

2004 ASCFG Cut Flower Seed Trials

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With 58 cultivars from seven companies, it was another great year for the seed trials. We added a new question about postharvest to the evaluation forms. Respondents listed the postharvest life they were able to obtain (see table) and any treatments they had been using (see comments section). Please keep in mind that most folks did not have the time to do any testing so the treatments listed are those that they had been using for other cultivars or species. Please note that we conducted postharvest testing on a number of the cultivars in the trials and our results are included in the article on page 39.

Highlights of this year's trials included the release of several series which are likely to become important for cut flower growers: Pro Cut sunflowers, Sweet dianthus, and Camelot digitalis. The **Sunflower Pro Cut** series from SeedSense did very well in the trials. This well-matched series includes orange, lemon and bicolor cultivars. All were uniform, reliable and fast. For example, Pro Cut 'Orange' flowered up to two weeks earlier than 'Sunrich Orange'. These single-stem cultivars produce medium-sized flower heads with a long postharvest life, averaging 7 to 9 days (see also Postharvest article for more information). One respondent wrote that it was his "Favorite new sunflower" and another said it was the "Best sunflower I've grown in a few years!" **Sunflower 'Double Quick'** from SeedSense also scored very high in the trials. This large double-flowered sunflower had a short crop time but not as fast as the Pro Cut series.

One of the trends in ornamental breeding has been to shorten crop time by eliminating cold requirements for flowering. Delphiniums and Amazon dianthus are two examples. The next genus to get the star treatment is *Digitalis*. With the release of **Camelot** from Goldsmith, digitalis has become a vigorous, rapidly flowering plant that does not require a cold treatment for flowering. In North Carolina we had uniform flowering in May from a late January sowing. Other digitalis cultivars, such as 'Foxy', will also flower the first year from seed, but Camelot is fast and uniform. Camelot is available in white, cream, lavender, and rose. Plants were very productive, averaging 4 to 5 stems per plant, with some trialers harvesting up to 20 stems/plants. Stems were a bit short, averaging 19 to 22 inches, but long enough for most growers to use. Goldsmith notes that if the plants survive the summer heat, they will flower the next year with much longer stems, up to 3 feet tall. Digitalis can be grown as a summer- or fall-planted biennial for maximum stem quality and Camelot should be tried this way also. Postharvest is acceptable for local sales, averaging 6 to 9 days, but too short for some trialers. The main problem was that the lower florets dropped. Certainly this series would be good for further postharvest testing.

PanAmerican has been busy remaking sweet William type dianthus. Their hybrid Amazon dianthus was quite a milestone. These robust plants flowered the first year from seed, exhibited great heat tolerance, and produced long stems. The **Sweet** series is more of a traditional sweet William with shorter stems and a little less heat tolerance than Amazon. This is not surprising considering that the Sweet series is not a hybrid. However, Sweet dianthus still has much to offer the grower. It is uniform, rapidly flowering – generally about two to three weeks before Amazon – and productive. Stem length averaged around 15 inches with some trialers getting up to 28 inches. Postharvest life averaged 8 to 10 days. Sweet dianthus is available in white, coral, red and purple – the latter two colors were sometimes difficult to tell apart.



Campanula rapunculus
'Heavenly Blue'



Celosia 'Bombay Fiora'



Ammi visnaga 'Casablanca'



Dianthus 'Sweet Coral'



Pro Cut 'Red Lemon'

Smith
Gold

This trial was the year of the snapdragon with 22 cultivars submitted from three companies. Snapdragons have traditionally not done well in the trial program because they generally should be planted earlier than we can get the seed from the suppliers and out to the growers. However, that did not appear to be a problem this year as a number of the cultivars did very well. The Opus series from Goldsmith, in particular, received high marks from trialers. **‘Opus Plum Blossom’** and **‘Opus Yellow’** did well enough to be nominated for the ASCFG 2005 Cut Flower of the Year. Opus snapdragons produced 6 to 8 stems per plant and stem lengths averaged 22 to 28 inches long. Certainly snapdragons are most impressive when grown in the greenhouse or tunnel, but many of these cultivars produced wonderful cuts outdoors.

For a number of years Sakata has been working on campanulas. Most growers are familiar with their *Campanula medium* Champion series, which has become a staple greenhouse or tunnel cut flower. This year Sakata released *Campanula rapunculus* **‘Heavenly Blue’**. This cultivar produced sprays of small, pale purple, upright facing, bell-shaped flowers. Plants were productive, averaging 7 stems per plant and 23 inches long, with some folks getting up to 31 inch stems. Stems are thin but strong and easy to use in bouquets and arrangements. Vase life ranged from 7 to 14 days with the average being 11 days.

One of our old standby cut flowers, larkspur, received some attention this year. American Takii took the larkspur in a different direction with their **‘Chorus Violet’**, the first spray type larkspur. It produced numerous stems topped with small purple flowers. Stems averaged 27 inches long with a vase life of more than 10 days. Our plants showed a variety of plant habits but this could be remedied by pinching plants when young. Kieft submitted **Larkspur ‘Sydney Lilac’** as part of their series bred for greenhouse or tunnel production. Several trialers used ‘Sydney Lilac’ in tunnels with great results. Stem length averaged 25 inches, a bit short for larkspur – however, some folks had stems 39 inches tall, showing the potential for this cultivar. The **‘Super Single Imperial Orchid’ larkspur** from Gloeckner also did well. Trialers loved the beautiful color and one person noted that it flowered well into summer. Stem length averaged 23 inches.

Benary has expanded the colors available in its very productive *Zinnia Oklahoma* series. **‘Carmine’**, **‘Yellow’** and **‘Ivory’** were tested in the trials and received high marks for productivity, over 12 stems per plant, good stem length, and high degree of doubleness. The color of ‘Oklahoma Carmine’ also received a lot of attention.

Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year competition. The rankings are based on the combined ratings score: market appreciation (average of wholesale, florist, and consumer) + repeat again + ease of cultivation for those cultivars where more than three trialers responded. Thus, from the 2004 trials *Campanula* **‘Heavenly Blue’**, *Digitalis* **‘Camelot Cream’** and **‘Camelot Lavender’**, *Snapdragon* **‘Opus Plum Blossom’** and **‘Opus Yellow’**, and *Sunflower*

‘Double Quick’ and **‘Pro Cut Lemon’** are nominated as Cut Flowers of the Year and will join other nominations from ASCFG members. Seven cultivars were nominated this year because of a three-way tie. Experimental varieties are eligible for nomination if they are named and released.



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. For example, with annual asters some people harvest the entire plant as one bunch while others harvest each individual flowering branch, giving very different stem lengths and yield data. After looking at the average, check the range of responses listed below each number to see how the cultivar performed at its best and its worst. If the range of responses in the ratings is narrow and high, i.e., 3-5 or 4-5, the plant was a winner for most of the respondents and is likely to do well for you. The ‘Repeat Again Rating’ is particularly important because it indicates if the trialer would take the time, money, and space to actually grow the cultivar again. Review the trial results carefully. If a 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. I would also like to thank Betty Coleman for laboriously typing in everyone’s comments, Ingram McCall and Diane Mays for taking care of the North Carolina State University portion of the trials, Ingram McCall for data entry, and Leslie Tichner, Aliya Donnell, Brad Holland, and Tim Ketchie for assisting with the NCSU trials. 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. Also, in a few cases we could not determine what was written.

Participating Seed Companies

American Takii
301 Natividad Rd.
Salinas, CA 93906

Fred C. Gloeckner
600 Mamaroneck Ave.
Harrison, NY 10528-1613

Kieft Seed
P.O. Box 618
Conway, WA 98238

Sakata Seed America
18095 Serene Drive
Morgan Hill, CA 95037

Benary Seed
1444 Larson St.
Sycamore, IL 60178

Goldsmith Seeds
P.O. Box 1349
Gilroy CA 95021

PanAmerican Seed
P.O. Box 438
West Chicago, IL 60186

SeedSense Ltd.
The Tithe Barn,
Mundesley Rd.
Trunch, Norfolk
HR28 0QB, England

Participating Growers

Sarah Anderson
Honeydale Farm Flowers
Skandia, MI

Doug Croft
Chanticleer Gardens
Wayne, PA

Laurie Hodges
Dept. Agronomy
and Horticulture
Lincoln, NE

Carolyn Ramsbotham
Riverview Farm
Madbury, NH

Janet Bachmann
Riverbend Gardens
Fayetteville, AR

Polly Creech
Polly's Flower Farm
Albany, OH

Cathy Jones
Perry-winkle Farm
Chapel Hill, NC

Reita Rea
The River Farm
Pollocksville, NC

Keith Baldwin
NC A&T State University
Greensboro, NC

Phyllis Dail
Dail Family Farms, Inc.
Snow Hill, NC

Sharon Hampton
Pan American Seed
Santa Paula, CA

Beryl Roberts
SC Specialty Cut Flowers
Lexington, SC

Christof Bernau
UCSC Farm & Garden
Santa Cruz, CA

Connie Dam-Byl
William Dam Seed, Ltd.
Dundas, Ontario

Judy Low
Molino Creek Farm
Davenport, CA

Brenda Smith
Smith & Smith Farms
Dayton, NV

Mark Bridgen
Cornell University
Long Island Horticulture
Research & Extension Center
Riverhead, NY

