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The cliché states that everything comes full circle and the flower industry is no different. Early cut flower production in the U.S. and Canada started with people harvesting out of their gardens and fields. With the development of greenhouses, cut flower production increasingly moved indoors. As production of the major cut flowers moved to Colombia and other Central and South American countries, field production of cut flowers in North America was renewed. Now, many of the same people who relied on field production are looking to greenhouses and hoopouses, some of which are unheated or minimally heated, to expand their season and their production. Many ASCFG trialers, both commercial and university, now grow some or all of the trial cultivars in hoopouses. In particular, two universities have been doing a lot of work using hoopouses and have provided great information: Chris Wien at Cornell, who brings a much-appreciated northern perspective, and Laurie Hodges at the University of Nebraska, who many of you know from her insightful comments on the Bulletin Board. Check out the comments sections for their information and look for the start of a series of reports from Chris

in this issue of *The Cut Flower Quarterly*. Unfortunately, we do not have the hoopouse or greenhouse comments separated out; that is something we will try to do in the future.

So, why do I bring up hoopouses/greenhouses? Most of the cultivars in the trials this year lend themselves very well to hoopouse production. Lisianthus, stock, kale, and snapdragons, in particular, do very well in hoopouses or greenhouses, usually getting much taller stems than outdoors. We confirmed that fact in our trials as we grew the lisianthus cultivars in the greenhouse and in the field and had longer stems and larger flowers in the greenhouse. You may want to keep this in mind if you have been thinking about putting one of these structures.

Continuing our discussion about lisianthus, this year certainly was a banner year with a broad range of beautiful and interesting cultivars. The days when lisianthus was a simple, single-flowered plant in purple, pink and white are long gone. Most striking were the spray-flowered Fiorettis and the brown-hued Wonderous, both from Sakata Seed America. The Fioretti cultivars produced a multitude of small, perfectly-shaped single flowers on a spray. 'Fioretti White'

was noted for its pure white petals and 'Fioretti Yellow' for its pale yellow petals. 'Wonderous Purple' and 'Light Brown' also had smaller-than-typical flowers, but these cultivars had thick, richly colored petals, the backs of which were brown hued. 'Light Brown' was actually more of a peachy-pink color. Both Fioretti and Wonderous plants, unfortunately, were shorter, up to 2 feet tall for some trialers, and slower growing than typical lisianthus. However, the postharvest life of both series was excellent, over 14 days, in the NCSU tests, and respondents also noted a long vase life. The real question, of course, is the market. These lisianthus are probably best suited to lisianthus connoisseurs – those producers who know how to grow lisianthus and have a well-developed market for them, such as upscale florists and farmers' markets. Several respondents also commented that the Fioretti series was excellent for wedding work.

For the more mainstream lisianthus markets were the ABC cultivars from PanAmerican/Ball and 'Mariachi Carmine' from Sakata Seed America. The ABC series is well liked for its reliability and durability both in the field and the greenhouse. 'ABC 1-3 White'





scored high enough to be nominated for ASCFG Cut Flower of the Year. One trialer summed it up as follows: “Beautiful snowy white, strong stem and good stem length, productive”. ‘Mariachi Carmine’ also scored very well and was nominated for ASCFG Cut Flower of the Year. People loved its wonderful color. In the words of one trialer: “A favorite! The dark, dark pink double blooms were a real head turner in the trial, long-lasting and showy.”

Intermediate in the marketing approach would be the Ruffles series from Sakata. These cultivars produced large flowers with ruffled petals. Although one respondent noted that the ruffled petals made the flowers appear double, others noted that as with other single lisianthus, they did not sell as well as the doubles. Plants were productive and uniform.

Stock is another species with excellent potential for hoophouses. Outdoor stock production is limited to those areas with temperatures cold enough to prompt flower initiation and high quality stems but not so cold as to damage plants, which usually means no colder than light to moderate freezes. Thus, most commercial production has been from coastal California, although some areas of the southeastern United States can also produce high quality stock in the winter. This year’s trial featured the Katz series from PanAmerican/Ball, notable in that it

can initiate flowers at relatively high temperatures, eliminating the cold treatments necessary for most stock cultivars. This feature makes it suitable for greenhouse and season-extending hoophouse production.

These stock can be planted in the fall and will flower more quickly without the need for a winter vernalization. Hoophouses can be used to protect plants from the worst cold weather that can damage plants. Plant quality is best under cool temperatures but can grow well under warmer temperatures. A number of colors are available from white to bright pink. Stems averaged 15 to 17 inches long, with some trialers getting two foot long stems. As with most colored stocks, each cultivar is actually a mixture of singles and doubles, with about 60% doubles. One final comment: the name of the series was first listed as Mambo by PanAmerican/Ball Seed. Later they changed it to Katz to honor Philip Katz, who passed away in 2004. Philip worked for PanAmerican Seed for many years and was one of the most knowledgeable cut flower specialists around. He was also remembered by many of us as one of the nicest, most sincere people we have every known and we are glad he is being so honored.

Cut kale is one of the plants that remind us that the term ‘specialty cut flowers’ is often a misnomer. We grow kale for its large rosettes of colorful

foliage. The cultivar in this year’s trial, ‘Pink Crane’ from Takii Seed, scored very well, earning it a nomination for ASCFG Cut Flower of the Year. One of the issues with producing cut kale is getting the stems long enough. One trialer summed it up well: “Close spacing and mesh are needed”. Another trialer mentioned the repeated removal of the lower leaves. Some of the best and tallest crops I have seen have been grown in hoophouses. Certainly one of the trialers has figured out how to grow kale as he reported 36-inch stems. To put that in perspective, however, another trialer reported 2-inch stems. Not sure this is a selling point or not, but in Europe cut kale dyed and painted various unearthly colors appears to be quite popular.

The two snapdragons in the trial this year represent the two flower types – closed (or regular) snaps and open face (or butterfly) snaps. The latter have had a difficult time finding a place in the market as most people want the regular snaps when they order snapdragons. One company has had success referring to the open-faced types by their cultivar name and not telling people they are snapdragons. The ‘Chantilly Dark Orange’ from Takii Seed is a beauty, with long spikes of open-faced cinnamon orange flowers. The average production yield was approximately 5 stems/plant, which were 22 inches long. However, at least one respondent reported stems over



50 inches long. ‘Animation Cognac’ from Benary Seed, represented the standard snapdragon flower shape. Its color combination of pastel pink and yellow also received rave reviews. Trialers report an average of 6.8 stems per plant and 20+ inch stem lengths. At least one trialer had 45-inch long stems.

Larkspurs are often rather difficult to evaluate in the ASCFG trial. To do them justice, southern growers should sow the seed in the fall to allow for overwintering, which produces long, full-flowered stems. Unfortunately, we are not able to get the seed in time to send out in the fall. However, the larkspur cultivars in the trial still performed quite well for many growers, especially those in the North. Of the four cultivars of Cannes submitted by Takii Seed, ‘Purple Picotee’ did well enough for growers to be submitted for ASCFG Cut Flower of the Year. One trialer stated that it had “Strong plants that produced blooms over a long period.” Although larkspur usually is not considered a greenhouse crop, at least one trialer had success, noting that “My customers love them, they transplanted well and did very well in the greenhouse, no disease problems, sold every stem.” Stem length averaged 26 inches, with 42 inches the longest produced.

Nothing illustrates the specialty in “specialty cut flowers” quite like peppers. For some, peppers are a hassle with their short stems, harvest timing, and foliage that often wilts very quickly and must be removed by hand. For others, the bright colorful fruit are fun, interesting, and a fall staple. Of the three cultivars submitted by Kieft-Pro-Seeds, ‘Cappa Conic White/Red’ and ‘Cappa Topfruit White/Red’ appear to be received most favorably. ‘Topfruit’ was noted by some as being the earliest of the group to harvest. Many trialers loved the bright combination of colors on the ripe and immature fruit. As is typical for most pepper varieties, stems were rather short, averaging 16 to 18 inches long, but as much as 3 feet long for a few. We tested the postharvest life of ‘Topfruit’ and noted a vase life of 14 to 18 days. The foliage did not last but wilted and dropped quickly,



indicating that as with other peppers the stems should be stripped of foliage.

Sunflowers are an important species for specialty cut flower growers and thus, an annual topic in this report. This year two cultivars were included: ‘Orange Glory’ and ‘Tosca’, both with orange petals and dark centers. Both cultivars performed well, with ‘Orange Glory’ doing slightly better in the ratings, enough so that it was nominated for the ASCFG Cut Flower of the Year. The challenge for sunflower breeders is that so many excellent varieties are available with the classic orange petals and dark center that it is now difficult for a new cultivar to break into the market. Both cultivars were well received but will have much competition in the marketplace. Chris Wein noted that both cultivars were very daylength sensitive as short days produced faster flowering but much shorter stems. This should be considered if using either cultivar for season extension in the spring or fall in hoopouses. Timing is difficult to determine from reports because everyone’s conditions vary, but at least one report indicated that ‘Orange Glory’ flowered after ‘Pro Cut Orange’ and another that ‘Tosca’ flowered earlier than ‘Orange Glory’ and ‘Sunrich Orange’, the latter two flowering at the same time. Similarly, Chris noted that in upstate

New York under long days of summer, ‘Pro Cut Orange’ flowered in 62 days, ‘Tosca’ in 68 days, ‘Orange Glory’ in 73 days and ‘Sunrich Orange’ in 74 days.

One comment you will see in the report about a number of cultivars that are cold hardy is “We will see what happens to it next year”. Unfortunately, we track seed trial plants only one year. However, occasionally, we get comments from trialers about previous cultivars. Jim Mercer of Sheepsfoot Flower Farm (Zone 5) sent these comments about *Eryngium* ‘Blue Glitter’ from the 2006 trial: “Nice color and unusual shape. Nice in bouquets or alone. Easy to grow and hardy in our heavy clay and cold climate. Bloomed early and we got a second flush of blooms in the fall. It did bloom the first year despite late planting, but stems were short and it did not have time to mature.” He also noted that it had a 2-week vase life using plain water and, unfortunately, an unpleasant scent. He gave it ratings of 5 and it averaged 4 stems/plant and 22 inches long.

Overall, we had 35 cultivars from seven companies, up a bit in number of cultivars from last year. Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year. The rankings are based on the combined ratings score: market appreciation (average of wholesale, florist, and consumer) + repeat again + ease of cultivation for those cultivars where more than three trialers responded. Thus, from the 2007 trials kale ‘Pink Crane’, larkspur ‘Cannes Purple Picotee’, lisianthus ‘ABC 1-3 White’, lisianthus ‘Mariachi Carmine’ and sunflower ‘Orange Glory’ 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.

**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 Laurie Hodges and Barbara Murphy for being the first trialers to return their evaluations. I would also like to thank Ingram McCall for taking care of the North Carolina State University portion of the trials, Tina Krug, Emma Locke, Erin Possiel, Erin Regan, Diane Mays, Brad Holland, and Tim Ketchie for assisting with the NCSU trials, and Nick Corby for laboriously typing in the comments of several trialers. In preparing the report I have edited the participants' comments for space and clarity; my apologies if I've altered the tone or content of anyone's comments. In a few cases we could not determine what was written.

