivity.

Asiatic Lily 'Summer Breeze'

While not a unique color in this lily division, 'Summer Breeze' is remarkable due to the fact that it is pollen free. A desirable trait in lilies and one not often seen in such superbly formed flowers.



Dutch Iris 'Silvery Beauty'

This beautiful two-toned silvery blue iris has a very large flower size and is especially suited to outdoor cut flower production. This variety comes from the Dutch iris group that answers the question "Who says iris have to be blue?".



Asiatic Lily Rushmore

'Rushmore' brings back a long-missing color in hybrid lilies. Each plum/purple flower is brilliant and unspotted, which really makes this a unique color in the current lily color palette. As the name implies, 'Rushmore' is extremely strong and tall.



Dutch Iris 'Rendezvous'

This new variety displays very large flowers that are almost iridescent purple and adds a new color to the color range for greenhouse production that has been missing until now. 'Rendezvous' is also well suited for outdoor cut flower production.



Oriental 'Marmara'

These brilliant true pink flowers have a creamy center and are held upright on sturdy stems. Flowers have exceptional substance and are very long lasting.



Kordes/NewFlora

'Beverly'

'Beverly' has a wonderful fruity fragrance that has earned it a Silver Medal in Japan. An easy-growing, hardy rose. Productive and vigorous.



'Eliza Frelander'

'Eliza' is a productive, long-stemmed pink rose with few thorns. The petals on its long-lasting, large, hybrid tea blooms are doubly reflexed.



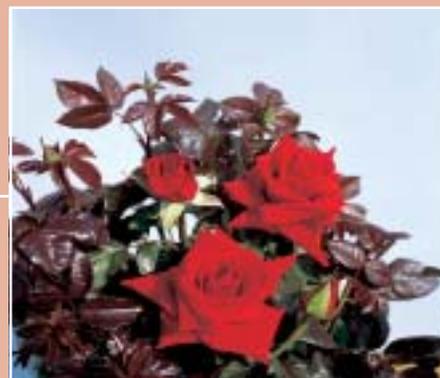
'Impala Frelander'

Uniquely copper-colored blooms and foliage. 'Impala' is a very good producer of large blooms on moderately long stems.



'Laguna Frelander'

'Laguna' has a lovely sweet fragrance. Good production of lavender-pink blooms on healthy plants. The small to moderate sized blooms have a 10 day vase life.



'Mandy Frelander'

'Mandy' is an elegant hybrid tea with moderately long stems, few thorns, and a deep, velvety red blooms. Growth habit is vigorous and upright. Vase life is 10-12 days.



'Mon Petit Chou'

Literally translated, a French endearment: "my little cabbage". It has uniquely shaped buds which open to reveal large, very double, quartered blooms. With a delicious fragrance and great plant vigor, 'Mon Petit Chou' is an exciting new addition to our collection.

'Red Fruitilia'

Extend your sales season with this proven performer, which produces gorgeous red hips to provide color long into the winter. Great for fall- and winter-themed arrangements. 'Red Fruitilia' grows vigorously, flowers in large sprays, and is very productive. Lasts 4+ weeks in the vase.



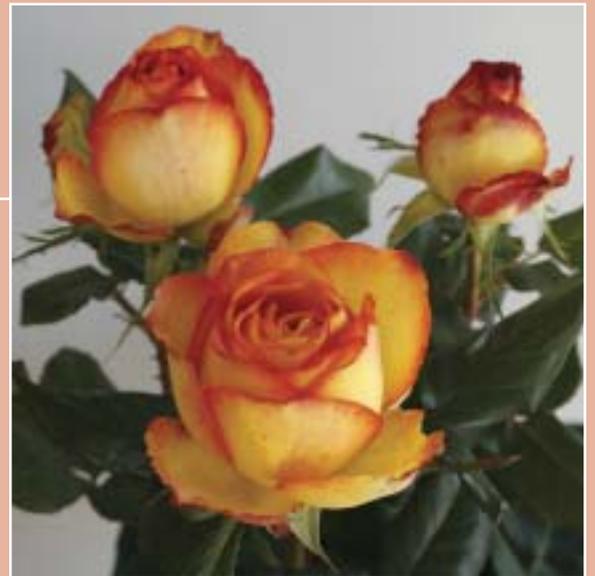
'Red Giant Frelander'

Classic high-centered hybrid tea rose. Large red blooms are showcased by glossy dark green foliage. 'Red Giant' has good production and is one of our longest-lasting varieties in the vase.



'Samba Frelander'

'Samba' is a good option for growers looking for longer stem length than 'Magma' provides. Yellow, tinged with red, the large blooms have a vase life of about 10 days. It produces moderate numbers of stems.



'Sweet Antique Frelander'

Like all 'Antique' varieties, this fragrant new selection is reminiscent of an English garden rose. This light pink rose yields large sprays of quartered blooms, which can transform any floral arrangement. A vigorous grower, 'Sweet Antique' produces numerous large, multi-flowered stems with good vase life.

North Creek Nurseries



Alstroemeria 'Tangerine Tango'

An absolutely vibrant array of tangerine-colored flowers blanket sturdy, upright stems from spring through late fall. Creamy yellow throat and deep speckling accentuate flowers. 'Tangerine Tango' is proving to be a tremendous cut flower and garden performer as it puts on quite a show in well-drained, humus-rich soil under full sunlight. Grows to 30 inches. Zones 6-9.

Baptisia 'Midnite Prairieblues'

Features an elegant, vase-shaped habit and a profusion of deep violet-blue flowers on 24" racemes. Secondary stems extend the bloom season to 3-4 weeks! Primary stems are strongly erect and hold the inflorescences well above the fine textured foliage. Vivid, pea-like flowers produce a striking vertical accent for seasonal arrangements. Zones 4-9.



Helianthus × *multiflorus* 'Sunshine Daydream'

Reaching nearly 2½ inches in diameter, vivid yellow pincushion flowers sit atop sturdy, dark green foliage and stems, creating an upright habit. Fully rounded, dahlia-like blooms gently re-curve toward the stem as it follows the sun across the summer sky. A stunning burst of color; 'Sunshine Daydream' produces an abundance of flowers from summer through autumn while long, leafless stems lend themselves well to seasonal flower arrangements. "...I got you in the morning sunshine...now come on over daydream..." Grateful Dead



Echinacea purpurea 'Milkshake'
Gorgeous, double white pompon blooms are touched with a caramel-orange eye and last from June into September, with color persisting as the season progresses. The sturdy, well-branched stems grow 30-36 inches, and hold between 10-15 blooms creating a wonderful addition to the mid-border or summer centerpiece, 'Milkshake' lasts up to 8 weeks as a fresh cut flower. Zones 5-9.



Schizachyrium scoparium 'Prairie Blues'
Consistent grey-blue, ribbon-like foliage takes on hues of orange and red as the season transitions to autumn. This warm-season grass has sturdy, narrow stems and upright habit. From Jelitto Perennial Seeds, *Schizachyrium* 'Prairie Blues' is an improved selection of one of the most prevalent native grasses in the eastern US and thrives in hot, dry regions. Foliage provides a striking vertical element in decorative arrangements throughout the seasons; feathery seed heads emerge in autumn. Zones 4-8.



Ednie Flower Bulb



Gladiolus 'Dynamite'

This new variety is a must-have for cut flower production. The antique plum color, complemented by the yellow, will look eye-catching in a vase or arrangement. Plant height is 55-65" and production time is 80-85 days.

Gladiolus 'Pink Event'

Note that the petals are less recurved and more showy on this new bicolor pink variety. The deep pink blush accents each petal. Production time is 75-80 days and total plant height is 45-55" tall.



Calla 'Captain Safari'

No two flowers are identical in these new Dutch callas. Cut flower producers prefer Dutch over California callas because of the very large flowers on tall, strong stems and long vase life. Additionally, rooting and growing time is quicker. An 18-20 cm tuber will produce 4-8 stems, 20-30" tall.



Calla 'Captain Prado'

The vivid color of this Dutch calla is not seen elsewhere. Cut flower growers are using Dutch callas for their taller, stronger stems producing much larger blooms and many more flowers. The short production time and long vase life are additional advantages. Tubers size 18-20 cm will produce about 5-8 stems, 20-30" tall.

Calla 'Captain Romance'

The large flowers on these Dutch callas far exceed California calla flowers. Taller and stronger stems make them ideal for cut flowers. Production time is only 6-8 weeks. A must-have for bunches and floral arrangements. Tubers are virus free. Size 18-20 cm tubers grow 20-30" tall and produce 5-8 stems of flowers.



CREATED BY  **Kordes**

Kordes' Cutting Garden™ Collection

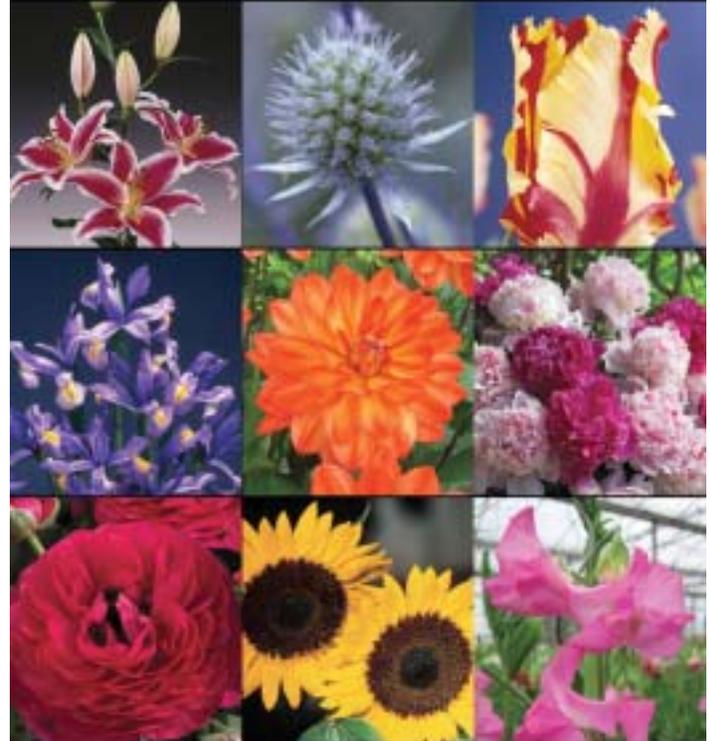
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2009 ASCFG Cut

John Dole, Ingram McCall, and Erin Regan,
North Carolina State University
Judy Laushman, ASCFG

Gomphrena is the Rodney Dangerfield of cut flowers – it gets no respect. This prolific, durable flower is grown by many as a great filler flower for bouquets, both fresh and dried, but is little discussed by growers. That has changed this year with the introduction of 'Audray Pink' and 'Audray Purple Red' (Takii). Trialers reported harvesting 15 stems from each plant and the stems averaged 17 inches long, quite good for gomphrena. At least one trialer reported getting 26-inch long stems. Even the postharvest life appears good, with an average vase life over 9 days. These gomphrenas scored well enough in the trials that both are nominated for ASCFG Cut Flower of the Year. Note that Takii has changed the name of gomphrena 'Bicolor Rose' to 'Audray Bicolor Rose'. This cultivar did quite well when it was tested in the ASCFG Trials back in 1995.

As you go through the comments section, you will see "Cornell Trial" in bold with many of the cultivars in the Additional Comments section. Chris Wien continued his popular high tunnel/field comparisons this year and noted when differences in yield and stem length occurred between the two environments. As you can see, the yield and stem length were quite different in some cases. For example, with 'Audray Pink' Chris harvested 12 stems from the field, 21 stems from the tunnel and the length was 24 inches in field and 28 inches in tunnel.



Flower Seed Trials



In contrast to gomphrenas, we have had a number of zinnia cultivars in the trials over the year but zinnia 'Giant Wine' (Benary) stands out as one of the best. People loved the color, productivity - over 12 stems per plant - and long stems, averaging 20 inches but some getting 30 inches. We noticed, as did a couple of our trialers, that the burgundy color changes to purple a few days after harvest. The color is still nice but not as rich as the original burgundy color. The other zinnia in the trials, 'Red Beauty' (Genesis), also performed quite well. A number of trialers loved its bright red colors; however, at least one person thought it was too bright. Not a bad problem to have! Plants produced an average of 12 stems each and stem length averaged 20 inches.

The campanula Champion series (Sakata) was first tested in these trials in 1997 and went on to become a favorite cut flower of many growers. The large upright purple or pink bells became an instant wedding flower, and other colors were released later. This year improved versions of all four colors, purple, lavender, pink and white, were tested in the trials. Each plant produced an average of a little over three stems, which were approximately 17 inches long. Champion flowers under long days but needs some time under short days to build up enough plant to produce quality stems. If planted too late in the summer when days are long, stems will be very short. Plants should remain under short days until they have at least 2 to 3 true



leaves but the best stems are produced if plants have 8 to 9 leaves before long days start. If growing in the greenhouse or high tunnel, **shorts days should be 16 hour nights and long days at least 12, preferably 16, hours long days** if using lights. Postharvest is similar to lisianthus in that flowers have a long vase life. Buds on the purple cultivars will tend to open up pale purple if not treated with a flower food containing sugar.

We have two lisianthus trials to report on this year. Four cultivars were in the regular seed trials and ten were in a separate, mini trial using plugs provided by Gro 'N' Sell. In the regular trial the soft color, long stems and long vase life of 'Vulcan II Champagne' (Takii) made it a hit. Stem length averaged 20 inches, with at least one person getting 26-inch long stems. Folks tend to prefer double lissies but the single flowers of 'Vulcan Champagne' had enough substance to get noticed. Of the ten cultivars in the plug trial, 'Advantage Purple' and 'Arena IV Rose' received the highest marks. 'Advantage Purple' was noted for its long stems and elegantly colored buds and 'Arena Rose' for its long stems (tallest of the trial) and great color.

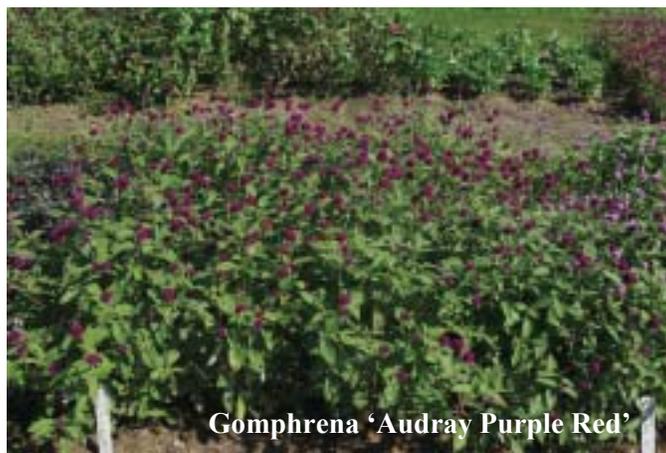
Red was *the* snapdragon color this year, seen in 'Opus III/IV Bright Red' (Goldsmith), 'Opus III/IV Red' (Goldsmith), and 'Potomac Crimson' (Ball). While stem lengths were a bit longer for Opus cultivars, the number of stems harvested was slightly more for Potomac. However, considering the informal nature of this trial, all three cultivars performed rather similarly. With stem lengths averaging 22 to 26 inches, 'Opus Red' was the overall favorite, scoring higher than the other two cultivars. Here at NCSU we continue to be impressed with the summer performance of snaps in our heat. They slow down during the middle of summer but still continue to produce stems suitable for small bouquets, and then come back strong in the fall.

It would not be an ASCFG cut flower trial without



Snapdragon 'Potomac Crimson'

sunflowers and we had three in the trials this year from Genesis: 'Tapuz', 'Zahav' and 'Zohar'. Unfortunately, the sunflower market is quite competitive (Translation: growers are a bit jaded when it comes to new sunflowers.) and it is difficult for a new cultivar to get noticed, especially if it is a classic orange-petaled/brown-centered cultivar. All three entries from Genesis performed quite well, producing stems of at least 30 inches. Flowers lasted a respectable 8 days according to participants and in the NCSU postharvest trials, Alicain Carlson got 12 days for 'Zohar' and 10.5 days for 'Tapuz'. Chris Wien continued his long-running work at Cornell on sunflower photoperiod and noted that all three cultivars were sensitive to short days, and would flower much earlier if planted in greenhouses or high tunnels early in the spring or late in the fall.



Gomphrena 'Audray Purple Red'

Fresh cut stocks are one of our favorite flowers, with their fragrance and soft colors. The fragrance of the Vivas cultivars (Sakata) was noted by a number of trialers who tested 'Vivas Blue', 'Clear Lavender', 'Light Pink' and 'Salmon Pink'. All produced stems averaging 20 to 23 inches but at least one trialer got up to 34-inch stems. 'Salmon Pink' was judged the favorite because of its color, sturdy stems, and large bloom size. This cultivar performed so well that it was nominated for Cut Flower of the Year.

In the deep south, winter is prime time for stock production. One of our trialers, Chazz Hesselein, held his 2008 stock 'Katz' seed until he planted it in the fall, after the time when results were compiled for the 2008 trial report. He was pleased to report that the stock 'Katz Cherry Blossom' and 'White' performed very well, each producing one 30-inch stem per plant. They received a score of 5 and 4, respectively, for consumer interest and both got a 5 for ease of production. Chazz noted stock 'Katz Cherry Blossom' for its fragrance, very attractive bicolored pink, strong stem, full head, and short crop time, resulting in a grow-again rating of 4. Stock 'Katz White' was noted for its fragrance, nice form, size and stem strength, but had too many singles compared to all double white cultivars. Thus, he gave it a grow-again rating of 2.

Overall, we had 34 cultivars from nine companies. Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year. Rankings are based on the combined ratings score: market appreciation (average of wholesale, florist, and consumer) + repeat again + ease of cultivation. Thus, from the 2009 trials gomphrena 'Audray Pink' and 'Audray Purple Red', lisianthus 'Vulcan II Champagne', snapdragon 'Opus Bright Red', stock 'Vivas Salmon Pink', and zinnia 'Benary's Giant Wine' are nominated as Cut Flowers of the Year and will join other nominations from ASCFG members.

Interpreting the trial results: The numbers reported are averages of all the respondents and many factors will affect the success of any plant species. Our participants are growing and harvesting the trial plants in a wide variety of ways. After looking at the average, check the range of responses listed below each number to see how the cultivar performed at its best and its worst. If the range of responses in the ratings is narrow and high, i.e., 3-5 or 4-5, the plant was a winner for most of the respondents and is likely to do well for you. The ‘Repeat Again Rating’ is particularly important because it indicates if the trialer would take the time, money, and space to actually grow the cultivar again. Review the trial results carefully. If a cultivar sounds interesting but did not appear to do well, try it anyway. The cultivar may work well for you.



Campanula Champion Series

Acknowledgments: A hearty thank you to all of the evaluators who returned their trial reports and to the seed companies for providing such great cultivars. Congratulations to Judith Reith-Rozelle and Carolyn Ramsbotham for being the first trialers to return their evaluations. We would also like to thank Emma Locke, Erin Moody, Erin Regan, Diane Mays, Brad Holland, and Tim Ketchie for assisting with the NCSU trials; and Erin Moody for typing in the comments of several trialers. In preparing the report we have edited the participants’ comments for space and clarity; our apologies if we’ve altered the tone or content of anyone’s comments.

| Participating Seed Companies | | Participating Growers | |
|---|--|--|---|
| American Takii Salinas, California www.takii.com | Erin Benzakein flore Mount Vernon, WA | Shravan Dasoju Sharon Hampton Ball Horticultural Santa Paula, CA | Carolyn Ramsbotham Riverview Farm Madbury, NH |
| Ball Horticultural West Chicago, Illinois www.ballhort.com | Christof Bernau UCSC Farm & Garden Santa Cruz, CA | Chas and Linda Gill Kennebec Flower Farm and Nursery Bowdoinham, ME | Judith Reith-Rozelle West Madison Ag. Research Station Verona, WI |
| Benary DeKalb, Illinois www.benary.com | Leon Carrier Plantmasters Laytonsville, MD | Chaz Hesselein Alabama Cooperative Extension System Mobile, AL | Brenda Smith Smith & Smith Farms Dayton, NV |
| Fred C. Gloeckner & Co. Harrison, New York www.fredgloeckner.com | Maureen Charde High Meadow Flower Farm Warwick, NY | Laurie Hodges UNL Agronomy and Horticulture Lincoln, NE | Vicki Stamback Bear Creek Farms Stillwater, OK |
| Genesis Seeds Ltd. Ashalim, Israel www.genessseeds.com | Josie Crowson Josie’s Fresh Flowers Nacogdoches, TX | Ingram McCall, John Dole North Carolina State University Raleigh, NC | Cheryl Wagner Wagner’s Homestead Farms Belleville, MI |
| Goldsmith Seeds Gilroy, California www.goldsmithseeds.com | Connie Dam-Byl William Dam Seed, Ltd. Dundas, ON | | Chris Wien Dept. of Horticulture Cornell University Ithaca, NY |
| Kieft-Pro-Seeds Venhuizen, Holland www.kieft-pro-seeds.com | Thea Folls Foll’s Flower Farm Auburn, NY | | |
| Sakata Seed America, Inc. Morgan Hill, California www.sakata.com | | | |

2009 ASCFG Seed Trial Results. The first row of data for each cultivar is the average and the second row is the range of responses. Note when only one response is listed, either only one person responded for that category or several responded and all gave the same rating. The single highest score and the single lowest score in each category for each cultivar have been dropped.

| Species Cultivar Company | Yield (stems/plant) | Stem length (inches) | Market appreciation rating ¹ | | | Repeat again rating ¹ | Ease of cultivation rating ¹ | Average spacing (in. ² /plant) | Average postharvest life (days) |
|--|------------------------|----------------------------|---|-------------------|--------------------|--|---|---|---------------------------------------|
| | | | Wholesale | Retail | Consumer | | | | |
| Basil 'Cardinal' Genesis Seeds | 5.7 1-10 | 15.5 5-28 | 3.0 2-4 | 4.5 2-5 | 3.8 1-5 | 3.8 1.5 | 4.3 3-5 | 107 36-168 | 8.5 5-12 |
| Calendula 'Maayan' Genesis Seeds | 6.4 1-13 | 14.4 9-27 | 2.0 1-3 | 3.0 3 | 2.5 1-3 | 2.2 1-5 | 3.8 2-5 | 96 24-168 | 6.3 3-10 |
| Campanula 'Champion Blue Imp.' Sakata Seed | 3.6 1-6 | 17.4 12-20 | 3.5 3-4 | 4.0 3-5 | 3.8 3-5 | 4.3 3-5 | 3.7 3-5 | 83 36-144 | 10.7 5-14 |
| Campanula 'Champion Lavender Imp.' Sakata Seed | 3.8 1-6 | 17.8 12-22 | 3.5 3-4 | 4.5 3-5 | 4.2 3-5 | 4.4 3-5 | 3.7 3-5 | 81 36-144 | 10.4 5-14 |
| Campanula 'Champion Pink Imp.' Sakata Seed | 3.8 1-6 | 17.6 12-24 | 3.5 3-4 | 3.5 3-5 | 3.8 3-5 | 4.1 3-5 | 3.7 3-5 | 81 36-144 | 10.1 5-14 |
| Campanula 'Champion White Imp.' Sakata Seed | 3.1 1-6 | 17.1 12-20 | 3.0 3 | 4.0 3-5 | 4.4 3-5 | 4.3 3-5 | 3.7 3-5 | 79 36-144 | 10.5 5-14 |
| Delphinium 'Belladonna Exp. Blue Donna' Gloeckner | 2.6 1-6 | 19.1 14-30 | 4.0 3-4 | 4.0 4 | 3.8 2-4 | 3.4 2-5 | 3.1 2-5 | 126 36-324 | 7.7 6-10 |
| Dianthus 'Fandango Purple Picotee' Goldsmith Seeds | 9.5 2-38 | 14.0 6-26 | 2.5 1-4 | 3.0 1-5 | 3.0 1-5 | 3.0 1-5 | 4.2 2-5 | 95 36-168 | 9.3 6-14 |
| Eryngium 'White Glitter' Benary | 2.6 1-6 | 19.5 15-30 | 3.0 3 | 4.0 4 | 2.3 2-4 | 2.5 1-4 | 3.6 2-5 | 118 81-144 | 9.3 7-12 |
| Gomphrena 'Audray Pink ' American Takii | 15.2 2-60 | 17.0 8-26 | 3.5 3-4 | 4.0 2-5 | 3.8 2-5 | 4.5 3-5 | 4.4 4-5 | 96 36-144 | 9.8 3-14 |
| Gomphrena 'Audray Purple Red' American Takii | 14.8 1-60 | 17.2 8-26 | 3.0 2-4 | 3.5 2-5 | 4.2 2-5 | 4.5 3-5 | 4.4 3-5 | 90 36-144 | 9.7 3-14 |
| Gomphrena 'Las Vegas Pink' Benary | 14.5 3-60 | 14.3 10-22.5 | 3.0 2-4 | 4.0 4 | 3.7 3-5 | 3.6 1-5 | 4.3 3-5 | 109 36-168 | 9.6 6-14 |
| Gomphrena 'Las Vegas Purple' Benary | 15.2 5-60 | 14.5 10-23 | 3.0 2-4 | 4.0 4 | 3.6 3-5 | 3.4 1-5 | 4.3 3-5 | 100 36-168 | 10.1 6-14 |
| Gomphrena 'Las Vegas White' Benary | 16.9 3-60 | 14.8 11-21 | 2.0 2 | 4.0 4 | 3.25 2-4 | 3.0 1-5 | 4.3 3-5 | 102 36-168 | 10.5 6-14 |

¹ 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesales, retailers, or final consumers direct.

| Species Cultivar Company | Yield (stems/plant) | Stem length (inches) | Market appreciation rating ¹ | | | Repeat again rating ¹ | Ease of cultivation rating ¹ | Average spacing (in. ² /plant) | Average postharvest life (days) |
|--|------------------------|----------------------------|---|-------------------|-------------------|--|---|---|---------------------------------------|
| | | | Wholesale | Retail | Consumer | | | | |
| Kale 'Giraffe' Murakami Seed | 0.5 0-1 | 24.0 24 | . | 5.0 5 | . | 3.0 3 | 5.0 5 | 81 18-144 | . |
| Larkspur 'Stiletta Indigo Blue' Kieft-Pro-Seeds | 2.4 1-6 | 18.5 8-25.5 | 4.0 3-5 | 5.0 4-5 | 3.0 3-4 | 3.7 1-5 | 3.6 3-5 | 73 18-144 | 8.4 5-10 |
| Larkspur 'Stiletta Rosy Red' Kieft-Pro-Seeds | 2.4 1-6 | 20.4 10-34 | 3.0 3-4 | 4.0 4 | 3.5 3-4 | 3.3 1-5 | 3.3 3-4 | 73 18-144 | 7.8 5-10 |
| Lisianthus 'Arena III Champagne' American Takii | 2.1 1-5 | 18.3 12-30 | 5.0 5 | 5.0 5 | 4.3 3-5 | 3.6 2-5 | 3.3 2-5 | 59 16-144 | 13.7 13-14 |
| Lisianthus 'Cinderella Lime' Goldsmith Seeds | 2.3 1-4.5 | 18.6 10-28 | . | . | 4.0 4-5 | 4.3 3-5 | 3.3 1-5 | 63 16-144 | 12.5 10-14 |
| Lisianthus 'Vulcan II Champagne' American Takii | 8.5 5-12 | 20.0 12-26 | . | 5.0 5 | 4.5 4-5 | 4.0 3-5 | 4.0 3-5 | 70 16-144 | 12.0 10-14 |
| Lisianthus 'Vulcan II Purple Picotee' American Takii | 3.0 3 | 17.8 15-19. | . | . | 2.0 1-4 | 3.0 1-5 | 3.0 1-4 | 69 16-144 | 14.0 14 |
| Salvia 'Jerusalem' Genesis Seeds | 3.1 0-7 | 15.3 10-24 | 1.0 1 | 1.0 1 | 1.3 1-4 | 1.6 1-4 | 1.9 1-5 | 107 36-224 | 5.0 5 |
| Snapdragon 'Opus III/IV Bright Red' Goldsmith Seeds | 6.8 1-19 | 25.5 15-50 | 3.5 3-4 | 4.0 3-4 | 4.0 3-5 | 3.9 3-5 | 4.3 4-5 | 74 9-144 | 10.8 7-16 |
| Snapdragon 'Opus III/IV Red' Goldsmith Seeds | 7.4 1-15 | 25.8 12-38 | 4.0 3-5 | 4.0 3-5 | 4.3 2-5 | 4.4 2-5 | 4.8 4-5 | 69 9-144 | 9.8 7-16 |
| Snapdragon 'Potomac Crimson' Ball Horticultural | 8.9 4-15 | 21.9 15-36 | 4.0 4-5 | 4.5 4-5 | 4.6 4-5 | 5.0 4-5 | 4.6 4-5 | 88.9 36-144 | 10.0 10 |
| Stock 'Vivas Blue' Sakata Seed | 0.9 0-1 | 22.7 13.5-34 | 4.0 4 | 4.5 4-5 | 4.0 3-5 | 3.8 2-5 | 4.0 3-5 | 56 6-144 | 10.8 7-14 |
| Stock 'Vivas Clear Lavender' Sakata Seed | 0.8 0-1 | 20.1 14-30 | 4.0 4 | 4.0 4 | 5.0 3-5 | 3.7 3-5 | 4.0 3-5 | 61 25-144 | 11.3 10-14 |
| Stock 'Vivas Light Pink' Sakata Seed | 0.9 0-1 | 20.1 14.5-28 | 4.5 4-5 | 4.0 3-5 | 3.7 3-5 | 3.6 2-5 | 4.0 3-5 | 50 6-144 | 10.6 7-14 |
| Stock 'Vivas Salmon Pink' Sakata Seed | 0.9 0-1 | 21.8 14-28 | 5.0 5 | 4.5 4-5 | 4.0 3-5 | 4.0 2-5 | 4.0 3-5 | 47 6-144 | 10.8 7-14 |

¹ 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesales, retailers, or final consumers direct.