Chas and Linda Gill
Kennebec Flower Farm
and Nursery
Bowdoinham, ME

Jim and Linda Mercer
Sheepscot Flower Farm
Newcastle, ME

Vicki Stamback
Bear Creek Farms
Stillwater, OK

Sybil and Gary Calder
Sunrise to Sunset Gardens
Clayton, NC

Peg Godwin
North Carolina
Cooperative Extension
Kinston, NC

Peter Mitchell
Flora Pacifica
Brookings, OR

Rodger Tschanz
University of Guelph
Guelph, ON

Leon Carrier
Plant Masters
Gaithersburg, MD

Jeff Hartenfeld
Hart Farm
Solsberry, IN

Ruth Moore
Heritage Farm
Middlebourne, WV

Christina Wager
Christie's Plantmart
& Greenhouse
Coronation, AB

Linda Chapman-Dale
Harvest Moon Farm
Spencer, IN

Ann Boutreis, WAB Farm &
Charles P. (Chazz) Hesselein
Extension Horticulturist

Suzy Neessen
The Flower Farm
Cedar Falls, IA

Cheryl Wagner
Wagner's Homestead Farms
Belleville, MI

Maureen Charde
High Meadow Flower Farm
Warwick, NY

Alabama Cooperative
Extension System
Mobile, AL

Ingram McCall
Diane Mays
John Dole
North Carolina State
University
Raleigh, NC

Warren Brothers
The Brothers Farm, Inc.
LaGrange, NC

Dianne Cousins
Texas Sown and Grown
Richmond, TX

Betsy Hitt
Peregrine Farms
Graham, NC

Susan O'Connell
Fertile Crescent Farm
Hardwick, VT

Chris Wien
Dept. of Horticulture
Cornell University
Ithaca, NY

2004 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	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ^o		Repeat again rating ^o	Ease of cultivation rating ^o	Average spacing (in. ² /plant)	Average postharvest life
			Whole.	Retail				
American Takii								
<i>Brassica</i> 'Rose Crane'	1.0 2-5	19.8 16-76	4.0 4	-	4.5 4-5	3.5 1-5	121 60-216	8.0 8
<i>Consolida</i> 'Chorus Violet'	3.5 1-10	27.3 20-36	1.0 1	2.7 1-4	3.0 1-5	3.6 2-5	31 25-36	10.5 10-11
Ernst Benary								
<i>Lobelia</i> 'Fan Blue'	6.4 1-18	16.2 9-29	3.0 3	4.0 3-5	4.2 3-5	4.3 3-5	101 25-192	7.8 5-11
<i>Melilotis nerviglutinis</i> 'Savannah'	18.7 1-112	20.5 14-28	3.7 1-5	3.0 1-5	2.9 1-5	4.2 1-5	113 36-216	13.7 10-20
<i>Zinnia</i> 'Benary's Giant Lime'	8.7 2-25	18.3 9-26	3.3 3-4	3.3 2-4	3.5 2-5	4.2 2-5	107 36-192	7.2 6-10
<i>Zinnia</i> 'Oklahoma Carmine'	12.5 4-35	16.5 9-23	3.0 2-4	4.0 3-5	3.8 2-5	4.5 4-5	113 36-144	8.1 5-18
<i>Zinnia</i> 'Oklahoma Ivory'	14.6 4-40	16.4 12-24	2.5 1-4	3.0 2-4	3.4 1-5	4.4 4-5	106 25-144	7.6 5-10
<i>Zinnia</i> 'Oklahoma Yellow'	12.8 1-40	16.2 12-24	2.8 2-4	3.1 2-4	3.6 1-5	4.2 2-5	97 36-192	8.4 5-22
Fred C. Gloeckner								
<i>Antirrhinum</i> 'Exquisite Snow White'	4.0 1-6	22.1 15-40	-	-	3.0 1-4	4.0 4	104 9-120	8.0 8
<i>Antirrhinum</i> 'Glorious Coral'	8.6 1-17	24.0 13-42	4 4	4 4	4.6 4-5	4.4 4-5	110 9-144	7.0 7
<i>Antirrhinum</i> 'Glorious Dark Orange'	10.3 1-22	25.3 13-42	5 5	5 5	4 2-5	4 3-5	99 9-144	7.0 7
<i>Antirrhinum</i> 'Glorious Dark Red'	10.8 1-14	23.9 17-42	-	-	4.0 3-5	3.8 3-4	99 9-144	8.0 7-9
<i>Antirrhinum</i> 'Glorious Pearl White'	7.8 1-14	23.7 17-38	-	-	3.8 2-5	3.8 2-5	122 9-192	7.0 7
<i>Antirrhinum</i> 'Glorious Violet' ²	10.3 1-22	24.3 13-41	5 5	5 5	4.3 3-5	4.3 3-5	77 9-144	7.0 7

Cultivar	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ^o Whole. Retail	Consumer rating ^o	Repeat again rating ^o	Ease of cultivation rating ^o	Average spacing (in. ² /plant)	Average postharvest life
<i>Antirrhinum</i> 'Supreme Golden Yellow'	60 1-16	29.0 21-35	-	3.0 2-4	4.0 3-5	4.0 4	99 9-144	-
<i>Antirrhinum</i> 'Supreme Light Lavender'	45 1-10	23.0 15-37	-	4.0 3-5	3.8 3-5	4.3 4-5	101 9-144	7.0 7
<i>Antirrhinum</i> 'Supreme Violet' ²	82 1-18	25.0 12-44	4.0 4	4.5 4-5	4.0 3-5	4.7 4-5	77 9-144	7.0 7
<i>Antirrhinum</i> 'Supreme Wine Red' ²	11.0 1-22	28.0 20-44	-	4.5 4-5	4.3 4-5	4.3 4-5	99 9-144	7.0 7
<i>Antirrhinum</i> 'Premier Appleblossom'	72 7-8	17.1 11-24	3.0 3	4.0 3-5	3.3 1-5	4.3 3-5	122 9-144	7.0 7
<i>Carthamus</i> 'Superior Orange'	1.4 1-3	24.0 17-36	3.0 3	3.0 1-5	2.6 1-5	3.0 1-5	98 18-192	-
<i>Consolida</i> 'Super Single Imperial Orchid'	54 1-10	22.5 17-30	4.0 4	3.7 3-5	3.8 3-5	3.8 3-5	61 18-144	8.5 7-10
<i>Matthiola</i> 'Prouesse' Mix	1.2 1-3	16.8 8-29	3.5 3-4	2.7 1-4	1.3 1-2	3.3 1-5	79 36-144	7.0 7
Goldsmith								
<i>Antirrhinum</i> 'Opus Apple Blossom'	83 1-18	27.0 15-52	4.5 4-5	4.5 4-5	4.0 3-5	4.0 3-5	78 9-144	6.0 5-7
<i>Antirrhinum</i> 'Opus Early Bronze'	58 1-11	24.5 12-46	3.5 3-4	3.0 3	3.0 3	4.0 3-5	78 9-144	6 5-7
<i>Antirrhinum</i> 'Opus Early White'	6.0 1-12	22.6 14-41	4.5 4-5	3.5 2-5	3.3 1-5	4.0 3-5	103 9-144	6.3 5-7
<i>Antirrhinum</i> 'Opus Ivory'	78 1-18	23.5 12-42	3.5 3-4	3.5 3-4	3.0 1-4	4.0 3-5	78 9-144	6 5-7
<i>Antirrhinum</i> 'Opus Lavender'	7.8 1-14	23.3 13-45	4.0 4	3.3 2-4	2.8 1-4	4.0 3-5	95 9-144	6.3 5-7
<i>Antirrhinum</i> 'Opus Pink Improved'	7.6 1-16	24.6 14-48	3.5 3-4	3.8 3-4	3.3 1-4	4.0 3-5	104 9-144	6.3 5-7
<i>Antirrhinum</i> 'Opus Plum Blossom'	7.0 1-17	23.7 13-47	4.5 4-5	5.0 5	4.5 3-5	4.2 3-5	85 9-144	6.8 5-8
<i>Antirrhinum</i> 'Opus Rose'	5.8 1-16	25.4 13-46	4.0 4	4.4 4-5	4.0 3-5	4.0 3-5	108 9-144	7.4 5-12
<i>Antirrhinum</i> 'Opus White'	6.0 1-10	21.7 11-37	4.0 4	3.5 3-4	3.0 2-4	3.5 3-4	95 9-144	6.0 5-7
<i>Antirrhinum</i> 'Opus Yellow'	7.1 1-16	23.4 15-35	4.5 4-5	4.5 4-5	4.3 3-5	4.3 3-5	95 9-144	7.7 5-12