## Participating Seed Companies

### American Takii

301 Natividad Rd.  
Salinas, CA 93906  
www.takii.com

### Benary Seed

1444 Larson St.  
Sycamore, IL 60178  
www.benary.com

### Fred C. Gloeckner & Co.

600 Mamaroneck Ave.  
Harrison, NY 10528-1613  
www.fredgloeckner.com

### Goldsmith Seeds

P.O. Box 1349  
Gilroy, CA 95021  
www.goldsmithseeds.com

### Kieft-Pro-Seeds

P.O. Box 618  
Conway, WA 98238  
www.kieftseeds.com

### PanAmerican/Ball

P.O. Box 438  
West Chicago, IL 60186  
www.panamseed.com

### Sakata Seed America

18095 Serene Drive  
Morgan Hill, CA 95037  
www.sakata.com

## Participating Growers

### Christof Bernau

UCSC Farm & Garden  
Santa Cruz, CA

### Lynn Byczynski

Growing for Market  
Lawrence, KS

### Leon Carrier

PlantMasters  
Gaithersburg, MD

### Maureen Charde

High Meadow  
Flower Farm  
Warwick, NY

### Kelly Comer

Johnny's Selected Seeds  
Winslow, ME

### Connie Dam-Byl

William Dam Seed, Ltd.  
Dundas, ON

### Everett Emino

Everett's Flower Farm  
New Germany,  
Nova Scotia

### Chas and Linda Gill

Kennebec Flower Farm  
and Nursery  
Bowdoinham, ME

### Sharon Hampton

PanAmerican Seed  
Santa Paula, CA

### Paula Harman

Harman's Farm Market  
Churchville, MD

### Chaz Hesselein

Alabama Cooperative  
Extension System  
Mobile, AL

### Betsy Hitt

Peregrine Farms  
Graham, NC

### Laurie Hodges

UNL Agronomy  
and Horticulture  
Lincoln, NE

### Kathy Horn

Celebrate! Gardens  
Lindenwood, IL

### Polly Hutchison

Robin Hollow Farm  
Saunderstown, RI

### Cathy Jones

Perry-winkle Farm  
Chapel Hill, NC

### Ingram McCall,

**John Dole**  
North Carolina State  
University  
Raleigh, NC

### Jim Mercer

Sheepscot Flower Farm  
Newcastle, ME

### Justin Moss

University of Wyoming  
Sheridan, WY

### Barbara Murphy

University of Maine  
Cooperative Extension  
South Paris, ME

### Susan O'Connell

Fertile Crescent Farm  
Hardwick, VT

### Gay Pruett

Dogwood Ridge Farm  
Ball Ground, GA

### Carolyn Ramsbotham

Riverview Farm  
Madbury, NH

### Brenda Smith

Smith & Smith Farms  
Dayton, NV

### Vicki Stamback

Bear Creek Farms  
Stillwater, OK

### Rodger Tschanz

University of Guelph  
Guelph, ON

### Kate Van Ummersen

Sterling Flowers  
Brooks, OR

### Cheryl Wagner

Wagner's Homestead  
Farms  
Belleville, MI

### Chris Wien

Dept. of Horticulture  
Cornell University  
Ithaca, NY

### Tom Wikstom

Happy Trowels Farm  
Ogden, UT

### Alison Wiley

Littleflowers  
Newfield, NY

**2007 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.

Cultivar Company	Yield (Stems/plant)	Stem Length (inches)	Market appreciation rating <sup>1</sup>			Repeat again rating <sup>1</sup>	Ease of cultivation rating <sup>1</sup>	Average spacing (in. <sup>2</sup> /plant)	Average postharvest life (days)
			Wholesale	Retail	Consumer				
Delphinium 'Aurora White' American Takii	<b>1.9</b> 0.11-5	<b>21.5</b> 8-36	<b>4.3</b> 3-5	<b>4.3</b> 3-5	<b>4.1</b> 3-5	<b>3.8</b> 2-5	<b>3.8</b> 3-5	<b>109</b> 25-192	<b>10.4</b> 1-14
Dianthus 'Bouquet Rose' PanAmerican/Ball Seed	<b>10.8</b> 1.5-27.5	<b>14.2</b> 8.5-27	<b>4.0</b> 4	<b>3.7</b> 1-5	<b>3.5</b> 2-5	<b>3.3</b> 1-5	<b>4.4</b> 3-5	<b>86</b> 36-144	<b>9.5</b> 7-14
Dianthus 'Fandango Crimson' Goldsmith Seeds	<b>9.4</b> 1.5-1	<b>12.0</b> 9-15	<b>2.7</b> 1-4	<b>2.7</b> 1-5	<b>3.6</b> 1-4	<b>2.3</b> 1-4	<b>4.2</b> 2-5	<b>80</b> 36-144	<b>8.8</b> 7-12
Kale 'Pink Crane' American Takii	<b>1.0</b> 0.89-1	<b>19.3</b> 2-36	<b>4.0</b> 4-5	<b>3.5</b> 3-4	<b>4.2</b> 3-5	<b>4.5</b> 3-5	<b>4.3</b> 3-5	<b>76</b> 36-144	<b>12.6</b> 7-17
Larkspur 'Cannes Crystal Pink' American Takii	<b>3.3</b> 1-12.5	<b>25.8</b> 14.5-42	<b>4.0</b> 4.0	<b>3.5</b> 3-4	<b>3.4</b> 2-4	<b>3.3</b> 1-5	<b>3.6</b> 2-5	<b>66</b> 4-144	<b>6.5</b> 5.5-8.5
Larkspur 'Cannes Deep Blue' American Takii	<b>2.8</b> 0.5-12.5	<b>26.2</b> 16-36	- -	<b>3.0</b> 3	<b>3.8</b> 1-5	<b>3.7</b> 1-5	<b>3.5</b> 1-5	<b>77</b> 36-144	<b>6.8</b> 6-7
Larkspur 'Cannes Purple Picotee' American Takii	<b>3.7</b> 1-12.5	<b>26.0</b> 10-42	- -	<b>4.5</b> 4-5	<b>3.9</b> 3-5	<b>4.3</b> 3-5	<b>3.7</b> 3-5	<b>85</b> 36-216	<b>7.8</b> 6-12
Larkspur 'Cannes Rose Stripe' American Takii	<b>3.4</b> 0.5-12.5	<b>25.3</b> 18-42	<b>4.0</b> 4.0	<b>4.0</b> 3-5	<b>3.7</b> 2-5	<b>4.0</b> 3-5	<b>3.7</b> 2-5	<b>76</b> 36-144	<b>6.9</b> 4.5-8.5
Lisianthus 'ABC White GX12444' PanAmerican/Ball Seed	<b>2.8</b> 2-6.2	<b>18.8</b> 14-22	- -	- -	<b>3.5</b> 2-4	<b>3.3</b> 1-5	<b>3.2</b> 1-5	<b>65</b> 16-144	<b>14.0</b> 14
Lisianthus 'ABC 1-3 White' PanAmerican/Ball Seed	<b>4.5</b> 0.88-6.4	<b>18.3</b> 15.5-25.5	<b>5.0</b> 5.0	<b>5.0</b> 4-5	<b>4.4</b> 4-5	<b>3.9</b> 1-5	<b>3.6</b> 1-5	<b>92</b> 16-144	<b>12.0</b> 8-14
Lisianthus 'ABC 2-3 Green' PanAmerican/Ball Seed	<b>3.8</b> 3-6.6	<b>20.5</b> 12-32	<b>4.0</b> 4.0	<b>4.3</b> 5-4	<b>4.4</b> 4-5	<b>3.7</b> 2-5	<b>3.6</b> 2-5	<b>84</b> 16-121	<b>12.0</b> 8-14
Lisianthus 'ABC Lavender' PanAmerican/Ball Seed	<b>3.8</b> 1-8	<b>21.7</b> 13-29	<b>5.0</b> 5.0	<b>4.7</b> 5.0	<b>4.5</b> 4-5	<b>3.7</b> 1-5	<b>3.6</b> 1-5	<b>64</b> 16-121	<b>11.6</b> 7-14
Lisianthus 'Fioretti Green' Sakata Seed	<b>2.5</b> 1-5.7	<b>16.7</b> 11-22	<b>3.0</b> 3	<b>4.0</b> 3-5	<b>3.6</b> 3-4	<b>3.4</b> 1-5	<b>3.5</b> 1-5	<b>48</b> 16-121	<b>11.0</b> 8-14
Lisianthus 'Fioretti White' Sakata Seed	<b>2.6</b> 0.6-5.1	<b>18.8</b> 11-28	<b>1.0</b> 1	<b>3.3</b> 1-5	<b>3.3</b> 1-4	<b>3.0</b> 1-4	<b>3.5</b> 1-5	<b>39</b> 16-81	<b>14.0</b> 14
Lisianthus 'Fioretti Yellow' Sakata Seed	<b>3.0</b> 1-6.2	<b>16.5</b> 11-22	- -	<b>4.0</b> 4	<b>3.3</b> 2-4	<b>3.1</b> 1-5	<b>3.2</b> 1-5	<b>42</b> 16-81	<b>13.7</b> 13-14