2009 ASCFG Seed Trial Results. The first row of data for each cultivar is the average and the second row is the range of responses. Note when only one response is listed, either only one person responded for that category or several responded and all gave the same rating. The single highest score and the single lowest score in each category for each cultivar have been dropped.

| Species Cultivar Company | Yield (stems/plant) | Stem length (inches) | Market appreciation rating ¹ | | | Repeat again rating ¹ | Ease of cultivation rating ¹ | Average spacing (in. ² /plant) | Average postharvest life (days) |
|---|------------------------|----------------------------|---|-------------------|-------------------|--|---|---|---------------------------------------|
| | | | Wholesale | Retail | Consumer | | | | |
| Sunflower 'Tapuz' Genesis Seeds | 1.9 1-6 | 35.1 16-66 | 3.7 2-5 | 4.0 2-5 | 3.6 2-5 | 3.0 1-5 | 4.3 2-5 | 186 36-1296 | 8.2 7-11 |
| Sunflower 'Zahav' Genesis Seeds | 1.5 1-6 | 34.0 16-66 | 3.5 2-5 | 3.5 2-5 | 3.7 2-5 | 3.0 1-5 | 3.9 2-5 | 183 36-1296 | 7.7 7-10 |
| Sunflower 'Zohar' Genesis Seeds | 1.2 1-6 | 32.3 12-72 | 3.5 3-5 | 3.7 2-5 | 3.6 3-5 | 3.0 1-5 | 4.2 2-5 | 165 36-1296 | 8.6 7-12 |
| Zinnia 'Benary's Giant Wine' Benary | 12.3 1-60 | 19.7 10-30 | 4.7 3-5 | 4.3 3-5 | 4.5 4-5 | 4.9 4-5 | 4.6 3-5 | 117 36-252 | 7.2 5-10 |
| Zinnia 'Red Beauty' Genesis Seeds | 11.7 1-60 | 19.6 11-30 | 3.5 2-4 | 4.0 3-5 | 3.7 1-5 | 3.5 1-5 | 4.3 3-5 | 116 64-252 | 7.1 3-10 |

¹ 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesales, retailers, or final consumers direct.

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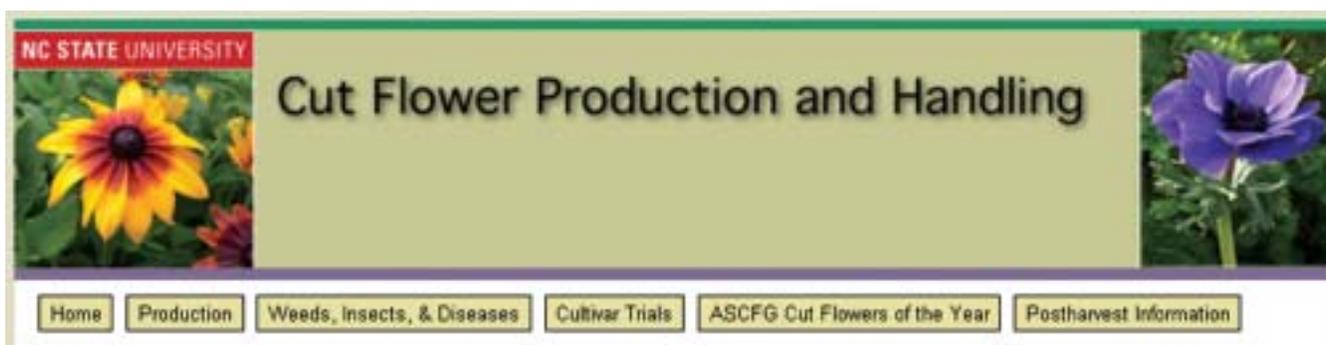
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2009 Lisianthus Plug Trial Results. Plugs provided by Gro 'N' Sell. The first row of data for each cultivar is the average and the second row is the range of responses. Note when only one response is listed, either only one person responded for that category or several responded and all gave the same rating. The single highest score and the single lowest score in each category for each cultivar have been dropped.

| Species Cultivar | Yield (stems/plant) | Stem length (inches) | Market appreciation rating ¹ | Repeat again rating ¹ | Ease of cultivation rating ¹ | Average spacing (in. ² /plant) | Average postharvest life (days) |
|---------------------------------------|------------------------|----------------------------|---|--|---|---|---------------------------------------|
| Lisianthus 'Advantage Purple' | 1.3 1-2 | 15.3 12-20 | 4.0 4 | 3.5 3-4 | 4.0 3-5 | 80 16-144 | 14 14 |
| Lisianthus 'Arena III Pink' | 1.0 1 | 16.3 13.5-20 | 3.0 2-4 | 3.0 2-4 | 3.0 3 | 80 16-144 | . . |
| Lisianthus 'Arena III Yellow' | 1.0 1 | 14.8 12-20 | 3.5 3-4 | 3.0 3 | 3.0 3-5 | 80 16-144 | 13 13 |
| Lisianthus 'Arena IV Rose' | 1.3 1-2 | 19.5 17-22 | 3.5 3-4 | 3.5 3-4 | 3.5 3-4 | 80 16-144 | . . |
| Lisianthus 'Super Magic Apricot' | 2.0 1-3 | 15.8 12.5-20 | 3.5 3-4 | 3.0 2-5 | 3.0 3 | 80 16-144 | . . |
| Lisianthus 'Super Magic Deep Blue' | 2.0 1-3 | 15.5 13-18 | 3.0 2-4 | 2.5 2-3 | 3.5 3-4 | 49 16-81 | 5.0 5 |
| Lisianthus 'Super Magic Lavender' | 1.5 1-2 | 14.7 11-18 | 2.5 2-3 | 3.0 2-5 | 3.0 3-5 | 80 16-144 | 13 13 |
| Lisianthus 'Super Magic Peach' | 1.7 1-3 | 15 13-18 | 3.0 2-4 | 3.0 2-5 | 4.0 3-5 | 80 16-144 | 5 5 |
| Lisianthus 'Super Magic Purple' | 1.5 1-2 | 15.7 12-20 | 3.0 2-4 | 3.0 2-5 | 4.0 3-5 | 80 16-144 | 10 10 |
| Lisianthus 'Super Magic White' | 2.0 1-3 | 16.2 13.5-20 | 3.5 3-4 | 3.0 3-5 | 4.0 3-5 | 80 16-144 | 15 15 |

¹ 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesales, retailers, or final consumers direct.



NCSU Cut Flower Website Updated

Have you ever wondered if *Pycnanthemum* 'Mountain Mint' would make a good cut flower? How about *Eupatorium* 'Carin', *Weigelia* 'Alexandra', or *Lavatera* 'Salmon Beauty'? The place to find the answers to these questions and many more is www.ncsu.edu/project/cutflowers/. You can find all the seed trial results since 1993 and the perennial and woody trial results since we started those trials in 1998 and 2004, respectively. For each cultivar, you will find the trial data, participant comments, supplier and photos, in some cases. Beside trial information, the website also includes our postharvest reports and links to other sites.

Summary of Comments

The number in a parenthesis refers to the number of respondents who made the comment. If no number is present, only one person made the comment. Comments by each individual are separated with a semicolon (;). Note: many respondents did not make specific comments on each cultivar and in some cases, comments have been shortened because of limited space.

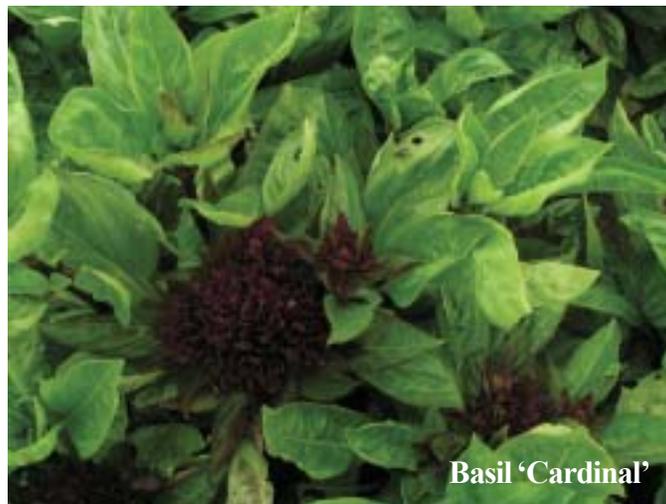
Basil

Basil ‘Cardinal’

(Genesis Seeds)

Good Qualities: Wonderful basil fragrance (4); Much stronger plant than Basil ‘Oriental Breeze’, did not break off or split as much as ‘Oriental Breeze’, it was about 2 ½ to 3 weeks later to bloom than ‘Oriental Breeze’; Would be very nice in a bouquet, unique flower unlike any other; None that I can see; Excellent stem length, good color contrast of blooms, vigorous; Forms a nice dark purple head, didn’t catch downy mildew like the rest of our basil; Everyone liked the color and texture it added to bouquets, some even liked it alone, it lasted well and added a lot of dimension; Beautiful purple stems and large flowers; Beautiful blooms, unusual, even held up in the cooler below 50 degrees; Very unusual flower but with the good basil smell; Very desirable, good plant size and quantity, quality and depth of color in the darker tip growth; Thicker leaves than other basil, used as a filler.

Problems: None (2); Took too long to flower (2); I planted too close together and both tended to lodge and be so tightly packed together that the plants were not done justice, this was my first time growing ornamental basil, I thought there would be taller spikes with many bracts but instead the terminals were sort of short and flat for both ‘Oriental Breeze’ and ‘Cardinal’; I did not know where to cut them. Basil ‘Cardinal’ was very late to show any color, the leaves reminded me of spinach because of their rounded edges, I much prefer ‘Oriental Breeze’ and so did my customers; Leaves cup, side shoots need to be removed or else flower spikes hidden; Flower heads were much too chunky and large, next time I will pinch and hope it helps



Basil ‘Cardinal’

produce more usable stems; We put this into the field too late to get any sizable stems; As with most basil, I wish they would grow just a little taller; Hit by frost on Sept. 19, just at the time the top leaves were developing crimson; I don’t know how this is used as a cut, the green leaves wilted out easily, it was short and bushy; I made pesto out of it.

Similar species/cultivar: ‘Oriental Breeze’ (2); No!; Reminded me of a celosia.

Additional Comments: Nice to have certified organic seed, high tunnel; No Japanese beetles! after 5 days in the vase it lost its color, looked brown, might be nice as a dried flower; Prefer blooms that spike more; Wish stems were longer, but did have usable stems, customers liked the subtle fragrance in bouquets; Sold ‘Oriental Breeze’ a number of years ago, but stopped due to lack of sales, we see ‘Cardinal’ as having more potential in the micro greens market; Harvested August week 2 to 3 (Planted in field 6/10, Zone 5); My new favorite basil; My customers loved this one, even customers that never buy cinnamon basil bought this one, they loved how it looked, we will be adding this one to our mix next season; we pulled whole plants as base bouquet filler; Perhaps it is too cold here (Zone 5).

Postharvest Handling Recommendations:

Cut early in the day as they seemed to wilt and then come back, kept cool and if stems were woody, I would slit the bottom, also used Floralife; We cut it, got it out of the sun immediately and then re-cut it and put it in hot floral preservative and in a cooler at 50 degrees, not too cold; Seemed to hold better with overnight conditioning in water. *See separate report in this issue for results from NC State University postharvest evaluations.*

Calendula

Calendula ‘Maayan’

(Genesis Seeds)

Good Qualities: Great pumpkin color (7); It seemed to be a fairly good producer; Good germination, strong stems and good height; Multiple small blooms on each stem; Lots of cuttable stems, drought tolerant; Nice flower shape; Nice lemon scent; Nice vibrancy and moderately vigorous plants.

Problems: Too short (4); Did not last very long in our postharvest testing (2); Just not the kind of flower my customers are looking for; Foliage very sticky; Blooms not especially attractive; Don’t think plants got a good start as they were tall going into the field and were maybe stressed, didn’t bloom long into the season, would have liked fuller flowers like shorter calendulas; Branched too much, kind of small; Many had ugly blooms, poor germination, maybe this is not a good choice for our climate; Too weedy for my customers; Fragile and brittle when trying to cut, difficult to know where to cut, outer stems on plant grew horizontal to the ground then curved and grew upright (needed more space and light), this curve was not corrected in a vase, once thinned with first cut the stems grew more upright, on one stem there will be one bloom not opened, one just opened, and one dead, stems got thinner with each cut, and less multiple blooms on a single cut, would take a grower a long time to cut a crop; Flower heads too small, it was more of a spray type calendula; Very poor seed germination for this cultivar - only 23 plants survived to transplant stage; A little bit mildew prone for us near the coast (California).

Similar species/cultivar: Very similar to calendula ‘Princess Yokosuka’ which was planted adjacent to ‘Maayan’, very hard to tell them apart; Reminded me of other calendulas.

Additional Comments: Calendula is a nice flower but for me, it can be produced only in a greenhouse and it just doesn’t produce enough to make it profitable, it also doesn’t last long enough to make it extremely popular either; I love calendula but have trouble selling it, even very cheaply in either spring or fall, this year we had hardly any aphids or spider mites on the calendula and made only one release of beneficial insects, there were many lacewing eggs spring and fall on calendula, I will continue to plant it for insect

habitat, we also have some interest in it for natural fabric dye, grown in high tunnels; Greenhouse grown; This is a super plant, without irrigation it is still blooming; Wish stems were stronger, but did have usable stems; Did not stand out in our trials as anything new or unique; Harvested 6/24 to 7/3 (Planted in field 4/25, Zone 5); Would not grow again; Did not look good with different stages of flowers on a stem; Perhaps it would be better in a dry year.

Postharvest Handling Recommendations: Cut early in the day as they seemed to wilt and then come back, kept cool and also used Floralife; No treatment. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Campanula

Campanula ‘Champion Blue Improved’

(Sakata)

Good Qualities: Rich purple color (5); In the past we had only grown the blue and pink, the white and lavender were surprisingly popular and were outstanding; Outstanding productivity early in high tunnel, attractive flower; Early color; Strong stems; Long vase life, pleasing flower shape; Flowers were nice; Gorgeous and very popular, excellent vase life, no insect problems; Vigorous, showy plants with good stem quality.

Problems: Set back severely by spring weather conditions in field; Thrips magnet; Germination wasn’t good and didn’t have many plants to work with, did like what I got, but just wasn’t enough to make a good recommendation; Heat stress; As apical flowers fade, they shrivel and brown without dropping, thus reducing quality of appearance, even though the subsequent flowers look beautiful.

Similar species/cultivar: All colors of series are alike, we compared ‘Blue Improved’ to ‘Blue’ and found no difference; Other campanulas; For this entire series, I do not really see huge improvements over the standards.

Additional Comments: Harvested July week 1 to 3 (Planted in field 4/25, Zone 5); We will be adding the white and lavender to our regular plantings from now on, they are worth having in the mix, greenhouse grown, initial stem was large, 36 inches long, for the first one, plus 3 other smaller stems averaged about 15 inches; This may be better planted in the fall and row covered over winter; I should have used support netting; Market customers kept asking for more; We compared ‘Blue Improved’ to ‘Blue’ and found no difference; **Cornell Trial** yield: 2 in field, 8 in tunnel, length: 13 inches in field, 21 inches in tunnel.

Postharvest Handling Recommendations: I used just water; Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; No treatment.

Campanula ‘Champion Lavender Improved’

(Sakata)

Good Qualities: Nice soft color (5); In the past we had only grown the blue and pink, the white and lavender were surprisingly popular and were outstanding; Strong stems and large blossoms, customers couldn’t get enough, great vase life with all blooms opening; Long vase live, pleasing flower shape; Flowers were nice; Outstanding productivity early in high tunnel, attractive flower; Loved by all.

Problems: Thrips magnet; Heat stress; Germination wasn’t good and didn’t have many plants to work with, liked what I got, but just wasn’t enough to make a good recommendation; Set back severely by spring



Campanula ‘Champion White Improved’

weather conditions in field; As apical flowers fade, they shrivel and brown without dropping, thus reducing quality of appearance, even though the subsequent flowers look beautiful.

Similar species/cultivar: Other campanulas; All colors of series are alike.

Additional Comments: Harvested in July week 1 to 3 (Planted in field 4/25, Zone 5); We will be adding the white and lavender to our regular plantings from now on, they are worth having in the mix, initial stems were large at 36 inches, 3 others averaged about 15 inches; New color for us, nice; A “must grow”; I should have used support netting; **Cornell Trial** yield: 2 stems in field, 10 stems in tunnel and length: 13 inches in field, 22 inches in tunnel.

Postharvest Handling Recommendations: I used just water (2); Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; Cut early in bloom cycle. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Campanula ‘Champion Pink Improved’

(Sakata)

Good Qualities: Great color (5); Great vase life, and form, strong stems although side shoots needed support, no insect problems, great spring flower, lots of blossoms that all opened up; Long vase live, pleasing flower shape; Flowers were nice; Outstanding productivity early in high tunnel, attractive flower.

Problems: Thrips magnet; Blossoms faded in color, from the base of the corolla outward, while in water, I liked this change/transition, but some of our audience took this to mean the flowers were over; Germination wasn’t good and didn’t have many plants to work with, did like what I got, but just wasn’t enough to make a good recommendation; Set back severely by spring weather conditions in field.

Similar species/cultivar: Other campanulas; All colors of series are alike.

Additional Comments: Harvested July week 1 to 3 (Planted in field 4/25, Zone 5); Initial stems were large at 36 inches, 3 others averaged about 15 inches; Most popular spring flower at market; I should have used support netting; **Cornell Trial** We included a topping treatment for this variety, and found no change in yield, stem length and earliness compared to untopped in the tunnel, but in the field, topped plants were 4 days later and produced twice as much yield, yield: 3 stems in field, 8 in tunnel and length: 13 inches in field, 20 inches in tunnel.

Postharvest Handling Recommendations: I used just water (2); Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; None.

Campanula ‘Champion White Improved’

(Sakata)

Good Qualities: Really liked the white variety; In the past we had only grown the blue and pink, the white and lavender were surprisingly popular and were outstanding; Great vase life, very popular form and flower presentation; Beautiful colors particularly the blue and white, long vase live, pleasing flower shape; Color choice and flowers were nice; Outstanding productivity early in high tunnel, attractive flower.

Problems: Thrips magnet; Weakest of the Champions trialed, heat stress; Germination wasn't good and we didn't have many plants to work with, did like what I got, but just wasn't enough to make a good recommendation; Set back severely by spring weather conditions in field.

Similar species/cultivar: I did not notice any improvement in any of the ‘Improved Champion’ campanulas over the regular ‘Champion’; Other campanulas; All colors of series are alike.

Additional Comments: Harvested July week 1 to 3 (Planted in field 4/25, Zone 5); We will be adding the white and lavender to our regular plantings from now on, they are worth having in the mix, initial stem was large at 36 inches, 3 others averaged about 15 inches; I should have used support netting; Nice white; **Cornell Trial** yield: 2 stems in field, 9 in tunnel and length: 14 inches in field, 21 inches in tunnel.

Postharvest Handling Recommendations: I used just water (2); Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to

help with absorption. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Dianthus

Dianthus ‘Fandango Purple Picotee’ (Goldsmith)

Good Qualities: Pretty color (4); Nice fragrance (2); Easy to harvest, very little foliage to strip; Dainty flowers, easy to grow; Nice filler, good for short vases; Would make a nice bedding plant; Very nice patterning; 20 days earlier than ‘Amazon Neon Rose’; Productive, early; This produced well into the summer in a hot greenhouse and put out a ton of stems, a very good producer, the color was unusual and eye catching, I believed we finally took it out in the middle of July after we had 9 days in a row of 116 degrees in that greenhouse; Easy to harvest. Easy to see where cut should be made to keep growth coming; Attractive form; Early flowers, could cut as a one-plant clump.

Problems: Too short (7) for anything except short bouquets; Doubleness and pattern are not consistent from plant to plant; Colors didn't work too well with other flowers; Few florets open on flower at one time, and these fade as others open; Since is was a bouquet dianthus, it took forever to pick, but worth the time; There were three shades - light, medium and dark, the light pink ones were shortest of the three, the dark ones were medium length and medium color was the longest - stems got thinner as cuts were made and the number of stems went down, but stem length went up.



Dianthus ‘Fandango Purple Picotee’

Similar species/cultivar: No comments made by trialers.

Additional Comments: Would not grow again; I have left it in the ground to see if it will overwinter and come back taller; One florist said she liked it when she saw it in my field, she thought it would be a good filler in Oasis arrangements, but she never bought any, too short; Harvested 6/26 to 7/8 (Planted in field 4/25, Zone 5); I think this next season we will try it again and put it outside and see if it produces longer than the middle of July for us; Will it overwinter well?

Postharvest Handling Recommendations: Doesn't need anything special; Use very little bleach in the water if any at all, the stems are thin and more fragile, the stems turned white and soft when I used a 10% bleach solution; Water; None; Vase life was forever. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Eryngium

Eryngium ‘White Glitter’

(Benary)

Good Qualities: Good plant stand, productive; Unique blooms, sturdy stem; Very distinctive silvery form, a nice contrast to the brighter/bolder colors in season; Has a unique characteristic, interesting shape of flowers, would add a really cool trait to a bouquet.

Problems: Very low seed germination (2); White color not clear, more greenish, at the spacing used, got a much-branched central stem that was too bushy for arrangements, should have pinched early, or crowded the plants more to get less branching, flowers smelled bad when first starting to flower, but the odor faded on later harvests; Blooms brown quickly in our humid climate, More stems per plant would be nice; It is very prickly so it is hard to harvest and handle in general; We seeded too late to get blooms first year.

Similar species/cultivar: None listed by participants.

Additional Comments: I liked it and it was useful in centerpiece work but did not sell by the bunch; I tried a new compost mix which was too heavy with manure and destroyed all of the seedlings of these plants. I won't make that mistake again!; Was very late to bloom, I did not harvest until 8/26/09 and still only 2 of 12 plants were blooming (Planted in field 5/27, Zone 4/5).

Postharvest Handling Recommendations: Water.

Gomphrena 'Audray Pink'

(Takii)

Good Qualities: Beautiful color (6); Long stems (4); Productive (4); Strong stems (3); Great flower size and foliage; Attractive filler in arrangements, especially well adapted to warm tunnels in summer; Consistent flower color; Nice big bloom, easier to harvest than some gomphrenas; Branching habit; Very productive plants even in cool coastal California; Very good branching structure, would be very good for bouquets, this also made it easy to see where to cut in order for new keep new growth coming, the plants grew very well and were taller than the Las Vegas series, not affected by disease the same as the Las Vegas series, had a little brown/red on edges of leaves but that is it; This is a very tall cultivar, easy to harvest, I would grow this one again; Color mixed well with many other flowers for bouquets, nice accent, germination was good; plants were taller and stems easier to cut than the Las Vegas series, flower was also a little larger, but later to fill out than the Las Vegas.

Problems: Stems not long enough (3); None (2); Slow to bloom; Inconsistent stem length.

Similar species/cultivar: Gomphrena 'Purple Red'; Growing the same as other gomphrenas.

Additional Comments: I would definitely try this one again; My new favorite gomphrena; Was not affected anywhere near as bad with what hit the Las Vegas series, they showed a little reddening along the margins of leaves but that is it, overall did not affect growth rate, vase life, or vase quality; The only thing they can do to improve this cultivar is to add more colors; I liked the flower for its color and the plant grew very nicely, it was full and had many blossoms per stem each week, it had a stronger stem than the Las Vegas, but didn't get as full of color until later in the season, plants were tall and very nice, would be great garden plant as well as 'Las Vegas'; **Cornell Trial** yield: 12 stems in field, 21 stems in tunnel and length: 24 inches in field, 28 inches in tunnel.

Postharvest Handling Recommendations: I used only plain water, perhaps a hydrating solution would have helped, flowers had "bent neck" syndrome after one or two days and were really droopy in arrangements; Cool water, Floralife, cool after cutting and don't leave in heat of the field; Water; Forever.



Gomphrena 'Audray Purple Red'

(Takii)

Good Qualities: Vibrant color (7); Productive plant (4); Strong stems (3); Color mixed well with many other flowers for bouquets, nice accent, germination was good, plants were taller and stems easier to cut than Las Vegas, flower was also a little larger, but later to fill out than Las Vegas; Attractive filler in arrangements, good stem length, especially well adapted to warm tunnels in summer; Especially good for mixed bouquets; Nice big bloom, easier to harvest than some gomphrenas; Excellent stem length; Kept its color when dried; The best branching structure of all the gomphrena in the trial, the branching was very uniform and straight, this is a great quality for bouquets, nice long stems, which were longer than the Las Vegas series; Very tall, easy to harvest, I would grow this one again; Great flower size, stem length and foliage.

Problems: None (2); Longer stems would have been nice; Slow to bloom; Inconsistent stem length; Some cuts were variable in number of stems, on 07/24/09 I cut some plants with 11 stems and some with zero, the plants with very few cuts were not ready because the side shoot blooms were not opening, I did not do my next cut until 08/06/09; Didn't hold up long enough.

Similar species/cultivar: Growing the same as other gomphrenas; 'Las Vegas Purple'.