Cultivar	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ^o Whole. Retail	Consumer rating ^o	Repeat again rating ^o	Ease of cultivation rating ^o	Average spacing (in. ² /plant)	Average postharvest life
<i>Digitalis</i> 'Camelot Cream'	52 1-17	21.8 13-40	4.0 4	5.0 5	4.1 2-5	4.3 2-5	4.6 4.5	7.3 7-9
<i>Digitalis</i> 'Camelot Lavender'	53 1-20	19.6 9-40	3.7 3-4	4.5 3-5	4.1 2-5	4.5 3-5	107 36-192	8.6 5-15
<i>Digitalis</i> 'Camelot Rose'	38 1-7	19.5 9-40	3.8 3-4	4.0 3-5	3.9 3-5	3.8 1-5	89 36-144	7.2 5-10
<i>Digitalis</i> 'Camelot White'	49 1-12	22.4 14-40	4.0 4	4.7 4-5	3.8 2-5	3.9 1-5	112 36-144	6.3 5-7
<i>Eustoma</i> 'Cinderella Blue'	24 1-5	19.5 13-36	3.0 3	3.5 3-4	4.3 3-5	3.8 3-5	52 4-144	10.8 7-14
<i>Eustoma</i> 'Twinkle Blue'	24 1-5	15.2 11-28	3.0 3	3.0 1-4	3.6 2-5	2.6 1-4	51 4-144	9.8 5-17
<i>Eustoma</i> 'Twinkle Blue Blush'	23 1-6	16.6 11-27	4.0 4	3.7 3-4	4.0 3-5	3.5 2-5	45 4-144	12.0 7-17
<i>Eustoma</i> 'Twinkle Pink'	26 1-5	14.9 11-19	-	4.0 4	4.1 3-5	3.9 3-5	70 24-144	11.6 7-15
Kieft Seeds								
<i>Amni visnaga</i> 'Casablanca'	12.6 3-40	23.7 13-42	3.0 3	3.5 3-4	3.0 1-4	2.9 1-4	100 16-192	9.8 5-15
<i>Celosia</i> 'Bombay Flora'	3.1 1-11	20.1 14-24	3.0 2-4	3.8 2-5	3.6 1-5	3.3 1-5	93 20-144	7.9 5-10
<i>Consolida</i> 'Sidney Lilac'	4.2 1-15	25.3 14-39	4.0 4	3.3 2-4	4.0 2-5	3.6 1-5	44 16-120	10.4 7-21
PanAmerican								
<i>Antirrhinum</i> 'Experimental Potomac Early Lavender'	7.0 1-15	23.6 18-32	4.0 4	-	3.5 3-4	3.3 2-5	91 32-144	6.0 5-7
<i>Dianthus</i> 'Sweet Coral'	5.9 2-12	15.2 8-28	4.0 4	4.6 4-5	3.9 2-5	3.7 1-5	97 36-216	10.0 7-16
<i>Dianthus</i> 'Sweet Purple'	5.8 1-10	15.1 6-28	3.3 2-4	3.6 2-5	3.6 2-5	3.5 1-5	87 36-144	9.0 7-14
<i>Dianthus</i> 'Sweet Red'	5.5 1-10	15.2 6-28	3.4 2-4	3.6 2-5	3.6 2-5	3.5 1-5	91 36-192	9.1 7-16
<i>Dianthus</i> 'Sweet White'	4.5 1-8	14.8 8-28	3.5 3-4	4.3 3-5	3.4 1-5	3.4 1-5	106 16-216	8.4 7-11

Cultivar	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ^① Whole. Retail	Consumer	Repeat again rating ^②	Ease of cultivation rating ^③	Average spacing (in. ² /plant)	Average postharvest life
<i>Matthiola</i> 'Aida Blueberry'	0.9 0-1	15.9 8-24	4.0 4	3.3 1-5	4.0 2-5	3.5 1-5	54 36-144	8.5 6-15
<i>Matthiola</i> 'Aida Plum Light'	0.9 0-1	16.1 8-24	4.0 4	3.5 1-5	4.0 2-5	3.7 1-5	70 36-192	9.0 6-15
<i>Matricaria</i> 'Magic Lime Green'	6.9 3-17	13.5 7-18	3.3 2-5	3.5 2-5	4.0 2-5	4.2 3-5	162 36-360	9.4 7-20
<i>Matricaria</i> 'Magic White'	6.6 4-11	17.5 7-28	3.7 3-4	3.2 2-4	3.4 2-5	3.4 2-5	131 36-360	8.4 7-15
<i>Matricaria</i> 'Magic Yellow'	5.0 1-11	14.9 7-22	3.3 3	3.0 2-4	3.7 3-5	3.4 1-5	101 36-360	7.9 7-12
Sakata Seed America								
<i>Campanula rapunculus</i> 'Heavenly Blue'	6.8 1-14	22.5 18-31	3.7 3-4	4.3 4-5	4.3 3-5	4.3 3-5	57 36-108	11.4 7-14
SeedSense Ltd.								
<i>Helianthus</i> 'Double Quick'	2.0 1-10	38.5 12-52	4.5 4-5	3.3 2-4	4.0 3-5	4.4 2-5	98 18-144	9.1 2-11
<i>Helianthus</i> 'ProCut Bicolor'	1.0 1	41.7 24-60	3.5 3-4	4.3 3-5	3.8 2-5	4.4 2-5	87 18-144	7.7 4-12
<i>Helianthus</i> 'ProCut Lemon'	1.3 1-5	33.3 12-60	4.3 4-5	4.3 4-5	4.0 2-5	3.9 2-5	110 18-192	8.5 5-11
<i>Helianthus</i> 'ProCut Orange'	1.3 1-5	37.4 12-60	3.7 3-4	4.0 3-5	4.0 2-5	4.0 2-5	92 18-180	9.6 5-15

① 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesaler (Whole.), retailers, or final consumers direct.
 ② Ratings for this species should be viewed with caution as only one to three participants had enough information to provide ratings.

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.

American Takii

Brassica ‘Rose Crane’

Good qualities: Great for fall, especially after frost has killed summer flowers; Stem length looks good already in the field, color is good but not that much different from ‘Red Crane’, no detectable differences at this time in head shape or color, we try to schedule to harvest cabbages after Oct. 31 for the Thanksgiving market, florists in our area are just now getting used to using cabbages, some florists love them, others don’t; Nice color in the few plants that looks well; Never having grown the flowering kales as cuts, this was an interesting and unique addition to our array of flowers; Easy to grow; good for those “different” kinds of flower arrangements, good for fall holiday arrangements, also edible!

Problems: Some heads too big to use, maybe because of our spacing; Gets same pests as regular cabbages, must use strong netting and pots, stripping leaves, this year we’ve had problems with harlequin beetle on cabbages, also aphids, which we never have had in previous 4 years of growing ornamental cabbage, biological control and Dipel (BT) has worked well, had to use Sevin for the harlequin beetles; Transplanted as robust seedlings, but few plants established well once in the garden, heavy feeding by caterpillars; Lots of aphids, sometimes difficult to work into our mixed - cottage garden style bouquets because of size; We are in USDA Zone 7 so the kale did not achieve full color until November when the weather got cool enough, thick stems may cause difficulty in floral foams.

Postharvest: Without any treatment.

Additional comments: Similar to ‘Red Crane’ (3) and other cultivars; We have not yet harvested this one, but it is looking good in the field, next year I would like to try this as a spring crop as all of the cole crops do well in our marine climate (Zone 9); Flowering kale draws comments from delighted gardeners because of its novelty; Excellent specimen for large, specialty arrangements; There is limited demand for this crop, plants should have been spaced closer (6 inches) to obtain smaller ‘flower’ heads on longer, thinner stems.



Consolida ‘Chorus Violet’

Good qualities: Nice color (3); Different from other larkspurs, florists liked the open airy appearance, interesting dried flower; New growth form, terminal floret opens first, then terminals on branches, a good filler in vase; ‘Chorus Violet’ was much different than any other larkspur I’ve grown, but sparse flowers, uncertain about postharvest, didn’t seem to hold up as well as other larkspurs, and buds didn’t open.

Problems: Many stems were not spray type; No problems, very similar to other larkspurs in cultural habits; Not sure when to harvest or how many florets should be open for best vase life; It is just too sparse, 1 flower on top not great; Low germination rate.

Additional comments: I failed to realize that a spray larkspur should be pinched, so I got tall stems with a single flower, still sounds like a great cut, I look forward to trying it again; Most likely we will grow this one next year; Postharvest time trials are needed.

Ernst Benary

Lobelia ‘Fan Blue’

Good qualities: Beautiful blue/purple color (7); Nice spike/type flowers; Good filler or by itself; Long flowering period; Hard color to find in the September garden; Great late bloom with positive customer response; Wildflower look; My customers loved it, I sold it all, it’s mulched so hopefully will come back; Color very useful in flower arrangements, stem are same length on every plant, very uniform; Nice color for accents within an arrangement, continuous flowering, no pest problems; This color is superb, customers at our farmers’ market grab anything this color, had only one really

“This color (of ‘Fan Blue’) is superb, customers at our farmers’ market grab anything this color.”

good cutting from plants, (side shoots weren’t long enough for good cuts), hope this overwinters and has more and longer

flower stalks next year, no support netting needed.

Problems: May not winter over, plan to mulch for the winter; Didn’t flower till early October/late September which often could be frost (Zone 5); Sap runs when leaves are removed, perhaps it needs to be grown in greenhouse, because our blooms were damaged by bugs or lawn mower clippings; Side shoots weren’t long enough for good cuts, the seeds were tiny and the plants took weeks and weeks to grow, finally set out clumps of tiny plants without separating them and they took off and did fine.