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

Company/Cultivar	Yield (Stems/plant)	Stem Length (inches)	Market appreciation rating <sup>1</sup>			Repeat again rating <sup>1</sup>	Ease of cultivation rating <sup>1</sup>	Average spacing (in. <sup>2</sup> /plant)	Average postharvest life (days)
			Wholesale	Retail	Consumer				
Lisianthus 'Mariachi Carmine' Sakata Seed	<b>3.1</b> 1-7	<b>19.7</b> 12-27	<b>4.0</b> 4.0	<b>5.0</b> 5.0	<b>4.8</b> 3-5	<b>4.2</b> 3-5	<b>3.5</b> 3-5	<b>48</b> 16-121	<b>12.1</b> 7.5-14
Lisianthus 'Ruffle Blue' Sakata Seed	<b>3.1</b> 1-8.7	<b>18.1</b> 14-28	- -	<b>2.5</b> 2-3	<b>3.4</b> 2-5	<b>2.8</b> 1-5	<b>3.3</b> 1-5	<b>67</b> 16-216	<b>13.3</b> 12-14
Lisianthus 'Ruffle Green' Sakata Seed	<b>2.7</b> 1-6.8	<b>18.3</b> 11-27	- -	<b>3.0</b> 3.0	<b>3.4</b> 2-5	<b>3.0</b> 1-5	<b>3.3</b> 1-5	<b>76</b> 16-216	<b>13.3</b> 12-14
Lisianthus 'Ruffles Yellow' Sakata Seed	<b>2.8</b> 0.7-6.4	<b>19.5</b> 11-30	<b>3.0</b> 3.0	<b>3.0</b> 3.0	<b>3.3</b> 2-5	<b>2.6</b> 1-5	<b>3.5</b> 1-5	<b>66</b> 16-216	<b>13.3</b> 12-14
Lisianthus 'Wonderous Light Brown' Sakata Seed	<b>2.8</b> 2-5.9	<b>20.6</b> 14-30	- -	<b>5.0</b> 5.0	<b>2.9</b> 1-5	<b>3.4</b> 1-5	<b>3.4</b> 1-5	<b>39</b> 16-81	<b>9.3</b> 1-14
Lisianthus 'Wonderous Purple' Sakata Seed	<b>3.5</b> 1.5-9.7	<b>20.9</b> 12-34	- -	<b>4.0</b> 4.0	<b>2.7</b> 2-3	<b>1.8</b> 1-3	<b>3.1</b> 1-5	<b>48</b> 16-121	<b>13.5</b> 13-14
Pepper 'Cappa Conic White/Red' Kieft-Pro-Seeds	<b>4.1</b> 1-9	<b>18.5</b> 11-34	<b>3.7</b> 3-4	<b>2.5</b> 1-3	<b>3.7</b> 2-5	<b>3.6</b> 2-5	<b>4.1</b> 3-5	<b>139</b> 36-360	<b>12.1</b> 1-21
Pepper 'Cappa Round Red' Kieft-Pro-Seeds	<b>3.2</b> 1-4.6	<b>17.2</b> 11-32	- -	<b>3.0</b> 3.0	<b>3.4</b> 2-5	<b>3.3</b> 2-5	<b>4.4</b> 4-5	<b>122</b> 36-216	<b>12.6</b> 7-21
Pepper 'Cappa Topfruit White/Red' Kieft-Pro-Seeds	<b>4.4</b> 1-7.5	<b>16.7</b> 11-22	<b>3.7</b> 3-4	<b>3.4</b> 2-5	<b>3.5</b> 1-5	<b>3.4</b> 1-5	<b>3.8</b> 1-5	<b>128</b> 36-360	<b>15.2</b> 14-21
Snapdragon 'Animation Cognac' Benary	<b>6.8</b> 1-11	<b>20.9</b> 11-45	<b>2.7</b> 1-5	<b>3.1</b> 2-5	<b>4.0</b> 2-5	<b>3.6</b> 1-5	<b>4.0</b> 2-5	<b>81</b> 36-144	<b>8.3</b> 7-12
Snapdragon 'Chantilly Dark Orange' American Takii	<b>5.3</b> 1-12	<b>22.3</b> 12-51	<b>2.0</b> 2.0	<b>3.3</b> 2-5	<b>3.5</b> 1-5	<b>3.3</b> 1-5	<b>4.0</b> 2-5	<b>79</b> 9-216	<b>9.2</b> 6-17
Stock 'Katz Cherry Blossom' PanAmerican/Ball Seed	<b>1.1</b> 0.6-2.5	<b>16.7</b> 13-22	<b>4.0</b> 4.0	- -	<b>4.1</b> 3-5	<b>3.4</b> 1-5	<b>3.9</b> 3-5	<b>65</b> 16-170	<b>8.1</b> 6-12
Stock 'Katz Lavender Light' PanAmerican/Ball Seed	<b>1.2</b> 0.5-4	<b>15.1</b> 9-22	<b>1.0</b> 1.0	<b>1.5</b> 1-2	<b>3.7</b> 1-5	<b>2.5</b> 1-5	<b>3.4</b> 1-4	<b>74</b> 36-192	<b>9.7</b> 6-12
Stock 'Katz Pink' PanAmerican/Ball Seed	<b>2.6</b> 0.5-12	<b>17.3</b> 14-22	<b>4.0</b> 4.0	- -	<b>4.0</b> 3-5	<b>3.4</b> 1-5	<b>3.8</b> 3-4	<b>60</b> 16-144	<b>6.9</b> 6-12
Stock 'Katz White' PanAmerican/Ball Seed	<b>1.3</b> 0.5-4	<b>16.9</b> 14-22	- -	<b>2.0</b> 2	<b>4.1</b> 3-5	<b>2.9</b> 1-5	<b>3.4</b> 2-5	<b>61.7</b> 16-144	<b>9.0</b> 6-12
Sunflower 'Orange Glory' Fred C. Glockener	<b>1.0</b> 1.0	<b>42.3</b> 18.5-72	<b>3.8</b> 3-4	<b>4.3</b> 3-5	<b>4.1</b> 3-5	<b>3.6</b> 1-5	<b>4.8</b> 4-5	<b>87</b> 16-216	<b>6.4</b> 1-12
Sunflower 'Tosca' Fred C. Glockener	<b>1.0</b> 1.0	<b>40.7</b> 15.5-72	<b>3.4</b> 2-4	<b>3.6</b> 3-5	<b>3.9</b> 3-5	<b>3.4</b> 2-5	<b>4.6</b> 4-5	<b>88</b> 4-216	<b>8.8</b> 7-12

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

## 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.

### Delphinium

#### 'Aurora White' (American Takii)

**Good qualities:** Gorgeous flower (2), just like the other 'Aurora' colors; Strong seedlings; Nice stem length; We grew this one in the greenhouse and we had delphinium until the end of July (Zone 6b), it was absolutely fabulous, even with the shorter side shoots, the florists loved it, I have already ordered more for this year and ordered different colors; Time will tell!; Very attractive flowers/spike; Very reliable, uniform habit, flowers first year; Though not normally as marketable, the smaller side shoots proved quite useful in our desktop/mini bouquets; Beautiful, large flowers, stems good and strong but not too large; Nice, clean white color, small stems the first blooming time make for ease of using in bouquets; The white flower color transitioned to a lovely pale blue with age; Pretty, easy to grow.

**Problems:** Short (2); None; Never have had any success with getting tall, useable delphiniums from seed their first year. They languished all season until fall, then they started to look promising (maybe) for next year; Died in field as a transplant; Not very drought tolerant; As a whole, the blooming stems were quite beautiful but they were sort of on the grey side, rather than a true clear white.

**Similar cultivars:** Large flowers similar to 'Guardian Blue' style.

**Additional comments:** I got no blooms on any of my first-year delphinium this year, we were pelted with weeks of non-stop rain, then a long dry period, and I am grateful they survived at all, plants are healthy, just not creating flowering stems; I planted in hoophouse and so followed with another crop, next year I will see if I can get more stems by planting some outside; I got good germination from this cultivar, but they did not transplant to the field well, what few survived were eaten by rabbits this season, no stems were harvested; It does pay for us to grow delphinium in the greenhouse with



low heat in the winter or early spring, we get several cuttings off each plant and my customers just love it, I thought the Aurora had stronger stems than the Pacific Giants and we had no problems at all; Hot weather limited further cuts, planted too late for zone 8b in south; 'Aurora White' was about average in terms of mildew resistance; White is not a popular color, we sell lots of purple and medium to dark blue stocks, will try the Aurora series in some of these colors; Second year will bring more blooms and if cut back in the spring, after flowering, it will bloom again for us in the fall.

### Dianthus

#### 'Bouquet Rose' (PanAmerican/Ball Seed)

**Good qualities:** Great color (4); Great bouquet/filler cut, matures at one time so a quick single cut is achieved; Strong stems; Robust plants, handled cool temps beautifully and made a strong comeback (after shearing) in fall, lightly blooming still (as of mid-Nov!), sweet appearance; Healthy plants, I like the 'Rose Magic' multi-pink look; The flower heads were nice and full, making for an attractive plant and useful blooms, long bloom time in the field; Easy to germinate, produce transplants, and transplant to field, some may think the 3 shades of pink from light pink to dark pink florets in the flower to be unique but I personally did not care for it; Interesting colors, blended well with the 'Amazon Duo'; This turned out to be a great variety, lots of stems and tall; Ten to twelve flower heads per plant; This is the first spray dianthus I have tried that is as vigorous as 'Bouquet Purple', it is nice to have another color to add to the mix; Full flower heads, nice change of color, full plants.

**Problems:** Too short (6); I have every reason to believe it will be much taller and useful next year, disappointed that it did not have more fragrance; It is too pale for my tastes; Customers, so-so; I grew this cultivar directly next to 'Bouquet Purple' and the Neon series. In addition to the different color florets being undesirable the plant flowered slightly shorter than 'Bouquet Purple' with smaller flower heads. My crop did not look anything like the flowers on display at the booth in the ASCFG trade show. Thus, I must have had less than optimal conditions for this cultivar to perform to its potential; Both dianthus in trial developed black spots on stems and leaves, poor quality, while dianthus 'Amazon' in same row produced excellent cuts; I like having another choice of color, but this was too pasty for many of my customers; I have grown this cultivar for a couple of seasons but when I have it blooming along with 'Amazon Neon' or 'Bouquet Purple' I tend to leave this variety in the field, the stems are shorter and they actually end up looking washed out instead of having a bicolor effect, I may not continue growing it.

**Similar cultivars:** Kind of like 'Rose Magic' but less rigid stems and more productive stem count; 'Bouquet Purple' and 'Amazon Rose Magic'.

**Additional comments:** I am going to try to overwinter to see if larger stems result; I would be willing to try this one again and see if I can grow it and get results like the those that were displayed; My customers loved this one, we had it for Mothers Day and it sold like crazy; As with most dianthus, there were many additional stems that were too short for my purposes, it blooms over a long period, which may have value in the bedding market.

**Postharvest handling:** Florlife was used, I always bring flowers in out of the heat after being cut. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

#### Dianthus 'Fandango Crimson' (Goldsmith Seeds)

**Good qualities:** Rich color (7); It was a heavy producer (2); Ten to twelve flower heads per plant; Easy to grow, pretty little flower; Flowers attractive, flush same time, no support needed; Nice stiff stems; Full plants; Easy to germinate and transplant; Strong healthy plants; Attractive blooms.

**Problems:** Very short stem length (6); However, for all of the cultivars I trialed, the stem length probably was compromised due to the fact we went 6 weeks without rain (June through mid July) and I couldn't keep up with

the watering; I was very pleased that the seeds sprouted and were growing, but upset that I could not keep them alive - the weather was unusually dry - I am not sure if that was the cause. I grew this cultivar next to and among other dianthus including 'Bouquet Purple' and the Neon series using the same culture for each, this cultivar has short stems and scarce florets on the flowering stalk, I gave up harvesting it as it was not useful even for my shortest-stemmed bouquets; I thought it would make a better bedding plant, started out very short but stretched out with time, still not as tall as the 'Bouquet Rose Magic' dianthus; Both dianthus in trial developed lots of black spots on stems and leaves, poor quality, dianthus 'Amazon' in same row produced excellent cuts; Not a suitable cut flower, two-tone color nice, would be a good garden/bedding plant.

**Similar cultivars:** 'Dianthus Bouquet', but not in colour.

**Additional comments:** Nice bedding plant; The Neons were outstanding, 'Bouquet Purple' was okay but not as good as some other years that I have grown it, 'Fandango Crimson' compared to either or both was not a good performer; This would be a sophisticated shade of red for Christmas décor; My customers did not like this color as much as the 'Bouquet Rose Magic'; Would make a nice garden addition and possibly an interesting container plant as it flowers the first year, but not one I'd choose as a cut flower.

**Postharvest handling:** See separate postharvest report in this issue for results from NC State University postharvest evaluations.



**Dianthus 'Fandango Crimson'**

Maine, customers generally commented on it but did not buy it; Has same pests as cabbage that need controlling throughout the growing season; Cabbage moths and flea beetles, BT took care of the cabbage moth larvae and the flea beetles came and went without any help; Correct timing is everything; None.

**Similar cultivars:** We tried the others in the Crane series a couple of years ago; The other Crane series of ornamental cabbage.