Additional Comments: My new favorite gomphrena (2); I liked the flower for its color

and the plant grew very nicely, it was full and had many blossoms per stem each week, it had a stronger stem than the 'Las Vegas', but didn't get as full of color until later in the season, plants were tall and very nice, would be great garden plant as well as 'Las Vegas'; Was not affected (by possible bacteria disease) anywhere near as bad with what hit the Las Vegas series, they showed a little reddening along the margins of leaves but that is it, overall did not affect growth rate, vase life, or vase quality; The only thing they can do to improve this cultivar is to add more colors; I would definitely try this one again; **Cornell Trial** yield: 12 stems in field, 21 in tunnel and length: 24 inches in field, 27 inches in tunnel.

Postharvest Handling Recommendations:

Cool water, Floralife, cool after cutting and don't leave in heat of the field; Don't use too much bleach, it bleaches the bottom of the stems; I used only plain water, perhaps a hydrating solution would have helped, flowers had "bent neck" syndrome after one or two days and were really droopy in arrangements; Water; Postharvest "forever".

Gomphrena 'Las Vegas Pink'

(Benary)

Good Qualities: Prolific flowering (4); Beautiful bright color (3); Early to bloom (2); Smaller heads more floriferous; No pest or disease problems; Long lasting in the field, easy to cut in clumps; Persistent grower, many stems to cut each week; Color mixed well with many other flowers for bouquets, nice accent, germination was good.

Problems: Plants were too short (4); Was so much shorter than my regular QIS purple and pink gomphrena that I did not bother to cut it as stem length was 6 to 8 inches; A few taller stems but not many; Somewhat wobbly stems; Flower heads small, weak and floppy, especially later in the season; No problems; Difficult to know where to cut to keep new growth coming, was affected more by disease than 'Audray Pink' and 'Purple Red'; Not a problem, but I think the stems were so full that when I tried to cut them they easily got tangled up; It is on the short side but not so short it made it unusable.

Similar Species/cultivar: 'Audray Pink'; 'Las Vegas Purple' and 'Las Vegas White', different colors but grew similarly and were affected the same by disease; Growing the same as other gomphrenas.

Additional Comments: I think it was too wet and cold for this crop this year; All the same

height; During trial, contracted a bacterium (was never officially diagnosed), this was determined because the plants that were cut were much worse than the ones that were not cut, the leaves curled and turned red and brown on the edges, stems and leaves also turned crispy, my hands felt powdery after I cut them which came from the stems and leaves, however, this did not affect the flowers, the color was only a little washed out, and the plant still kept the same average number of stems per plant, after not cutting for 3 weeks, leaves and stems look much better, to where it's hardly noticeable, affected vase life by 2 days; I liked the flower for its color and the plant grew very nice, it was full and had many blossoms per stem each week; It got about half the height of the Audray series for us. The colors were nice but the taller gomphrena varieties are easier to harvest; **Cornell Trial** yield: 11 stems in field, 23 in tunnel and length: 19 inches in field, 22 inches in tunnel.

Postharvest Handling Recommendations:

Floralife; Cool water, Floralife, cool after cutting and don't leave in heat of the field; None; Water; Postharvest life "forever".

Gomphrena 'Las Vegas Purple'

(Benary)

Good Qualities: Beautiful color (5); Very prolific flowering (3); Early to bloom (2); no pest or disease problems; Long lasting in the field, easy to cut in clumps; Persistent grower, could cut each week; Color mixed well with many other flowers for bouquets, nice accent, germination was good.

Problems: Flower heads small (2); Short stems (4); Weak and floppy, especially later in the season; None; Difficult to see where to cut to keep new growth coming, was more affected by disease than gomphrena 'Audray Pink' and 'Purple Red'; Not a problem, but I think the stems were so full that when I tried to cut them they easily got tangled up; It is on the short side but not so short it made it unusable; Was so much shorter than my regular QIS purple and pink gomphrena that I did not bother to cut it, stem length was 6 to 8 inches; A few taller stems but not many.

Similar species/cultivar: Growing the same as other gomphrenas; 'Las Vegas Pink' and 'Las Vegas White', different colors but reacted to disease and grew the same.

Additional Comments: All stems were the same height; During trial, contracted a bacterium (was never officially diagnosed), this was determined because the plants that were cut were much worse than the ones that were not



Gomphrena 'Audray Purple Red'

cut, the leaves curled and turned red and brown on the edges, stems and leaves also turned crispy, my hands felt powdery after I cut them which came from the stems and leaves, however, this did not affect the flowers, the color was only a little washed out, and the plant still kept the same average number of stems per plant, after not cutting for 3 weeks, leaves and stems look much better, to where it's hardly noticeable, affected vase life by 2 days; I liked the flower for its color and the plant grew very nice, it was full and had many blossoms per stem each week; It got about half the height of the Audray series for us, the colors were nice but the taller gomphrena varieties are easier to harvest; I think it was too wet and cold for this crop this year, harvested numerous short stems; **Cornell Trial** yield: 11 stems in field, 14 stems in tunnel and length: 18 inches in field, 21 inches in tunnel, this is also being marketed as a container plant and would be an excellent choice.

Postharvest Handling Recommendations:

Cool water, Floralife, cool after cutting and don't leave in heat of the field; None; Floralife; Water; Postharvest "forever".

Gomphrena 'Las Vegas White'

(Benary)

Good Qualities: Pure white colour (2); Prolific flowering (2); No pest or disease problems; No browning; Long-lasting in the field, easy to cut in clumps; Best of the Las Vegas series, cannot see white flowers coming out from

flower heads because flower head is white; Color mixed well with many other flowers for bouquets, nice accent, germination was good.

Problems: Too short (3); Not so short it made it unusable; Flower heads small, weak and floppy, especially later in the season; about 10 days later than other Las Vegas lines to start flowering; None; Difficult to see where to cut to keep new growth coming, was affected by disease more significantly than gomphrena 'Audray Pink' and 'Purple Red'; Not a problem, but I think the stems were so full that when I tried to cut them they easily got tangled up; Was so much shorter than my regular QIS purple and pink gomphrena that I did not bother to cut it, stem length was 6 to 8 inches.

Similar species/cultivar: Gomphrena 'Las Vegas Pink' and 'Las Vegas Purple', different color but reacted to disease the same and had same growing habit; Growing the same as other gomphrenas.

Additional Comments: It got about half the height of the Audray series for us, the colors were nice but the taller gomphrena varieties are easier to harvest; All the stems were the same height; During trial, contracted a bacterium (was never officially diagnosed), this was determined because the plants that were cut were much worse than the ones that were not cut, thought to have been transferred through pruners that had not been disinfected between cuts, the leaves curled and turned red and brown on the edges, stems and leaves also turned crispy, my hands felt powdery after I cut them which came from the stems and leaves, however, this did not affect the flowers, the flowers still looked good, the color was only a little washed out, and the plant still kept the same average number of stems per plant, after not cutting for 3 weeks, leaves and stems look much better, to where it's hardly noticeable, affected vase life by 2 days; I liked the flower for its color and the plant grew very nicely, it was full and had many blossoms per stem each week; **Cornell Trial** yield: 9 stems in field, 14 in tunnel; Length: 18 inches in field, 22 inches in tunnel, would be a great container plant!

Postharvest Handling Recommendations: None; Cool water, Floralife, cool after cutting and don't leave in heat of the field; Water; Forever.

Kale

Kale 'Giraffe'

(Murakami)

Good Qualities: It is absolutely stunning, both the purple and the white are very nice.

Problems: Too hot here, colored very early and short, and then bolted in the heat.

(Zone 7).

Similar species/cultivar: No comments made by trialers.

Additional Comments: If the postharvest issue can be solved and it won't go down for my customers, I would absolutely grow this one again, it is beautiful, greenhouse grown.

Postharvest Handling Recommendations: This is a strange cultivar with regards to postharvest, if we don't cut it and put it in HOT water with floral preservative, it will wilt, but when it wilts, we re-cut it and put it in HOT water with preservative and put it directly in the cooler and it will perk up, it did the same for one of my customers - my other kale varieties do not do this and I'm reluctant to grow this one again if it is going to continue to go down so easily.

Larkspur

Larkspur

'Belladonna Exp. Blue Donna'

(Gloeckner)

Good Qualities: Great blue color (4); Flowers were nice, germination was better than the other two varieties, strong stems; Productive in first year; Did not get any mildew even when all other belladonnas suffered, bloomed well first year from seed, healthy plants!; These were good quality plants that produced a principal stem and nice secondaries.

Problems: Little weak stems; Because of all the bad weather this did not get planted into the field when it should have, developed disease problems in the crates, would like to try again; Floret spacing on spike too wide, half of plants had died out by mid-September; No problems; Stems were not particularly strong and required staking, but I suppose this is usually the case with delphiniums.

Similar Species/cultivar: Other bellamosum types.

Additional Comments: We got only 1 or 2 blooms before they died, it was very wet for us this spring and things suffered; Greenhouse grown; I tried a new compost mix which was too heavy with manure and destroyed all of the seedlings of these plants, I won't make that mistake again!; Harvested 8/4 to 8/20 (Planted in field 4/25, Zone 5);



Larkspur 'Stiletta Rosy Red'

Initial bloom 24 inches long and 15 to 18 inch long secondaries; **Cornell Trial** yield: 6 in field, 3 in tunnel, length: 18 inches in both tunnel and field.

Postharvest Handling Recommendations: Cut early in the day, kept cool and used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption, No treatment; Water.

Larkspur 'Stiletta Indigo Blue'

(Kieft)

Good Qualities: Attractive blue flower (5); Went well with 'Rosy Red'; Flowers were nice; The color was unreal - bright, deep, delphinium blue - a color I've never found in a larkspur; Many usable branches even at 6-inch spacing; Healthy plants.

Problems: Too short (2); Germination wasn't good and didn't have many plants to work with, liked what I got, but just wasn't enough to make a good recommendation; Flower stems shorter than 'Stiletta Rosy Red'; Other larkspur varieties are much better; In the past I've had better luck with larkspur, we got it into the field early enough but then we had a month of rain, no sun, and unusually cool weather, plants seemed stunted.

Similar species/cultivar: 'Stiletta Rosy Red'.

Additional Comments: No yield, plants dwarfed by plug tray, wet spring; Although my customers loved the 'Rosy Red', I think the blue was their favorite, but we sold all of both, so they are both worth having; I tried a new compost mix which was too heavy with

manure and destroyed all of the seedlings of these plants, I won't make that mistake again!; My wholesaler and florists went crazy over the color. It was a huge hit!; Cut the whole plant; **Cornell Trial** pinching early yielded 6 stems/plant, 22 in. long, delayed 3 days in harvest compared to the unpinched plants, tunnel-grown 31-inch main stem; 20-inch branches.

Postharvest Handling Recommendations: Cut early in the day, kept cool and used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; Water. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Larkspur 'Stiletta Rosy Red'

(Kieft)

Good Qualities: Nice rose pink color (6); Flowers were nice; Looks great with the dark blue larkspur; Relatively tall main stems, many usable branches even at 6 inches spacing; Nice plant.

Problems: Too short (2); None (2); Germination wasn't good and didn't have many plants to work with, liked what I got, but just wasn't enough to make a good recommendation; In the past I've had better luck with larkspur, we got it into the field early enough but then we had a month of no sun, rain and unusually cool weather, plants seemed stunted; Other larkspur varieties are much better.

Similar species/cultivar: 'Stiletta Indigo Blue'.

Additional Comments: Didn't do well after transplant, too wet; It might have done even better if we had gotten it out earlier, we sold everything we picked, so I consider it a success; I tried a new compost mix which was too heavy with manure and destroyed all of the seedlings of these plants, I won't make that mistake again!; **Cornell Trial** pinching early yielded 6 stems/plant, 27 in. long, delayed 5 days in harvest compared to the unpinched controls, tunnel-grown plants produced 39-inch main stem and 20-inch side branches.

Postharvest Handling Recommendations: Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; Water.

Lisianthus

Lisianthus ‘Arena III Champagne’

(Takii)

Good Qualities: More resistant to botrytis than ‘Lime Green’; Amazing; Attractive double, ruffled petal edges; Nice color; Personally like the flower when it is not all the way opened as the color is deeper.

Problems: It was a cold damp summer so I did not start picking until my season was nearly over in mid-August, I started the seeds inside on Jan 23rd, Color is more green than champagne; Did not get first cut until 08/26/09 (Planted in field 5/27, Zone 4/5); Too short.

Similar Species/cultivar: The flower looks like a less productive ‘Cinderella Lime’; ‘Super Magic Peach’.

Additional Comments: This is a gorgeous flower, I bet it’s great in a high tunnel or in a year where there isn’t rain five days out of seven; Harvested Sept. (Planted in field 6/10, Zone 5); Petals are more “ruffled” than ‘Magic Peach’ or ‘Echo Champagne’, not as fully double but flowers larger than ‘Magic Peach’, I prefer ‘Echo Champagne’; Light orange peach color when opened then turns to light cream to white; Low germination; As I recall, these were better looking than ‘Vulcan Champagne’ in terms of height but the Vulcans were a bit ahead in maturity by 3 to 4 days, the October harvest stems were short (in high tunnels).

Postharvest Handling Recommendations: Flower food to open the buds; Water.

Lisianthus ‘Cinderella Lime’

(Goldsmith)

Good Qualities: Beautiful, double bloom (3); Productive (2); First time I’ve tried lissies from seed, and germination was much better than I expected; Ruffled petal edges; Very nice soft green color that is not often seen in flowers, this makes them one of a kind, the color matches the color of the leaves well; The flower is gorgeous with many buds at the top, the germination of these seeds was about one hundred percent; Nice form, adequate stem length and strength.

Problems: Too short; Not as tall as ABC varieties for me, but very nice flower, not really “lime” colored - more white with slight greenish tint; None; Many stems bent over and then started growing upwards, very undesirable in a cut flower, this could have been due to wind (it was positioned in the field where it took the brunt of the wind) or

could be from being top heavy with so many blooms!; They were infected early with botrytis or whatever fungal disease I had and that really ruined them, I started spraying early with Milstop and sprayed for thrips, etc. but the constant rain made a good weekly schedule impossible.

Similar species/cultivar: ‘Arena Green’.

Additional Comments: I will definitely grow this one again; First of the trial lisianthus to bloom, first cut was on 08/10/09, next cuts of other lisianthus were not until 08/26/09 (Planted in field 5/27, Zone 4/5); This is a beautiful flower and I would grow it again; I tend to prefer the ‘Cinderella’ to the ‘Arena Green’ because of the form of the flowers and the green was a little sharper or brighter, although I am not personally fond of green lissies, these looked very good in arrangements with rudbeckia ‘Prairie Sun’ and with some purple/lavender flowers; **Cornell Trial** cold, rainy season in field was very bad

Although I am not personally fond of green lisianthus, ‘Cinderella Lime’ looked very good in arrangements with rudbeckia ‘Prairie Sun’ and some lavender flowers.

for lisianthus, but they grew well in the high tunnel, yield: Field 2 stems, tunnel 7 stems and length: field 20 in., tunnel 24 in.

Postharvest Handling Recommendations: They were cut into Floralife flower food for hard water; Water.

Lisianthus ‘Vulcan II Champagne’

(Takii)

Good Qualities: Exceptionally tall (3); Single-flowered, ruffled petal edges; Color mixed well with many other flowers for bouquets, nice accent, germination was good. Stems were exceptionally strong, even in the open field; Really beautiful.

Problems: Color is more green than champagne, relatively late; No problems; Did not germinate.

Similar species/cultivar: Growing the same as other eustomas.

Additional Comments: Low germination; I liked the flower for its color and the plant grew very nicely. It was full and had many blossoms per stem each week. It survived the first frost and was a great plant; Harvested Sept. (Planted in field 6/10, Zone 5); I never got a cut on these, they were still not blooming

enough to cut on 09/07/09 (Planted in field 5/27, Zone 4/5); Nice, but not as nice as the double ‘Arena Champagne’, this was earlier than the double but didn’t really grab me.

Postharvest Handling Recommendations: Cool water, Floralife, cool after cutting and don’t leave in heat of the field; Water.

Lisianthus ‘Vulcan II Purple Picotee’

(Takii)

Good Qualities: Attractive picotee edges; Really good purple color; Very cool! nothing like any other flowers, lime green center and yellow stigmas makes it very visually appetizing, the lime and purple striped buds that turn white with purple edges are all very attractive!

Problems: Short stems (2); Few stems, mid-season; On 09/07/09 only two plants were ready to cut (Planted in the field 5/27, Zone 4/5).

Similar species/cultivar: None.

Additional Comments: Did not germinate; Harvested Sept. (Planted in the field 6/10, Zone 5); Deeper green leaves than other lisianthus; As I was hoping, the late harvest got some stem length, these were striking even as a single with a bright, deep true purple and clean pure white contrast, petals had good substance, better than the other Vulcan, I can sell these even as single-flowered lissies.

Postharvest Handling Recommendations: Water.

Salvia

Salvia ‘Jerusalem’

(Genesis)

Good Qualities: Nice blue-purple color (2); Plants grew well but very short, The seeds germinated easily (2); Very hardy, healthy looking plugs, I thought it would be a real winner!; So far so good, plants look nice in the field, germination was good; None; Several flower spikes (usually 3) from a central stem, strong stems (no netting needed), one of 1st plants to bloom in spring; Nice form.

Problems: Rosetted but no flowers (3); Will winter over? Perennial?; Plants melted in the field; I don’t know if it was the cool weather, lack of sunshine and constant rain in June but the plant seemed to form a rosette and just sat in the field, we finally pulled it out at the end of August, couldn’t find much information about the plant online; This rotted out from too much rain; Short, poor germination, poor vase life, not very pretty; Hard to find stems without petal browning;

Very late to bloom, only got 5 stems off of one plant out of 12 plants on 08/26/09 (Planted in field 5/27, Zone 4/5); Slow to start or take off in the high tunnel until air temps were into the 80's.

Similar species/cultivars: No comments made by trialers.

Additional Comments: Probably too cold here in New York; Plants grew well and will bloom next season; Is this species, perhaps, a perennial?, after almost six months in the ground, they still had not even shown a hint of willingness to bloom, moving toward winter cover crops, we pulled the plug, but did pot some up into containers to see what the future might bring; Never again, not really as nice as salvia 'Majestic Spire'; Didn't bloom.

Postharvest Handling Recommendations: No comments made by trialers.

Snapdragon

Snapdragon 'Opus III/IV Bright Red'

(Goldsmith)

Good Qualities: Great color (5); The only difference I could see between the two was that the stem on 'Opus Red' was a dark red while the stem on 'Opus Bright Red' was green, 'Opus Bright Red' was the first to bloom at the beginning of July - perfect for July 4 bouquets!; Healthy, productive plants; Tall, strong stems, attractive dark red florets; Good stem length; I thought they were both great colors but they did not sell well for me, not sure why; Great for late summer planting, uniform growth, vigorous grower, good stem quality.

Problems: Tip breaks more easily than other varieties; Stems not as strong as some 'Opus' varieties that I have bought as plugs, but that may be because of my handling rather than a cultivar defect; Not a great difference in color to the others; Minor rust susceptibility.

Similar species/cultivar: Other Opus varieties.

Additional Comments: Good spike shape, slightly more open and spiral than most, good buds and strong stem; Relatively early for a Group II/IV: started flowering 82 days from sowing compared to 99 days for 'Rocket White'; Opus does better for me than any other snap I have tried; I would try them again just to make sure my customers haven't changed their minds, my customers seem to like pink, yellow and orange the best, maybe the red it just too dark for them, not sure; Pinched plants.

Postharvest Handling

Recommendations: None (2); Cut into hydrator and store in holding; Water.

Snapdragon 'Opus III/IV Red'

(Goldsmith)

Good Qualities: Super color (3); Good stem length (2); Good plant vigor; nice uniform bloom time; Size, great in every way; Very healthy and productive; I thought they were both great colors but they did not sell well for me, not sure why.

Problems: Slightly more rust susceptible than the III/IV 'Bright Red'; None; Red was not a popular color when this began to bloom, too hot too early for me; Stems not as strong as some 'Opus' varieties that I have bought as plugs, but that may be because of my handling rather than a cultivar defect.

Similar species/cultivar: 'Potomac Crimson'; Other Opus varieties.

Additional Comments: Pinched plants; I liked this variety, I pinched it at 6 inches and got nice long shoots; I love this snap, it is stronger than the 'Opus White' and mixed colors, a super performer; Good spike form, long taper, a bit thin at the top, stem not as strong as similar group 3/4 varieties; Opus does better for me than any other snap I have tried; I would try them again just to make sure my customers haven't changed their mind, my customers seem to like pink, yellow and orange the best, maybe the red is just too dark for them, not sure.

Postharvest Handling Recommendations: None (2); Used Floralife for hard water; Cut into hydrator and then store in holding.

Snapdragon 'Potomac Crimson'

(Ball Horticultural)

Good Qualities: Outstanding rich color (5); Lauded by all who saw it, decent plant vigor and stem quality; All the snaps I trialed had no disease problems and we were wet this summer and I didn't need to spray anything on them; More of a rosy red than the 'Opus', beautiful red-colored stems; Stems were strong, bloomed all season.

Problems: Later stems were somewhat more brittle than the first waves; Rust.

Similar species/cultivar: Nice and full like other Potomac varieties; Other Potomac snaps.

Additional Comments: Pinched plants; Harvested 7/1 to 7/8 (Planted in the field 4/25, Zone 5).

Postharvest Handling Recommendations: Cut early in the day, kept cool and used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; None.



Snapdragon 'Opus III/IV Bright Red'

Stock

Stock 'Vivas Blue'

(Sakata)

Good Qualities: Early to flower (3); Fragrance (2); Tall, interesting bicolor look as spike flowers open, light lavender ages to much darker lilac color, no branching; Attractive purple color, full blooms, stalk; Colors were nice; We grew the blue, salmon, pink, light pink, cream and lavender, all did well in the greenhouse and we sold them all, it would be fun to try them again.

Problems: Only one flower, too costly to grow; Not easily sorted by cotyledon color, tips abort in heat; Flower heads small - I am not sure if this is a weather or fertility issue, I cannot tell doubles from singles so waste a lot of space; I seeded these but think they went out too late to do anything, probably better early in a hoop house.

Similar species/cultivar: Japanese varieties although color is unique; None.
Additional Comments: I'd love an all-doubles mix!; It was a nice stock and I was surprised how tall they got in the greenhouse since they were planted in the spring and not the fall, they would be worth another try.

Postharvest Handling Recommendations: Floralife, keeps well in cooler; Did fine no matter what we did.

Stock 'Vivas Clear Lavender'

(Sakata)

Good Qualities: Nice stem strength/girth, strong without being too bulky, the color was very pleasing to the eye and received lots of praise from our various audiences; Good head and stem size, fragrant; Scent is great, colors were nice; We grew the blue, salmon, pink, light pink, cream and lavender, all did well in the greenhouse and we sold them all, it would be fun to try them again.

Problems: Nothing to note; None, was a bit slower to bloom than other Vivas varieties; Flower heads small - I am not sure if this is a weather or fertility issue,

I cannot tell double from single so waste a lot of space; I seeded these but think they went out too late to do anything, probably better early in a hoop house.

Similar species/cultivar: No comments made by trialers.

Additional Comments: I had some seed left and just did another small planting of both cultivars in the trial, I am really looking forward to seeing how they do over the winter in the field, fall planted stock typically gives us 24"+ stems in January-early February; I'd love an all-double mix!; It was a nice stock and I was surprised how tall they got in the greenhouse since they were planted in the spring and not the fall, they would be worth another try.

Postharvest Handling Recommendations: Water quality/care for organic postharvest handling of stock is really something I should apply for an ASCFG Grower Grant (*Yes, you should! Author comment*); Floralife, keeps well in cooler; Did fine no matter what we did; Hydrogen peroxide.

Stock 'Vivas Light Pink'

(Sakata)

Good Qualities: Pink color (2); Fragrance (2); Consistent quality stems; In the field and when first cut, this was a very nice light pink color and was well appreciated; Cotyledons



Stock 'Vivas Salmon Pink'

selectable, good dense spikes, no branching; Early flower; We grew the blue, salmon, pink, light pink, cream and lavender, all did well in the greenhouse and we sold them all, it would be fun to try them again.

Problems: None; Unfortunately, after about 7 days in water, flower color faded, though they held their form until day 10; Spikes get clubby in heat, bud pack aborts, would not be a problem if not grown in heat; Only one flower, too costly to grow; Flower heads small - I am not sure if this is a weather or fertility issue, I cannot tell double from single so waste a lot of space; I seeded these but think they went out too late to do anything, probably better early in a hoop house.

Similar species/cultivar: Several of the Japanese varieties.

Additional Comments: I'd love an all-double mix!; It was a nice stock and I was surprised how tall they got in the greenhouse since they were planted in the spring and not the fall, they would be worth another try.

Postharvest Handling Recommendations: Floralife, keeps well in cooler; Did fine no matter what we did; Hydrogen peroxide.

Stock 'Vivas Salmon Pink'

(Sakata)

Good Qualities: Very good pink color (3); Fragrance (2); Early to flower; Long strong

spikes, densely packed, no branching, tall, fairly quick to flower; Stands out next to other colors, good stem diameter, bloom size; We grew the blue, salmon, pink, light pink, cream and lavender, all did well in the greenhouse and we sold them all, it would be fun to try them again.

Problems: One flower, too costly to grow; No cotyledon selectable, can't see any salmon color or influence, the color here is very deep pink, tips abort in heat, timing is quite variable; None; Flower heads small - I am not sure if this is a weather or fertility issue, I cannot tell double from single so waste a lot of space; I seeded these but think they went out too late to do anything, probably better early in a hoop house.

Similar species/cultivar: Many Japanese cultivars.

Additional Comments: I'd love an all-double mix!; It was a nice stock and I was surprised how tall they got in the greenhouse since they were planted in the spring and not the fall, they would be worth another try.

Postharvest Handling Recommendations: Floralife, keeps well in cooler; Did fine no matter what we did.

Sunflower

Sunflower 'Tapuz'

(Genesis)

Good Qualities: Rich sunflower color (6); Stem strength, big heads, 6 to 8 inches across; Standard single stem; Nice, strong stems and attractive flowers; Practical size for a sunflower; Sturdy stem and neck, good form; Stems were strong, bloomed all season; So similar to 'Zahav' that I could not tell the difference.

Problems: Neck is thick, blooms later than others; Some side bud production near the principal head that had to be removed; This one did not germinate well, so we pinched it to get more flowers; Leaves were very damaged by disease early in the season when conditions were wet, this created a lot of extra work since we had to do so much additional cleaning in order to have saleable stems, even then half the crop was a loss, also these plants were branching, not singles, later plantings did much better with disease, this variety is definitely more suited for hot, dry climates; The field they were planted in was of lower fertility so the flowers were small; After first cut no new side blooms grew; A bit short (grown in short days); Germination was good, flowers were nice but they didn't seem to last

as long as the others; These went out as plugs and these and my first crop of sunflowers rottedso wet this spring; Seed germination was very poor - 50%; **Cornell Trial** 77 days to flower with long-day conditions (summer), very sensitive to short days as the plants flower 24 days earlier if grown at 12 hours daylength in seedling stage.

Similar species/cultivar: Many other orange sunflowers (2); So hard to really tell them all apart.

Additional Comments: I prefer branching sunflowers so if I miss the timing on picking I get another chance; I'm ashamed to admit that I got these all mixed up with 'Zahav' and 'Zohar' and none of them did that well for me; Shortest compared to 'Zahav' and 'Zohar', smallest blooms of the three as well, while growing the stems curved, some a lot more than others, this could have been due to wind, light, and/or being too crowded, once thinned the worst ones out they did not curve more, but the ones that were left in with a little curve did not correct itself in the field; Would not grow either cultivar again; **Cornell Trial** length was 59 inches under long days and 34 inches under short days.