Postharvest recommendations: Tended to wilt, so had to pick and condition in the cooler quickly. *Editor’s note: see separate postharvest article in this issue for more information.*

Additional comments: Sowed in greenhouse 2/3/04, transplanted to 128 cell tray, harvest period 8/14 to 8/30/04 (Zone 4-5). This color (of ‘Fan Blue’) is superb, customers

Melinis nerviglumis 'Savannah'

Good qualities: Nice pink/purple color (8); Small size for bouquets, interesting addition to arrangements; Good filler; Pretty plumes; Very easy, nice looking, retained color even when dried; Great look, great for fall bouquet work, nice foliage; I am always looking for fall arrangement items and it looked like this grass might work but it was too little too late; Produces millions of stems, but the stems just aren't very strong, thus my customers will go for the bigger, stronger-stemmed grasses first, it is so easy to grow, it might be a better landscape grass; Full blooms, larger than expected, they shimmer a metallic pink in the light, plants are tidy and healthy looking all season; They are so soft, we had no pest problems, and we are still harvesting after frost; Plants were a nice clump of grass, it may have potential as grown in pots for the cut flower industry, also, easy to sow and grow, we simply seeded it into plug trays and germinated it under a mist system.

Problems: Flower head too small (3); Short stems (2); Very late (2); Nothing distinctive about this one, it looks like 'lawn grass' – as it matured through the summer, it became a somewhat attractive plant in a 8 inch clay pot – I suspect it would be difficult to sell because of its 'lawn grass' appearance; I didn't have problems getting this grass germinated, I could not get it to grow in speedling trays, only ended up with 1 plant; Harvesting by hand can be tedious at times.

Postharvest: Pick the stems before the yellow anthers appear. However, if they are already on, if you run your hand down a bunch it seems to knock most of them off.

Additional comments: Attractive bedding plant (2); Plant-beautiful mound of green, perhaps better use in landscape gardening; Direct seeded in greenhouse on 2/3/04 in a 200 cell tray, 2 plants made it to the field, one grew; A plant worth waiting for; We bunched it in 24 stems/bunch and asked \$4 each, we had a lot of positive feedback on it at our field day, everyone was writing down the name on the tag.

Zinnia 'Benary's Giant Lime'

Good qualities: Unique color (9); Better than 'Envy' (3); Strong stem (3); Vigorous; Many more double blooms than 'Envy', nice big doubles;

More vigorous than 'Envy', but still a weaker, ugly plant; Popular at markets, people would ask for it; If you like this color, I guess it is a lime green, we just can't warm up to the color, extremely productive, however, we just could not use them in the bouquets, that is why we picked so few stems; Similar growth as other colors (i.e., not

Zinnia 'Benary's Giant Lime'



distinctively weaker), productive, mixed well with other zinnia colors in fall; Built good height as season went on; Medium-large flower; Not as many double blooms as expected, but I will continue to grow for the color, planted late, but still blooming Oct. 31, zone 6/7.

Problems: Many were not double (4); Not quite as large a flower as I expected, many had same flower head size as 'Envy', saw little difference between 'Envy' and this cultivar; No problems; This cultivar was in a shady spot and didn't do well - I would like to try it again next year; Not as durable as other colors in the series; Low yield; The edges of the petals turned brown very easily, just couldn't use this zinnia; "No" true lime green in color, intense pest problems, mildew; Still some unusable flowers, not really enough of an improvement from 'Envy' to warrant the extra cost; Seed germination was only approximately 50%; Plants susceptible to alternaria; Stems too short; Tended to turn brown if not picked immediately.

Postharvest: We use Hydraflor ½ hour, then Floralife, sometimes cool them at 37°F - not supposed to but they responded well; Water, morning cut, no cooler; Seems to be similar to other zinnias in vase life duration.

Additional comments: Similar to 'Envy' (3); Lime is better for strong stem; More productive and less mildew-susceptible than 'Envy' in tunnels; Flowers rarely looked as full, double or as nice as the promo pictures; These were everyone's favorite; Needs additional work in breeding, low germination; Sowed directly into a 128 cell tray on 4/16/04, harvested flowers beginning 7/7/04; People who buy bells of Ireland like it; I hope others are having better success with this one; It needs to be tried again in better conditions and better disease control, perhaps with a seed treatment.

Zinnia 'Oklahoma Carmine'

Good qualities: Rich color (10); High yield (4); OK hardiness; Very strong stems, Good; Nice stems; Way to go Benary Seed Co., my new favorite color of 'Oklahoma' Zinnia; Good doubleness, long strong stems; Good for bouquets; Mostly double flowers; given a better understanding of this little guy, we may be able to make money with it.

Problems: No particular problems; Powdery mildew - mid Aug. (Zone 5); Flower heads too small; Got powdery mildew faster than the other colors; Some variation in color among 12 plants; Very irregular in flower head size; Customers prefer large zinnias; Small, branching flowers and stems; Bad powdery mildew.

Postharvest: *Editor's note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to other Benary zinnias; My customers also loved this one – They always bought it all!; The addition of these 3 colors makes the 'Oklahoma' Mix more complete; Most of the test was spent trying to figure out how to handle this compared to bigger zinnias with longer stems – by the time we figured out how, when and

where to cut, they were fizzled; Will not plant again, takes too long to harvest – flowers, some single, some double.

Zinnia ‘Oklahoma Ivory’

Good qualities: Wonderful cream color (6); High yield (4); Strong stiff long stems, long production period; Very strong stems, Pure white zinnias often look “dirty” but this color was always crisp - I loved using it in mixed bouquets; Nice to brighten bouquets; Good doubleness, even color throughout plants, not too much trouble with brown spots for a light color; Transplanted easily as plugs and grew quickly to fill voids; Another good color, warm white to warm ivory that mixes well in bouquets, smaller flowers, but more consistently double; Mostly double flowers, given a better understanding of this little guy, we may be able to make money with it.

Problems: Powdery mildew (3); No special problems (2); Flower heads too small; The color was not all that exciting and was rarely chosen by the consumer; Cut flowers discolored very quickly, also the same for uncut ones; Multi-branching made it difficult to cut for less experienced cutters; Small, branching flowers and stems.

Postharvest: Hydraflor then Floralife; I placed an assortment of the ‘Oklahoma’ zinnias in plain water – they looked good for 9 days, house was air conditioned.

Additional comments: Similar to other Benary zinnias; Will definitely plant again; Healthy plants in a year of disease-producing weather; This made a gorgeous landscape plant; Flower diameter was 1.2 to 2.6 inches wide; Most of the test was spent trying to figure out how to handle this compared to bigger zinnias with longer stems – by the time we figured out how, when and where to cut, they were fizzled; Will not plant again, takes too long to harvest; flowers, some single, some double.

Zinnia ‘Oklahoma Yellow’

Good qualities: Great bright color (11); Very productive (5); Strong stems (2); Long stems, tight flower heads, long production period (8 weeks so far); OK hardiness; Nice double flower; Good uniformity; Did not begin to pick all the potential stems because when our ‘Benary Giants’ started to produce, we stopped picking; Impressively pest resistant compared with other zinnias, most saleable stems by color, nice formation; Good doubleness, more useful than ‘Oklahoma Gold’; Fully double small flowers; Canadians are not great zinnia lovers in fresh, great as yard plant; A nice yellow to go with the ‘Envy’ and ‘Benary’s Giant White’, provided a subtle range of soft colors; Mostly double

flowers; given a better understanding of this little guy, we may be able to make money with it.

Problems: Powdery mildew (3); Flower size too small (2); No problems (2); We did not like this particular yellow color in our mixed bouquets – it just didn’t seem the right yellow; Outdoors there were many short stems of limited marketability; Multi branching made it difficult to cut for

less experienced cutters; Variable stem length even with early pinching; Small, branching flowers and stems.

Postharvest: Hydraflor, Floralife; Water only, no cooler, morning cutting; Needs work.

Editor’s note: see separate postharvest article in this issue for more information.

Additional comments: Similar to other Benary zinnias; Will definitely plant again; Sowed directly into a 128 cell tray in greenhouse on 4/16/04, harvest period from 7/8 to 7/19/04 though could have gone much longer; Very impressed with this flower; Healthy plants in a year of

disease-producing weather; This made a gorgeous landscape plant; Most of the test was spent trying to figure out how to handle this compared to bigger zinnias with longer stems – by the time we figured out how, when and where to cut, they were fizzled; Will not plant again, takes too long to harvest; flowers, some single, some double.



Zinnia ‘Oklahoma Yellow’

Fred C. Gloeckner

Antirrhinum ‘Exquisite Snow White’

Good qualities: Large flower; Nice, clean white, good stem strength.

Problems: Late to bloom - I still prefer ‘Rocket’ white; Spike a bit short; Some insects, common for us, especially into summer, showed up on the later harvested stems.

Additional comments: Similar to ‘Rocket White’, but ‘Snow White’ was “purer”; Did not produce a strong second flush; We pinch our snaps to get multiple stems.