**Additional comments:** We would probably not use valuable greenhouse space again for this crop as it was not very profitable; For tall straight stems, close spacing and mesh are needed, but, if the top is pinched out, the stem will form several smaller flowers that are quite useful; 'Crane Pink' is a good addition to the series and useful in that it comes in earlier than others in the series giving flexibility in harvest for farmers' markets - ornamental kale was one the success stories of this year's trial - three other Crane series kale were used for comparison; This and all of our other brassicas are a lot of work, strong netting is mandatory, removing leaves as the crop grows is tiresome, we did it 8 times, next year I plan to start it later to save labor, 60 to 70 cm is plenty tall enough, we got 90 cm! We always have some runts that grow 20 cm tall and they are a great length and diameter for arrangements, this would be a great research project: planting at 3-week intervals to see how late we could go to save labor; Plants are just coloring up now due to exceptionally warm Sept/Oct. (Zone 5b).

**Postharvest handling:** Remove damaged/lower leaves to prevent water contamination; We used plain water; Flowering kale will last

at least a month in outdoor arrangements - warmer temperatures will cause the stems to smell like cabbage, since that is what they are!; Careful with food, tends to yellow older leaves; We cut in the field into hydrating solution, transfer to Chrysal #2 and put in the 34°F cooler until sold, may be weeks, when sold, we recut stems and deliver in water.

## Larkspur

### 'Cannes Crystal Pink' (American Takii)

**Good qualities:** Attractive clear pink color (8); Good stem length, florets not shattering; No major insect damage, drought tolerant; Easy to grow; Excellent to dry, keeps color; Uniform size and harvest time; Grew well transplanted into tunnel in early spring, good color variety although customers did not appreciate as much as I thought they would, rapid bloom, full flower spikes, remained upright without support; Good germination, no pests; Full heads, strong stems.

**Problems:** Weak plants, susceptible to disease, flowering along the stem was not uniform; Not quite a big enough deal - blue sells better for me; None; I just can't seem to get larkspur to grow, a few seeds germinated but the plants didn't grow, I have tried any number of methods to get larkspur to grow, no luck; Too small to be profitable in bunches or bouquets; More disease issues than QIS mix grown next to it; First time growing larkspur in high tunnels, it eventually germinated in mid-April, rather erratically and after we'd given up hope, I transplanted young plants to consolidate space without any adverse effects on crop, we sold a couple of bunches but overall the stems were too short which I think was due to erratic germination, no pest or disease problems.

**Similar cultivars:** Not that we have grown; Similar color to 'Giant Imperial Pink' or 'Dark Pink Sublime'.

**Additional comments:** I cannot seed larkspur in the spring and get any length, I waited until this fall to seed with my other larkspur and will submit report next spring, 2008; Too small sample size for thorough evaluation; We started this very late so it didn't get a fair trial, I would plant it much earlier next year if we grow larkspur; Number of cuts were limited by late planting, planted both direct seeded and transplanted but no difference in harvest.

**Postharvest handling:** Plain water; Floralive. See separate postharvest report in this issue for results from NC State University postharvest evaluations.

## Kale

### 'Crane Pink' (American Takii)

**Good qualities:** Easy to grow, something different for creative customers who like "different"; Beautiful shade of pink, nice addition to the series!; 'Crane Pink' "flowered" earlier compared to other Crane series, i.e., 'Crane White', 'Crane Red', and 'Crane Bicolor', the pink and red in the series tend to flower somewhat shorter than the white and bicolor, this seems to be caused by the white and bicolor growing more erect while the pink and red seem to have a crook at the base of the stem.

**Problems:** Very susceptible to flea beetle damage; Prone to cabbage loopers both early on and later at harvest time, was ready for harvest at the tail end of our market season in

### ‘Cannes Deep Blue’ (American Takii)

**Good qualities:** Stunning deep blue color (4); Drought tolerant, very tolerant of high saline water; This series is easier to grow than other larkspur I have tried and all three cultivars responded the same, the only difference was the color, the colors were wonderful with deep rich purple, rose (even with the stripe) and blue; Excellent to dry- keeps color; Early, good stem length; Grew well transplanted into tunnel in early spring, good color variety although customers did not appreciate as much as I thought they would; Full flower spikes, bloomed within 90 days from seeding, remained upright without support; A true blue is a thing to behold, our customers loved the color quality of this cultivar; Tons of blooms, very uniform.

**Problems:** The color was not appealing; Wilted quickly during harvesting if not immediately placed in water; Weak plants, susceptible to disease and petals spotted in the rain; Some seedling loss in the field but most survived and produced nice stems; Too small to be profitable in bouquets; More disease issues than QIS mix grown next to it; We experienced some shattering of lower blossoms if we just slightly delayed harvest; Lodged after a big rain but we did not provide support for the plants; First time growing larkspur in high tunnels, it eventually germinated in mid-April, rather erratically and after we’d given up hope, I transplanted young plants to consolidate space without any adverse effects on crop, we sold a couple of bunches but overall the stems were too short which I think was due to erratic germination, no pest or disease problems.

**Similar cultivars:** Planted the Cannes series next to two other mixtures that I have had moderate success with and these three cultivars outperformed my comparison larkspur - this was one of my successes in the variety trial this year along with the sunflowers and kale; ‘Dark Blue Sublime’.

**Additional comments:** Great for bouquets, added a nice quality, easy to break tips of flowers off in handling but typical of any cultivar and not unique to Cannes series; First to bloom of Cannes series; Late in the life cycle, we always get powdery mildew, but ‘Cannes Deep Blue’ seemed most resistant.

### ‘Cannes Purple Picotee’ (American Takii)

**Good qualities:** Great colour (7); Strong plants that produced blooms over a long period, when others in the field succumbed to disease, these continued producing well; Really pretty; This series is easier to grow than other larkspur I have tried and all three cultivars

responded the same, the only difference was the color, the colors were wonderful with deep rich purple, rose (even with the stripe) and blue; My customers love them, transplanted well and did very well in the greenhouse, no disease problems, sold every stem; Holds petals well, good height, Uniform size and harvest time; Grew well transplanted into tunnel in early spring, good color variety although customers did not appreciate as much as I thought they would; Rapid bloom, remained upright without support; Looked pretty much the same as the ‘Blue Picotee’ but a bit earlier to flower; Useful fresh or dried, primary stems were very nice and long; Unlike the Blue, we didn’t have any shattering issues

**Problems:** This was more a straight lavender than picotee, there was a lightening of color towards the throat, but the color distinction was subtle; Some seedling loss in the field but most survived and produced nice stems; Does not germinate easily in heat and drought!; None; More disease issues than QIS mix grown next to it; Would have liked more height and a thicker stand, though the flowers are pretty, the stems are so slender - you pick and pick and pick! had to use support netting, laterals were quite short; Unlike the Blue, ‘Purple Picotee’ showed about average susceptibility to powdery mildew, though I was still very pleased with the crop; First time growing larkspur in high tunnels, it eventually germinated in mid-April, rather erratically and after we’d given up hope, I transplanted young plants to consolidate space without any adverse effects on crop, we sold a couple of bunches but overall the stems were too short which I think was due to erratic germination, no pest or disease problems.

**Similar cultivars:** Not that we have grown; Color is similar to ‘Sublime Lilac’; Planted the Cannes series next to two other mixtures that I have had moderate success with and these three cultivars outperformed my comparison larkspur - this was one of my successes in the variety trial this year along with the sunflowers and kale; ‘Sydney Blue Picotee’; ‘Bicolor Sublime’.

**Additional comments:** We have a difficult time growing larkspur and will probably not grow it again. We need to get it in early in the hoop house before it gets too warm; Great for bouquets, added a nice quality, easy to break tips of flowers off in handling but typical of any cultivar and not unique to Cannes series; Did direct seed this in spring and attempted to irrigate, but the 30°C days and no rain did not help us, we had heard from the breeder that it could be used as a fall cut, so we started them in plugs and transplanted, they were

not irrigated and there was no rain, so the stems we got were not optimal - and not indicative of the variety, but, we loved the colour!; I’d like to see if this one does as well outside as it does in the greenhouse; We used all that we could cut in bouquets; Number of cuts were limited by late planting, planted both direct seeded and transplanted but no difference in harvest; Probably would have done better with an early and direct sow, wonder if it will reseed itself for next year? If I were to do it over I would direct sow, thickly, in very early spring as fall sowings can be very iffy here in zone 4B.

**Postharvest handling:** We used just plain water (2) and kept in a cool spot. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

### ‘Cannes Rose Stripe’ (American Takii)

**Good qualities:** Nice and unique color (6), darker pink and unusual stripe; More rose than “stripey”, useful fresh and dried, primary stems were nice and long; Grew well transplanted into tunnel in early spring, good color variety although customers did not appreciate as much as I thought they would; Moderately drought tolerant, no insect damage; Strong plants, disease resistant; This series is easier to grow than other larkspur I have tried and all three cultivars responded the same, the only difference was the color - the colors were wonderful with deep rich purple, rose (even with the stripe) and blue; My customers love them, transplanted well and did very well in the greenhouse, no disease problems, sold every stem; Frilly petal edges, petals slow to shatter; Did well because we had a cool spring; Rapid bloom, full flower spikes, remained upright without support.

**Problems:** Would have liked longer stems and thicker stand, had to use support netting, laterals quite short, stems so slender; More disease issues than QIS mix grown next to it; I expected more stripes, but it was a subtle shading rather than a clear bicolor; Some seedling loss in the field but most survived and produced nice stems; First time growing larkspur in high tunnels, it eventually germinated in mid-April, rather erratically and after we’d given up hope, I transplanted young plants to consolidate space without any adverse effects on crop, we sold a couple of bunches but overall the stems were too short which I think was due to erratic germination, no pest or disease problems.

**Similar cultivars:** Planted the Cannes series next to two other mixtures that I have had moderate success with and these three

cultivars outperformed my comparison larkspur, this was one of my successes in the variety trial this year along with the sunflowers and kale; Not that we know of.

**Additional comments:** It is a bit risky to plant larkspur in the fall in zone 4B but I think everything would have improved with a very early direct sowing—thickly placed!; Great for bouquets, added a nice quality, easy to break tips of flowers off in handling but typical of any cultivar and not unique to Cannes series; I'd like to see if this one does as well outside as it does in the greenhouse; Number of cuts were limited by late planting, planted both direct seeded and transplanted but no difference in harvest.

**Postharvest handling:** Using Floralife crystals. Using the cooler on hot days seems to shock the flowers when they are taken out and taken to market.

## Lisianthus

### 'ABC 2-3 Green' (Pan American/Ball Seed)

**Good qualities:** Appealing color (4), light tinge of green accented the pale yellow underneath; Long stems (4), nice double flowers that filled out well, I like that more than one flower bloomed at a time, plants were healthy and stayed green, not much wilt; Productive in tunnel; Vigorous, Lovely pale green double flowers that looked good with everything, long vase life; Great green, sought after by designers.

**Problems:** Continue to be unsuccessful growing *Eustoma* and the ABC series was no exception. Although they were the first seed sown in the greenhouse they were the last to be transplanted out. Very slow to germinate and slower to make a transplantable plant. In the case of 'Lavender', '2-3 Green', and 'White' seeds were pelleted. Seeds were singulated into plug trays and germinated as plugs. 'White' also came as fine seed and it was broadcast seeded and then transplanted. Transplanted seedlings were about 2 weeks slower to make a transplantable plant for the field beds compared to plugs; Stem strength poor: requires netting (not provided); Crooked bud stems; Did not germinate.