Postharvest Handling Recommendations: Cut into hydrator and store in holding; Used Floralife for hard water; Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption; None; Water. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Sunflower 'Zahav'

(Genesis)

Good Qualities: Good traditional color (3); Strong stems (3); So similar to 'Tapuz' that I could not tell the difference; Another strong-stemmed, large-headed variety, but not a real standout; Standard single stem; Attractive flowers; Traditional form, good necks; Bloomed all season.

Problems: Very poor germination (2), only 25% (*according to one trialer*); Like 'Tapuz', this variety produced small side buds that had to be removed to improve appearance/quality; Leaves were very damaged by disease early in the season when conditions were wet, this created a lot of extra work since we had to do so much additional cleaning in order to have saleable stems, even then half the crop was a loss; also these plants were branching, not singles, later plantings did much better with disease, this variety is

definitely more suited for hot, dry climates; The field they were planted in was of lower fertility so the flowers were small; After first cut no new side blooms grew; A bit short (grown in short days); Germination was good on all but the 'Zohar', flowers were nice but they didn't seem to last as long as the others; These went out as plugs and these and my first crop of sunflowers rottedso wet this spring; **Cornell Trial** 77 days to flower with long-day conditions (summer) - very sensitive to short days as plants flowered 22 days earlier if grown at 12 hours daylength in seedling stage.

Similar species/cultivar: Most orange sunflowers (2).

Additional Comments: Would not grow this cultivar again; I prefer branching sunflowers so if I miss the timing on picking I get another chance; Harvested 7/27 (Planted in field 4/15, Zone 5); I'm ashamed to admit that I got these all mixed up with 'Tapuz' and 'Zohar', none of them did that well for me; Second tallest compared to 'Tapuz' and 'Zohar', second largest blooms of the three as well, while growing the stems curved, some a lot more than others, this could have been due to wind, light, and/or being too crowded, once thinned the worst ones out they did not curve more, but the ones that were left in with a little curve did not correct itself in the field; **Cornell Trial** length: 62 inches under long days and 36 inches under short days.

Postharvest Handling Recommendations: Postharvest in water (2); Cut into hydrator and store in holding; Used Floralife for hard water; Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption.

Sunflower 'Zohar'

(Genesis)

Good Qualities: Sturdy stems (4); Rich color (2); Classic colouring with yellow and orange (3); Quick to flower (2); All plants bloom same time; Probably the best of the trials group, rather large heads; Standard single stem orange; Nice, attractive flowers; Very nice, very uniform; Nice flower size for bouquet work; Large stems; Bloomed all season.

Problems: Appears very daylight sensitive, frequently double bud terminal stem end, short (grown short-day); Same side bud formation problem, as with 'Tapuz' and 'Zahav', but less pronounced and not as many down the stem; Leaves were very damaged by disease early in the season when conditions were wet, this

created a lot of extra work since we had to do so much additional cleaning in order to have saleable stems, even then half the crop was a loss, also these plants were branching, not singles, later plantings did much better with disease, this variety is definitely more suited for hot, dry climates; The field they were planted in was of lower fertility so the flowers were small; My customers just didn't like the color plus the germination with this one was not good at all; Center ripens before petals totally unfurl; After first cut no new side blooms grew, flower heads are very large!, too large for a bouquet; Germination was good on all but 'Zohar'. Flowers were nice but they didn't seem to last as long as the others; These went out as plugs and these and my first crop rottedso wet this spring; **Cornell Trial** 72 days to flower with long day conditions (summer), very sensitive to short days as flowering was 21 days earlier if grown at 12 hours daylength in seedling stage.

Similar species/cultivar: Most orange sunflowers (2).

Additional Comments: I prefer branching sunflowers so if I miss the timing on picking I get another chance; Harvested 7/16 to 7/27 (Planted in the field 4/25, Zone 5); Would not grow this one again; I'm ashamed to admit that I got these all mixed up with 'Zahav' and 'Tapuz', none of them did that well for me, but I will probably try 'Zohar' again; Tallest compared to 'Tapuz' and 'Zahav', largest blooms of the three as well, while growing the stems curved, some a lot more than others, this could have been due to wind, light, and/or being too crowded; once thinned the worst ones out they did not curve more, but the ones that were left in with a little curve did not correct itself in the field; **Cornell Trial** length: 49 inches under long-day conditions and 23 inches under short days.

Postharvest Handling Recommendations: Postharvest in water (2); Cut into hydrator and store in holding; Used Floralife for hard water; Cut early in the day, kept cool and also used Floralife, strip bottom foliage before putting into buckets, seems to help with absorption. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Zinnia

Zinnia ‘Benary’s Giant Wine’

(Benary)

Good Qualities: Gorgeous color (7); Full flowers (2); Great addition to our collection of zinnia varieties to grow; Color mixed well with many other flowers for bouquets, nice accent, germination was good, plants grew well and didn’t get mildew until late in season when cool weather started, many stems were not cut because they were short, but that made for a nice color in the field, there were still many useful stems; Attractive, large flower; Good plant vigor, almost no mildew problems, high quality stems; All so far have been fully double when ‘Benary Yellow’ and ‘Benary Scarlet’ in the same hoop house are mixed doubles and singles, especially ‘Benary Yellow’, this zinnia is stunning and I highly recommend it; Huge, productive, healthy plants; Size - fully double, too bad it isn’t as consistent as ‘Uproar Rose’; 4 days into vase life turned a beautiful purple!; Outstanding quality of bloom; Good vase life, beautiful color that adds to the range of color already in the series, florist repeatedly requested that “burgundy”-colored zinnia, my crew loved working with it in bouquets; Prolific, bloomed all season, nice long stems.

Problems: No problems (3); Occasionally, flowers were irregular or misshapen; Same as other zinnias; Poor season to trial heat lovers - cold and wet here - ruined flowers; Variable stem lengths on first cut, powdery mildew set in before plants could produce many blooms on a single plant.

Similar species/cultivar: Grows the same as other Benary zinnias (3); Other zinnias; ‘Benary’s Giant Purple’.

Additional Comments: I liked the flower for its unique color and the plant grew very nicely, it was full and had many stems each week; Vivid solid color; Postharvest “comparable to others”; Loved this flower! very bold; Was expecting a different colour from the description (wine/merlot); A new favorite; Harvested 7/22 to 8/11 (Planted in the field 6/10, Zone 5); **Cornell Trial** yield: 6 stems in field, 2 stems in tunnel and length: 23 inches in field, 22 inches in tunnel.



Zinnia ‘Benary’s Giant Wine’

Postharvest Handling Recommendations: Postharvest in water (2); Floralife; Cool water, Floralife, cool after cutting and don’t leave in heat of the field. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Zinnia ‘Red Beauty’ is a great addition to our collection of zinnia varieties. Double flowers, good stem length.

Zinnia ‘Red Beauty’

(Genesis)

Good Qualities: Excellent color (5); A great addition to our collection of zinnia varieties to grow; Double flowers, good stem length and size; Color mixed well with many other flowers for bouquets, nice accent, germination was good, plants grew well and didn’t get mildew until late in season when cool weather started, many stems were not cut because they were short, but that made for a nice color in the field, there were still many useful stems;



Zinnia ‘Red Beauty’

Nice big flower, strong stems; Even colour throughout plants; Prolific, long-blooming; Uniform flower appearance, medium early; Good stem length, plant height and flower production, uniformity of bloom and almost all flowers having a prominent ring of disk flowers; Very good quality, rich red, unlike other fall tones we have late in the season, vigorous plants with almost no mildew problems, even late in the season.

Problems: No problems (2); Very poor vase life as compared with ‘Giant Wine’ which I was cutting at the same time; Color was too bright, impossible to work into bouquets or mixed bunches, ugly; Bad weather made flowers useless if they were rained on a lot, which caused a fungus disease too; Flower not consistently double, Japanese beetles preferred it to the other zinnias in trial!; Not

uniform, some nice, some ho-hum; Flower not as large as some; Subject to fungal leaf spot found on all zinnias; Like the white, this variety sometimes had irregularly-shaped flowers, but otherwise it was a great variety; Powdery mildew set in before plants could produce many blooms on a single plant.

Similar species/cultivar: Grows the same as other zinnias.

Additional Comments: I didn’t think ‘Red Beauty’ had anything special about it to merit choosing it over the reds offered in the Benary series. Postharvest - water quickly became murky; I liked the flower for its bright color and the plant grew very nicely, it was full and had many stems each week; Perhaps due to bug damage, this did not appear to be a professional quality zinnia; I like this one, but not as much as ‘Giant Wine’; Harvested July 20th to Aug. 11 (Planted in the field 6/10, Zone 5); **Cornell Trial** yield: 7 stems in field, 2 in tunnel and length: 24 inches in both tunnel and field.

Postharvest Handling

Recommendations: Cool water, Floralife, cool after cutting and don’t leave in heat of the field; Used plain water or Floralife, changed water after 24 hours; 7-10 days if dry; Still looked good after a week; Water. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

Lisianthus Plug Trial

Lisianthus 'Advantage Purple'

Good Qualities: The yellow stigma is very nice contrasting color to the purple, the buds are also very cool with the lime green and purple stripes.

Problems: Too short.

Similar Species/cultivar: 'Super Magic Deep Blue' and 'Super Magic Purple'.

Additional Comments: More of a "single flower" on some, not as large and lush as 'Mariachi Blue', discoloration at edges of outer petals - too much rain?

Lisianthus 'Arena III Pink'

Good Qualities: Very elegant pink color, buds are very cool with lime green and pink shades, also have very cool lime green and pink centers!

Problems: Too short; Small blossom, not as fully double, color was very pale, bloomed late and didn't pick much.

Similar Species/cultivar: No comments made by trialers.

Lisianthus 'Arena III Yellow'

Good Qualities: Nice color (2); Nice larger flower, almost as large and double as yellow Mariachi, Arena series had taller stems than 'Magic'.

Problems: Late to open; These were the shortest of all lisianthus, they were also very slow to recover from the first cut, my first cut was on 8/26/09 and with my next cut only one plant out of seven had one bloom that was ready to be cut again on 09/07/09 (Planted in field 5/27, Zone 4/5).

Similar Species/cultivar: No comments made by trialers.

Additional Comments: Paler yellow than Mariachi, not as fully double.

Lisianthus 'Arena IV Rose'

Good Qualities: Last to bloom, centers starting to show on 9/5; Great color and stem length, this was our best lisianthus; Tallest of all lisianthus.

Problems: Bloomed a little later than all the other lisianthus; No plants are yet blooming on 09/07/09 (Planted in field 5/27, Zone 4/5).

Similar Species/cultivar: No comments made by trialers.

Additional Comments: Not as deep a color as 'ABC Rose', but tallest of the Arenas, ABC is more showy.

Lisianthus 'Super Magic Apricot'

Good Qualities: Pretty peachy color, paler as it opens, not fully double; Pretty color; Awesome center with dark pink and yellow, you can see dark pink even when the blooms are not totally open, gives depth to the flower.

Problems: Did not last more than 5 days; Too short; Bloomed too late to get cuts, thinner stems than other lisianthus.

Similar Species/cultivar: 'Arena III Pink'.

Additional Comments: These bloomed too late to get a cut, all I could do was count the blooms on the plant that would have been cut if I had time, this was on 09/07/09 and only three plants were ready to be cut (Planted in field 5/27, Zone 4/5).

Lisianthus 'Super Magic Deep Blue'

Good Qualities: Nice deep colors - smaller blossom than Mariachi, not fully double.

Problems: Flowers didn't last as long as Mariachi and no side buds opened, side buds "crashed" despite being recut and put in clean water after 3 or 4 days; Too short.

Similar Species/cultivar: No comments made by trialers.

Lisianthus 'Super Magic Lavender'

Good Qualities: Pretty, two-tone flower, nice and double with dark throat; Very pretty with dark purple insides.

Problems: Some flowers never fully opened, postharvest not as good; Too short, flower color was very light and had a muddy look to it.

Similar Species/cultivar: No comments made by trialers.

Additional Comments: Many plants are tallest of the Super Magic series, did not get first cut until 08/26/09 (Planted in field 5/27, Zone 4/5).

Lisianthus 'Super Magic Peach'

Good Qualities: Pale peachy color - similar to 'Echo Champagne', much paler when fully opened, more toward yellow, not as fully double as Mariachi; Pretty color; Very nice color; light orange/peach with a tint of pink.

Problems: Did not hold up as long as Mariachi, only 5 days, side buds wilted easily; Too short.

Similar Species/cultivar: No comments made by trialers.

Additional Comments: Did not get first cut until 08/26/09 (Planted in field 5/27, Zone 4/5).

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Lisianthus 'Super Magic Purple'

Good Qualities: Pretty, hard to distinguish color from 'Deep Blue', maybe slight "red" highlight, flower larger, more double, stem taller than blue.

Problems: Did not last more than 5 days; Too short.

Similar Species/cultivar: 'Super Magic Deep Blue' and 'Advantage Purple'.

Additional Comments: Did not get first cut until 08/26/09 (Planted in field 5/27, Zone 4/5).

Lisianthus 'Super Magic White'

Good Qualities: Fully double flower with green throat, very nice, might try again; Very nice pure white flower.

Problems: Too short.

Similar Species/cultivar: No comments made by trialers.

Additional Comments: Vase life is very long, did not get first cut until 08/26/09 (Planted in field 5/27, Zone 4/5).

2009 ASCFG NATIONAL Perennial Trials

John Dole, North Carolina State University
Judy Laushman, ASCFG

The new *Echinacea* cultivars keep coming and each one seems bolder, brighter or more unusual than the last one. ‘Tiki Torch’ and ‘Tomato Soup’ (Terra Nova) are knock-your-socks off orange—a color unheard of in coneflowers not that long ago. Both cultivars were in the trials for the first year but still produced several harvestable flowers per plant, which ranged in length from 10 to 19 inches. While the plants at NCSU flowered, other trialers did not have blooms this first year. Three other cultivars were also in the trials: ‘Mac n’ Cheese’, ‘Merlot’ and ‘Purity’ (Terra Nova) and all did well.

We had two coneflower cultivars in last year’s trials: ‘Double Decker’ and ‘Summer Sky’ (Gro ‘N’ Sell). Both produced many more flowers and longer stems in the second year. ‘Big Sky’, a softer orange than ‘Tiki Torch’ averaged 12.5 stems per plant with stem lengths up to 2 feet. ‘Double Decker’ is an unusual-looking cultivar that produces petals from the top of the cone as well as those around the base. The suppliers tell us that the unusual flowers do not start to appear until the plants are well established. Unfortunately, we did not get very many

of the unusual flowers and from reading the comments, the other trialers did not either. The plants are certainly very hardy and durable as none of the trialers lost any plants from last year.

Unfortunately, growers in the center of the U.S. will have a difficult time growing coneflowers for more than a year or two due to aster yellows phytoplasma (AYP). As Laurie Hodges pointed out, this leafhopper-transmitted disease is especially prevalent in the central states. It can kill plants quickly if they are infected when young; however, the disease tends to be more common later in the season, when plants tend to show stunted stems and abnormal greenish flowers. There is no cure and the best control is to rogue out infected plants as soon as you see them to prevent spread of the disease.

Another second-year perennial, *Leucanthemum* ‘Summer Snowball’ (Gro ‘N’ Sell), continued to impress the trialers. Flowering was prolific, with an average of 29.5 stems per plant; at NCSU we harvested 56 stems/plant. These plants are hardy as none were lost over the winter and all flowered this year. Stem length averaged 19.7 inches. The flowers are an



‘Tomato Soup’



‘Purity’



‘Mac -n-Cheese’



‘Big Sky’



‘Merlot’



‘Tiki Torch’

unassuming double white but they make great fillers.

Baptisia ‘Purple Smoke’ (Gro ‘N’ Sell) stood out for us because of its versatility and durability. At NCSU our plants grew quite strong this year and we harvested 18 flowering stems per plant, which averaged 21 inches long. After harvest very little foliage was left (see photo on p. 49) but the plants rebounded and produced a flush of stems. We did not harvest the stems for foliage but others have been cutting baptisia as a filler foliage. If not harvesting the flowers, trialers are also using the pods. What more could you ask for – cut flowers, foliage and pods on a hardy durable plant? If ‘Purple Smoke’ is like other baptisias, we expect the plants will be long lived. The genus *Baptisia* has a number of species in a broad range of colors: purple, white, cream, and yellow. I expect we will see many hybrids in a few years, spanning the color range, just as we are seeing now with *Echinacea*. One problem with the flowers, however, is that they tend to shatter easily. We have not tested the anti-ethylene agents EthylBloc and AVB, yet, but they may prevent that problem.

The woody trials are in their second year and unfortunately, we were able to get data only from our plants here at NCSU. This might be because the trialers have either lost or removed most of the trial plants. The best one for us was *Callicarpa americana* ‘Welsh’s Pink’. It was productive in its first year and produced even more stems this year. The pink color of the berries is quite attractive but the berries tend to discolor fast in the field. You may have to cut early before the berries are all well colored and tip the stems to remove the green berries at the ends.

Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year competition. The rankings are based on the combined ratings score: market appreciation + repeat again + ease of cultivation for those cultivars where more than three trialers responded. Thus, *Echinacea* ‘Big Sky Summer Sky’, ‘Tiki Torch’, ‘Tomato Soup’, *Leucanthemum* ‘Summer Snowball’, and *Monarda* ‘Raspberry Wine’ are nominated as Cut

Flowers of the Year and will join nominations from the seed trials and from ASCFG members.

Interpreting the trial results: The numbers reported are averages of all the respondents. Many factors will affect the success of any plant species. Our participants are growing and harvesting the trial plants in a wide variety of ways. For example, with annual asters some people harvest the entire plant as one bunch while others harvest each individual flowering branch, giving very different stem lengths and yield data. After looking at the average, check the range of responses listed below each number to see how the cultivar performed at its best and its worst. If the range of responses in the ratings is narrow and high, i.e., 3-5 or 4-5, the plant was a winner for most of the respondents and is likely to do well for you. The “Repeat Again Rating” is particularly important because it indicates if the trialer would take the time, money, and space to actually grow the cultivar again. Review the trial results carefully. If a species sounds interesting but did not appear to do well, try it anyway. The cultivar may work well for you.

Acknowledgments: All cut flower growers should thank the perennial and woody plant producers for providing the plant materials and the growers for producing the plants, collecting data and submitting trial reports. The growers paid for shipping expenses and agreed to provide data for at least two years. Plants were donated by perennial producers and shipped as the perennial plugs or dormant roots directly to the trialers. We would also like to thank Ingram McCall for taking care of the North Carolina State University portion of the trials and Erin Moody, Erin Regan, Diane Mays, Alicain Carlson, Emma Locke and Qianni Dong for harvesting and assisting with the NCSU trials. In preparing the report we have edited the participants’ comments for space and clarity; apologies if we’ve altered the tone or content of anyone’s comments. Thanks to everyone for making this service of ASCFG possible.

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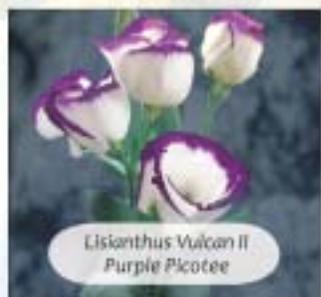
Trial Results for Year 2 of Perennial Cultivars Planted in 2008. First row of data for each cultivar is the average and the second row is the range of responses. Note when only one response is listed in the range line, either only one person responded for that category or several responded and all gave the same rating.

| Species | Cultivar | Plants died over winter (%) | Plants flowering (%) | Yield stems/plant ^o | Stem length (inches) ^o | Market appreciation rating ^o | Repeat again rating ^o | Ease of cultivation rating ^o |
|--------------|------------------|-----------------------------|----------------------|--------------------------------|-----------------------------------|---|----------------------------------|---|
| Agastache | 'Sangria' | 17.5 | 100 | 15.8 | 19.0 | 3.5 | 3.5 | 4.0 |
| Jelitto Seed | | 0-35 | 100 | 7-23 | 18-20 | 3-4 | 3-4 | 4 |
| Baptisia | 'Purple Smoke' | 16.7 | 58 | 6.3 | 19.7 | 4.0 | 3.0 | 3.5 |
| Gro'N'Sell | | 0-50 | 2-100 | 0-18 | 14-24 | 3-5 | 3-5 | 2-5 |
| Digitalis | 'Candy Mountain' | 54.0 | 92 | 2.8 | 14.8 | 3.0 | 3.0 | 4.0 |
| Gro'N'Sell | | 0-92 | 75-100 | 1-5 | 12-18 | 3 | 2-3 | 3-4 |
| Echinacea | 'Big Sky | 29.0 | 89 | 12.5 | 20.8 | 4.5 | 4.5 | 5.0 |
| Gro'N'Sell | Summer Sky' | 0-54 | 67-100 | 7-18 | 19.5-24 | 4-5 | 4-5 | 5 |
| Echinacea | 'Doubledecker' | 0 | 100 | 9.5 | 18.5 | 2.0 | 1.0 | 5.0 |
| Gro'N'Sell | | 0 | 100 | 2-21 | 12-21 | 2-5 | 1-5 | 4-5 |
| Echinops | 'Star Frost' | 3.5 | 83 | 2.8 | 17.8 | 3.5 | 2.5 | 3.5 |
| Jelitto Seed | | 0-7 | 65-100 | 1.4 | 17.5-18 | 3-4 | 2-3 | 3-4 |
| Gaillardia | 'Amber Wheels' | 2.0 | 100 | 16.2 | 15.5 | 2.0 | 1.0 | 4.0 |
| Jelitto Seed | | 0-5 | 100 | 5-22 | 13-18 | 1-4 | 1-4 | 3-4 |
| Leucanthemum | 'Summer | 0 | 100 | 29.5 | 19.7 | 3.0 | 4.0 | 5.0 |
| Gro'N'Sell | Snowball' | 0 | 100 | 10-56 | 14-25 | 3-5 | 2-5 | 4-5 |
| Penstemon | 'Sunburst | 74.0 | 50 | 38.0 | 17.0 | 4.0 | 3.0 | 4.0 |
| Jelitto Seed | Amethyst' | 47-100 | 0-100 | 38 | 17 | 4 | 2-4 | 4 |



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2009 Perennial Cut Trials - Year 1

| Species | Cultivar | Plants received alive (%) | Plants flowering (%) | Yield stems/plant [ⓐ] | Stem length (inches) [ⓐ] | Market appreciation rating [ⓐ] | Repeat again rating [ⓐ] | Ease of cultivation rating [ⓐ] |
|------------|--------------------|---------------------------|----------------------|--------------------------------|-----------------------------------|---|----------------------------------|---|
| Agastache | ‘Cotton Candy’ | 90.5 | 75.3 | 12.2 | 12.8 | 2.5 | 2.7 | 4.0 |
| Terra Nova | | 80-100 | 2-100 | 0-39 | 8-18 | 2-4 | 1-4 | 3-5 |
| Agastache | ‘Summer Sky’ | 82.4 | 77.5 | 5.9 | 11.4 | 3.0 | 3.0 | 4.0 |
| Terra Nova | | 30-100 | 10-100 | 0-14 | 5-21 | 3-4 | 1-4 | 4-5 |
| Echinacea | ‘Mac n’ Cheese’ | 97.4 | 78 | 1.2 | 10.1 | 3.5 | 4.0 | 4.0 |
| Terra Nova | | 92-100 | 50-100 | 0-3 | 6-15 | 3-5 | 3-5 | 3-5 |
| Echinacea | ‘Merlot’ | 100.0 | 87.5 | 4.9 | 14.3 | 3.5 | 4.0 | 4.0 |
| Terra Nova | | 100 | 50-100 | 1-8 | 10-20 | 3-5 | 3-5 | 3-5 |
| Echinacea | ‘Purity’ | 96.0 | 56.2 | 5.6 | 12.5 | 4.0 | 3.5 | 4.0 |
| Terra Nova | | 80-100 | 1-100 | 1-15 | 8-19 | 3-4 | 3-5 | 2-5 |
| Echinacea | ‘Tiki Torch’ | 100.0 | 53 | 1.8 | 14.8 | 4.5 | 4.5 | 5.0 |
| Terra Nova | | 100 | 0-100 | 0-5 | 10-18 | 2-5 | 2-5 | 4-5 |
| Echinacea | ‘Tomato Soup’ | 100.0 | 87.5 | 5.6 | 13.5 | 4.5 | 4.5 | 4.5 |
| Terra Nova | | 100 | 50-100 | 2-15 | 10-19 | 3-5 | 3-5 | 3-5 |
| Hedychium | ‘Tahitian Flame’ | 94.4 | 0 | 0.3 | 18.0 | 3.0 | 3.0 | 3.0 |
| Terra Nova | | 80-100 | 0 | 0-1 | 18 | 3 | 1-4 | 2-3 |
| Hellebore | ‘Double Queen Mix’ | 100.0 | 16.8 | 1.0 | 7.75 | 3.5 | 3.0 | 4.0 |
| Gro’N’Sell | | 100 | 0-50 | 0-3 | 5-10 | 3-4 | 3-5 | 3-4 |
| Heuchera | ‘Paris’ | 100.0 | 37.6 | 5.3 | 14.5 | 3.0 | 3.0 | 3.0 |
| Terra Nova | | 100 | 0-100 | 0-19 | 10-21 | 3 | 2-3 | 3-5 |
| Heuchera | ‘Velvet Night’ | 100.0 | 11.6 | 0.5 | 12.0 | 3.0 | 3.5 | 3.0 |
| Terra Nova | | 100 | 0-50 | 0-1 | 8-16 | 3 | 3-4 | 3 |
| Monarda | ‘Raspberry Wine’ | 100.0 | 77.5 | 13.3 | 18.8 | 4.0 | 5.0 | 3.5 |
| Gro’N’Sel | | 100 | 10-100 | 8-21 | 15-20.5 | 3-5 | 3-5 | 2-5 |
| Penstemon | ‘Dark Towers’ | 100.0 | 0 | . | . | 3.0 | 3.0 | 3.0 |
| Terra Nova | | 100 | 0 | . | . | 3 | 3 | 3 |

ⓐ Data shown are from those respondents who harvested stems. Some respondents may not have harvested stems because they were too short. Flowering stems may be longer next year after plants are established. See comments section for more details.

ⓑ 1 to 5 scale, with 5 being the best.

Summary of Comments

The number in parenthesis refers to the number of respondents who made the comment. If no number is present, only one person made the comment. Comments by each individual are separated with a semicolon (;) Note: many respondents did not make specific comments on each cultivar and in some cases, comments have been shortened because of limited space.

2009 Perennial Cut Flower Trial - Year 1

Agastache ‘Cotton Candy’

Good Qualities: Bright pink color (2); Good fragrance, would be a good filler flower; It had a nice odor, Deer don’t eat them, lots of blooms all summer, hope it’s a perennial here. **Problems:** Strong scent, may not winter over in zone 5; We didn’t care for the washed-out pink color and thought the flower looked “weedy”, we used it as a filler in bouquets, customers not crazy about it either; Scrawny-looking, pretty useless; Too short for most sales.

Insect or Diseases: None (3).

Additional Comments: Taller would be better, so we’ll see next year; I’ll give them one more chance, if they don’t look better next year, they are outa here, approximately 20% of the plants died by the end of the summer; Not big or bushy but it blooms a lot, Planted into amended, well-drained soil in a high tunnel, numerous plants were broken when unpacked and remaining were not as vigorous as agastache ‘Summer Sky’.

Summary of Comments

Agastache 'Summer Sky'

(Terra Nova)

Good Qualities: Fragrant (2); Beautiful purple flower (2); A good filler flower (2); Nice spiky shape; The flowers of 'Summer Sky' looked interesting and with potential market value. (F)

Problems: Very short (3); Strong scent, may not winter over in zone 5; Bloomed very late.

Insect or Diseases: No (2).