Antirrhinum ‘Glorious Coral’

Good qualities: Great color (4); Very strong ‘pink’, another very vibrant shade; Stem length; Good spike, very good stem; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), needs to be grown with support net.

Problems: Color shady; Florets are a bit widely spaced, flower spikes could be a bit fuller.

Postharvest: Re-trim stems, change water; Vase life 10 days or longer for me with no special treatment.

Antirrhinum ‘Glorious Dark Orange’

Good qualities: Good rich bicolor (3); All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), needs to be grown with support net.

Problems: Color a bit shady, more variable than other ‘Glorious’ colors; Needs staking, one thin tall flower per plant, plants fell over in field; We planted this in an unheated hoophouse in mid-March, an unexpected 2-night freeze killed the seedlings (Zone 5).

Postharvest: Vase life 10 days or longer for me with no special treatment,

Additional comments: Would grow again; Did not cut.

Antirrhinum

‘Glorious Dark Red’

Good qualities: Nice bold color (2); Left plants in the garden and was able to harvest in the fall; Stem length; Good spike.

Problems: Short; We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Not an intense red, coppery red - lower petals often with gold color bleeding through; Somewhat weak stems relative to the white and yellow.

Postharvest; Placed in water in air conditioned house - no floral conditioners.

Additional comments: Color similar to ‘DK Red Rocket’, but taller; I did not see any characteristics of any of these that would make them superior to the Potomac series.

Antirrhinum ‘Glorious Pearl White’

Good qualities: Very short; Good spike and flower form; Strong, sturdy stems, ease of use in arrangements; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net.

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Not very uniform; Stems were not strong enough to stand up compared to other varieties we grow.

Additional comments: I did not see any characteristics of any of these that would make them superior to the Potomac series; Sowed in greenhouse 2/3/04, transplanted to 200 cell tray on 2/28/04, harvested period 6/30 to 7/13/04.

“‘Glorious Pearl White’ had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming October 31.”

Antirrhinum ‘Glorious Violet’

Good qualities: Nice color (2); Long spike; Even brighter than ‘Supreme Violet’ (in this group of trial varieties).

Problems: Bit shady, thin stem; Florets (buds) are spaced a bit too wide, could be ‘fuller’.

Additional comments: Would grow again.

Antirrhinum ‘Supreme Golden Yellow’

Good qualities: Intense yellow, very hard, fat stem; After I stopped picking it, it continued to grow and bloomed again in Sept./Oct.

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; An unexpected freeze killed the seedlings shortly after transplanting (Zone 5).

Additional comments: I did not see any characteristics of any of these that would make them superior to the Potomac series.

Antirrhinum ‘Supreme Light Lavender’

Good qualities: Nice soft lavender color (3); Stem length and good second flush of stems; Early flowering, good stem for earliness; Prolific, early in tunnel, started harvesting May 28, straight stems, branched well; Outdoors: early (first harvest June 1) (Zone 5); All had fine fragrance, strong stems,

and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net; Great fragrance, easy to grow, multiple stems produced during flowering season.

Problems: In tunnel not as tall as ‘Rose’, but otherwise fine; Outdoors medium stem length, moderate productivity, although had second flush of stems late in season; Staking necessary to guarantee good quality flower stem.

Postharvest: Use floral preservatives for optimum cut flower life.

Additional comments: Similar to ‘Rocket’ and ‘Costa’ mix; Preferred Goldsmith’s ‘Lavender’ as the ‘Light Lavender’ color seemed to float away; Support wire was necessary; of all the cut flowers that we had in our trials, the snapdragons were the most well received by our visitors – not only this cultivar, but snaps in general due to their fragrance, sturdy stems, and great colors.

Antirrhinum ‘Supreme Violet’

Good qualities: Great color (2); Beefy stem, good height, similar color and quality as ‘Monaco Violet’.

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the

same time - early, these need to be planted quite a bit closer together than our equipment allows; Not quite as prolific as other snapdragons in this trial, plants slightly smaller, less prolific.

Additional comments: Similar to 'Monaco Violet'; I did not see any characteristics of any of these that would make them superior to the Potomac series.

Antirrhinum 'Supreme Wine Red'

Good qualities: Good color (2); Stem length; Good height; Outdoors, strong stems, tall.

Problems: Shady color, spike a bit open with a rubbery taper; Outdoors, should be supported to keep stems straight, 2 weeks later than 'Supreme Light Lavender'.

Additional comments: Outdoors it was less productive than 'Rocket', the latter had 10 stems/plant.

Antirrhinum 'Premier Appleblossom'

Good qualities: Nice color (2); Very nice; The flower edges did not burn, as we sometimes see on light colored snaps, good germination; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net, my favorite from this group, such a sweet color and fragrance.

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Quite a 'washed-out' looking bicolor, not particularly interesting; Stems were not that strong, wanted to lean though they were stronger than the white variety we trialed, but we like the color so much we used the stems anyway.

Additional comments: Similar to 'Opus Appleblossom'; I did not see any characteristics of any of these that would make them superior to the Potomac series; Sowed in greenhouse 2/3/04, transplanted to 200 cell tray, harvested between 6/14 to 7/12/04.

Carthamus 'Superior Orange'

Good qualities: Easy to grow, nice and tall; Germinated well, plants grew strong and healthy; Haven't grown Carthamus for a couple of years, but we really liked this one - I cut it all and dried it for use in our fall arrangements, it was very nice, we always need fall color and they did not break up when I arranged them dried.

Problems: Very poor performance in greenhouse, leggy, poor vigor, did not survive transplanting;

Not a consistent bloomer, very erratic, suffered from leaf scorch; Very poor quality, leaves turned yellow and brown, perhaps the soil pH?; Rabbits like carthamus - however, in spite of their nibbling the plants still produced acceptable side shoots; This one came on early and would be a better fall item for me, I should have waited to plant it; Buds set late (Zone 4), only a few flowers formed.

Additional comments: Similar to 'Grenade Orange'; I picked the entire stem at the base and then when I made the arrangements I broke the individual stems down, so actually had many more stems than ninety, these plants were extremely productive; My customers seem to like this flower better in the fall.

Consolida 'Super Single Imperial Orchid'

Good qualities: Vibrant color (3); Nice single flower on well-filled stems; Did well, comparable to other larkspur varieties, Consolida does better in our climate if planted in fall (Zone 6/7); Great stem length.

Problems: Had terrible time germinating larkspur this year, including this one, so had no plants to try; I should have seeded earlier; Low germination rate.

Additional comments: Couldn't distinguish it from 'Imperial Carmine'; Bloomed well into the summer.

Matthiola 'Prouesse' Mix

Good qualities: Wonderful colors (3) white, yellow, lavender, dusty pink, red.; Large size stems, strong stems.

Problems: Most never bloomed; Flowered over a period of time, best for home gardeners, branching shortens stem length, good for bouquets, sprays; Never got tall enough for anything but short bouquets, but still wonderful in those.

Postharvest: Stocks need to have water changed frequently, like almost every day to maximize vase life.

Goldsmith

Antirrhinum 'Opus Apple Blossom'

Good qualities: Very nice color (2); Bloomed early (with the earliest of the whites), good bi-color, strong contrast, extra strong second bloom; Strong stems with small leaves, easy to strip foliage; The pink eye seemed to brighten indoors, making it a color that people comment about.

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Individual snaps were tightly spaced and congregated at top 4 to 6 inches of stem, giving the 'spike' somewhat of a global appearance.

Additional comments: Similar to 'Potomac Apple Blossom' (similar height and timing) and to 'Rocket' snaps; I did not see any characteristics of any of these that would make them superior to the Potomac series; While this one has a nice color and strong stems, it does not have the length of floral spike as the 'Rockets' series performed well over the entire summer.

Antirrhinum 'Opus Early Bronze'

Good qualities: Strong color; More of a yellow-orange bicolor, 'Rocket Bronze' has a nicer tone.

Problems: Not liked; We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be

planted quite a bit closer together than our equipment allows; Spike too dense, short taper; Not a strong second bloom, less vigorous plants.

Additional comments: I did not see any characteristics of any of these that would make them superior to the Potomac series; Series performed well over the entire summer.

Antirrhinum 'Opus Early White'

Good qualities: Great length; Later than 'Snow White' - not so "early" - taller than 'Snow White'; Large flower, clean hard stem; This was the earliest of all, bright, clean white, good flower form; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net.

Problems: Short spike and taper.

Additional comments: Similar to 'White Rocket'; I prefer 'Rocket' - more prolific, though shorter stem length.

Antirrhinum 'Opus Ivory'

Good qualities: Best white; Short but full spike, showy, good flower; Pale yellow could be useful for some types of work (weddings).

Problems: We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; It's not very exciting, it just looks washed out.

Additional comments: I did not see any characteristics of any of these that would make them superior to the Potomac series.

Antirrhinum 'Opus Lavender'

Good qualities: Great color; Good flower form (shape), the color is 'okay' and would probably be welcomed for some applications.

Problems: Pale color (3), muddy; Color grainy or bleached under shade, best color in full sun?; Not a strong second cut.

Antirrhinum 'Opus Pink Improved'

Good qualities: Beautiful color (2); Good stem length (2); second flush produced many usable stems; Good stem; Color is uniform; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net.