**Additional comments:** I should have said about all varieties of lisianthus this year that I found very little, if any, wilt in the varieties this year—all plants were healthy and held up under the stress of the hot July dry days; Grown in 30%+ shade.

**Postharvest handling:** Food.

### 'ABC Lavender' (Pan American/Ball Seed)

**Good qualities:** Long stems (5); Beautiful color (4); Strong stems (2); Great regrowth, healthy plants; Continuous blooming, large double flowers, more than one blooming at a time; Nice-looking lisianthus, lovely purple, double blooms, one of the favorites in the trial. 3-4 flowers blooming per stem at harvest time; Erect, large flower, productive.

**Problems:** None (2); I continue to be unsuccessful growing *Eustoma* and the ABC series was no exception, although they were the first seed sown in the greenhouse they were the last to be transplanted out, very slow to germinate and slower to make a transplantable plant—in the case of 'Lavender', '2-3 Green', and 'White' seeds were pelleted, seeds were singulated into plug trays and germinated as plugs, 'White' also came as fine seed and it was broadcast seeded and then transplanted, transplanted seedlings were about 2 weeks slower to make a transplantable plant for the field beds compared to plugs.

**Similar cultivars:** 'Mariachi Lavender'; Similar to the Mariachi and double Magic.

**Additional comments:** Really happy with this one—early and great second growth, great! Liked this one really well, it was nice and large and people loved the soft color; Plants grew well in the field even under the stress of drought in July; I seem to get the best germination from the Magic series; This was one of my favorite lissies.

**Postharvest handling:** Floralife, plain water. See separate postharvest report in this issue for results from NC State University postharvest evaluations.



'ABC Lavender'

### 'ABC 1-3 White' (Pan American/Ball Seed)

**Good qualities:** First white lisianthus we have liked, very nice; Beautiful snowy white, strong stem and good stem length, productive; Gorgeous double white blooms; Great, really pretty, and some seemed to have a light scent; Large flowers, still blooming with cool nights, actually, they seem to grow better in the cooler weather, plants are nice and full and seemed to endure the stress of drought in July.

**Problems:** None (2); Not a heavy producer for us, only around two usable stems; Regrowth not spectacular; I continue to be unsuccessful growing *Eustoma* and the ABC series was no exception, although they were the first seed sown in the greenhouse they were the last to be transplanted out, very slow to germinate and slower to make a transplantable plant, in the case of 'Lavender' '2-3 Green' and 'White' seeds were pelleted, seeds were singulated into plug trays and germinated as plugs, 'White' also came as fine seed and it was broadcast seeded and then transplanted, transplanted seedlings were about 2 weeks slower to make a transplantable plant for the field beds compared to plugs; Like any white flower, they brown easily on the edges with the dew of the morning and hot sun afterwards, I try to cut early so that they can dry off.

**Similar cultivars:** 'Mariachi White', but less rounded petals.

**Postharvest handling:** Floralife on all lisianthus; flower food. See separate postharvest report in this issue for results from NC State University postharvest evaluations.

### 'ABC White GX12444'

(Pan American/Ball Seed)

**Good qualities:** Awesome pure white double blooms with several flowers concentrated at the top of the stems for maximum impact and a beautiful show; Beautiful white, strong stem, good stem length.

**Problems:** Did not germinate.

**Postharvest handling:** Flower food.

### 'Fioretti Green' (Sakata Seed)

**Good qualities:** Different, nice stems, lots of blooms; Pretty color, nice spray of small flowers; It was a nice color and went very well with the 'Wonderous Light Brown'; Interesting new spray type; Very different looking lisianthus, stem are covered with tulip shaped blooms; The color of the yellow and white was very nice but the green was too pale to make a statement, most everyone thought it was white, though small, the flowers were well shaped and held for an extended

period of time; Multiple small blooms per stem, very delicate appearance; Adorable tiny single flowers in clusters, blooms have a pleasant green tinge, more of a filler flower and not easily identified as a lisianthus; Great for wedding bouquet work and smaller design work—not for farmers’ market straight bunches.

**Problems:** Short (5); Small flowers; Color similar to ‘Fioretti Yellow’; I’m not sure about the flower size, I didn’t have enough to see really what the market would make out of this form of lisianthus, they love the large-flowered stuff; I don’t think there are any, once again, I think the drought caused shortened stems; A little more fussy to deadhead if necessary than standard lisianthus; Not very productive some flowers go by and need to be picked off; The lisianthus seed did not germinate well, approximately 1% germinated, the seedlings were extremely slow growing.

**Similar cultivars:** Other Fiorettis.

**Additional comments:** Not as impressed with this variety as I was the ‘ABC 2-3 Green’; Same as other lisianthus, I would love to try it again but get it in as plugs and get it in much earlier so it can be planted in the greenhouse by the middle of February; Grown in 30%+ shade, first of ‘Fioretti’ cultivars to bloom of those trialed; Hard to tell the cream, yellow and green apart, there needs to be a better division of these colors; Long flowering period—very rugged.

**Postharvest handling:** See separate postharvest report in this issue for results from NC State University postharvest evaluations.

### ‘Fioretti White’ (Sakata Seed)

**Good qualities:** Long harvest window, great for wedding work; Similar to other Fiorettis; Lots of flowers, nice stems; The color of the white was very nice, though small, the flowers were well shaped and held for an extended period of time; Tallest of three ‘Fiorettis’ trialed, multiple small blooms per stem, VERY white, very delicate appearance; Same habit as ‘Fioretti Green’ but blooms of pure white, a great filler flower, wonderful for small wedding work; Great for wedding bouquet work and smaller design work—not for farmers’ market straight bunches.

**Problems:** Too short (3); I transplanted young, so good first cut, but second growth

really short; I don’t think there are any; Not very productive: some flowers go by and need to be picked off.

**Additional comments:** Tiny singles have a limited use. Used almost exclusively for weddings; Grown in 30%+ shade; Long flowering period—very rugged; Not better than old ‘Catalina White’.

### ‘Fioretti Yellow’ (Sakata Seed)

**Good qualities:** Nice pale yellow (3); Very different lisianthus than any we have grown, many small flowers on branches; New spray type lisianthus, flowers much smaller than older cultivars, probably will have special



uses; Though small, the flowers were well shaped and held for an extended period of time; Multiple small blooms per stem, very delicate appearance; Same general type as the other Fiorettis but with a lovely blush yellow color; Great for wedding bouquet work and smaller design work—not for farmers’ market straight bunches.

**Problems:** Short stems (4); We had problems with germination and did not end up with many plants for the trial, we have the best

luck with the Magic series; Not used like “normal” lisianthus, special bouquets?; Not very productive: some flowers go by and need to be picked off; Lisianthus seed did not germinate well—approximately 1% germinated, the seedlings were extremely slow growing.

**Similar cultivars:** None that we have grown.

**Additional comments:** Grown in 30%+ shade; Long flowering period—very rugged.

### ‘Mariachi Carmine’ (Sakata Seed)

**Good qualities:** Color was outstanding (7), me, my staff, and customers couldn’t get enough; Flower size was good but not as big as others

I’ve grown, plants didn’t get as big as other varieties; Nice flower from, strong & straight stems; Interesting color—not as popular as more traditional colors but great to have in the collection; A favorite! The dark, dark pink double blooms were a real head turner in the trial, long lasting and showy; It was a bit shorter than other Mariachi varieties we have grown but it had a high bud count, very pretty!

**Problems:** None, good Mariachi type; I didn’t like the color; Relatively short stems; Color faded; None; The lisianthus seed did not germinate.

**Similar cultivars:** None that we have grown.

**Additional comments:** Will definitely grow again; Grown in 30%+ shade; We would definitely grow this again, it was very popular, a vibrant color compared to many of the pastel lissies.

**Postharvest handling:** I use Floralife Crystal on everything, customers always remark how long my flowers seem to last for them; None - plain water.

### ‘Ruffle Blue’ (Sakata Seed)

**Good qualities:** Beautiful deep blue color (3); Attractive ruffled edges of petals (3); Wonderful, single blooms with ruffled edges, making them look like doubles; I love these, I really like the large flower size.

**Problems:** The lisianthus seed did not germinate; Stems tended to be a bit shorter than the other varieties in trial; Not a fan of singles, or ruffles, it turns out; Less productive in field than in tunnel; Customers want double lisi; Short stems, not as vigorous as the other varieties; Small flower size not

that popular, kind of interesting but I will not plant again.

**Additional comments:** All of the trial lisianthus were viewed as novelties, whereas I had full buckets of solid colors of my own lisianthus, we usually only had a few bunches of each trial, and grouped them together in one bucket, there by reducing their visual impact. This may well have had an effect on their sales; Grown in 30%+ shade.

**Postharvest handling:** See separate postharvest report in this issue for results from NC State University postharvest evaluations.

### ‘Ruffle Green’ (Sakata Seed)

**Good qualities:** Attractive greenish-yellow flower, productive; Like the ruffled edge; Easy to grow, but results were better in the tunnel: 8 stems/plant and 19 inches tall; Green color is nice, but white always sold first; This was another of my favorites, very lush and crisp; Attractive bloom.

**Problems:** The lisianthus seed did not germinate; Moderate stem length; Most customers want double lisi, the singles sell only if we have no double; Sparse or no flower stalks or most plants, did not perform as well as other trialed lisianthus; Small flower size not that popular, kind of interesting but I will not plant again.

**Additional comments:** This one gets my runner-up for best of trial; Grown in 30%+ shade.

### ‘Ruffle Yellow’ (Sakata Seed)

**Good qualities:** Attractive ruffled petal edges (5); Consistent from plant to plant; Good color; Clean yellow flower color, productive; Big ruffled flowers, nice color good stems and height; I like this color the best, and the ruffle look, but farmers’ market customers did not seem to like any of this series very much, florists were okay with it but prefer doubles; The most blooms of the three “ruffles” trialed; Nice pale green color.

**Problems:** Short (3); This color is not popular; Flower size not that popular, kind of interesting but I will not plant again; The lisianthus seed did not germinate.

**Similar cultivars:** ‘ABC 2-3 Green’.

**Additional comments:** Not a huge fan of the singles, it sold after ABC/Mariachi types were gone; Grown in 30%+ shade.



### ‘Wonderous Light Brown’

(Sakata Seed)

**Good qualities:** Unusual color (5), reminded us of antique lace; A great, great color; Not really brown, more pink caramel, attractive ruffled petal edges; I think that these grew very well, nice stems and good height; Petals are stiff; Very long stems and flowering for the longest period without interruption, interesting.

**Problems:** I’m not sure that brown is a good color for cut flowers, but it is kind of interesting looking, sort of tea stained, I can understand why it is interesting to the breeders but I’m not sure the general public is ready for it; Single flower, would have been just wonderful as a double; Some plants not same color flower—seed mixture?; One of the last to be purchased, with customers either loving or hating the flower colors, some plants produced only pink blooms; Smaller flowers, not as productive; The color is not for everyone and did not seem to have widespread appeal, the brown color made some observers think that it was past its prime and it wasn’t as adaptable to bouquets and common color arrangements as other lisianthus varieties; Designers were impressed to see a NEW lisianthus color but no one ordered it at the market, customers didn’t even notice it, much less buy it; The lisianthus seed did not germinate.