Additional Comments: Next year will tell more. I hope it survives the winter; Approximately 50% of the plants died by the end of the summer, planted into amended, well-drained soil in a high tunnel, numerous plants were broken when unpacked, 'Summer Sky' bloomed in the high tunnel on short stems, the flowers of 'Summer Sky' looked interesting and with potential market value.

Echinacea 'Mac 'n Cheese'

(Terra Nova)

Good Qualities: Great yellow color (4); Cone prominent and petals more droopy like regular echinacea; Bright large yellow petals that fill the flowers, very little petal sag compared to other echinaceas; Nice cone; Non-drooping petals; I like this better than some of the paler yellow echinacea I've seen.

Problems: Stems too short, maybe they will be taller next year (2); My helpers did not like the color, we used only a few in bouquets; Hard to fault; Powdery mildew; Only one bloom per plant.

Insect or Diseases: No.

Additional Comments: Waiting for next year, started with small plugs, Approximately 40% of the plants died by the end of the summer.

Echinacea 'Merlot'

(Terra Nova)

Good Qualities: Beautiful rich color (3); Good stem length; Extra large flower; Dark wine-colored stem, petals flare out, rather than droop as regular echinacea does, cone was not enlarged as in other echinacea, customers loved the color, and reported that it held up well - 7 days or more; Petals stand out rather than drooping, good flower size; Petals with good substance and horizontal, color deeper than straight species and to my eye, more attractive.

Problems: None (2); Short this year, I'm hoping for longer stems next year.

Insect or Diseases: No (2); Fungus and insect problems.

Similar Species/cultivars: 'Tomato Soup' and 'Tiki Torch'

Additional Comments: My favorite echinacea so far (but that isn't saying too much). Approximately 30% of the plants died by the end of the summer.

Echinacea 'Purity'

(Terra Nova)

Good Qualities: Bright, white color (3); Large full center; Cone was a bright yellow; Non-drooping petals.

Problems: Stems were very short (2), too short for bouquets; Droopy petals and prominent cone as in standard echinacea; None; Maybe longer stems next year?

Insect or Diseases: No (2).

Additional Comments: Hoping next year it will be taller, we didn't use much of it because there were few stems and all were quite short; Approximately 50% of the plants died by the end of the summer.

Echinacea 'Tiki Torch'

(Terra Nova)

Good Qualities: Outstanding color (5); Great stem length; Large full flower with no petal droop; Small cone and flared petals, customers loved it!; Color somewhat inconsistent from plant to plant.

Problems: At this point, plants lack vigor and height; None; Rather spindly petals; Short (first-year problem?).

Insect or Diseases: No.

Similar Species/cultivars: 'Tomato Soup' and 'Merlot'.

Additional Comments: Should be a winner if it survives the winter; Approximately 50% of the plants died by the end of the summer.

Echinacea 'Tomato Soup'

(Terra Nova)

Good Qualities: Bright orange color (3); Wow! lots of branching, long stems, no petal droop; Small cone with tinges of red color, petals flare out rather than droop as in regular echinacea, customers wanted plants, they loved the color and long vase life; Interesting unusual color for echinacea, non-drooping petals.

Problems: Petals have narrow open spaces between each petal, not as full as 'Mac n' Cheese'; None so far.

Insect or Diseases: No.

Similar Species/cultivars: 'Merlot' and 'Tiki Torch'.

Additional Comments: Can't wait to see this one next year!; Approximately 40% of the plants died by the end of the summer; 'Tomato Soup' did not bloom prior to Sept. 26.

Postharvest Recommendations: I just used plain water.

Hedychium 'Tahitian Flame'

(Terra Nova)

Good Qualities: Nice variegated foliage that can be used in bridal work; Great foliage color; Plant is growing well.

Problems: None; I was not sure how to treat this; Growing in greenhouse for longer season, then will dig, will not winter over.

Insect or Diseases: None (2).

Additional Comments: Near the end of the season I used some of the foliage in arrangements, 10-12 inches tall hold very well in the cooler, 2-3 weeks, these were very small to start to I kept them in small 4-inch pots all summer, they will be stored for planting in the spring, foliage still looking good 11/3/09; All but 1 died, no blooms, approximately 90% of the plants died by the end of the summer.

Hellebore 'Double Queen Mix'

(Gro 'N' Sell)

Good Qualities: Deer don't eat them, double so far; Color varied within each flower.

Problems: No blooms yet, most died; Flowered after our markets in the cold fall weather, useful for corsages, not bouquet designs.

Insect or Diseases: None.

Additional Comments: Two bloomed double white this fall (Sept.), I'm hoping for other colors in the spring; Approximately 70% of the plants died by the end of the summer; Healthy plants with large leaves; Flowers look nice and were double, I hope the flower stems get longer as the plant becomes established.

Heuchera 'Paris'

(Terra Nova)

Good Qualities: Average so far; Bright color, full stems.

Problems: Flower stalks were too short to cut; None; Too small a flower labor intensive to harvest; Much too short, hoping for longer stems next year.

Insect or Diseases: None.

Similar Species/cultivars: Seed grown 'Firefly'.

Additional Comments: Will move these to more sun for 2010; Approximately 20% of the plants died by the end of the summer.

Heuchera 'Velvet Night'

(Terra Nova)

Good qualities: Dark green foliage is very attractive; Nice foliage, that can be used in bridal work.

Problems: No flowers; I have to add beneficial nematodes to all my heucheras and tiarellas each year to keep the root weevils at bay, costs money.

Insect or Diseases: See above, root weevils, rabbits can be a problem in some areas.

Similar Species/cultivars: 'Obsidian'.

Additional Comments: Approximately 100% of the plants died by the end of the summer; Those in the most sun bloomed, guess I need to move the others, beautiful foliage, I will use it in purple boutonnieres; 'Velvet Night' was the only heuchera of the two that I thought might have stems long enough for use as a cut flower.

***Monarda* 'Raspberry Wine'**

(Gro 'N' Sell)

Good Qualities: Large beautiful flowers (3); Fragrant with long stems; Prolific, good stem length, nice fall foliage too, very interesting bloom.

Problems: To the customer it is just a bee balm, nothing special; None.

Insect or Diseases: Very serious mildew.

Additional Comments: Approximately 10% of the plants died by the end of the summer, I love this plant! (B)



Penstemon 'Dark Towers'



Monarda 'Raspberry Wine'

***Penstemon* 'Dark Towers'**

(Terra Nova)

Good Qualities: All look healthy, but no blooms yet. maybe next year; Plants look very healthy but did not send up a flower spike this year.

Problems: Did not flower in year 1.

Insect or Diseases: No (2);

Additional Comments: These were planted in May 2009 into well-drained, amended soil in a raised bed in a high tunnel, drip irrigated, they grew vigorously and are nice large clumps as of December 4, 2009, they did not bloom in 2009.

2009 Perennial Cut Flower Trial - Year 2

***Agastache* 'Sangria' (Jelitto Seed)**

Good Qualities: Great fragrance (2); Great filler flower (2).

Problems: Stems are brittle; None.

Insect or Diseases: No.

***Baptisia* 'Purple Smoke' (Gro 'N' Sell)**

Good Qualities: Pretty purple pods; More delicate foliage than *Baptisia australis*, flower color pleasing; Beautiful color, lots of strong stems with good length.

Problems: Many of the plants did not survive - maybe it's not as hardy as *Baptisia australis*, which grows like a weed for me; Did not cut any plants, as they were only 14 inches tall.

Insect or Diseases: No.

Additional Comments: I liked the smaller scale of the plant and felt that the foliage could be useful as a filler in small table arrangements perhaps in Oasis (I did not test this), I'm hoping some will survive to year 3; We lost a lot of plants due to cultural problems: poor transplanting into clods, lack of water, lack of weed control, trying to keep the remaining plants alive.



Baptisia after harvest



Baptisia 'Purple Smoke'



Gaillardia 'Amber Wheels'



Leucanthemum 'Summer Snowball'

Digitalis 'Candy Mountain'

(Gro 'N' Sell)

Good Qualities: Suitable length for bouquets; Very floriferous, pleasing shape in bouquets, it just kept blooming all summer here - perhaps because we never had a real summer here in the Northeast.

Problems: Many of these did not survive the winter; One stem per plant and being a biennial equals high production costs; Difficult color to work with, since I was selling most of it at farmers' market I felt compelled to warn people that it is poisonous. That fact often "killed" the sale.

Insect or Diseases: No (2).

Similar Species/cultivars: Too many look-alikes available.

Postharvest Recommendations: We just used water and always picked early in the morning.

Echinacea 'Big Sky Summer Sky'

(Gro 'N' Sell)

Good Qualities: Beautiful color (3); Lots of strong stems with good length; Very little petal droop; Excellent petal substance.

Problems: Lots of short branches.

Insect or Diseases: A little slug damage to some petals.

Additional Comments: Excellent color and petal substance.

Echinacea 'Double Decker'

(Gro 'N' Sell)

Good qualities: Large flower; Flower color and stem length are great; It was very floriferous.

Problems: Too branchy, resulting in lots of short unusable stems, not a good cut flower, ugly double flowers on many; Not very many of the flowers were doubles; Many of the plants did not produce a "double" cone, of the ones that did I thought they had a ragged appearance like they were diseased, no one liked it so we stopped cutting it.

Insect or Diseases: No (2).

Similar species/cultivars: More like regular echinacea with drooping petals.

Additional Comments: Several bloomed in 2009, I can't sell something this weird in Nebraska — I have enough trouble just selling echinacea, which florists say looks "weedy".

Echinops 'Star Frost'

(Jelitto Seed)

Good Qualities: Spiky spherical shape interesting in bouquets, I liked it better before the florets opened.

Problems: Flowers tended to look "dirty" after florets opened.

Insect or Diseases: No.

Similar Species/cultivars: *Echinops ritro*.

Additional Comments: I would suggest picking and using when only a few florets are opened.

Gaillardia 'Amber Wheels'

(Jelitto Seed)

Good Qualities: A change of color from red gaillardias; Flowers were a great bicolor, most stems were good length and strong; Plants were covered with cheerful red/yellow blooms on wiry stems.

Problems: Vase life was short (2) - no more than 2 or 3 days; Weak stems, suffered severe rain damage; Hard to pick - stems tended to twist around one another as they grew.

Insect or Diseases: No.

Additional Comments: Would make a great addition to a perennial border, very floriferous.

Leucanthemum 'Summer Snowball'

(Gro 'N' Sell)

Good qualities: Prolific flowering (3); Very hardy and flowered all summer; Long bloom period, reminded me of a button mum, worked well as a filler in bouquets; Attractive flower.

Problems: Tended to naturally have a bent neck so customers thought it was drooping, because of this we stopped using it; Weak stem, maybe the location in my garden.

Insect or Diseases: No.

Additional Comments: This one might be marketable.

Penstemon 'Sunburst Amethyst'

(Jelitto Seed)

Problems: Did not make it through the winter; Stems too short to be useful.



Penstemon 'Sunburst Amethyst'

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November 2009

| Week | Sun day | Mon day | Tue day | Wednes day | Thurs day | Fri day | Satur day |
|------|------------------|---------|---------|------------|-----------|---------|-----------|
| 45 | ORDER: | | | | | | |
| 46 | PreCooled Tulips | | | | | | |
| 47 | Lilies | | | | | | |
| 48 | Iris | | | | | | |
| 49 | Ranunculus | | | | | | |
| | Daffodils | | | | | | |

December 2009

| Week | Sun day | Mon day | Tue day | Wednes day | Thurs day | Fri day | Satur day |
|------|------------------|---------|---------|------------|-----------|---------|-----------|
| 49 | ORDER: | | | | | | |
| 50 | PreCooled Tulips | | | | | | |
| 51 | Lilies | | | | | | |
| 52 | Iris | | | | | | |
| 53 | Ranunculus | | | | | | |
| | Callias | | | | | | |

January 2010

| Week | Sun day | Mon day | Tue day | Wednes day | Thurs day | Fri day | Satur day |
|------|-----------|---------|---------|------------|-----------|---------|-----------|
| 53 | ORDER: | | | | | | |
| 1 | Lilies | | | | | | |
| 2 | Callias | | | | | | |
| 3 | Dahlias | | | | | | |
| 4 | Gladioli | | | | | | |
| | Crocasmia | | | | | | |

February 2010

| Week | Sun day | Mon day | Tue day | Wednes day | Thurs day | Fri day | Satur day |
|------|-----------------------------------|---------|---------|------------|-----------|---------|-----------|
| 5 | ORDER YOUR SPRING FLANTING BULBS: | | | | | | |
| 6 | | | | | | | |
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Postharvest Treatment of Specialty Cut Flowers

North Carolina State University Report for 2009

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North Carolina State University

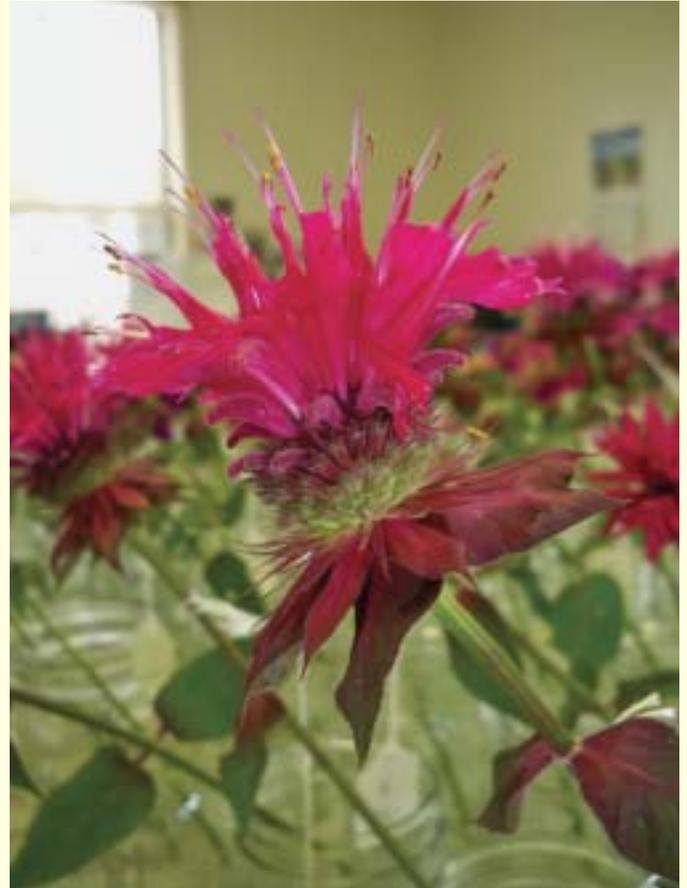
This project was supported by the American Floral Endowment, the Association of Specialty Cut Flower Growers Research Fund, and numerous suppliers. The authors would like to thank Erin Regan, Emma Locke, Michelle McElhannon, Diane Mays and Qianni Dong for assisting with growing and harvesting the cut flowers.

Each year a vase life test is conducted on the most promising species/cultivars from the ASCFG Seed, Perennial, and Woody trials. This year we screened 17 new entries. There seemed to be a theme across many of the 2009 entries. With names like zinnia ‘Giant Wine’, monarda ‘Raspberry Wine’ and physocarpus ‘Summer Wine’ you can see the connection. All of these made excellent cut flowers and foliage. As growers of specialty cuts, you’re able to take advantage of maximum vase life when you sell direct to your customers.

One cultivar that really stood out this year was monarda ‘Raspberry Wine’. The unique shape of the inflorescence is a sight to see and bound to get your customers talking. The vase life is something to talk about too! With an average vase life of 8.7 days, with the shortest-lived stem lasting 7 days, ‘Raspberry Wine’ is a great choice for growers. Even once the jester hat-like florets have fallen off, the remaining parts are still quite attractive. We terminated this study when the top florets abscised, but the flowers would look fine in a bouquet for quite a bit longer. ‘Raspberry Wine’ benefits from the use of a holding solution, which bumps its vase life up to an average of 9.5 days.

A tried and true favorite of just about every cut flower grower is the zinnia. Many colors are available already, but ‘Giant Wine’ is a must-have addition to your list. ‘Giant Wine’ possesses all the traits that we love about zinnias: classic flower shape, vibrant color, average vase life of 10 days in preservative, excellent stem length and money-making productivity all season long. The gorgeous color of ‘Giant Wine’ would make anyone want to celebrate with nothing other than a giant glass of...well, you know!

When it comes to foliage, physocarpus ‘Summer Wine’ should be added to your collection. The deep rich burgundy coloration is absolutely gorgeous and adds depth to any arrangement. ‘Summer Wine’ had an average vase life of 14 days and a minimum of 9 days. Hydrator followed by a holding solution is recommended for maximum vase life. As the foliage aged the leaves rolled up and dried but kept their color, so like monarda ‘Raspberry Wine’ it has the potential to stay looking good in a vase for a bit longer.



The Technical Jargon

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
- * De-ionized 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 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 these factors typically add about 1 to 3 days to the vase life of some species compared to what a grower would usually get. 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.

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. For some cultivars most of the stems died about the same time. With others, 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.

Here's the Scoop

Basil 'Cardinal'

Another one of our favorites. We got two cuts from it and probably could have gotten more. It tolerated our heavy pruning well and had even better stem length and quality the second time around. Stems were sturdy and packed with broad leaves. It was also easy to handle, unlike some of the more branchy basil. Each stem is substantial and would serve as a great filler in bouquets, not to mention the delightful classic basil scent. The cardinal-red inflorescence went along well with our wine theme! 'Cardinal' had an average vase life of 14 days when pretreated with hydrating and holding solutions. Without those treatments the vase life dropped significantly, to 4.7 days.

Calendula 'Maayan'

Harvesting was not pleasant due to the sticky residue the stems leave on your hands. The vase life was also unimpressive at 5 days. It did not matter if flowers were put in hydrating or holding solutions as all treatments had the same average vase life.

Callicarpa 'Welsh's Pink'

The average vase life of 'Welsh's Pink' was 21 days regardless of treatment. Stems need to be stripped to get the full view of the berries, but this is easily done. Minimal berry drop occurred as they aged and if done properly, this cut has the potential to dry well.

Delphinium 'Stiletto Indigo Blue'

Delphinium is always an eye-catcher and draws good prices. 'Stiletto Indigo Blue' has an impressive blue-purple color. Vase life was adequate at 9.5 days, which is when half the petals had dropped. There was no difference among the four treatments.

Campanula 'White Improved' and 'Lavender Improved'

Our wet spring did not serve the campanula well. The cups often filled with water, making them more likely to rot. The main stems were gorgeous and full of blooms; unfortunately, the side shoots weren't worth the time to cut for the most part. However, don't give up on campanula if you experienced similar problems, because it usually has an acceptable vase life if kept well hydrated. We experienced an average vase life of 10 days for 'Lavender' and 11 days for 'White'. There was no difference among the four treatments.





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Dianthus ‘Fandango Purple Picotee’

The color and pattern variation among plants of ‘Fandango Purple Picotee’ was quite interesting, resulting in many shades of purples with combinations of white. Some even looked like purple leopard print! The vase life was 11.7 days, which is quite good. However, we were unimpressed by the stem length (around 12 inches). There was no difference among the four treatments.



Pink-flower (*Indigofera amblyantha*)

This fun woody plant would make a great filler flower with a vase life of 7.9 days. It is recommended that a holding solution be used to extend vase life.

Monarda ‘Raspberry Wine’

A favorite of the whole group with its whimsical shape and beautiful color, monarda ‘Raspberry Wine’ is a wonderful flower. With an average vase life of 9.5 days with a holding solution and a minimum vase life of 8 days, you couldn’t ask for more.

Pepper ‘Hot Purple’

We were hoping for a pepper whose foliage you wouldn’t have to remove because we know how much of a pain that is, but unfortunately we still have not found one. The foliage on ‘Hot Purple’ is quite attractive with its white and purple marbling, but to keep stems looking good longer it must be removed. The peppers (without foliage) had an average vase life of a whopping 24 days regardless of treatments.

Physocarpus ‘Summer Wine’

‘Summer Wine’ had an average vase life of 14 days and a minimum of 9 days. A hydrator followed by a holding solution produced the maximum vase life of up to 16 days.

Flowering peach

P. versicolor had an average vase life of 7 days across all treatments. Although it was very pretty, we found that the flower buds popped off the stems easily.

Sunflower ‘Lemon Summer’

It wouldn’t be an ASCFG cut flower trial without at least one sunflower. ‘Lemon Summer’ had shockingly neon yellow petals that are sure to attract buyers. The vase life was satisfactory at 9.5 days, but lower than the other two sunflowers in the trials. There was no difference between the four treatments.

Sunflower ‘Zohar’

‘Zohar’ had a wonderful vase life of 12 days and did not react differently to holding and hydrating solutions. The rich golden yellow of ‘Zohar’ is stunning.

Sunflower ‘Tapuz’

Much like ‘Zohar’, ‘Tapuz’ had a golden yellow color, but a slightly shorter vase life of 10.5 days. Again, preservatives and pretreatments were not necessary to extend vase life.

Zinnia ‘Red Beauty’

Definitely a beauty! Possesses all the appeal of other zinnia varieties and offers a stunning red to boot. Vase life was 8.7 days, which was similar to average for most cultivars. Maximum vase life of 9.3 days was achieved with a holding solution. Excellent stem length and productivity.

Zinnia ‘Giant Wine’

‘Giant Wine’ was definitely a project favorite. Maximum average vase life was 10 days with a holding solution. Excellent productivity and stem length.

CULTURE *Profile*

Laurie Hodges

Tuberose as a Cut Flower

The intense, exotic, sweet fragrance of tuberose (*Polianthes tuberosa*) is so enticing the plant has been grown for centuries. This fragrance, which has been compared to that of gardenia and jasmine, is most intense at night as the one to two inch waxy, white flowers open at the top of tall stems. It is one of the few flowers that continues to release fragrance after being picked. Commonly thought to be native to Central America, it was already domesticated by the Mayans and Aztecs prior to the voyages of Columbus. It has never been found as a wild plant and is believed to be extinct in that form, surviving only as a cultivated plant. It is now cultivated throughout the world. Tuberose is often used in weddings and in Hawaiian leis or as a fragrant accent in a bouquet or wedding designs. Florists also use the individual flowers in the same manner as stephanotis. Once commonly used in casket arrangements as well as in weddings, the popularity of this intense fragrance waxes and wanes. In recent years, it is being used more often both as a single fragrance or as a top note in a perfume.

Most of the tuberose sold in the U. S. is grown in California or Mexico. Other production centers include India, China, France, and Kenya. The fragrant oil, almost all of which comes from India, is one of the most expensive of the fragrant oils used in perfumes at more than \$2,000.00 per pound. Tuberose is an herbaceous perennial that forms a tuberous root. It is in the agave family and forms 18 inch linear leaves clustered at the soil line in a rosette, with a few extending up the flower spike. Plants are three to four feet tall when flowering. Tuberose is very sensitive to cold and requires lifting the tubers each year except in USDA hardiness zones 8-10. They are relatively free of pests plus easy to grow and propagate.

Cultivars

Tuberose has two flower types, single and double. The single type is often called “Mexican tuberose” or “Single” while the double-flowered type is sold as ‘The Pearl’ or ‘Double’. Although very few cultivars are available in the U.S., internationally several dozen cultivars are reported. The single-flowered or common tuberose is more popular in the U.S. as a cut flower, is easier to grow than the double flowered, and is more fragrant. Worldwide, the double forms are more popular for cut flowers.



Although the flowers are pure white, the flower buds may have a light pink blush when grown under cool conditions. The flower will be pure white upon opening. Tubers (bulbs) of the single and the double form are available through retail and wholesale bulb suppliers. There is intensive inter-species and cross-genera breeding research being conducted in Japan, Taiwan, India, and the U.S. to develop orange, yellow, pink, and lavender tuberose flowers for the cut flower market as well as dwarf types for garden use. At this time, the color and color intensity of these hybrids are not consistent and are affected by environmental conditions. Colored tuberoses are not yet commercially available in the U.S. Most of the *Polianthes* species and related genera with colored flowers are not fragrant.

Planting

Tuberose grows best in full sun and well-drained, fertile soil and thrives under hot, humid conditions. Plant with the nose of the tuber at soil level or not more than one inch deep. Soil temperature optimum is above 68F. The optimum crop temperature range is 77 to 86F. Planting into slightly moist soil helps rehydrate the dried tubers. When tubers are planted vertically with the growing tips up rather than horizontally, stems

are longer with no reduction in stem diameter, and the number of florets increases contributing to a higher quality stem (Nazari et al., 2007). Plant spacing varies based on cultural practices and market, time between planting and lifting the tubers, whether clumps of tubers or individual tubers are planted, and many other factors. A general rule would be to allow one square foot per plant. Once planted, maintaining adequate soil moisture is important as plant dormancy is induced by drying the tubers. Care is needed not to overwater or saturate the soil prior to leaf emergence as root rot may develop. Tuberose can be raised in a high tunnel or greenhouse under high light intensities as well as in the field.

When plants were grown in an unheated high tunnel, researchers found that the time to flower was decreased by 10 days, the number of flowering stems increased 150%, and flower quality improved (Brundell et al., 1985). The use of other season-extension techniques such as row covers and black plastic mulch also will enable earlier production. In one study, when tuberose was planted three months earlier than normal under perforated low plastic tunnels on raised beds, flowering was 44 days earlier compared to tubers field planted at the same time early in the season and 34 days earlier than those planted at the normal time (Singh and Singh, 2006). For late-season harvests, a high tunnel, walk-in row covers, or a heated greenhouse is needed for frost protection. Flower quality declines as temperatures cool. For continuous harvest in areas with long growing seasons, sequential plantings at two-week intervals are made.

Dry tubers from storage are dormant and require six weeks at 68F to break this internal dormancy. After this time, tubers can be planted directly or pre-sprouted prior to planting. Pre-sprouting results in earlier flowering and can compound the positive effect of growing tuberose in



a high tunnel or another season-extension technique. Pre-sprouting the tubers can increase the number of flowering stems by 50 percent. Several methods have been used to pre-sprout the tubers. These include placing them in moistened sawdust in flats covered with polyethylene and kept at 95F for 15 days; using potting mix in crates, covering the tops with about an inch of mix; placing them in a single layer and frequently misting to rehydrate the tubers and initiate growth; or simply applying warmth to the dormant tubers.

Support

In the home garden and many commercial crop situations, no additional support is needed for the flower spike. When a commercial cut flower crop is



grown where winds occur frequently or when grown in sandy soil, a single layer of netting may increase the number of straight, marketable stems by reducing lodging.

Fertilization

Tuberose is considered a heavy feeder, with recommendations of pre-plant applications of 80 pounds per acres of actual nitrogen. If soil potassium is low, flowering may be delayed or flower quality may be poor. Moderate levels of phosphorous are recommended. Many sources recommend using an organic source for plant nutrients such as compost or manure which should be incorporated prior to planting. An application of additional fertilizer or compost four weeks after planting or when flower spikes first emerge, may increase the number and quality of flowering stems produced for the season. Foliar applications of nitrogen and potassium have also been beneficial. Tuberose tolerates a range of pH from 6.5 to 8.1.

Irrigation

It is important that tuberose plants are in soil that is well drained to prevent root rots. Plants should not experience water stress at any time. Once tubers sprout and leaves emerge, weekly irrigation is recommended.

Light

Full sun or high light intensity is best when plants are field grown but shading may improve quality in areas with intense sunlight or temperatures frequently above 86F. Polianthes is daylength neutral but vegetative and reproductive growth is advanced by about 10 days when exposed to 16-hr photoperiods.

Temperatures

Plants need temperatures of at least 55F to form a flower spike and at least 67F for individual flowers to form. Best flower formation occurs when temperatures are moderately warm, not falling below 55F or above 86F. Warm, humid conditions are preferred. Plants become stressed when grown under low relative humidity. The use of antitranspirants has been beneficial under high temperature and high relative humidity conditions (Moftah and Al-Humaid, 2006).