Problems: Variable height; Okay pink but not really very strong, seems like there are stronger ones, just in this trial.

Additional comments: Series performed well over the entire summer.

Antirrhinum 'Opus Plum Blossom'

Good qualities: Great beautiful bicolor (4); Nice and tall - sturdy, straight stems. Fat spike, good stem, very showy; Best in the series, good flower shape, good high contrast colors, lots of customer appeal.

Problems: None; Not very tall, compared to other series, like 'Costa' or 'Spring Giant'.

Additional comments: After initial cut plant produced a great second flush (Zone 5), we even picked a bit in September from a third flush.



Antirrhinum 'Opus Rose'

Antirrhinum 'Opus Rose'

Good qualities: Absolutely gorgeous color (4); Tall and sturdy stem; Good flower form; Very strong stem, straight in the tunnel, well-filled inflorescence; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net; Great fragrance; easy to grow; Multiple stems produced during flowering season.

Problems: Short spike and taper; In tunnel flowered 16 days later than 'Light Lavender' or 'Rocket', needs support in more windy environment, no basal branches in the tunnel; Staking necessary to guarantee good quality flower stem.

Postharvest: Use floral preservatives for optimum cut flower life.

Additional comments: Bloomed later than other trial cultivars; Series performed

well over the entire summer; Produces more basal branches outdoors: Support wire was necessary; Of all the cut flowers that we had in our trials, the snapdragons were the most well received by our visitors, not only this cultivar, but snaps in general due to their fragrance, sturdy stems, and great colors.

Antirrhinum 'Opus White'

Good qualities: Crisp color; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net.

Problems: So-so; We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Short spike, short plant; One week later than 'Opus Early White', bit shorter, not as robust as others in the trials, flower form is a bit blunt.

Additional comments: I did not see any characteristics of any of these that would make them superior to the Potomac series; Series performed well over the entire summer.

Antirrhinum ‘Opus Yellow’

Good qualities: Good strong yellow (3); Almost a bicolor with the darker centers; Very uniform; Flower form is very full, almost too blunt in shape, but it is still quite pretty; Strong stems with small leaves, easy to strip foliage; Long sturdy stems, easy color to work with; All had fine fragrance, strong stems, and bloomed the entire summer from late July on, still blooming Oct. 31 and cutting 2 to 3 times/week in late Oct. (Zone 6/7), vase life 10 days or longer for me with no special treatment, needs to be grown with support net; Especially liked for the lemon yellow color that brought sparkle to mixed bouquets and went especially well with a new yellow ‘Karma’ dahlia.

Problems: Faded; We got these very late in very hot weather and stem length was a consistent problem, all bloomed about the same time - early, these need to be planted quite a bit closer together than our equipment allows; Short spike, short plant; Individual snaps were tightly spaced and congregated at top 4 to 6 inches of stem, giving the ‘spike’ somewhat of a global appearance.

Additional comments: Similar to ‘Rocket’ snaps; I did not see any characteristics of any of these that would make them superior to the Potomac series; While this one has a nice color and strong stems, it does not have the length of floral spike as the ‘Rockets’; Series performed well over the entire summer.

Digitalis ‘Camelot Cream’

Good qualities: Very nice color (3); Easy to grow (4); Short crop time (2); Soft color to add to range of first year flowering digitalis; Flowers on all sides of the stem, better than ‘Foxy’; Florets evenly spaced around the stem, not on one side as with most foxgloves, flowers first season and came into production after others were finished, long flowering period; Uniform, did very well; Strong healthy plants, grew quickly, all colors bloom at same time, unlike ‘Foxy’; In the tunnel, steady production of useable stems from early July to late fall (Zone 5), flowers in first year from seed, productive; Outside, attractive, productive through the summer and fall, until Oct. 25.

Problems: Spider mites, short stems; would be nice if florets were closer together, produced a number of spikes less than 12 inches, but these were useful in small bouquets; Bottom florets drop off; In the tunnel ‘Cream’ stems were the shortest of the 3 varieties tested, florets tend to fall off if stems handled roughly; Outside, flowers need to be handled carefully to prevent floret drop; Short flowering period.

Postharvest: We didn’t do any postharvest trials on this one but it seemed to hold really well; Remove bottom florets, or they will drop off on their own; In the tunnel, florets start to drop in 4 days in water, better retention in Aquaplus, minimal floret drop when ‘Retain’ (0.25 mM) and Aquaplus

combined in vase solution; Outside, flowers last about a week in water, but florets start dropping after about 5 days at room temperature; Preservative is definitely needed for longer vase life, remove lower leaves when placing in cut flower solution.

Additional comments: Similar to ‘Foxy Mix’ (2); *Digitalis* has naturalized in this area and can be seen in great abundance in cut-over areas; In the tunnel, ‘Camelot Cream’ is more productive than ‘Foxy’, 17 vs. 10 stems/plant; A good cut flower, we plan to grow this and other colors in this series, it will be interesting to see what it does next year; My customers used all the colors; ‘Camelot’ was strong from emergence onward, it was planted on plastic mulch and not irrigated, easy to grow, it is worth the added expense, it being at least 20 times more expensive than ‘Foxy’; Very unique cut flower, support was not necessary, *Digitalis* is a biennial – flower production per plant during the first year was not great, but acceptable for such an unusual cut flower – we have left these plants in the field for over winter. Will there be more flowers the second year?

Digitalis ‘Camelot Lavender’

Good qualities: Beautiful color (4); Short crop time (3); Range of colors in first year flowering digitalis; Easy, flowers on all sides of the stem, better than ‘Foxy’; Very uniform, big improvement over ‘Foxy’, larger, better, richer color than ‘Foxy’; Very pretty and unique flower in mixed arrangements, color went well with many flowers, liked the speckled look on the lower lip of the blooms, we never would have tried to grow a digitalis in our climate (Zone 4-5) if we had not been sent this seed, it was amazing, did very well; Easy to grow, uniform, did very well; Strong healthy plants, all colors bloom at same time, unlike ‘Foxy’; Great cut, rebloomed every week, farm market customers loved it, always sold out.

Problems: Too short (2); Failed because it is too hot here to plant digitalis in Spring, need to have these in ground in November; Spider mites; No problems; Lower flowers tended to shatter, some may want longer stems, but this what not a big problem for us, in the strongest heat of the summer (Zone 4-5), we did seem to get some tip burn on the blooms; Bottom florets drop off; blooming again now (Fall, Zone 7a); Some petal drop with more mature stems, shortening vase life, stem strength was sometimes weak.

Postharvest: This was the one weak point of this flower, it did need to be conditioned – if we picked and tried to arrange with it right after picking it wanted to wilt – lower blooms tended to shatter, we do not use floral preservative and this might have been helpful with this flower; We didn’t do any postharvest trials on this one but it seemed to hold really well; Remove bottom florets, or they will drop off on their own. *Editor’s note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to ‘Foxy’ (2); Sowed in the greenhouse 2/3/04, good germination, transplanted to 200 cell tray, harvest period 7/18 to 8/16/04; My customers used

all the colors; 'Camelot' was strong from emergence onward, it was planted on plastic mulch and not irrigated, easy to grow, it is worth the added expense, it being at least 20 times more expensive than 'Foxy'; A must for growing next year; Is this a perennial digitalis in mild Santa Cruz?

Digitalis 'Camelot Rose'

Good qualities: Rich color (7); Relatively short, would try again and try to push taller; Large heads, good branching; Short crop time; Stiff stems, first year flowering; Since these seeds were pelleted, no transplanting from seed tray was necessary, direct seeded to plug tray, great!; Very uniform, big improvement over 'Foxy', larger, better, richer color than 'Foxy'; Easy to grow, uniform, did very well; Strong healthy plants, grew quickly, all colors bloom at same time, unlike 'Foxy'; Difficult to transport flowers, difficult to use in arrangement.

Problems: Short (2); Spider mites; No problems; The humidity caused the flowers to wilt within ½ hour of displaying at farmers' market, very hard to condition for outdoor sales; Bottom florets drop off.

Postharvest: We didn't do any postharvest trials on this one but it seemed to hold really well; Remove bottom florets, or they will drop off on their own. *Editor's note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to 'Foxy' (2); No disease, no bugs until Japanese beetle started; My customers used all the colors; 'Camelot' was strong from emergence onward, it was planted on plastic mulch and not irrigated, easy to grow, it is worth the added expense, it being at least 20 times more expensive than 'Foxy'.

Digitalis 'Camelot White'

Good qualities: Great color (4); Easy to grow (3); Relatively short, would try again and try to push taller; Large heads, nice as single bouquets, great for weddings, good branching; Short crop time; Stiff stems, first year flowering; Since these seeds were pelleted, no transplanting from seed tray was necessary, direct seed to plug tray, great!; Uniform, did very well; Strong healthy plants, grew quickly, all colors bloom at same time, unlike 'Foxy'; In the tunnel, attractive appearance, steady production from early July until late fall (Zone 5), taller than 'Cream' but fewer stems; Attractive in the garden.