**Additional comments:** We didn’t have too many seeds germinate but the ones that did produced great flowers, I would be willing to try this one again, maybe buy in plugs and see if that will work better, time of year for us is another issue; Grown in 30%+ shade; Color is more salmon/frosty beige than brown, customers either loved it or passed.

### ‘Wonderous Purple’

(Sakata Seed)

**Good qualities:** Unique deep blue color (4) with white mid-petal banding; Most productive variety in tunnel and field trials; Stiff stems and flowers; Nice strong stems, many flowers bloomed at a single time.

**Problems:** The lisianthus seed did not germinate; Not pretty; No one thought it was worthwhile to have in their house; Color a muddy purple, with what looks like necrotic edges, there was a variety mix in this entry: a few single flowers of medium purple color, appearance is not acceptable; I did not like the iridescence on the outside of the flowers too dark for some customers; Small flower size and color was not accepted to my customers, not as nice as ‘Wonderous Brown’, less productive; The petals all had markings on them that made them look damaged, it wasn’t an insect problem or water but seemed, in our trial anyway, to be a characteristic of the cultivar, it made the blooms appear damaged before they were even open and that made them unappealing; Could not use a single stem as they always seemed to look like they were spent, the edges on the flowers were always brown, when the evenings became cool, the plants still bloomed, but the flowers were old and withered looking.

**Additional comments:** Grown in 30%+ shade; Will not grow again; Didn’t like this one, as the flowers were small and clustered, you had to cut the whole stem in order to try to use it which set the plant back longer before the next blossom, but as I said, I couldn’t use any of the flowers.

**Postharvest handling:** See separate postharvest report in this issue for results from NC State University postharvest evaluations.

## Pepper

### ‘Cappa Conic White/Red’

(Kieft-Pro-Seeds)

**Good qualities:** My favorite of the Cappas served as unique filler in arrangements, had one customer who requested arrangements with a “Candyland” theme, ‘Cappa Conic’ made perfect “candy” peppers, turn color early; Easy to germinate, grow transplants and to transplant; Really attractive fruit, conic shape and fruit arrangement all great, good stem length; Liked this pepper, very productive, matured earlier than others that I have grown; Attractive yellow and red fruits on sturdy stems; The fruit was nice, larger than ‘Cappa Conic Top Fruit White’/‘Red’, in our trials it was a good container plant but the fruit was a little too large to make a good cut; Unique addition to cut flower bouquets, drought tolerant, saline tolerant, no insect damage; This one doesn’t stick in my mind as much as ‘Top Fruit’ but it shares many of the same good features of color, second earliest of 10 cultivars of ornamental peppers with August 26 harvest date; All the pepper color phases make great cuts; non-terminating branches allow for many peppers per branch and extended harvest season; Interesting colors of fruit on plant at same time: red, orange, creamy white range of conical fruit, may be dominant in an arrangement, deep green foliage is attractive, good for large pieces; Looked like little Christmas tree lights; Very strong stems, basal branching, white and/or red peppers on same plant—nice shape—good holding on plant.

**Problems** Plants quite short (2); Growing season not long enough or hot enough to obtain crop, the plants grew well but flowered about the time of the first frost, one of the Conic had a fruit and it looked good but not enough to further evaluate the cultivars; Easy to grow, nice plant but little interest from florists; Stems short when grown in field, but adequate in tunnel, some consumers complained about the pungency of the fruit: they are hot; Difficulty hardening before transplanting; Most years, our season is too short for peppers to turn red; Needs support, otherwise falls over; None; Had a very early frost which set the plants back badly and/or killed them.

**Similar cultivars:** ‘Cappa Conic Top Fruit White’/‘Red’.

**Additional comments:** This was a nice addition to late-season flower arrangements, gave them a pop; A colorful fall item, good “harvest” decoration; These pepper stems really added something extra to mixed



‘Cappa Conic White/Red’

bouquets; Last year’s, ‘Top Round Bronze’ peppers much more useable and a better seller in bouquets; Harder to incorporate into bouquets than the ‘Top Fruit’ but we did use some of this variety in the table arrangements for the wedding, both types of peppers held up well in Oasis, including foliage.

**Postharvest handling:** Defoliation is tedious and time consuming, we did not try sweating off the leaves, but 1000 ppm Ethrel was not effective as a foliar spray in the cool tunnel environment to remove leaves.

### ‘Cappa Round Red’ (Kieft-Pro-Seeds)

**Good qualities:** Stems good length with good-sized and quality peppers, branches non-terminating, allowing for many peppers per branch and a longer season of prime cuts; Healthy plants, strong stems; Easy to germinate, grow transplants and to transplant; Tall plant, attractive round fruits; Decent fruit but was still green in August and didn’t color up until September; Very strong basal branching, nice bright red roundish peppers, long keepers; Unique addition to cut flower bouquets, drought tolerant, saline tolerant, no insect damage.

**Problems:** Not very attractive, nothing stands out about it, especially compared to other two Cappa peppers; A little shorter than I would have liked; Growing season not long enough or hot enough to obtain crop, the plants grew well but flowered about the time of the first frost, one of the Conic had a fruit and it looked good but not enough to further evaluate the cultivars; Most years our season is too short

for peppers to turn red, green peppers are not popular; Late maturity, can fruit drop be a problem when not harvested promptly, without Ethrel application?; No support, plants grew as prostrate bushes; Wish plants were taller in field, early frost limited yield; Difficulty hardening before transplanting.

**Additional comments:** Good potential for use in Christmas bouquets/ arrangements with its green and red peppers, peppers look like Christmas tree bulbs; Last year’s top round-bronze pepper much more useable and better seller in bouquets.

**Postharvest handling:** This variety is green when immature, and red when ripe. It was a couple of weeks later maturing than the other Cappa types trialed. Defoliation a problem. This variety dropped all its fruits when plants sprayed with 1000 ppm Ethrel a week before harvest.

### ‘Cappa Topfruit White/Red’

(Kieft-Pro-Seeds)

**Good qualities:** The white fruit made for an interesting addition to the more common *Capsicum* offerings; Easy to germinate, grow transplants and to transplant; Customers find it unique, adds great interest to arrangements with peppers turned yellow/orange/red early; Earliest of 10 ornamental pepper cultivars, first harvest August 17 or 2 months after transplanting to the high tunnel and about 10 days before Conic White/Red, nice presentation of cluster of peppers, good workable length for bouquet work, bright clear lemon yellow early (so-called white) is very attractive for September bouquets; Fruit is upright and nice in mixed bouquets, I used it in yellow and red stages, customers love the idea of peppers in bouquet—many wanted to eat them; Unique addition to cut flower bouquets, drought tolerant, saline tolerant, no insect damage; Easy to grow, produced a 20 to 24 inch plant; “Topfruit” is accurate, fruit is great for mixed bouquets, I liked the yellow-orange-red all together look, still cutting on 10/20!; Colorful fall decoration; All stages of coloring (pepper) are attractive and appropriate to cut, scant number of leaves snap off quickly and easily, essentially all stems have good length and pepper quantity and quality; Earliest of the Cappas to have useable fruit; Stayed upright without support, slender fruits were attractive, red, orange, light yellow in color at the same time, vigorous growth; Crop did not mature even in a plastic tunnel.

**Problems:** Too short (3); Growing season not long enough or hot enough to obtain crop, the plants grew well but flowered about the

time of the first frost, one of the Conic had a fruit and it looked good but not enough to further evaluate the cultivars; Almost too early, high temps in July/August this year pushed maturity before florists were interested in ornamental peppers, these were grown in high tunnels because we normally get a frost in mid-Sept.; None really; Difficulty hardening before transplanting; Only mild interest from florists, could not sell much, they wanted one color, not many shades of yellow to red; Stink bugs loved this plant. fruit dropped before coloring; Pungency may be a problem for some customers, this variety is hot; This pepper lost a lot of length because we cut several inches of the top to show the peppers, this is not a topfruit pepper as description states; Fruits are bunched together rather than being spaced along stem; First flush of peppers was at 10 to 12 inches then it continued growing but following fruit did not mature.

**Similar cultivars:** The Starburst series, but ‘Cappa Topfruit’ has larger, plumper fruit; Similar upright habit to ‘Nippon Taka’ pepper from Johnny’s.

**Additional comments:** I love this one—ornamental peppers are not yet really popular with most Nebraska florists, partly because there has not been a local wholesale company offering them, they will eventually get on board; We used the peppers in bridesmaids’ bouquets for a fall wedding this year, they were a big hit!; Nicest pepper for bunching, excellent late season addition; Best “on-top” pepper I have grown, customers asked specifically for these in bouquets; We seeded all of our peppers quite late, thankfully we had a warm fall and were able to see the fruits, although mostly in a green state; Last year’s ‘Top Round Bronze’ pepper is much more useable and a better seller in bouquets.

**Postharvest handling:** Leaves are easiest to strip when fresh in the field; Defoliation is time consuming, we tried Ethrel spray at 1000 ppm, but got little defoliation: perhaps tunnel was too cool by then. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

## Snapdragon

### ‘Animation Cognac’ (Benary Seed)

**Good qualities:** Beautiful pink and yellow color (12), kind of like scrambled eggs; Good stem length (3); Very drought tolerant, not susceptible to insect damage by flea beetles; Good height for time of year (October), long

*The Cut Flower Quarterly*



‘Cappa Topfruit White/Red’

taper and spike; Prolific; Strong stems, close spacing on florets; Best rebloomer I have ever grown; The color is interesting up close, having both yellow and pink on the flowers, from a distance, though, they look kind of muddy; Very hardy; Very strong stems, good dense spikes, combined well with many other shades; Very productive, sturdy, less subject to heat inhibition of buds than some other cultivars; Sturdy stems, color is ok, range is very popular for us, florists would use this; Good as a filler flower; Very nice color combination, unlike these we have previously grown; Both were great colors, we did not net (and yes I know that everyone else does) but they grew real well, and even though we



‘Animation Cognac’

had some plants knocked over, their stems were still plenty long; Tall, upright stems, fantastic and we love it; Good production, I was a little questionable about the color when it first came out, but then it worked well with many combinations of flowers and colors, I really liked it, and it is still blooming.

**Problems:** Too short (3); None (2); Susceptible to wind and hail damage; A bit gappy; A bit loud for a New England spring, better as a fall snap; Didn’t particularly like the color, stems in the field were thin and weak, easily fell over, didn’t harvest all the stems that were harvestable because didn’t like the color; I had two snapdragon cultivars in the variety trial this year and grew them along side and among my usual Rocket Mix, although I had the same cultural (insect) problems with the Rockets they did produce usable stems while this one did not, however, the few florets on those stems that flowered had a nice attractive color, the problem was not the cultivar, but rather a serious infestation of a class of ‘stink bugs’ that caused the plant to develop abnormal growth restricting flowering—my insect control program (which is minimal) did not control the insects creating a crop failure; It needs support net or it will fall over; Some customers didn’t like the color for spring; thought it was better suited to autumn; A group 2 snap not particularly useful for main season in the field; started out strong but succumbed to the heat of July and August, made a weak comeback in September and October, might be better for winter-spring greenhouse production; Showed lots of rust late in cropping cycle, but produced numerous stems before succumbing to disease.