Pests

The main insect pests are thrips and spider mites. There is rarely a foliar disease problem, although the flowers may be affected by *Botrytis* under cool temperatures. There are reports of various leaf spots and a virus but these are not often seen. Root and crown rots occur when the soil is poorly drained. When grown as a perennial crop in warm climates (zone 9 - 10), the tuber and roots may rot if the winter dormant period is exceptionally wet. Tuberose can have 30 to 50 buds per spike when grown well

Harvesting

Plants will flower four to five months after planting in the field. Greenhouse forcing at 68F requires about 132 days for double cultivars with single cultivars flowering two to three weeks later. Flowering stems can be harvested when the first flower opens on the spike. For local markets, stems can be cut when more flowers are open; however, the earlier flowers will dry out as they senesce and these will need to be removed prior to sale. Stems should be straight with a well-developed floral spike. Harvest early in the morning when temperatures are cool and plants are well hydrated. Freshly cut stems have a vase life of approximately nine days. When stems are cut with few flowers open, they are often cut dry and later graded and bunched. If more of the spirally arranged flowers are open, flowers may be damaged when stems are bunched. For this reason, some growers for local markets harvest directly into clean buckets containing fresh water plus hydrating solution, or a sugar-containing floral solution, omitting bunching or sleeving the stems. Vase life will be optimum if stems are not cooled or stored. There are few estimates of production potential or yields in the U. S. Flower yield will vary with variety, plant density, tuber size at planting, time of planting, duration of harvest season, and crop management. One report from India indicated approximately 152,000 stems per acre during the first year of a two-year cropping cycle (Khushk and Mal, 2007).

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Postharvest

Tuberose is not appreciably sensitive to ethylene and does not require treatment. Research has shown that a 24-hour pulse at room temperature in a solution of 20 to 30 percent sugar plus a biocide and hydrator will significantly improve vase life and opening of buds on the flower spikes. Having at least one open flower on the spike increases the uptake of floral solution and vase life. If flowers are cut dry, then graded and bunched, the stems should be re-cut and then placed immediately into the high sugar floral solution for the pulsing treatment to ensure bud opening. To make a 20% sucrose solution, add 1 ½ cups of white granulated sugar to one gallon of consumer-level commercial floral solution such as Chrysal #3 or Floralife Original. Stems should be straight with a well-developed floral spike. The Japanese cut flower industry standard for tuberose indicates a minimum stem length of 28 inches (70 cm) with at least 10 pairs of buds and flowers that open horizontally. In the U.S. tuberose are usually sold in 10-stem bunches with stem length of 24 to 36 inches. If packed dry, horizontally in boxes, they must be held at the proper temperature to avoid curvature. Optimum storage temperature for tuberose is 33F. When stems are stored at this temperature in a high-sugar solution, some buds will continue to develop and open in the cooler. Stems can be stored up to a week under optimum conditions, including a

sucrose pulse, with no adverse effects on bud opening or floral quality. Vase life in floral solution ranges from about 9 to 14 days, with single flowers having a longer vase life. Each floret is open for three days and a stem can have as many as 50 florets.

Propagation

Dormancy is induced by restricting moisture to the roots and by cooler temperatures. In warm regions without frost, water restriction is used to trigger the cessation of growth. When flowering ceases, i.e., foliage begins to yellow in the fall or after the first frost, taper off watering. Lift rhizomes after foliage dies back, grade the tubers, and dry for a day or two in the shade. After drying, store the tubers covered in a dry medium such as peat or vermiculite at 40F in a ventilated area. If plants received frost, remove all foliar tissue prior to drying the tubers. In the spring, axillary rhizomes can be broken off. The remaining tubers should be allowed to callus for a day or two at room temperature before replanting. These offshoots are produced in abundance; 15 to 20 from each of the larger tubers each year. The larger rhizomes are replanted to produce flowering stems. A tuber diameter of 2.5 to 4.25 inches is needed to produce a flowering stem so the largest tubers should be used as planting stock. Each tuber flowers once from the terminal bud on the tuber (Brundell and Steenstra, 1977).

Offshoots (tuberlets) rapidly develop under good growing conditions and produce the subsequent flowering stems. When clumps of tubers are planted, more stems are produced compared to planting individual tubers but the flowering stems are not as long or strong and the number of florets is less than those produced by single tubers. Smaller tubers require one or two years before flowering size is reached so the smallest tubers should be removed when planting clumps of tubers (Brundell and Steenstra, 1985).



These clumps were produced by a single bulb in one season.

Tuberose can be overwintered in the ground as far north as zone 7 if the ground is mulched heavily in mid-October. If left in the ground in warmer areas, tuberose should be dug up and divided at least every three years to ensure vigorous production of flowering stems. When overwintered in the ground, plants will bloom in July and August.

Seed production is poor in the single-flowered types, and seed germination rates are very low. Plants are self-sterile. Thus, vegetative propagation from tubers is the most economical method of propagation. Methods to propagate tuberose by tissue culture have been successfully developed for use in research and breeding programs.

Tuberose as Fragrance

Although intensely fragrant, the tuberose contains relatively small amounts of its essential oil which is not stable under heat extraction. The flowers won't stand up to the high temperature used in water extraction or steam distillation. The traditional method of extracting the essence of tuberose uses the process of enfleurage, which extracts the oil into a fat without the addition of heat. Vegetable or animal fats are layered with the flowers until permeated with the scent. The oils are then separated from the fat when it is melted or a solvent such alcohol or hexane

is used to extract the essence from the fat and then evaporated, leaving the volatile oil. Enfleurage yields the best results with jasmine, tuberose, jonquil, lily of the valley, and mignonette. Technically, essential oils extracted using volatile solvents are called absolutes.

A newer method uses low pressure without heat and a recyclable solvent to extract the essential oil of tuberose and other heat-sensitive flowers. The low amount of oil in each flower and the slow, precise extraction methods required to preserve the fragrance contribute to the high price of pure tuberose oil.

Tuberose Lore

Tuberose represents sensuality and is used in aromatherapy for its ability to open the heart and calm the nerves, restoring joy, peace and harmony. It is also believed to protect the energy and personal boundaries of the person wearing it. Tuberose helps develop intuition and solve problems and strengthens emotional depth. In India, it is believed to open the crown chakra, thereby improving psychic powers. The legend of the tuberose in France warns that young girls should not breathe in its fragrance after dark for fear that it would put them in a romantic mood. Similarly, in India tuberose is renowned for its strong aphrodisiac powers, and according to some stories, unmarried girls are warned not to breathe in its perfume after dark. Tuberose is also said to amplify artistic inspiration by stimulating the creative right side of the brain. And it brings serenity to the mind and heart.

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SMALL Things Considered

Gay Smith

Following Your (Flower) Bliss

Hello 2010! A new year, a new decade—abundant potential, new prospects, unexplored opportunities—so many possibilities for businesses to flourish. According to the media, slow and subtle signs of recovery are in motion. As the economy slowly shifts from doom, gloom and fear to guarded optimism, retail trend watchers assure us that the new normal—customers' focus on value—is here to stay. Good news for our industry! Why? Floral products fit very well with lifestyle trends and staycation motifs, and there are few products that generate as much enjoyment for both the giver and the recipient as a gift of flowers. Great!

The downside to this über feel-good is that consumers like flowers, but have limited product confidence, which cramps their impulse purchase vibe. No doubt, product interest is there, as is the appreciation of product aesthetics, but without knowing how to pick the “best” one or how long it will last, demand suffers.

Before we discuss ways to build demand, it's important to define product value from the consumer's perspective. By knowing what consumers consider as the “value equation” for flowers, it's possible to focus efforts on creating a demand. When polled, consumers often characterize flower value with words like “freshness”, “consistent quality”, “long lasting” and “aesthetic appeal”. Of course, the price has to match the perception of intrinsic value, but generally, price is the third or fourth consideration mentioned. In other products, price is the

driving factor. Trader Joe's “Two Buck Chuck” wine is a good example. People buy caseloads of the stuff, but anyone who has tasted it readily admits that the sale was solely price-driven. Of course, the catchy name helps lock in consumer interest, too.

Discovering what entices people to buy is as easy as asking them. Think about what triggers your own impulse purchases. Ask friends and family what motivates them to buy something not on

to be an expert. Give them something to talk about.

When hypericum became a trendy filler in the 90s, customers were fascinated to learn it was from the same family as St. John's wort, which was being touted as a stress-reducing herb supplement.

Signage is a great vehicle to create a sense of urgency in displays. Words like LIMITED or NEW set the hook because they entice customers to ask for additional details. Another sales tactic is multiple pricing: \$5.00 each, 3 or more for \$12.99. Many customers will buy two (at \$5.00 each, rather than three for \$12.99.

Finessing a sale may be as easy as asking about the occasion. When asked to “pick out the best one”, inquire about the occasion. If the flowers are for a dinner party that night, recommend

buying open blooms. Yes, tight buds will last longer, but won't provide the desired immediate WOW impression. Considering consumers know very little about most floral products, it is critical to include sales skills as part of the “value” definition. What builds customer rapport faster than details about care, flower origin and general information? Utilizing smart sales tactics differentiates you from the competition.

Informational selling is not limited to the general public or retail clients. Wholesalers also need details and facts to resell your blooms. Make sure the sales staff (not just the buyer) knows the name of the different flowers as well as their varieties (especially important for uncommon, unique items). Who knows your products better than you? It never

What builds customer rapport faster than details about care, flower origin and general information? Utilizing smart sales tactics differentiates you from the competition.

their lists. For most of us, purchasing non-essential items is triggered by a suggestion (either from salesperson or friend's recommendation), product information, clearly defined product expectations, an eye-popping display, or catchy signage.

The potted and bedding plant industries are ahead of floral in providing information on what specific conditions are needed for consumer success: shade-loving, likes acid soils, can take heavy traffic, etc. Why not use the same methods to increase flower demand? Provide days of vase life expectation, tell why flower food is important to use at home, give bloom characteristics such as “slow-opening” or “fragrant”. Develop a 30-second story about different products you grow, or how you choose specific color lines. Everyone wants

hurts to supply a cheat sheet with product features and benefits. Why let your success lie solely in the hands of the buyer? Keep in mind that 90% of sales happening in wholesale houses are generated over the phone rather than walk-in trade. Salespeople won't offer what they don't know or can't name during phone calls to retailers. Supplying product ID and handling suggestions notches up the experience (and the sales ticket!) There is a huge difference between order filling and selling!

Bunch size is another important aspect to closing the sale. Latin American producers follow set grades and standards that include stem counts per bunch, length parameters and cut-point specifics. Local product can be rejected over imports because the customer doesn't have ample information to compare local with imported like product. What about postharvest treatments used? Solutions and treatments play a big part in the value equation. For example, if the blooms are sensitive to ethylene, do you treat with STS? If so, make sure buyers and sales staff know, because your dianthus will outlast non-treated product by two weeks.

Finally, as you've heard at every marketing session at ASCFG conferences for the past twenty years, get your farm name on every bunch for recognition and reorder purposes. Doesn't matter if it's on the sleeve, the rubber band or a hang tag, make sure there is farm recognition to prompt repeat sales. Customers notice details that help them make the best choice and have success with products. They appreciate flowers that exceed their expectations. A long vase life develops confidence in the value of any flower product. Information builds trust. Trust is a key to "growing" loyal customers. Value wins repeat flower sales!

Gay Smith is the Technical Consulting Manager for Chrysal USA. Contact her at gaysmith@earthlink.net



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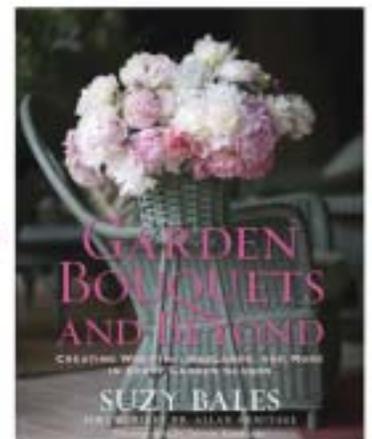
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Potential Control for Powdery Mildew and Leaf Spot on Zinnias

From 2000 to 2009 the University of Maryland conducted summer field days for cut flower growers. We distributed written surveys to establish the most popular cut flowers grown, and what insect and disease problems occur on these plants. For the last nine years zinnia have been included in the top five. The major insect that has reduced yields and caused economic loss has been Japanese beetle. The major diseases have been a complex of foliar leafspots caused by fungi and some caused by bacteria and powdery mildew.

There are two important zinnia leaf spots: one bacterial, caused by *Xanthomonas zinnia*, and the other fungal, caused by *Alternaria zinniae*. Bacterial leaf spots are small, angular, brown spots often surrounded by a yellow margin. Fungal leaf spots are larger and reddish-brown with grayish centers. Both diseases result in leaf blighting and death of foliage, resulting in the death of the plant.

Powdery mildew, caused by the fungus *Erysiphe cichoracearum*, covers the foliage with grayish-white superficial growth and often causes foliage to die.

Leaf spots and powdery mildew significantly shorten the production time for zinnias. Pathologists like to say avoiding overhead watering helps reduce the incidence of bacterial leafspot and *Alternaria* leaf spot. This is true, but in wet years, frequent rainfall can spread these diseases rapidly, causing a shortening of the life of zinnias. In 2009, the United States from the Midwest to the East Coast experienced one of its highest rain incidences in the last 3 decades. In Maryland we had over 50" of rain by early December.



Leaf spot on zinnia.



Powdery mildew on zinnia.

Materials to Control Foliar Diseases

Marla Faver, of BioWorks, Inc. asked if we would be willing to test two disease control products. BioWorks, Inc. is a biological formulating company based in Victor, New York which specializes in low-risk pesticides for insect and disease control. One product, called Cease, is an aqueous suspension biofungicide that contains a bacterium called *Bacillus subtilis*. *Bacillus subtilis* is reported to have efficacy against both fungal and bacterial pathogens. Bioworks claims *Bacillus* controls disease using multi-site modes of action. This product has a OMRI listing and a 4-hour REI.

SuffOil-X is a pre-emulsified, highly refined, high paraffinic, low aromatic oil. The pre-emulsification process breaks down the oil particle size, reducing the droplet size from 700 microns to approximately 50 microns, which is 1/14th

its original size. The small droplet size assures that a thin, uniform coating of oil is applied to the foliage. This product is OMRI listed and has a 4-hour REI.

Objective of Our Trial

To evaluate the efficacy of Cease, SuffOil-X and combinations of the two in controlling leafspot and powdery mildew on zinnias growing in a commercial cut flower operation. This is a preliminary trial to decide if it is worth pursuing these products for further testing.

Materials and Methods

Zinnia elegans were transplanted into the field in early July of 2009. On August 5, Gill, Clement, Klick and Kenny observed the planting blocks and noted low levels of bacterial leaf spot, fungal leaf spot and powdery mildew on the lower foliage of the zinnia plants. The plots

were set up as three randomized blocks, with a block consisting of 10 feet of zinnia plants with a 3-foot buffer zone between each treatment block. Each treatment block contained 8 plants.

Four treatments were administered:

1. Cease applied at the labeled high rate of 8 qt/100 gallons of water. We applied 1 liter of water with 19 ml of Cease mixed in 1 liter of water.
2. SuffOil-X applied at the mid-range rate of 1.5 gallons /100 gallons of water. We mixed 14 ml of SuffOil-X in 1 liter of water and applied to 10 ft. of growing area.
3. Cease and SuffOil-X mixture using 19 ml of Cease and 14 ml of SuffOil-X in 1 liter of water and applied to 10 ft of growing row.
4. Untreated control.

Evaluation

On two dates in August we evaluated the foliage of the plants for presence of powdery mildew and bacterial leaf spot, with a rating scale of 0-10 with 10 having 100% of the foliage infested.

Cease provided approximately 90% control of powdery mildew, Cease and SuffOil-X gave around 98% level of control and SuffOil-X gave about 98% level of control of powdery mildew.

Bacterial leaf spot was established on plants when we started the treatment; Cease gave under 50% level. Cease would probably provide better levels of control if applied before bacterial leaf spot was established.

Where Do We Go From Here?

We would like to expand this trial in 2010 with additional replication. We would also like to start treatment before bacterial leaf spot is established on the foliage as it was in the 2009 trial. We would like to see if these treatments increased the number of harvestable cut stems for the zinnia plants. A cost analysis will be included in trials in 2010. Both Cease and SuffOil-X look like they have strong potential for a safe, relatively inexpensive treatment for foliar diseases of zinnias.

Stanton Gill is Extension Specialist in IPM for nursery, greenhouse, and cut flowers,

University of Maryland Extension.

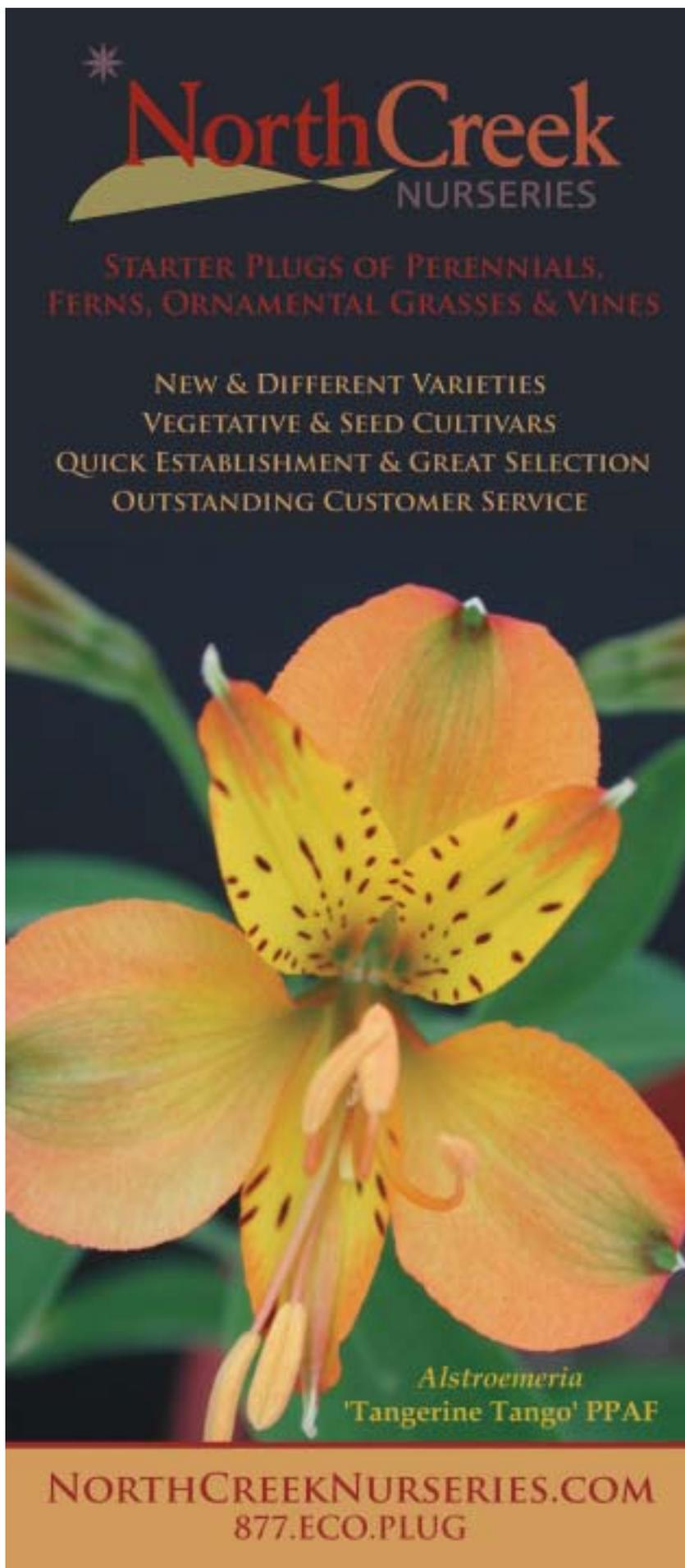
His collaborators include David Clement and Karen Rane, Extension Specialists,

University of Maryland; David Dowling, Farmhouse Flowers, Brookeville;

and Suzanne Klick and Sarah Kenney, University of Maryland.

Contact Stanton at sgill@umd.edu

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RESEARCH Update

Megan Bame

Funding for this column is provided by the ASCFG Research Committee.

Effect of S-carvone on Vase Life

S-carvone, a compound found in caraway and dill seeds, can prevent or reduce wound healing when applied to plant tissues exogenously. The target wound in this experiment was the harvest cut. As that “wound” heals, cut stems develop water deficit stress, typically caused by occlusion of xylem conduits, physiological plugging and air emboli (an air bubble). The researchers, at the University of Queensland in Australia, hypothesized that a vase solution with S-carvone would increase vase life and possibly display antibacterial activity.

The cut species used in the trial were: *Acacia holosericea*, *Baeckea frutescens*, *Chaelaucium uncinatum* and *Chrysanthemum* sp. Treatments included concentrations of 0.318mM S-carvone and 0.636mM S-carvone, prepared in deionized water and tap water. Another treatment involved removing 1 cm from the stem base every two days.

The S-carvone treatments significantly increased the vase life of *B. frutescens* and *C. uncinatum*; however, the vase life of *A. holosericea* and *Chrysanthemum* sp. was not increased. Recutting the stems resulted in prolonged vase life for all the species tested.

No evidence of antibacterial activity was observed in the S-carvone vase solutions allowing the research to attribute the prolonged vase life of *B. frutescens* and *C. uncinatum* to inhibited wound repair induced by the presence of S-carvone. Further studies will try to determine which specific wound repair compounds are inhibited by S-carvone.

Damunupola, J.W., T. Quian, R. Muusers, D.C. Joyce, D.E. Irving, U. Van Meeteren. 2010. Effect of S-carvone on vase life parameters of selected cut flower and foliage species. Postharvest Biology and Technology. 55:66-69.

Adding Value with Edible Dyes

Research at the Navsari Agricultural University, in India, assessed the use of edible dye on candytuft (*Iberis umbellata* L.) to develop a value-added product to capture more revenue from the consumers. Dye concentration and duration of immersion were to two treatments applied to vase life and flower quality.

Seven colors were tested at 0.5%, 1.0%, and 1.5%: yellow, orange red, falsa blue, apple green, pink rose, tomato red and kalakhatta (a shade of purple). Immersion durations were half-hour intervals from 0.5 hours to 3.0 hours. The shade of dyed flower was recorded immediately following treatment and at the end of the vase life.

The shade of color deepened as the dye concentration and time of immersion increased. This result suggests that more dye was translocated up to the central buds of an inflorescence without affecting physiological processes at the maximum concentration and immersion period tested.

There was no significant difference in observed vase life among the treatments. Therefore, the authors of this study concluded that there were no adverse effects of the dye concentration, time of immersion or combination of treatments on flower vase life and quality.

Patil, S.D., H.E. Patil. 2008. Value addition of candytuft (Iberis umbellata L.) cut flowers coloured with edible dyes. Asian Journal of Biological Science. 3(1):163-167.

Effect of Colored Shade Nets on Cut Flower Growth

Seven cultivars of four cut flower species (lisianthus, sunflower, trachelium and ornithogalum) were grown under four different colored nets (black, red, yellow and blue). The black shade netting was considered the control. Compared to the control, three lisianthus and two sunflower cultivars grown under red and yellow shade nets displayed significant increased stem length. The red netting also caused a shorter time to flowering in ornithogalum. The blue netting resulted in shorter stem length in two sunflower cultivars and trachelium. Blue netting also produced smaller inflorescence in trachelium, sunflower and ornithogalum.

Ovadia, R., I. Dori, A. Nissim-Levi, Y. Shahak, M. Oren-Shamir. 2009. Coloured shad-nets influence stem length, time to flower, flower number and inflorescence diameter in four ornamental cut-flower crops. *The Journal of Horticultural Science & Biotechnology*. 84(2): 161-166.

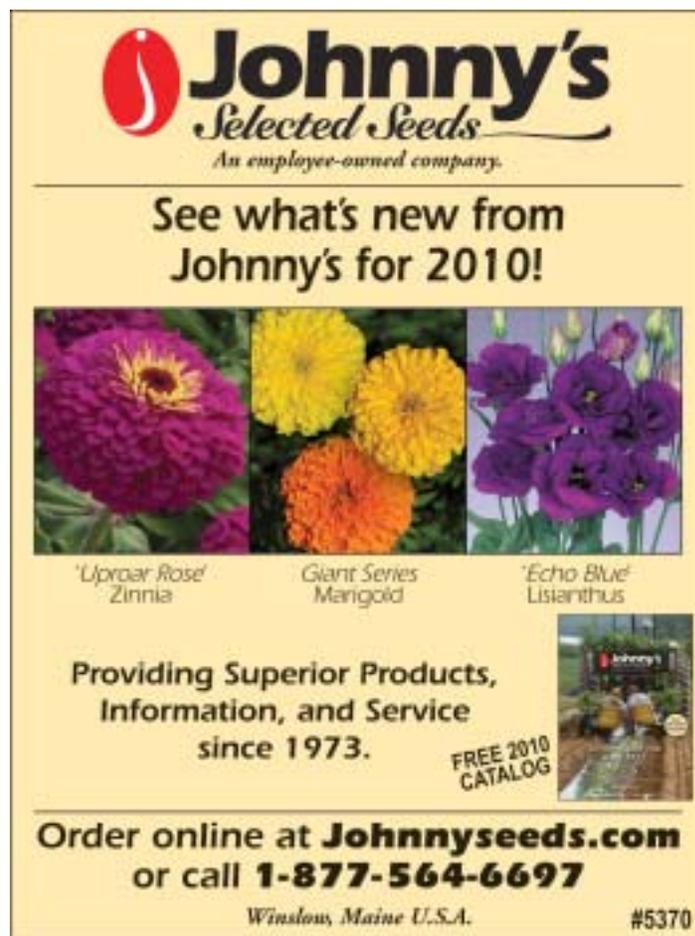
Freesia Sneak Virus Reported in Virginia

In the spring of 2008, two freesia cultivars, 'Honeymoon' and 'Santana', were grown in Virginia and analyzed for disease by the USDA-ARS Floral and Nursery Plants Research Unit in Beltsville, Maryland. The plants displayed coalescing, interveinal, chlorotic, whitish, necrotic spots on leaves. Twenty-five percent of the plants, scattered within the planting exhibited symptoms. Plants were collected from March to May for analysis. Using genetic testing techniques (amino acid sequencing), the disease in question was confirmed to be freesia sneak virus, the first report of this disease in the United States. Freesia sneak virus may pose a new soilborne threat for ornamental bulbs, as it is likely soilborne through the plant pathogen *Olpidium brassicae*.

Vaira, A.M., M.A. Hansen, J. Hammond. 2009. First Report of Freesia sneak virus in Freesia sp. in Virginia. *Plant Disease*. 93(9): 965.

Effect of Calcium on Cut Gladiolus

Three vase solutions were tested on cut stems of the gladiolus cultivar 'Mascagni': calcium acetate, ethylene glycol bis-amino tetraacetate (EGTA), or water. The opening rate and the vase life were greatest in the vase solution containing 2 mol/Liter of calcium acetate. Further tests indicated that the



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solution containing calcium acetate in resulted in increased endogenous calcium in the gladiolus. The researchers concluded that the calcium acetate stabilized the membrane structure of the cut gladiolus and activates and calcium-binding protein that controls the endogenous hormonal levels and transports soluble sugar into petals, ultimately contributing to a longer vase life.

JiGang, B., X. PeiLei, Z. ChengShun, W. CaiYun. 2009. Effects of exogenous calcium on some postharvest characteristics of cut gladiolus. *Agricultural Sciences in China*. 8(3):293-303.