Problems: Failed - too hot - need to plant in November here; Short but planted late; Spider mites; Could not condition for outside sales (very hot in Aug.), the spots turned to brown as flowers mature; Bottom florets drop off; In the tunnel, fragile, similar to 'Cream'; Outside, flowers

need to be handled carefully to prevent floret drop; Difficult to use in arrangements, extra care required not to damage flowers, few flowers per plant; Short flowering period.

Postharvest: We didn't do any postharvest trials on this one but it seemed to hold really well; Remove bottom florets, or they will drop off on their own; In the tunnel, 10 days in Aquaplus, vase life comments same as for 'Cream'; Outside, flowers last about a week in water, but florets start dropping after about 5 days at room temperature; Preservative is definitely needed for longer vase life – remove lower leaves when placing in cut flower solution.

Additional comments: Similar to 'Foxy' (2); Tunnel: more productive than 'Foxy', 12 vs 10 stems/plant, stem length similar; No disease problems, no bugs until Japanese beetle started; My customers used all the colors; 'Camelot' was strong from emergence onward, it was planted on plastic mulch and not irrigated, easy to grow, it is worth the added expense, it being at least 20 times more expensive than 'Foxy'; Very unique cut flower; support was not necessary; Digitalis is a biennial. Flower production per plant during the first year was not great, but acceptable for such an unusual cut flower – we have left these plants in the field for over winter, will there be more flowers the second year? Our high tunnel research demonstrated longer flowering stems inside vs outside in full sun.

Eustoma 'Cinderella Blue'

Good qualities: Good blue color (5); Flower size good; Good height; Fat stems, large blooms; Strong stems; Good stem length in tunnels, relatively productive, early compared to 'Champagne', 16 days earlier; Good stem length outdoors, attractive double flowers, equivalent in earliness to 'Echo Champagne'; Consumers love this crop.

Problems: No problems; Poor double form, split petals, looks ragged; Seed came late, I think I would have done better with it if I had been able to get it out in the field earlier; All lisianthus had very slow germination and seedling growth; A very long crop to grow; temperature requirements for seedlings; staking necessary to guarantee good quality flower stem, short stem length.

Postharvest: Floralife; Sugar.

Additional comments: Similar to 'Balboa' (2) and 'Catalina Deep

Blue'; No disease problems; Support wire was necessary; this species was well received by our visitors, plants were not pinched when planted in the field.

Eustoma 'Twinkle Blue'

Good qualities: Excellent deep color (5); Good branching; Like all lisi, has good vase life; In the tunnel: single, most productive of the 5 varieties in the tunnel trial, early, 18 days



Eustoma 'Cinderella Blue'

earlier than ‘Echo Champagne’; Outdoors it was productive, along with ‘Twinkle Pink’, the earliest in this trial: first harvest on 7/20, vs 7/23 for ‘Cinderella Blue’ (Zone 5); Consumers love this crop.

Problems: No problems; People prefer doubles; Short for retail florist, good for sprays; Seeds came late, I think I would have done better with it if I had been able to get it out in the field earlier, would make better use of my space growing more doubles than this single; In the tunnel

it had the shortest stems in trial, and postharvest problems; Shortest variety in trial outdoors; A very long crop to grow; temperature requirements for seedlings; staking necessary to guarantee good quality flower stem; short stem length; I think I’d have better height growing another cultivar than ‘Twinkle’.

Postharvest: Sugar; In repeated informal trials on plants grown in tunnels, stems wilted in less than a week in water, but held up for 10 to 15 days in Aquaplus; As in the tunnel, this variety tends to wilt in less than one week in water, but holds up similarly to other varieties in Aquaplus (10 to 14 days).

Additional comments: Similar to ‘Ventura’, ‘Malibu’, or ‘Laguna’ series; I guess I would have to compare it to some of the other singles like ‘Malibu’, ‘Malibu’ has larger flowers, so I would probably go with ‘Malibu’; No disease problems; Support wire was necessary; this species was well received by our visitors; plants were not pinched when planted in the field.

Eustoma ‘Twinkle Blue Blush’

Good qualities: Beautiful color (4); More blush color than some other “blushes”, nice branching; High spray, many flowers, tall enough for retail cuts; Vase life is so long, some of my customers compared them to tulips; Mixes well with lots of other things.

Problems: No problems; People prefer doubles; Variable heights, not an important color for sales; Seed came late, I think I would have done better with it if I had been able to get it out in the field earlier; Didn’t get as tall as I’d like, even in the hoop house

Postharvest: Floralife; Sugar. *Editor’s note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to ‘Ventura Blue Blush’; I guess I would have to compare it to some of the other singles like ‘Malibu’, ‘Malibu’ has larger flowers, so I would probably go with ‘Malibu’. I would try it again.



Eustoma ‘Twinkle Blue Blush’

Eustoma ‘Twinkle Pink’

Good qualities: Soft shell pink color (7); Large flower, single to double flowers; Early in the tunnel - 20 days earlier than ‘Echo Champagne’; Outdoors: moderately tall; Consumers love this crop.

Problems: No problem, other than weeds(!); People prefer doubles; Short stems in the tunnel; Pale color, showed bruising, crinkled petals; A very long crop to grow; temperature requirements for seedlings, staking necessary to

guarantee good quality flower stem; short stem length.

Postharvest: Floralife. *Editor’s note: see separate postharvest article in this issue for more information.*

Additional comments: One of the best crops of lissies for our farm; Needs another look in the tunnel; Support wire was necessary; this species was well received by our visitors; plants were not pinched when planted in the field.

Kieft Seeds

Ammi visnaga ‘Casablanca’

Good qualities: Strong stems (2); Height; Highly productive; Long lasting; Beautiful architectural quality, cuttable at multiple stages once buds were well formed; Easy to grow, cut, process and almost sells itself.

Problems: Flowers shatter (2); Needs staking, some side shoots ‘melt-down’ if not mature on a stem, if at all old; Not the look we like for our bouquets, has a wildflower look; Did not like the umbels, they were too rounded, could not get them to work into our bouquets so we did not pick any stems, the stems were difficult to pick long enough; Did not germinate well at all, compared to Ammi ‘Snowflake’, which was next to it; at Oct. 20 there was only 1 plant with a bud (Zone 4), it had reached 15 inches in height; Plants were so heavy they fell over, customers thought they were wild Queen Anne’s lace; Second planting wiped out by aster yellows; no problems.

Postharvest: Hydraflor/Floralife.

Additional comments: Similar to Queen Anne’s lace, ‘Green Mist’, the unnamed species, or to most any ammi; Has a weedy look, grown in the past and did not like any better this time around; Sowed in greenhouse 2/3/04, transplanted to 200 cell tray, 69 plants grew to maturity; Learning how to best cut these would help; ammis in general are new to us, picked almost green, it’ll sell – probably best to pick when 1 to 3 actual flowers are open on the total inflorescence.

Celosia ‘Bombay Fiora’

Good qualities: Brilliant color (9); Good form; Easy, people loved it; Unfortunately we had hardly any blooms at all. Do all the heads have that pink-colored line along the top of the crest? If so, I do like that feature!; In the tunnel early flowering, strong stem, celosia is a good crop for early planting in a high tunnel in spring; Large comb size outdoors; ; Nice bloom size; Long lasting, heat tolerant.

Problems: 50% of plants were too short; So-so color, not very showy; Stems too thick to be useful - in mixed bouquets - okay sold as single stems, but not particularly interesting flower shape or color; Not the most vigorous plant I have ever grown but the color was so great that I will buy the seed despite its rather high price; We grow many different celosias and like them very much, however we consistently have problems with ‘Bombay’, the ‘Fiora’ was no different, I got approximately 20 plants to the field and none of these produced acceptable heads to pick, the color did look like it would be a good color though; Susceptible to 2, 4-D drift; Produces no side shoots in the tunnel, even when topped – growers say seed is expensive, and without branches to harvest over a long time, this variety, and the other colors, are not worth it; No side shoots outdoors, even when topped, expensive seed, when started as a plug, even shorter than when using larger cell, not adapted to field conditions; No problems until they fell over in rain and wind associated with hurricanes; No problems.

Postharvest: ‘Fiora’ also dries well, but don’t let it remain submerged in water, it gets brown and mushy; With past experience of celosia, don’t wait too long to harvest them, the little black seeds are a bother and shatter everywhere if they have already developed when the flower is cut; No special treatments.

Additional comments: Similar to other celosias species; In the tunnel, the Cramers’ lines are superior in suckering, but about 3 weeks later; Sowed direct into 128 cell tray on 4/16/04; In the tunnel the very early flowering means that growing conditions in the cell and just after transplanting must be excellent, with no checks in growth, otherwise the plants will stay short and not produce the stem length needed.

Consolida ‘Sidney Lilac’

Good qualities: Great color (7); Really long stems; Annual larkspur with excellent results; Tight floret, strong branching; Same growing habit as rest of series; In the tunnel, if main stem cut high, lower branches long enough to be useful in subsequent harvests; Strength; Did well, comparable to other larkspur varieties, consolida does better in our climate if planted in fall (Zone 6/7); Vigorous.