**Similar cultivars:** No; Similar in color to ‘Opus Bronze’.

**Additional comments:** At this time of year, ‘Cognac’, ‘Yellow’ and ‘Pink Improved’ are best quality Animations and well matched for crop time; It’s an okay flower for short bouquet work; I think this was the standout of all the trials, and gets my vote for #1; Although I did not produce usable stems of this cultivar, I do see potential as a nice color addition to summer field snaps; Responds well to topping at this wide spacing, also grew well in a fall-planted trial in the high tunnel; The Animation series in general does not get tall enough for our uses, not nearly as productive as Potomacs, Spring Giant, and Rocket, which are what we do well with; Color not as vibrant as ‘Opus Bronze’, doesn’t stand out as anything special; Despite the rust, these were very attractive stems and much appreciated by our customers; we grew in the field and it needed support; I cannot say enough good

things about this snap, it is still providing me with quality cuts.

**Postharvest handling:** Floralife solution, keep upright; Everything clean!; We don't sleeve, and stems needed to be very upright in buckets to preventing bending; Floralife crystals and then in the cooler, did drop bottom flowers when it was really hot and coming out of the cooler.

### 'Chantilly Orange' (American Takii)

**Good qualities:** Great color (8); The color is very unique, we called it "cinnamon", florist customers like the color; Unique, butterfly-like, attractive individual flowers (3); Tons of stems—great regrowth; I particularly enjoyed the 'Chantilly Orange' for bouquet work, we did not net (and yes I know that everyone else does) but they grew real well, and even though we had some plants knocked over, their stems were still plenty long; Upright stems, We couldn't get enough of this flower!; Productive, good stem length; I prefer the shape of Chantilly series over the other butterfly types, I was surprised at how well the Group 1 and 2 snaps performed for us, very prolific—we stopped harvesting this cultivar since color is not popular in late spring and stems were getting short, I would plant Chantilly-type again in the spring but a different color and not pinched.

**Problems:** Too short (4), though I was able to sell some to florists; Harder to sell in spring; Field-grown stems were thin and bent easily, should have been netted in the field; I had two snapdragon cultivars in the variety trial this year and grew them along side and among my usual Rocket Mix, although I had the same cultural (insect) problems with the Rockets they did produce usable stems while 'Chantilly Dark Orange' did not.

However, the few florets on those stems of 'Chantilly Dark Orange' that flowered had a nice attractive orange color, the problem was not the cultivar, but rather a serious infestation of a class of 'stink bugs' that caused the plant to develop abnormal growth restricting flowering, my insect control program (which is minimal) did not control the insects creating a crop failure; The color was a rusty orange, not a good spring color, which is the only time I could grow it; Beautiful open flowers with yellow throat with almost iridescent gold anthers, fair tolerance to heat; Thin stems, too early for good quality in October in

greenhouse in southern California; Very susceptible to heat stress, too few florets per stem; Performed the most poorly out of all my snaps—all had same field conditions and were set out at the same time—poor stand, poor height, poor rebloom. Will try again but over all it was shorter and less productive than 'Spring Giant', I want to try these again; Color was more of a red/orange than a pure Halloween orange.

**Similar cultivars:** Not that I am aware of; 'Apollo Cinnamon' is similar color and later to flower—better for October flowering; Supreme series.



'Chantilly Orange'

**Additional comments:** These were also susceptible to rust, but not until late in the cropping cycle; Very good cultivar overall, I grew it along 'Chantilly Cream' and 'Light Salmon', also good; Began harvest 6/20; What few florets opened indicated a potential for this open-faced orange flower; They would have done better by being sown earlier (you have no control over that, I know) but I got to see what they would look like and the color is great; We would grow again and try for better results; Customers almost always picked these over other snaps; Used support netting; First harvest was May 14, 2007 for

'Chantilly' and 'Supreme White' (earlier than 'Supreme Yellow' and Monaco series), half of each plot was pinched on April 26, 2007, leaving 3 to 4 nodes (we won't do this again).

**Postharvest handling:** I felt these stems really needed to be cut early in the bloom cycle to have the 7-day vase life. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

## Stock

### 'Katz Cherry Blossom'

(PanAmerican/Ball Seed) Released under the name Mambo, renamed Katz.

**Good qualities:** Gorgeous, bright color (3), nice two-tone pink, sturdy stem; Early to bloom makes this one a keeper! (2); Nice scent, good stem length, held up well; 'Mambo Cherry' is the color of cherry blossoms (light pink), not the fruit; Easy to grow, no major pests, very easy to harvest and bunch; Early cut, 32 days from field planting, clean color/nice double flower, single flowers useable in bouquets; Easy to germinate and early to go to field beds; All plants flowered; Good height compared to 'Aida', good fragrance; As with other trial cultivars, getting a few bonus lateral/basal shoots gives us bonus material to work into our smaller mixed bouquets.

**Problems:** None (2); May not be a problem for other growers, but bloomed too early for my market, only one stem...maybe I wasn't harvesting properly; Too fat use in bouquets; Not a prolific bloomer, did not transplant well; No marketable flowers on any cultivar in series; Relatively short stems, high percentage singles; Needs to be staked, had trouble singling out singles vs. doubles; A fairly nice mid pink, a little easier on the eye than the 'Mambo Pink'.

**Similar cultivars:** None that we have grown, we have grown the Goldcut series but the color was much more delicate for this variety.

**Additional comments:** I would definitely grow this again, customers liked the color; This was my first attempt at growing stock so was nervous about how to germinate and grow plugs, esp. as 288's. Delay in planting 'Mambo Pink' was to let the plants get a little bigger before planting in the high tunnel. If I can learn how to get a little longer stem and a little bigger head, it will be a winner at the

wholesale florist due to fragrance and physical condition when delivered. In spite of a two-week difference in transplant date, there was only a 3-day difference in peak harvest date for the two cultivars. Harvested over a 2-week period; All plants in the series looked good during the germination, seedling, and early growth phase as young plants in the greenhouse and as plants in the beds, however, when flowering time came the flowers were useless, one or two florets, stunted spikes and not harvestable; Transplanting into tunnel on day 37 resulted in stockier, taller plants than those transplanted a week later; Will grow again; Perhaps like ‘Appleblossom’?

**Postharvest handling:** We did not use any postharvest treatment, just plain water; Bleach in water.



not this season with this cultivar; We did not select against single in any of the varieties and each had less than 5% singles.

**Additional comments:** Next time plant much closer and pull singles (although I used them for mixed bouquets no problem), loved all three colors; I’m just not set up to do an early spring crop, would work well if I had a high tunnel; All plants in the series looked good during the germination, seedling, and early growth phase as young plants in the greenhouse and as plants in the beds, however, when flowering time came the flowers were useless, one or two florets, stunted spikes and not harvestable; It just doesn’t pay us to grow stock in the greenhouse and then outside it is short and not as nice, we really need to experiment with some hoops in the field to protect the plants and see if we can get larger flowers in the field, my customers would love that; Those planted in tunnel at 36 days after sowing were taller, stockier and with straighter stems than those kept in a warm greenhouse 1 week longer.

**Postharvest handling:** Bleach in water.

### ‘Katz Pink’

*(PanAmerican/Ball Seed) Released under the name Mambo, renamed Katz.*

**Good qualities:** Early flowering (3); Vibrant pale pink flower (2); Excellent; Little insect damage; ‘Mambo Cherry’ is the color of cherry blossoms (light pink), not the fruit, ‘Mambo Pink’ is hot pink; Easy to grow, no major pests, very easy to harvest and bunch; Similar to ‘Glory’, but stronger stems; Easy to germinate and early to go to field beds; High percentage of flowering; Strong upright stems,

**Problems:** None (2); Did not transplant well, susceptible to hail damage; No marketable flowers on any cultivar in series; High percentage of singles; Unfortunately I am a hard sell when it comes to certain pink hues and this one was challenging.

**Additional comments:** Next time plant much closer and pull singles (although I used them for mixed bouquets no problem), loved all three colors; This was my first attempt at growing stock so was nervous about how to germinate and grow plugs, especially as 288’s. Delay in planting ‘Mambo Pink’ was to let the plants get a little bigger before planting in the high tunnel. If I can learn how to get a little longer stem and a little bigger head, it will be a winner at the wholesale florist due to fragrance and physical condition when delivered. In spite of a two-week difference in transplant date, there was only a 3-day difference in peak harvest date for the two cultivars. Harvested over a 2-week period; All plants in the series looked good during the germination, seedling, and early growth phase as young plants in the greenhouse and as plants in the beds, however, when flowering time came the flowers were useless, one or two florets, stunted

### ‘Katz Lavender Light’

*(PanAmerican/Ball Seed) Released under the name Mambo, renamed Katz.*

**Good qualities:** Good color (3); Easy to germinate, fast growing and early to go to field beds; Excellent; Wonderful fragrance; Early blooming; All plants that germinated lived, germinated well; Reliable in flowering, early; This was a very subtle, but striking color and worked well mixed with both softer and bolder colors in our mixed bouquets.

**Problems:** Too short (2); No marketable flowers on any cultivar in series; None; Not a prolific bloomer, did not transplant well; I have never had any luck with stock of any sort; Very difficult to grow stocks in my climate, I have had hit and miss success, but

spikes and not harvestable; Transplanting into tunnel on day 37 resulted in stockier, taller plants than those transplanted a week later.

**Postharvest handling:** Bleach in water.

### ‘Katz White’

(PanAmerican/Ball Seed) *Released under the name Mambo, renamed Katz.*

**Good qualities:** Excellent quality, great scent, very easy to grow; Early blooming; Nothing stood out, we got this in very late, however, when it was getting too warm in the hoophouse; Easy to germinate, fast growing and early to go to field beds; Tallest of Mambo series; Great fragrance, we did use the stems in small bouquets and customers appreciated the fragrance; This was a nice white column type stock, but not a noticeably different or improved version of ‘Avalanche’; Good colors, all plants that germinated lived, germinated well.

**Problems:** Not a prolific bloomer, did not transplant well; None; No marketable flowers on any cultivar in series; High proportion of singles; None to speak of, except a little slow.

**Similar cultivars:** This did not seem very different from either the Cheerful series or ‘White Beach’; ‘Avalanche’.

**Additional comments:** Next time much closer and pull singles (although I used them for mixed bouquets with no problem), loved all three colors; All plants in the series looked good during the germination, seedling, and early growth phase as young plants in the greenhouse and as plants in the beds, however, when flowering time came the flowers were useless, one or two florets, stunted spikes and not harvestable; It just doesn’t pay us to grow stock in the greenhouse and then outside it is short and not as nice, we really need to experiment with some hoops in the field to protect the plants and see if we can get larger flowers in the field, my customers would love that; Transplanting into tunnel on day 37 resulted in stockier, taller plants than those transplanted a week later; Would be better in a high tunnel as an early crop.