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GROWER *Profile*

Megan Bame

Howard and Judy Lubbers Ottawa Glad Growers Holland, Michigan

In the summer of 1974, Howard Lubbers and his family moved into his childhood home on a 40-acre farm in west-central Michigan. Howard was a middle school teacher and had tried several small farm ventures, including raising beef cattle and angora goats, before trying cut flower production. He was looking for something that would fit into his summers off and lend itself to a second career in his retirement. He hadn't really considered flowers, but the opportunity presented itself when he learned about a gladiolus business that was for sale after the owner's death. In 1986, he bought the bulbs, equipment and an established florist route. Twenty-three years later, he's still growing glads, along with the usual assortment of annuals and perennials and a wide variety of woody cuts.

The first year held quite a few lessons. For starters, the folks he bought the business from suggested demand was greater than what the previous owner could supply. So in addition to planting the bulbs that came with the business, Howard added more bulbs. Although the florists made regular purchases, the supply far exceeded demand and many glads met their fate in the compost pile. While field work provided a good summer job for his sons and their friends, it was hard to pay them to throw away perfectly good, excess flowers. He saw diversification as the answer and started adding annuals and other bulbs the florists commonly used.

Howard retired from teaching in 1996 and became a full-time flower farmer. In addition to himself, Howard has two full-time employees, including his son Jon, and four part-time employees (2 drivers and 2 field workers). His wife, Judy, is a part-time nurse, but he also gives her credit as a full-time flower farmer. He



estimates that today there are 15 to 17 acres in cutting production.

Much of the winter is spent harvesting, bundling and freezing curly willow, which is one of the Lubbers' biggest sellers. They grow five varieties. Howard prefers to wait for the leaves to naturally fall off, then the harvest begins to supply the year-round demand for this prized florist accent.

They cut the stems to four feet in length and use a glad buncher to tie bundles. They then hand bale the bundles with 25 to 30 bunches per bale, shrink wrap and freeze at 25 to 27F. From the winter stockpile, they can sell curly willow through the rest of the year. They also allow some stems to grow for two to three years so they can harvest extra-long branches, up to 18 feet.

The latest foray into a new curly willow niche is to harvest thick, gnarly stems that are up to 12 to 15 feet tall. Howie first cuts the fine tips off, then lets them sit outside in the spring until they start to get new sprouts. At that point, the bark is relatively easy to peel away, leaving a pure white, gnarled curly willow stem which sells for as much as \$80.

The Lubbers used to dig their glad bulbs each year, clean, and store them. They now leave the glads in the field, willing to risk the loss, given that there is more money in harvesting and handling curly willow. As the field conditions deteriorate in





Another niche market that Howard's found for holiday sales are landscapers who maintain commercial plantings. Red twig dogwood, curly willow and winterberry holly stems create a festive winter look with easy installation and minimal maintenance.

The woodies list includes curly willow, dogwood, holly, and pussy willow (which is cut at the end of January for forcing), forsythia, lilac, quince and others. The Lubbers have two hoopouses used for starting specialty annuals in the spring, but all the cuts are field grown.

The Lubbers have been members of the ASCFG since 1992. Howard recalls that he had joined a gladiolus society and noticed a note in their newsletter about a cut flower association. At that time, proceedings from the annual conferences were published and available to purchase. He bought that year's proceedings, and immediately recognized, "Wow, this is great stuff." The first conference they attended was in Baltimore where they heard the late David Jenkins speak, and later joined him for lunch, launching their endeavor into woodies.

late January and February (the area averages more than 100 inches of snowfall a year), they resort to snowmobile and sled to harvest the curly willow. However, with sufficient snow cover, the glad bulbs may survive. In either case, they're prepared to buy new bulbs, ordering 130,000 this past year when none survived last winter.

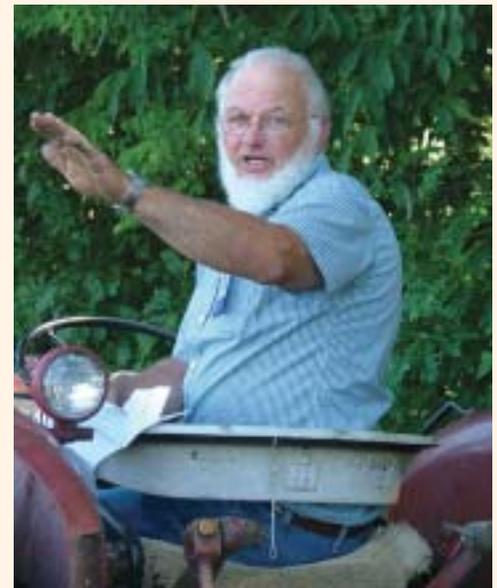
Obviously curly willow is a major part of their operation, but this past year, it was second to glads based on sales receipts. And that's despite the fact that the gladiolus prices in the local market are suppressed by a large commercial grower in southern Michigan who supplies the mass market, where 5-stem bunches can regularly be found for \$1.50. Howard sells 10-stem bunches, straight colors, to florists at \$4 per bunch or \$3 for 6 stems at the farmers' market.

While twice weekly routes to 30 florists make up the bulk of their sales, they also attend three farmers' markets (selling mostly straight bunches) and sometimes sells to a wholesale floral distributor. Howard reported that, "In 23 years of business, sales have increased every year, but they look to be down in 2009." Like much of the country, perhaps worse, Michigan has been hit hard with unemployment and florists have cut way back as their standing orders all but disappeared.



Howard and Judy are mainstays at ASCFG National Conferences, attending almost every one since they joined, as well as several Regional Meetings. They hosted the Midwest Regional Meeting in 2006.

Howard is well known for his unique contributions to the ASCFG Research Foundation Auctions. Each year he buys authentic wooden shoes from Holland (Michigan), and customizes them by



woodburning the ASCFG logo, and that year's conference date and location into them. These shoes have become hot items, creative some competitive bidding by attendees, and have brought in several hundreds of dollars for the Foundation over the years.

In all these years, Howard's narrowed down his biggest challenge to a rather specific problem: how to control perennial weeds in multi-stemmed woody shrubs. If you know how to effectively take care of goldenrod, for example, amongst a yellow twig dogwood, give Howard a call. It's that sort of information exchange that he says makes the Association so beneficial to growers. While he's not looking to expand the business much at this point, he's eager to keep trying new things. You never know what new market he'll discover next for curly willow. It's no surprise he's often announced in the florist shops with, "Here comes the stick man."

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Back to Basics

Amy Bauer

Coolers Go Green

New federal rules aim to capture energy savings. Here's what you need to know about them.

Florists in the market for walk-in coolers will find new features that may not be immediately apparent to the eye but that eventually may be apparent in their electric bills.

New federal rules designed to increase the energy efficiency of walk-in coolers have been in effect since January 1, part of the Energy Independence and Security Act of 2007, which includes standards for everything from vehicle fuel economy and biofuels to home appliances. (See summary at www.energy.senate.gov/public.)

Conservation via Coolers

Allan Jett, sales support executive for SRC Refrigeration, Sterling Heights, Mich., says the biggest changes are 1) requirements for higher-grade insulation, 2) more efficient electrical motors and 3) better-insulated glass doors—triple pane versus double pane. Other requirements include 4) more energy-efficient lighting and 5) automatic door closers for most cooler doors. All of these measures aim to improve performance, thereby reducing electricity consumption.

For example, an EC (electronically commutated) motor for the evaporator coil will run 40 percent to 60 percent less without affecting performance, explains Richard Rosenfeld, vice president of sales for Bush Refrigeration, Camden, N.J. The evaporator coil is the fan unit inside the cooler and absorbs heat and distributes humidity.

The requirements apply to newly manufactured walk-in coolers in all industries, not just floral. They do not affect reach-in coolers or existing walk-in coolers.

Karim Amran, vice president of Regulatory and Research for the Air Conditioning, Heating, and Refrigeration Institute (AHRI), says the law requires performance standards by 2012 that will set minimum energy efficiency requirements. These will be accompanied by some type of reporting mechanism that should help florists and other buyers better compare units, Mr. Amran explains. This could be similar to the hangtags in household appliances describing the average kilowatt-hours of energy used.

Keep Cool with Proper Care

Regular cleaning and maintenance of your floral cooler(s) is one of the easiest ways to keep it/them running efficiently and looking good. Mark your calendar to remind you to tackle these tasks.

Daily

- Check operating temperature several times daily.
- Remove all broken off and dead leaves and flowers—and other debris—from cooler shelves and floor.
- Clean all shelving and glass surfaces—interior and exterior—to remove water spots and rings and fingerprints.

Weekly

- Clean and sanitize the interior walls and floor with a professional cleanser (such as D.C.D.® Cleaner from Floralife or Fresh-n-Clean® from Syndicate Sales).
- Wipe clean the interior evaporator coil (fan) housing and fan guard.
- Wipe the door gaskets with a soft, damp cloth, to keep them clean and sealing properly.
- Wipe the cooler exterior, including the compressor/condensing unit cover, with a soft, damp cloth. Touch up nicks and scratches to prevent corrosion.
- Clean the top of the cooler, making sure the compressor/condensing unit is free of any air circulation obstructions (if it is located on top of the cooler).

Monthly

- Clean the compressor/condensing unit coils (outside the unit) to avoid dust buildup. A utility vacuum, which can reverse its airflow, helps to blow the dust out thoroughly, or use a can of compressed air.
- Inspect walk-in coolers for water on the wall or near a seam; this may be an indication of an air leak. Seal the leak with silicone.

Semiannually/Annually

- Clean the evaporator coil (fan unit inside the cooler) every six to 12 months. You might want to hire a professional to do this, to prevent damage to the unit. Or if you do it yourself, turn off the cooler, open the fan unit and clean the coil with a pump sprayer filled with bleach and water or vinegar and water.

Adding it Up

“On the face of it, all of these are good changes, with the drawback that they cost money,” Mr. Jett says, though he notes that SRC Refrigeration has absorbed the increased costs of the new technology on floral refrigeration. “Right now, you can talk about paybacks over time, but there are no hard-and-fast numbers to say how long it’s going to take to pay that back or what the bottom-line costs are.”

Estimates on the potential savings vary and would depend on the size and configuration of any cooler, as well as the cost of electricity in a particular market. Mr. Rosenfeld predicts 40 percent savings on average.

“Is there a downside to [the requirements]? Yes. It adds a couple of percent to your purchase price, but it’s insignificant,” Mr. Rosenfeld says. “You’ll recoup that little bit extra in your first six months’ electric bill or less. It’s significant.”

Other Ways to Save

For florists not ready to commit to a whole new cooler, there are other options to take advantage of these energy-saving technologies.

Fan motors. Wayne Lauer, owner of Flot-Aire Floral Refrigerators, Rolla, Mo., says new fan motors could be installed in an existing cooler, depending on the brand. The motors usually are installed on a mounting plate, he explains, and in some cases this upgrade could be done by a skilled do-it-yourselfer.

Doors. The doors on an existing cooler that otherwise is running well also could be upgraded, Mr. Jett says, to take advantage of the higher insulation value and better lighting. “Replacing a set of doors in a display can make a big change in appearance, and all the doors that are made now meet the regulations and are a big upgrade over the old doors,” he says. He describes the increase in the door cost—4 percent or 5 percent—as less than that for some of the other new components.

Innovations in Lighting

Mr. Jett predicts more and more coolers will be outfitted with LED (light-emitting diode) lighting in the coming years. This innovation is already being seen in larger commercial coolers and even in some home refrigerators. But he says the price remains too high right now for widespread use.

“They’re attractive lights, and they don’t put out the heat like traditional fluorescents do, so it saves on operating costs plus on the overall energy going to the bulb itself,” he explains.

Ensuring a good seal on existing doors and that they are opened as little as possible also will help, Mr. Jett says. “The biggest heat loss occurs when the door is opened,” he explains. “So if you can minimize that, you will save money.”

Maintenance. One of the easiest ways to save, the refrigeration professionals agree, is to keep up with cleaning and maintenance. The two main areas to focus on are the evaporator coil—the fan unit inside the cooler—and the condenser (or compressor) unit, which disperses the heat outside the cooler and may be located either inside or outside the store.

“If you haven’t cleaned your system in four years, it is probably running at 75 percent efficiency,” Mr. Lauer reports.

Mr. Lauer says some florists just clean the fan blades or look on the outside of the evaporator and believe it is clean, but the dirt accumulates inside, on the coil. “By turning off the system and opening the fan unit, you’ll see all the dirt in there,” he says. A pump sprayer filled with bleach and water or vinegar and water will loosen the dirt, he suggests. And a vacuum or can of compressed air will clean the condenser.

More Change Coming

Another shift in the refrigeration industry that florists should be aware of is on the horizon, Mr. Rosenfeld says. The type of acceptable refrigerant will change Jan. 1, 2010. Manufacturers will no longer be able to build equipment that uses R-22 freon, which is common not only in commercial but also in household applications. Mr. Rosenfeld says R-404A will be the new standard for walk-in coolers, but smaller coolers are available with R-134A. R-22 freon still will be available to refill leaks in existing units.

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www.floristsreview.com

The Full Scoop

Want the full rundown of the new refrigeration requirements?
The Air Conditioning, Heating, and Refrigeration Institute (AHRI) has published a checklist at
www.ahrinet.org/ARI/util/showdoc.aspx?doc=1202.

REGIONAL *Reports*



NORTHEAST

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"Alone we can do so little; together we can do so much."

Helen Keller

January...ahhh

We ramped up our December marketing by a LOT this year, pretty much double that of 2008, and my word it is hard to pull out the extra stuffing needed to be chipper and organized after a long wet summer. Local, handmade decorations work well in our market, and I can feel the recession waning... people have less stress around the eyes, and the wallets are a little looser than last year as well. How was your year?

In little Rhode Island, we have been declared an agricultural disaster, but that really helps only the bigger commodity growers who put a lot of eggs in one basket. As cut flower growers we naturally diversify, and that's great! It's better for our income, better for our fields, and usually at least some of it does really well each year. This weather was pretty challenging across the board, and volumes were down on anything that likes it hot, for sure. Quinton Tschetter mentioned the other day that he had 3-foot high eucalyptus in the field and it grew 13 feet high in the high tunnel. I have happily grown eucalyptus outside for four years, but this year three feet would have been welcome. I trialed five different varieties this year, but I'll have to trial them again in '10; I can't judge the poor things on this season.

Speaking of trials—woo hoo! The January issue of the *Quarterly* is one of my favorites, and I eagerly read the Trial reports to see if my experience was commonly shared, or if something is better (or worse) than I found on my farm. This is just another GREAT member benefit of ASCFG—have you sent your renewal check? As a Board member for the last couple of years, I can tell you with utter confidence that this organization is great for your business and runs on a bare minimum of overhead. We have been cutting costs everywhere we can, and at the same time adding more for the members.

Of course the best member benefit is each other, and the way that ASCFG members share information. The National Conference is one of our best examples. A huge thank you to everyone who came out to Long Island! A double thank you to

all the Northeasterners and others who so generously gave of their time and expertise to lead workshops and forums.

We have many other chances to learn from each other, however. Participating in the Bulletin Board is a great way to get a lot of ideas about any given topic, and with the search feature, you can find years and years of experience at your fingertips. Not much of a computer user? The wonderful folks of the ASCFG are always happy to talk over the telephone and our members have the straight skinny. All of us who went out to Riverhead, New York now know that Dan Gilrein and Margery Daughtrey are authors we want on our bookshelves, and I know they answer their email. You know past president Bob Wollam would talk to anyone about anything. Gay Smith is ALWAYS happy to provide the CORRECT postharvest information (cause there's so much wrong info out there). Start out looking for your topic on the Bulletin Board, and if you find you have more questions, the person who gave the most pertinent advice for your farm is just an email or phone call away. Of course, I won't answer on a Friday or Saturday, but within reason, most of us are happy to help a bit. It's January, so let's plan for a great 2010.



MID-ATLANTIC

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Keeping it Local

When we lived in Portland, Oregon in the early '90's, local coffee shops thrived. When Starbucks entered the scene, there were intersections downtown where one entered a swirling vortex of caffeine-laced temptation. Every corner offered a different twist on our morning cup of "joe" as local and corporate shops alike desperately competed for our daily coffee dollars. We enjoyed many a good laugh as each shop would lob its latest "coffee bomb" at the other over our heads. Now I can appreciate the raging coffee war with new perspective as I contemplate the state of northern Virginia/D.C. "producer only" farmers' markets.

This past year I received invitations to no fewer than six new farmers' markets in the area. Demand is incredibly high for "locally grown" product. So during the spring when farming concerns generally overshadow strategic planning sessions, we tried to do both. With little time to research and examine the organizations running these new markets, we went with our gut and took on two new markets for a total of six. Our choices made, we watched as community organizations, developers and "buy local" entrepreneurs launched "producer only" markets all around us. Fundamental to all these new markets was and is the desire to provide local produce to area residents.

On the surface, these markets succeeded to varying degrees, whether or not the produce was actually "produced by" some vendors remains questionable in our eyes. After all, it's not many farmers who can quadruple their production at the last minute at their busiest time of year. With budget cutting and staff reduction, some new and existing area farmers'

market organizations have abandoned farm inspections and/or provide them only as a response to a specific written complaint. As it happens, I found myself on the July 4th weekend selling bouquets at one of my established markets, facing a vegetable grower who was selling, for the fourth week in a row, highly uniform lisianthus bouquets and commercially dyed sunflowers to name a few. Although it was not impossible that this vendor grew these flowers, it was just highly unlikely they were produced at that time of year without being hoop or greenhouse grown.

We questioned the vendor, who 1. Was unable to point out lisianthus in his own bouquets and 2. Insisted the commercially dyed (red for the holiday) sunflowers "grew that way in his field." I decided to file a written complaint but realized to be effective my complaint needed "teeth." It was not enough to simply request an inspection and pray the inspectors would understand what they were looking at once in the field. Our complaint included detailed production information as to what any inspector SHOULD be looking for IF the producer was in fact growing any of the crops in question.

We had all technical information reviewed by two neighboring ASCFG members. Another member, who lived near this vendor's farm, even checked out a local produce auction and reported on what was being sold, and provided contact information and pictures. We also insisted on an inspection of our farm at the same time so that we could further educate the inspectors on typical flower-growing practices for the crops in question.

Ultimately, these vendors were found to be producing only a small handful of flowers at best and few of the flowers cited in our complaint. However, they were permitted to continue

selling at the market IF they refrained from bringing flowers they did not grow. The market organizers insisted that since the complaint was only for flowers, their veggie production was not inspected at all.

Enter the "truck" farmer. With produce auctions ringing the D.C. area and high demand for produce, "producer only" markets that no longer inspect producers are definitely in danger of losing their credibility and ultimately their legitimate farmers/producers altogether. We acknowledge that somewhere a farmer is benefitting from all this demand for locally-grown product. Why then are we required to sign a "producer only" statement, supply crop lists/production schedules, and pay fees to participate in "producer only" markets and yet sell next to vendors who

share none of the same risks or costs and engage weekly in defrauding the customer?

Many producers choose to turn the other cheek and merely worry about stepping on someone else's professional toes by formally complaining.

These producers may hope that the legitimacy and quality of their product will be obvious to consumers, and that ultimately consumers will make the choice. I would argue that though this may be the case, you may find that consumers look at the entire market differently if they believe even one vendor may be suspect and you may find decrease in attendance if they suspect they are being routinely defrauded. With so many options now for finding "locally grown" product, it's increasingly easier for consumers to simply drive on down the road.

What's a legitimate grower to do? We're taking a hard look at all our markets (old and new) and examining the motivations of each market organization. We are interested in participating in and fostering markets where the trust between consumer and producer is paramount, and the "producer only" rule is truly upheld. Tops on our list is Freshfarm Markets (www.freshfarmmarket.org). They set the standard for running some of the most respected "producer only" markets in the D.C. area. Their success has spawned several similar though smaller organizations in the area, proving their model can succeed on a reduced scale. After a nominal application fee, they charge a percentage of sales without a daily minimum or maximum, thus rewarding the organization when sales are up without punishing producers when sales are down. A portion of the fees helps pay for regular farm inspections, during which every aspect of a producer's operation is an open book. They also have a no-tolerance policy for any violation of the "producer only" rule. It's a winning combination: producers are happy, organizers are in control and ultimately the consumer is not caught up in the crossfire.

We questioned the "producer-only" vendor, who

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*2. Insisted the commercially dyed
(red for the holiday) sunflowers
"grew that way in his field."*

The “producer only” war may not be so obvious to consumers as the coffee wars of old but it definitely percolates under the surface of the “buy local” movement in our area. We look forward to yet another season full of promise and growth. Though we may have our heads down in the dirt this time of year, our market eyes are open.



SOUTHEAST

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As if I were writing for a Twitter account, my mind seems to work in only short, simpleton phrases these days. So here are a few “tweets” of what I learned from the 2009 season. (No, I don’t understand the appeal of Twitter either.)

- Choosing a product mix is a balancing act. “Easy to grow” means everyone is doing it or they will. Gone are the days of few market sellers and many buyers.
- If you are succeeding in 2009 expect copycats in 2010.
- Irrigation is required even in the our climate. Everything did better with the extra rain this year: hydrangeas, holly, dahlias, even the zinnias.
- Don’t expect agritourism to work in the rain. Rain and hay rides don’t mix.
- Florists are the flakiest people I know, love them or hate them. They either wait until the last minute to order, or order weeks ahead and then forget you altogether.
- Don’t hold peonies past June even if you have a colder.
- We haven’t figured out how to force lilacs, so we don’t promise any.
- Due to the weed seed bank, direct sowing in our main field doesn’t work. Even with no-till and flaming. Zinnias are my primary example.
- Never plant a cover crop at the same time as the main crop, even sunflowers.
- Always have something growing; bare soil means compaction and erosion.
- People don’t buy pink and purple zinnias after July.
- Cold dark weather prevents seedling development even in the greenhouse. Starting seed sowing early doesn’t work on heat lovers even those started on a heat mat.
- We should be buying plugs of heat loving annuals. Love-lies-bleeding (hanging amaranthus) doesn’t grow well from direct-sown or slow-growing plugs.
- Heavy buckets are hard on small people. No matter how hard you like to work, your joints and ligaments may feel differently. Physical therapy works.

- *Panicum* ‘Frosted Explosion’ is a great filler if you remember to cut it.
- Like an old house, repairing an old truck costs twice as much as they say it will. Same goes for old cooler trucks.
- Deer eat roses and then they eat lilies. Hunting is not so bad after all.
- Lilies right next to onions don’t sell well.
- Local is in.
- Whoever said plants don’t get powdery mildew in the rain is insane.
- Have an answer for everything before you go to the market with no sleep.
- Don’t go to the market without sleep.
- Wedding planners are all about saving money at your expense.
- Most brides (i.e. parents) will not value you as a source for reception designs, but they will value you as a source for the flowers.
- Bird’s nest bouquets are very time consuming.
- Picking through snowberries for five bridal bouquets in December is equal to one of Dante’s circles of hell—three days of hell in fact.
- Most brides are very sweet and thankful and don’t let anyone tell you differently.
- “No. You can’t have blue hydrangeas in May.”
- Blue silk hydrangeas in bridal ads should be illegal.
- We would probably do better if we mixed the flowers for the market but memories of 2:00 a.m. mixing sessions still linger...
- I’m finding much to my dismay we are all growing older. Surprise. Many of my cut flower friends are in second and third careers. I wonder often about the physical nature of the business. Those of us unable to advance the business into managing and not just having a job will succeed. The rest of us will fail physically at some point and the business along with us.
- Note to self: remember to create a business, not a job for yourself.
- My favorite old flower this year is aster ‘Standy’. I learned I could succession sow it after all.
- My favorite new flower is scabiosa ‘Cutbrite mix’ from Geo Seed. Although it bloomed very late, it’s frost hardy and I have high hopes for fine tuning my sowing and fall protection of it. In fact, I’ve order several other scabiosa from Geo including ‘Rotary’, grown for its starlike seed pods.
- 2009 was a surprisingly good year. It’s up to me to refine the business and maybe learn how to sell more flowers via Twitter.



MIDWEST

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It is nearing the end of that part of the year that those of us who are known as seasonal growers are looking forward to getting our hands dirty. A lot of the plans for the year are already in place, such as seeds ordered, bulbs ordered, garden plots laid out and, hopefully, any repairs that were needed are finished. We may have some time to tune up or repair our equipment. If you are like us, you replaced the plastic on one of the hoophouses that has been on for seven years. That got us three more years than expected.

Now it is time to get the seeds started, and that is what we are into this time of year. We have converted one room in our basement for starting and growing on seedlings. We use fluorescent lights that we picked up from salvage and I built racks to hold the trays and lights. It took some make and mistake trials before I settled on the best design for us. One thing I learned was to make the shelving wide enough so that the lights could be lifted all the way to the next shelf. The light also provide warmth for the shelf above, which the seedlings need, but when they are all running, they make too much heat so I have to ventilate the room by forcing cool air from the outside into the room. I built 6 shelf racks that hold 30 trays under light and 4 trays of storage OR for other storage. For a couple of the racks, I have hung a light from the ceiling so that I can use all six shelves.

With the seven sets of shelving, we are able to put approx. 210-220+ trays under lights at a time. At times we alternate the trays and run the lights 24-7. The biggest deterrent to using this process is the time it takes to water, because the trays have to be moved and hand watered. However, when the temps outdoors are in the 0 to 32 degree range, it is a lot cheaper than heating a greenhouse or hoophouse. The sequence that we use allows us to start seedlings in early February and have good growth before we have to move them to a minimally heated hoophouse sometime near the end of February, depending on weather forecasts. This really works well for us but I know that it wouldn't work for all growers. One plus is that we pay closer attention to the plants because we are close and don't have to get bundled up to go to a greenhouse. We use very little additional energy other than the lights. I would be happy to answer any questions that arise about our system of starting and growing on seedlings.

Specifics on the shelving: I use 1x4 white pine or fir for the shelves and crosspieces. For the shelves, I use 2 or 3 pieces 4ft 2 inches. The uprights are 6-ft 1x6s and the cross pieces. are 12-16 inches. I use light chain to suspend the lights and 4-penny finish nails with the heads cut off to hook the chains on to the

shelf above. Glue and screws hold everything together. I use 24-hour timers and plug strips to control the lights. I can control three racks of lights with one timer. Happy growing!



SOUTH-CENTRAL

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It was a very good year—that's what I'm hearing from many of our South-Central growers. Not what I would have predicted at the beginning of 2009. Of course, those who have good news are more likely to be telling their stories—a self-selection process may be skewing the results. But the fact that some of our growers are declaring 2009 to be their best year ever seems remarkable given that year's dismal economic conditions.

The good news applies to experienced and new growers alike. Kim Walton, a first-year grower in Muskogee, Oklahoma (Walton's Farm), had a "GREAT first season." Kim is a registered nurse who has done emergency/ICU nursing for over 15 years and was ready for a change. This year she sold flowers, plants and produce at her local farmers' market on Wednesdays and Saturdays from April through October. She estimates that about 75 percent of her sales were flowers. Kim grew a basic menu of annual flowers on about 2/3 acre, with help from her two teenagers and husband. She found the year "incredibly rewarding."

It was rewarding emotionally because the customers were so appreciative, but also financially—Kim actually made a profit in her first year! Kim obviously has moved up the learning curve very quickly and she credits Mark Cain (Dripping Springs Garden, Huntsville, Arkansas) with being a wonderful mentor. She looks forward to expanding next year, adding some perennials and woodies, making full use of her new greenhouse and installing a CoolBot in her cooler.