**Postharvest handling:** We did not use any postharvest treatment, plain water; Bleach in water.



‘Katz White’

## Sunflower

### ‘Orange Glory’ (Fred C. Gloeckner)

**Good qualities:** Nice color (2); Good head size (2); OK sunflower; Single stem, later to bloom, nice disc size; A nice sunflower, but...; Very tall, so can cut at the needed length; Very drought tolerant, tolerant of severe weather (wind and hail damage); Standard orange cultivar; Excellent sunflower, this is probably going to be among our favorites, very uniform days to harvest, cut all of them in about 8-9 day span, beautiful flowers can cut tight and they open very nice! Did well mid and late (October) season; It did compare to ‘Sunrich Orange’ and was a little earlier, flowers held well and it was really difficult to tell the difference between this one and ‘Sunrich Orange’; Great color and form, pollenless, very stout stems, nice height, quick to flower—all came on at once! Excellent vase life! Customers loved it!; Classic sunflower, petals are nicely pointed; Nice form, strong neck and stem, good neck posture, perfect height; At each planting an equal amount of ‘Sunrich Orange’, ‘Tosca’ and ‘Orange Glory’ were direct seeded and although the seed of ‘Sunrich Orange’ was over a year old it germinated better than either of the two trial cultivars in all four sowings, during the growth phase all three were indistinguishable. However, at flowering ‘Tosca’ flowered approximately 5-7 days earlier than ‘Sunrich Orange’ at all planting dates. ‘Orange Glory’ flowered at the same time as ‘Sunrich Orange’ at all planting dates. The marketable flowers could not be distinguished by cultivar. In fact

‘Orange Glory’ and ‘Sunrich Orange’ are similar. They could not be identified as separate cultivars; Classic color.

**Problems:** None (3); Slightly shorter plant height (3)—can be an issue for large field production—need to bend for harvesting; Not a standout; It bloomed on the same schedule as ‘Pro Cut Orange’, which is better in every way: thicker stems, more substantial petals. It got too tall as the days lengthened, and took longer to bloom than ‘Pro Cut Orange’; Prone to insect leaf damage; Strongly daylength sensitive: Long-day plants flowered at 74 days from sowing, 3 weeks later than the short-day treated plants, stem length difference: long-day 46 inches, short-day 28 inches; Some had deer damage, some were attacked by the “Midge”???; I experienced an increase in insect problems over other sunflower cultivars; Insects all came at once!; Rock-like debris in seed packet; A bit later than the others in our trials.

**Similar cultivars:** ‘Sunrich Orange’ (5); ‘Sunbright’ (2); Probably closer to ‘Orange Glory’ than ‘Sunrich Orange’ in flower color; Seemed like ‘Pro Cut’; ‘Tosca’ is 5-7 days earlier ‘Orange Glory’ is not different from ‘Sunrich Orange’ in habit and time of flowering.

**Additional comments:** It flower slightly shorter and few days earlier than ‘Sunrich Orange’, came into 50% flowering on approximately 5/24/07 (planted on 3/9/07, zone not specified), pollenless flower; Send back to breeder for more work; Nothing special. For me it was just another sunflower, trends are changing in this area, large sunflowers as well as small-flowered sunflowers are selling well, ‘Pro Cut’ sunflowers harvested before ‘Orange Glory’; In short days, plants short and with profuse flower bud formation on upper nodes, so production should be limited to summer (long day) conditions; I am very impressed and I try a lot of sunflowers, uniform like ‘Pro Cut Orange’ but a nice flower, comes in just after ‘Sunrich Orange’, and with ‘Tiffany’, but they all come on together, not like ‘Tiffany’ which seems to go on for a couple of weeks; I would like to try more of this one next year and really compare it with ‘Sunrich Orange’, it’s hard to tell with 1,000 seeds, we do 40,000 ‘Sunrich Orange’ a year so I would like to try 15,000 ‘Orange Glory’ and see how they stand up to ‘Sunrich Orange’; Center seems to develop quickly even before petals unfold? smaller than ‘Sunbright’; Perfect complement to ‘Sunrich Orange Summer’ for weekly plantings for bouquets; I liked the similarity of the three cultivars. By having ‘Tosca’ flowering earlier gave me flexibility in harvesting to meet my markets.

**Postharvest handling:** Cut when petals are ready to open (before the bees get to pollinate), we also remove all leaves. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

**‘Tosca’ (Fred C. Gloeckner)**

**Good qualities:** Good bright sunflower color (6); Fast crop time (5), about 50 days; Early seedling vigor, early maturity of about 4 to 7 days earlier than ‘Sunrich Orange’ or ‘Orange Glory’; Nice size flower (2); Open face with upward, pointed petals, nice brown center, didn’t droop after being in water for 1 week; Small heads; Nice stem length; Really liked this cultivar, uniform blooming, most all plants produced a flower, seemed to last a long time; Nothing outstanding, my market currently appreciates traditional sunflowers; Early single stem; Very tall, so can cut at the needed length; Standard dark yellow sunflower of average disk diameter and stem length; Good size for bouquet work, stem size was nice and not too big; Pollenless, excellent field and cutting height, nice flower size, nice stout stems, excellent vase life; Good flower quality—big flower size (7.5" diameter), good plant height, easy for harvesting (slightly taller than ‘Orange Glory’); Strong stem and neck, good flower posture; The directions from Gloeckner indicated to compare to ‘Sunrich Orange’, thus, at each planting an equal amount of ‘Sunrich Orange’, ‘Tosca’ and ‘Orange Glory’ were direct seeded and although the seed of ‘Sunrich Orange’ was over a year old it germinated better than either of the two trial cultivars in all four seedings, during the growth phase all three were indistinguishable, however, at flowering ‘Tosca’ flowered approximately 5-7 days earlier and than ‘Sunrich Orange’ and ‘Orange Glory’ flowered at the same time as ‘Sunrich Orange’ at all planting dates, the marketable flowers could not be distinguished by cultivar, in fact ‘Orange Glory’ and ‘Sunrich Orange’ are similar, they could not be identified as separate cultivars; First planting was useless, pollen on these pollenless cultivars, petals in the middle of the cone, misshapen, the second planting yielded beautiful sunflowers; Huge heads.

**Problems:** Some of the flowers were not pollenless (2); Bloomed all at once in the heat of the summer, I didn’t like that each batch couldn’t be more timed, as flowers opened quickly; This did not germinate in three tries—not one flower; None; Short stems; Very daylength sensitive: flowers 17 days later in long days than short day conditions, on a

plant that is 44 in. tall, vs. 28 in. for the short-day plant; Petals curled back which I don’t care for, makes the flower look “old” and not as fresh; Insects all came on at once!; Non-uniform flowering window, can’t harvest at the same period, very thick stems, hard to cut/harvest; Erratic germination; Numerous culls due to flowers in the disk, other floral parts in the disk, misshapen heads, double and triple heads, pollen in some heads, very erratic and unpredictable; Misshaped useless flowers; Prone to insect leaf damage.

**Similar cultivars:** ‘Sunrich Orange’ (2) the heads were a bit smaller, but had similar color and petal shape; Very similar to ‘Sunrich Gold’ (2) but about a week earlier; Probably closer to ‘Orange Glory’ than ‘Sunrich Orange’ in flower color; ‘Tosca’ is 5-7 days earlier ‘Orange Glory’ and is not different from ‘Sunrich Orange’ in habit and time of flowering.

**Additional comments:** I would grow this again; I planted 2 varieties for the trials, this variety the seed was treated, this variety was not eaten by birds at planting, the other variety was completely eaten by birds at planting; For our wholesale customers, it is hard to switch them from their reliable standard varieties; For me, it was just another sunflower, trends are changing in this area, large sunflowers as well as small-flowered sunflowers are selling well, ‘Pro Cut’ sunflowers harvested before this variety; Short-day treatment (12-hour daylength for first 3 weeks after emergence) results in plants with short stems and profuse flower bud formation in upper nodes; Harvest a few days ahead of ‘Sunrich Orange’; Comparable to ‘Sunrich Orange’ in terms of plant and flowering habit, came into 50% flowering on approximately 5/20/07 (planted 3/9/07, no zone listed), pollenless flowers; Send back to breeder for more work; I liked the similarity of the three cultivars, by having ‘Tosca’ flowering earlier gave me flexibility in harvesting to meet my markets.

**Postharvest handling:** Plain water (2) - keep in a cool spot; Cut when petals are ready to open (before the bees get pollinate), we also remove all leaves; Floralife. *See separate postharvest report in this issue for results from NC State University postharvest evaluations.*

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# Postharvest Treatment of Specialty Cut Flowers

## North Carolina State University Report for 2007

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

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

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



### The Details

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

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

Floralife Hydraflor 100 (hydrator) and Floralife Professional (holding) were used. Where appropriate, stems were treated in the Hydraflor 100 for 4 hours and those in the Floralife Professional were treated for 44 hours. After treatment, stems were placed in tap water at  $68\pm 4^{\circ}\text{F}$  under approximately 200 ftc light for 12 hrs/day. We expect that similar products from other companies would provide similar results. Because of limited flower numbers we are not able to test all products at this stage of evaluation. For most species we test 15 stems per treatment but will occasionally use 10 to 14 stems per treatment if we do not have enough stems. In the case of snapdragon ‘Chantilly Orange’, sunflower ‘Tosca’, larkspur ‘Cannes Crystal Pink’, larkspur ‘Cannes Purple Picotee’, and *Leycesteria formosa*, however, we had only 9, 8, 7, 7, and 6 stems per treatment, respectively.

## The Fine Print

Our testing methods tend to produce the maximum vase life, which tells you the potential vase life of each species. We cut and process the stems rapidly, put one stem per jar, and use a postharvest temperature that is a little cooler than a typical home in the summer. These procedures were set up to provide a consistent environment so that anyone else should be able to repeat our work and get the same results. All of these factors typically add about one to several days to the vase life of some species compared to that of a typical cut flower producer. For example, flowers with a vase life of 6 to 8 days in testing would probably last 5 to 6 days for a typical grower, and flowers lasting 15 to 18 days would probably last 10 to 14 days. We especially want to note that when many flowers are added together in a vase, it takes only one or two “dirty” flowers to reduce the vase life of everything in the bouquet.

For several cultivars, we also listed the minimum vase life. We harvest and test 30 to 60 stems per cultivar and present the average vase life. With some cultivars most of the stems died about the same time. However, with other cultivars the flowers were terminated over a long period—thus the vase life of some of the stems was much shorter than the average. In those cases, we have included a minimum vase life.

## Our Results

### **Dianthus ‘Bouquet Rose’**

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

### **Dianthus ‘Fandango Crimson’**

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

### **Heptacodium miconioides**

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

### **Larkspur ‘Cannes Crystal Pink’**

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

### **Larkspur ‘Cannes Purple Picotee’**

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

### **Leycesteria formosa**

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

### **Lisianthus ‘ABC 1-3 White’**

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

### **Lisianthus ‘ABC Lavender GX91863’**

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

### **Lisianthus ‘Fioretti Green’**

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

### **Lisianthus ‘Ruffle Blue’**

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

### **Lisianthus ‘Wonderous Purple’**

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

### **Pepper ‘Cappa Topfruit White/Red’**

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

### **Snapdragon ‘Chantilly Orange’**

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

### **Sunflower ‘Orange Glory’**

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

### **Sunflower ‘Tosca’**

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