Likewise, for long-time grower Janet Bachmann (Riverbend Gardens, Fayetteville, Arkansas), 2009 was a "great year!" Janet attributes this success partially to an extra-long growing season—still no frost in late November. Last year was Janet's fifteenth as a vendor at the Fayetteville Farmers' Market. She originally sold vegetables and strawberries there and gradually added flowers, which are now her main product. Janet faces strong competition at the market, but that doesn't seem to bother her. This year tulips, peonies and dahlias were excellent sellers, to both farmers' market and florist. Janet makes bouquets and is currently trying to simplify her bouquet making by developing some "recipes" for good combinations. Two combos she likes are short dahlias with short snapdragons and monarda 'Coral Reef' with phlox 'David'. Some new cut flower favorites include *Amarcrinum* (a cross between *Crinum* and *amaryllis*) and dahlia

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varieties 'Cool Luke' and 'Sierra Glow' (purchased last spring from Banner Flower Farm).

Janet is finding landscape fabric to be a big help in the continuing weed battle. She says, "As I get older, I realize that I can never do everything I want to do—so just breathe deep and smile and let some things go!" That's good advice for all of us.

Rita Anders (Cuts of Color, Weimar, Texas) made a big change this year: she quit her full-time job and became a full-time farmer. That change made possible a big boost in her 2009 production and sales. Rita sells flowers and vegetables at a farmers' market, but also does some sales from home, for events and to florists. She is hoping to expand her florist market and wedding work in 2010, now that she has more time to devote to these outlets. Rita plans to take a floral design class and send flyers to potential wedding customers. Her new website (cutsofcolor.com) should also help promote this business. Rita likes lisianthus 'Mariachi' for colors, stem length and long-blooming season—in fact, they bloomed until she was sick of picking them. She also had good luck this year with 'Superior Sunset' sunflowers, Mexican tuberoses, delphinium (started from plugs) and dahlias. Despite weather (drought) and insect (whitefly) challenges, Rita had a good year. She has applied for certification from Certified Naturally Grown.

Calvin and Julie Cook (Arrowhead Dahlias, Platteville, Colorado) also "had a great 2009 cut flower season." They go to four weekly farmers' markets with dahlias, gladiolus, sunflowers, sweet peas, lisianthus and mixed bouquets. Although market sales were about the same as in 2008, dahlia sales to wholesale florists and Whole Foods Grocery were up. A new favorite cut flower is *Asclepias* 'Silky', which works well in bouquets or bunches, is easy to grow and blooms until frost.

Vicki Stamback (Bear Creek Farm, Stillwater, Oklahoma and our new ASCFG president) sells only to florists. We keep hearing that times are tough for florists, but Vicki's sales were up in 2009. In her area, the florists are consolidating. The poorly-run shops are closing and their business is going to the florists who understand their business and customers, and who are good managers. As a result, the florists' problems have not affected Vicki, and she is even expanding. She has added two new greenhouses and always adds a couple of new crops to her mix. This year she planted some roses and plans to add cut mums and more dahlias next year. We will get to see all of this when we go to Tulsa for the National Conference in November.

For Kim Haven (Billabong Fresh Flower Farm, Hempstead, Texas), 2009 also was much better than 2008, largely because she was proactive and made some big—and quite successful—changes to her business. Switching from a small farmers' market to a larger, established market gave her a big sales boost. She also dropped some florists and started doing weddings and other events. Kim may add another farmers' market next year and is building her first greenhouse. Some of Kim's new favorites are *Lysimachia*, *Dianthus barbatus* 'Sweet Series', *Veronica* (produces from late spring through fall), and *Phlox paniculata* (heavenly scent and no real problems). Kim's good year came despite some mighty challenges—deer, drought, bugs, and gophers. She built an 8-foot permanent deer fence around a half-acre of her growing area, ran her well 24/7, planted extra product to cover insect damage, and now is thinking of buying a "rodenator or rodent blaster" and "have me some fun!"

Congratulations to these growers on a successful 2009, and best wishes to all of us for a great 2010!



NORTHWEST

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About nine years ago, Dennis and I trotted out of the big city and bought the farm. Boom! Except we weren't dead yet and the farm more like came and bought us, but that's another story.

Almost the first person we met out here in the Skagit Flats was our neighbor and large-scale organic leek farmer, Ray DeVries. Ray's a tall, friendly guy with great big sideburns and you can definitely tell by looking at him that he's a real farmer. He leans over the fence and asks, "Either of you two got an ag degree?"

"Urp, well... Dennis is a musician and I'm a landscaper and artist..." And I'm thinking, "We're dreamers, what are we doing out here???"

His answer surprised both of us. "Good, that's in your favor."

Wow! That is definitely one of the most encouraging things anyone has ever said to me. His timing was impeccable. We had just signed our lives over to the bank for seven gorgeous acres of sandy farmland and an old house that needed a whole lot of work. No barn, no well, no tractor. The land had been in unkempt pasture for about twenty years so it was a snarled mess of quackgrass, blackberry and other weeds. We didn't know how to farm, much less what to farm. We just knew that we wanted to treat this piece of land kindly and try to make a living from it, somehow, in good time.

Fear of the unknown has been our biggest obstacle. When we figured out we wanted to grow cut flowers, our neighbor Erin Benzakein urged us to join the ASCFG. And again came a huge boost of encouragement. Here was a warm, friendly group of experienced growers willing to answer about any question we had about flower growing. And we could see we weren't

the only hard-working folks facing obstacles. Things started to look possible. Heck, since we didn't have to deal with cucumber beetles and softball-sized hail we could even probably figure out how to get a barn built...

The learning curve has been steep. Starting a farm from scratch takes hard work, no question. Neither one of us grew up on a farm, but the majority of our grandparents did. I've often thought how much easier it must have been to leave the farm for the city all those years ago than to make the return trip. It's tempting to see loss or tragedy in how few growers there are compared to 100 years ago.

In another way, though, our neighbor Ray was right. Those of us who return to farming with philosophy and art degrees and enthusiasm plus a myriad of other life experiences bring fresh energy and new ideas, new ways of thinking about why and how to go about the business of farming. We're a conduit to those in the city who long for a connection to their own agrarian roots. And that, of course, is a delightful marketing opportunity. Buy local! Support your local farmer!

Thank you for electing me. It is an exciting and fun prospect to be on the Board and I look forward to representing all of you Northwesterners. Thank you to Jeriann Sabin for being a terrific Regional Director. As I step into her shoes, please do not be shy about contacting me with your ideas, concerns and comments. Right now I could especially use your thoughts on where and when to hold the 2010 Regional Meeting.

One more thing, if you don't yet use the ASCFG's online Bulletin Board, you are missing perhaps the greatest resource the ASCFG offers. The search engine attached to the Bulletin Board is amazing. If you want to grow a new crop or an old crop in a new way, all you have to do is type in, say, "tulips" and up will come discussions dating back years from lots of different growers. You will learn spacing, varieties, growing and harvesting techniques, postharvest care, etc. Topics range from making your farmers' market presentation snappy to how to manage a farm with young kids. And you can leave the resource richer than you found it by adding your own two bits. So for those of you in my Region who don't yet use the Bulletin Board, if you feel daunted about getting started, call me at (206) 290-3154 before the spring growing season kicks in and I will help you.



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WEST

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Our gradual transition into winter here on the California coast seems to finally be complete. Not all of the deciduous crops have lost their leaves, but the process is well underway, ushered along by several light, though not killing frosts. However, the true onset of the much-needed rainy season remains elusive. Back in the middle of October, we had five inches of rain here at the farm and as much as ten inches of rain in the surrounding coastal mountains in just 48 hours. At this point, it seemed that the predictions of a return of El Nino were quite accurate and that we would be lucky to get all of our summer crops turned under and cover crops planted in our annual effort to continue the cycles of fertility. Instead, we have had only .2" of additional rain since that time and I am still out irrigating some of our last standing flowers: stock, rudbeckia, cerinthe and marigolds. Soon enough, the last vestiges of summer color will be gone, but the stock successions should continue to produce stunning, fragrant pastel colors through the end of January. Summer on the coast comes gradually, sometimes reluctantly if at all, but once here, it tends to linger well into the rest of the country's winter.

One benefit of the lack of rain has been that we have had plenty of time and appropriate soil moisture to complete our cover crop plantings and have been fortunate not to be burdened with an excess of weed growth, but after almost 7 months with no rain, the soils, the grasslands, the woodlands and all of our gardens are thirsting for the life-giving power of the rains.

On a different note, I just returned from a short trip to the coast of Oaxaca in southern Mexico. Like California, Oaxaca has an extended dry season, upwards of eight months in most years. Despite the tropical climate, many native plants, in particular the members of the coastal forest community, Selva Baja Caducifolia, as it is known locally, have adapted to the rigors of extended dry season by way of having drought-deciduous foliage. While we normally associate deciduous

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On previous trips into the mountains of Oaxaca I encountered several exquisite species of *Salvia*, common in the ornamental landscape in California, but here as natives thriving wild and abundantly on the margins of cornfields and amidst the open oak woodlands. On this trip, I was amazed to see three familiar American garden plants again growing in their native habitat. The common morning glory, *Ipomoea purpurea*, a weed to many, but surely a beauty to all, can be found throughout the coast of Oaxaca, climbing and sprawling across the landscape and ranging in color from soft blues and pale lavenders to deep purples. Also abundant, in fact nearly omnipresent, was the Mexican sunflower, *Tithonia rotundifolia*, growing along roadsides, in the maturing corn fields and in nearly every clearing in the coastal forest. While most of the plants lacked the intense orange that we associate with cultivated varieties such as ‘Torch,’ this was more than made up for by the sheer abundance of the flowers and the incredible beauty of the several species of butterflies attracted to these prolific nectaries.

I also came across many a stand of *Zinnia elegans*, certainly one of our easiest and most popular summer cuts, growing wild in disturbed soils and even in the dunes near the beach. Like the *Tithonia*, these wild populations lacked some of the color vibrancy and size we associate with the Benary’s ‘Giants’ and some of the other popular strains, but I was again awed and thrilled to see familiar species in their more original and unselected states, thriving without fertilizers, irrigation, pest control and other forms of human intervention. Perhaps, over time, I will have additional opportunity to chance upon our more friends in the world of specialty cuts and have an even greater window into the hand of growers and breeders and the amazing work they do with our wild heritage.

I look forward to working with everyone in the ASCFG at the upcoming planning meetings, preparing for next year’s National Conference in Tulsa and here in the West at our spring Regional Meeting. At present, I am planning to follow Brenda’s expert advice and continue to utilize venue of the California Trials as the container for West Regional Meeting, but I am wide open to feedback on how to create a gathering that is accessible to everyone, an avenue to connect and share stories and that provides an opportunity for exposure to new varieties and growing practices. Any thoughts folks from out West have would be much appreciated in the coming weeks. In the meantime, if the rains ever do come, I will be taking time to continue to refine our flower growing practices and curriculum so that we can better equip new and aspiring flower growers to produce high quality specialty cuts after they graduate from the UCSC Apprenticeship Program.

nature with plants coming from northern temperate climates, in both Mediterranean climates and in the dry tropics, drought deciduousness is a fairly widespread and highly effective means of coping with water stress. While it was only the beginning of the dry season, and the forest was in full and lush canopy, the leafless, dry tropical forest is an arresting sight to behold at the end of the dry season in early May.

The markets were awash in tropical fruits: many varieties of bananas, pineapple, mamey, guavas and papayas, a feast for the senses. Of more relevant interest in the realm of floriculture, the markets were dominated by only a small handful of familiar crops: roses, carnations, lilies, gladiolus, mums and callas, all grown in greenhouses outside of Mexico City and trucked over the coastal mountain range to the local population centers and buying public. While the quality of the flowers was uniformly high, coming from the diversity that is represented in the cut flowers we collectively produce in the States, I was disappointed by the lack of specialty cuts and truly unique offerings. Perhaps I did not look far and wide enough. Perhaps the consumer tastes really only seek out these standards. Perhaps there is a market for US growers who want to balance the flow of product heading North and South.

GROWER GRANT *Research Results*

This grant was supported by the ASCFG Research Fund.

To see how you can apply for an ASCFG Grower Grant, go to www.ascfg.org and click on Research Activities.

Weed Control Methods for Field-Grown Peonies

Rita Jo Shoultz, Alaska Hardy Peonies/Fritz Creek Gardens, Fritz Creek, Alaska

I received an ASCFG Grower Grant to study weed control in peonies grown for the cut flower market. Where to begin? First of all, I'm a long way from having any solutions to the weed problem. I have learned a lot and discovered everyone growing peonies here in Alaska have a weed problem. Although many are different than my 'special' weeds, everyone thinks theirs are 'special' too. I've also discovered that weeds don't mean the end. Tolerance is definitely a consideration.

My biggest weed problem is *Equisetum*, commonly known as horsetail. Horsetail is one of man's oldest plants and ranks right up there with cockroaches for survival. I've personally dug roots up to 3 feet deep and saw no end.

Before I begin my tale of woe perhaps a bit of background on what's happening with *Paeonia* in Alaska. As early as 1998, our Alaska University, Fairbanks started getting indications there might be a niche for Alaskan-grown peonies for the cut flower market. It became obvious quite quickly that peonies grown in Alaska would bloom when others in the rest of the United States were not commercially available and, due to our extreme cold temperatures in winter and cool summers, the quality and color of our cuttings were superior to those in warmer growing areas. Flash forward to 2006 when several growers started planting for the market.

Today a formal organization, the Alaska Peony Growers Association, is off and running with 84 members. There are 14 farms with approximately 33,000 plants now in the ground. Four farms harvested cuts from 3- and 4-year-old plants in 2009.

While our University has done small-scale research on varieties, diseases, harvesting etc., we have no history or experience for the overall growing industry. I foolishly thought with my background in the greenhouse business and with my 16 display gardens, I could grow on a large scale for the cut flower market. I have a new respect for farmers in a big way. My confidence level went from I can do this to no way can I do this to I think I can do this with a lot of hard work. I worked at Omeo Farm in New Zealand, visited Adelman Peony Gardens in Salem, Oregon, and most every other grower on the West Coast, Canada and of course have attended the ASCFG meetings to network with other growers.

I've learned how much I don't know. But I've also learned enough and met enough folk that are more than anxious to help; I think Alaska is going to do just fine.

The first two years my weed control was to actually dig up the horsetail by hand. Since I have a crew for Fritz Creek Gardens, I could steal them away to spend some time in the field. I discovered after two years the stems themselves were a bit smaller, but there were many more actual plants. I labeled this experiment 'pinching'. Just like pinching our baskets to encourage side buds, because horsetails have such deep roots, digging up the tops and a few inches of the root were only encouraging 'side buds'.

As an experiment, we tried corn gluten on 3 rows, without success. First of all, when the gluten began to breakdown, the smell was terrific. Secondly, while there may have been some effect on seed germination, it certainly did nothing for the horsetail. These three rows had diminished peony production later, compared to untreated rows. Whether it was the corn gluten or other factors has not been determined.

The next plan was chemicals. We used a mix of Gallery® and Simaflo® and applied per label instructions in the spring as a pre-emergent. Timing of application can be a challenge in Alaska. We have frozen ground forever then suddenly, we have spring. Catching the window before the plants emerge and after some



Even with heavy horsetail, the peonies are growing.

thawing takes place can be very narrow. We've resorted to using Dixie cups or compost to protect early emerging vegetation when our timing is a bit off.

The control row that had no application of chemicals had very little horsetail, while the rows with chemicals applied flourished with healthy horsetail. We had several 'expert' opinions as to why this happened, including the possibility that the pre-emergent lowered the pH. Could our efforts the previous fall of cutting the horsetail back been effective? Did the pre-emergent 'feed' the horsetail in the spring defeating our fall efforts? Only time can answer these questions as we continue our different trials.

In an area not planted and never to be planted, we tried Crossbow® to kill the horsetail. We found this did indeed kill the horsetail but also had residual effects that contaminated the soils for at least 2 years, the extent of our experiment to date. Tom Jahns of CES feels it will remain in the soils for many years and probably render the area not farmable. 2,4-D also has residual traits.

After three seasons of cutting a grassed area with a lawn mower, we found significant success in eliminating horsetail. We're trying for the same effect with a stirrup hoe in the fields cutting the horsetail just at the surface. First indications are this weakens the horsetail and causes a slowdown in production.

We tried covering a non-planted area with black Typar (woven landscape fabric) for two seasons. When the Typar was removed, the roots were still visible and started to sprout when receiving light. The Typar allows water and air, and perhaps using a nonpermeable black plastic would have rendered different results however, we would have to do that in a non-planted field and wait for a significant time that doesn't fit with our program.



Rows covered with black Typar.

In our display gardens, we have paths Typar lined with 8-10 layers of newspaper that have been down for 10 years. When uncovered, only a very few horsetail roots were visible. Keeping that in mind, this fall after the peonies were cut back for the winter and we could feel the stems through the Typar to know exactly where to burn the holes for our 3-year-old plants, we covered 15 rows planning to keep the



Workers from the Russian community helping plant a new field.

Typar down permanently. We had been considering this option for quite some time but the impetus to make that decision was influenced by Ed Pincus' presentation at the 2009 ASCFG Conference. On some parts of the field we lined under the Typar with 7 or 8 layers of newspapers and other areas used a second layer (underneath) of Typar.

We applied a generous sprinkling of Sluggo® around the peony stems and also baited for voles under the Typar. We will mulch with straw when the ground is completely frozen. Mulching before freeze-up encourages vermin to establish their winter homes. Weeding by hand allows you to get up close and personal with these wonderful plants. We've noticed the buds are much closer to the surface than originally planted indicating some heaving. And while we have mulched in the past with little results, because of the heaving, we will try it again this year.

It's not all bad. Although what I consider a very serious weed problem, it doesn't seem to affect the growth or blooms of our peonies. And when I dug up some plants to move them, the horsetail roots that were dead in the ground seemed to aerate the soil quite nicely. I know, I know. Stay tuned for the continued Alaska peony growers' efforts.

Rita Jo Shultz, with her husband Leroy, son Shannon and his wife Dee own and operate Alaska Hardy® Peony on their 24-acre farm. Rita Jo has operated Fritz Creek Gardens for 13 years, offering over 500 varieties of perennials, trees, shrubs, vines and roses to gardeners and garden designers in Alaska.

The ASCFG Welcomes its Newest Members

Steve Adams, Sunny Meadows Flower Farm, Columbus, OH
Nancy Barrett, Chenoa Landscaping Co., Lexington, MS
Celia Barss, Woodland Gardens, Winterville, GA
Nancy and Fraser Bartlett, Blue Stem Farm, Folsom, LA
Louise Bennett, Flowers at Rosebank Farms, John's Island, SC
Mary Frances Brosemer, Brosemer Farm, Huntsville, AL
Donna Chevalier, Seeds of the Vine, Malta Bend, MO
Rachel Cuevas, Pine Hill Nursery, Pass Christian, MS
Mike Cunningham, Orchard Mesa Greenhouse, Palisade, CO
Marc Englert, Sakata Seed, Morgan Hill, CA
Marlene Ann Epley, Williamston, MI
Rebecca Finnell, Bluefield Farm, Blauvelt, NY
Clive Geffing-Richardson, AmeriSeed, Inc., Bradford Woods, PA
Miguel Gomez, Cornell University, Ithaca, NY
Marcia Graff, Cut & Carry Bouquets, Chapel Hill, NC
Mel Green, Pruitt Flowers, Inc., Pekin, IN
Brent Heath, Brent & Becky's Bulbs, Gloucester, VA
Bert Klotz, The Farms at Ellis Bay, Nanticoke, MD
Kurt Knisely, Mentor, OH
Anne Lemon, Lexington, VA
Lauren McDonaldson, Tiplersville, MS
Heidi Ong, Garden Offerings, Huntley, IL
Amy Phelps, Pearl River Blues, Lumberton, MS
Jeff Pruitt, Pruitt Flowers, Inc., Pekin, IN
Judith Reith-Rozelle, Univ. of Wisconsin, Verona, WI
Keith Richardson, Flamingo Flowers, Bedfordshire, UK
Oscar Rietkerk, Sakata Orns, Hoofddorp, The Netherlands
Jason Riley, AmeriSeed, Inc., Bradford Woods, PA
Mary Ann Rozum, USA Extension Service, Washington, DC
Dale Schultz, Gig Harbor Flower & Vegetable Farm, Gig Harbor, WA
David Shortall, Fair Hill Florist, Elkton, MD
Brian Stern, Sterns' Herbs 'n' Bloom, LLC, Winchester, IN
Ann Stilp, Oshkosh, WI
Mary Jane Stuhr, Kennywood Farm, Versailles, NY
Jennifer Tidwell, Backyard Grown Gardens, Batesville, MS

Industry Events

Mid-Atlantic Fruit and Vegetable Convention

February 2-4, 2010
Hershey, Pennsylvania
www.mafvc.org
Speakers include John Dole, Dave Dowling and Chris Wien

Chesapeake Green

February 3-4, 2010
Linthicum Heights, MD
www.chesapeakegreen.org
Speakers include Stanton Gill, Carol Glenister and Doug Tallamy

Univ. of Maryland Cut Flower Short Course

February 16 – 19, 2010
Beltsville, MD
<http://ipmnet.umd.edu/crses97.htm>

NOFA/MASS Winter Conference

January 16, 2010
Worcester, MA
www.nofamass.org
Speakers include Polly Hutchison

NOFA/NY Organic Farming & Gardening Conference

January 22-24, 2010
Saratoga Springs, NY
<http://nofany.org/index.html>
Speakers include Diana Doll

2010 Cut Flower Growers School

The Wisconsin Cut Flower Growers School is a two-day workshop designed to help new and beginning growers learn the ins and outs of producing and marketing cut flowers.

March 13 & 14 University of Wisconsin Madison

Contact John Hendrickson (608) 265-3704 or jhendric@wisc.edu

Grower Grant Awarded to Becky Devlin

Becky Devlin, owner of Back Bay Flower Company in Virginia Beach, was awarded \$500 for her proposal *Trialing Lilac Varieties in a Southern Climate*. Becky will test early-, mid-, and late-blooming varieties, as well as different flower colors and forms. She will record flower quality, fragrance, cut stem length, stems per plants, and first and last harvest for each cultivar. Becky has been a commercial grower for eight years and is certified organic. Learn more about her at www.backbayflower.com



Mid-Atlantic Regional Meeting Scheduled for May 25

The 2010 Mid-Atlantic Regional Meeting will be held in May at Longwood Gardens, in conjunction with Lilytopia. Inspired by the world-famous lily show at Holland's Keukenhof, Lilytopia is Longwood's newest annual event, transforming its majestic East Conservatory into a breathtaking showcase for the newest varieties of lilies developed by Dutch hybridizers.

On May 24, top professionals from Holland and North America will conduct a separate, full-day symposium for commercial growers and designers. Design demonstrations will focus on everything from proper lily handling to cutting-edge design trends. Production seminars will explore the latest cultivation techniques, including pest and disease management. Marketing seminars will offer effective techniques to boost customer awareness and demand. Meet and network with top industry professionals and trade contacts. ASCFG members are able to register for this at a reduced rate.

On May 25, the ASCFG will have a morning meeting in Longwood's auditorium, offering speaker sessions and grower talks. After lunch, we'll be treated to a "behind the scenes" tour of Longwood grounds, with members of its horticultural staff.

Longwood Gardens, located in Kennett Square, Pennsylvania, is one of the world's great display gardens and a leader in horticultural research and education. If you've never visited, this is your chance to experience the beauty of Longwood as well as learn more about cut flower production.

Regional Meetings are open to *all* ASCFG members, regardless of location. Watch the web site for more information.



Are You Connected?

The ASCFG offers these online services. If you're not receiving them, or you're unsure of your username and password, contact Judy at ascfg@oberlin.net.

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2010 National Conference & Trade Show
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Tulsa, Oklahoma

FROM *the Director*

Judy M. Laushman

I've been catching up on my reading; piles of agricultural newspapers and stacks of horticultural magazines were closing in on my desk, making it hard to find the computer. When I finally took the time to sit down and open them, it was like weeding a badly-overgrown row. I found that most editorials were focusing on what had happened in the flower industry in 2009 and what might happen in 2010.

As you can imagine, and have likely read yourselves, it's a pretty mixed bag. There is boundless optimism that the economy will rebound, there is pessimism that 2010 won't be any better than 2009, and there is general consensus that no one can really predict the future, given the incredible number of uncertainties and unforeseen circumstances that can affect the globe.

In our little slice of the global pie, it seems that cut flower growers made the best of the economic situation in 2009, making them even more adaptable in case 2010 proves to be as slippery. For the first time, it seems, the weather wasn't bad *everywhere*. Growers put up more greenhouses and hoopouses, and expanded field production. Members added new farmers' markets to their lists and new florists to their routes. Some ventured into supermarket sales for the first time.

It was gratifying to see the number of growers who attended ASCFG meetings for the first time in 2009, venturing off their farms to see how other growers were making successes of their businesses. They understand that, as hard as it is to leave a growing enterprise in the middle of summer, or hand a Saturday farmers' market over to an assistant, sometimes you must take that chance. You never know when you might learn a method that makes it easier for you to take an occasional day off.

Also important was the increasing number of growers who grow, design and set up for weddings and other special events. It's a tremendous amount of work, and probably not for everyone, but as the demand for locally-grown flowers grows, specialty cut producers are able to fill that niche admirably. It was clear from the enthusiastic and wide-ranging discussion at the Long Island Conference that this is an opportunity that may be more profitable than many growers dreamed.

What I've become increasingly aware of is the invaluable source of information ASCFG members are to each other. Many Regional Directors refer to the Bulletin Board in this issue of the magazine, and they're right, it has years of priceless information stored in its archives. You can spend hours following links that take you to conversations, which, although they're perhaps five years old, are still pertinent.

But even better is the ability to find a grower who's made a contribution you've found useful, and pick up the phone to call him or her directly. Chances are, of course, that he or she will be in the field or

greenhouse, but if you say "I'm an ASCFG member and I just read your post on the Bulletin Board," you know you'll get a call back. Because in all likelihood, that grower had been helped earlier in their career by another grower, and is delighted to be able to pass on the knowledge.

I'm delighted when I hear that an ASCFG member is buying calla bulbs from another member, or that some growers are trying out an old cut flower favorite like mums, because they can buy plants from a fellow member. Many members have implemented cooperative buying for some time, when a company demands a high minimum purchase and one grower can't match it alone.

These practices are nothing new, not particularly earth-shattering. But it's these simple ideas that keep our growers going in tough economic times. We don't get bailouts from the government, we pick up our own bucket and save ourselves. I think that's a pretty good outlook for 2010. And from my newly-"weeded" keyboard, I wish you all a profitable and colorful New Year.





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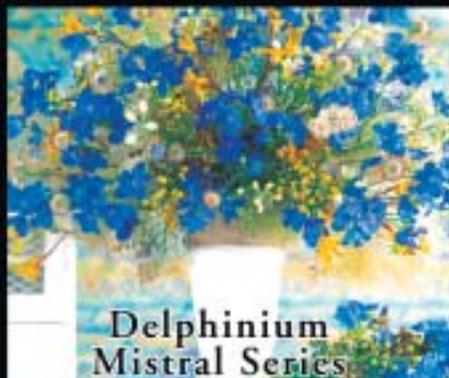
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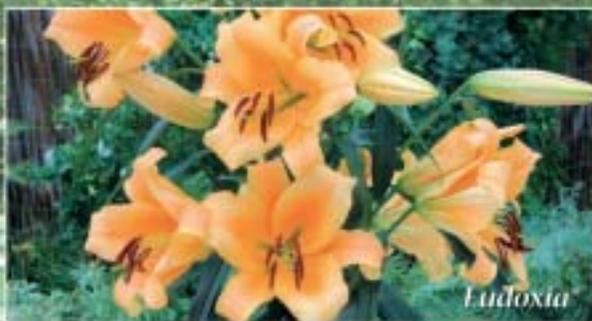
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