Problems: Low germination.(3); More susceptible to fungus, rots, diseases and plagues than any of my other larkspurs; Needed to be very well hydrated when cutting or

flopped; Didn’t grow great in summer heat and drought, imagine that!; Poor emergence in the tunnel when direct-seeded in bed, slow growing-harvest not possible until mid-July, lasted only for a month (Zone 5); Needed netting.

Postharvest: Water only, held in cooler.

Additional comments: Similar to ‘QIS Lilac’, but ‘Sydney Lilac’ is a richer color; Best larkspur we have ever grown; I have never had good success with *Delphinium consolida*.

PanAmerican

Antirrhinum ‘Experimental Potomac Early Lavender’

Good qualities: Lots of stems; Easy, nice colors, large “head”; Florets are close together so bloom looks full.

Problems: Muddy color; Color looks washed out, but it might blend well with darker purple flowers.

Additional comments: Similar to ‘Opus Lavender’.

Dianthus ‘Sweet Coral’

Good qualities: Unique color (9); Tolerated heat well, good fragrance; Problem free, grows under hot conditions, valuable addition to complement ‘Neon’; Still blooming in Sept. (although shorter stems), nice branching, color mixes

well with so many things; Easy, good for bouquets, nice dark foliage, quick to produce; Best color of the series; Initial spike was very strong with a

“We really liked the ‘Sweet Coral’ dianthus, especially since coral is predicted to be a popular color next year.”

globular shape-almost perfectly round, some old spice fragrance, very nice color—good OOOOH factor, strong growth; Also bloomed 2 weeks earlier than ‘Amazon Neon’; Germinated great; Great fragrance, we really liked the coral variety, especially since coral is predicted to be a popular color next year; Nice for variety of color within arrangements, early flowering, ease of bouquet; Very strong.

Problems: Too short (3); Petal color fades too quickly; Secondary stems a little weaker than the king flower, but still very good quality and not so tightly round as the initial spike; Blister beetles ravaged the flowers, picture is on www.hightunnels.org, Sevin controlled the beetles, had to spray twice in August; Plants lasted longer than dianthus ‘Sweet Red’, but still had problems with several plants rotting.

Postharvest: They were pretty easy to take care of, they do have a tendency to snap at the joints when I was handling them to strip leaves. *Editor’s note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to ‘Neon’ series (2) or other dianthus; Loved it!; Flowering without a chill requirement is a real plus, ‘Sweet Coral’ is a softer color than very bright ‘Neon Amazon’ series, that it resembles in growth habit; This one was my customers’ favorite.

Dianthus 'Sweet Purple'

Good qualities: Nice vibrant color (5); Good fragrance (3); Easy to grow (2); Much more appealing than the 'Amazon Neon Duo' series; Lasted long time in field and in cooler; Long vase life; Mix well in bouquets; Good for bouquets, nice dark foliage, quick to produce; Bloomed 2 weeks earlier than 'Amazon Neon', this purple is the same color as the 'Amazon Purple'; Germinated great; In the tunnel, 2 weeks earlier than Neon series, will produce a second flush of flowers in late Sept. through Oct. (Zone 5) but stems even shorter than, most productive of the dianthus in trial; Outside, early, productive, first harvest by June 23, flowers in year of sowing without cold treatment; Could be cut from bud to fully open for immediate use; Multiple stems produced during flowering season.

Problems: Too short (4); No problems; Planted too late - I think they would have done much better, if planted in fall; Blister beetles ravaged the flowers, picture is on www.hightunnels.org, Sevin controlled the beetles, had to spray twice in August; In the tunnel, thinner stems than Neon series; Stem length inconsistency; Many of the secondary stems are weak.

Postharvest: They were pretty easy to take care of, they do have a tendency to snap at the joints when I was handling them to strip leaves.

Additional comments: Looks like the same genetics as 'Neon Duo' which is good; Outside, this variety is 5.5 inches shorter than 'Amazon Purple', but 20 days earlier; Good cut flower; The tunnel grown available for July 2 sales; Support wire was necessary; *Dianthus barbatus* is a biennial – flower production per plant during the first year was very good; however, we have left these plants in the field over winter to determine if they will flower better the second year.

Dianthus 'Sweet Red'

Good qualities: Good, true red color (7); Early flowering (4); Easy to grow (2); Productive (2); No pests; Lasted long time in field and in cooler; Long lasting in a vase; In bloom for 4th July red/white/blue bouquets, large flowers; Good for bouquets, nice dark foliage; No problems; Very productive, however stopped picking because it seemed like the heat burned the flowers; Bloomed 2 weeks earlier than 'Amazon Neon'; Germinated great; Great fragrance; In the tunnel, produces a second flush in fall (Zone 5) but these have short stems; Outside, similar to 'Sweet Purple'; Ease of use in arrangements, long stems, easy harvest; I really liked the intensity and strength of this color, an excellent foil for softer colors; Fragrance, multiple stems produced during flowering season.

Problems: Too short (2); Somewhat spindly, side branches too thin for use, florets would look 1/3 gone (blackish) on flower head, while others were vivid red; No problems; Side shoots a lot shorter than center shoots in tunnel, 20 to 24 inch center flowers, sides 12-19-16 inches average, field grown most not harvested because the centers turned brown

before completely opened (very rainy summer); This one always had old flowers that deterred from the new ones; Didn't pick as many of these as we could have because the heat made the flowers look burnt (at least we assumed it was the heat); Blister beetles ravaged the flowers, picture is on www.hightunnels.org, Sevin controlled the beetles, had to spray twice in August; In the tunnel, flowered 2-4 days later than 'Sweet Purple,' but better stem length; Outside, stem length is better than 'Sweet Purple', but still not as good as 'Amazon'; Plants rotted in garden; Stem length variability; Secondary stems are sometimes weak.

Postharvest: Hydraflor /Floralife; They were pretty easy to take care of, they do have a tendency to snap at the joints when I was handling them to strip leaves. *Editor's note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to 'Amazon' (2), though quite a bit shorter and thinner; Looks like the same genetics as 'Neon Duo' which is good; Much preferable to 'Neon Duo' series, despite intensity of this red; Wouldn't grow again until it's longer and stronger stemmed; Good cut flower; The tunnel grown were available for red/white & blue bouquets for July 2 sales; Sowed 2/3/04 in greenhouse, transplanted to 128 cell, harvested from 6/25 to 7/2/04; Rotting problem might have been poor siting and planting too deep, would be interesting to try again; Support wire was necessary; *Dianthus barbatus* is a biennial – flower production per plant during the first year was very good, however, we have left these plants in the field over winter to determine if they will flower better the second year.

Dianthus 'Sweet White'

Good qualities: Great color (2); Easy to grow (2); Uniform growing habit, strong stems; Lasted long time in field and in cooler; Good for bouquets, nice dark foliage, quick to produce; Initial spike was very strong with a globular shape - almost perfectly round, nice old spice fragrance, strong growth; Very productive; Was started and planted in field the same time as 'Amazon Neon' dianthus and it bloomed 2 weeks earlier than 'Amazon', this was a nice clean white dianthus; Germinated great; Great fragrance; In the tunnel, early, similar to 'Sweet Purple', second flush in fall, but short (Zone 5), color nice contrast to others in series, and to 'Neon'; Outside, similar to other cultivars in the Sweet series in earliness and height and productivity, color unique to this series so far; Strong stems, doesn't need support net, nice compact clump of bright white flowers, no fragrance, I am hoping this overwinters and has more stems next year; Fragrance, multiple stems produced during flowering season.

Problems: Too short (2); Some mildew but did not treat; Secondary stems a little weaker than the king flower, but still very good quality and not so tightly round as the initial spike; They weren't as big and beefy as the 'Amazon Neon' but were still nice, not really a problem, just information; Blister beetles ravaged the flowers, picture is on www.hightunnels.org, Sevin controlled the beetles, had to

spray twice in August; Thin stems in the tunnel; Outside, height compared to 'Amazon'; Blossoms browned easily; Sometimes the flowers were pink rather than white; this cultivar was not as floriferous as red and purple; this cultivar had shorter stems than the red and purple cultivars; secondary stems are sometimes weak.

Postharvest: Did not use any postharvesting - cut into plain water; They were pretty easy to take care of, they do have a tendency to snap at the joints when I was handling them to strip leaves.

Additional comments: Looks like the same genetics as 'Neon Duo' which is good; Similar to other dianthus; Good cut flower; Flowering without a chill requirement is a real plus, white is always a good cut flower; Good germination, sowed in greenhouse 2/3/04, transplanted to 128 cells, harvest period from 6/30 to 7/14/04; I really liked (and so did my customers) all the colors in the Sweet series of dianthus; Support wire was necessary; *Dianthus barbatus* is a biennial; flower production per plant during the first year was very good; however, we have left these plants in the field over winter to determine if they will flower better the second year.

“*Matricaria* 'Magic Lime Green' really draws the eye though it is not lime green, more of a light, pretty yellow.”

Matthiola 'Aida Blueberry'

Good qualities: Good color (5); Strong stems (2); Easy to grow, liked this color over 'Aida Plum Light'; Excellent fragrance, especially the later planting, we loved it, another gorgeous cut.

Problems: Spikes had very few flowers; Never got tall enough to use for anything but short bouquets; I need to learn how to select for doubles; Laterals sometimes proceeded main stems.

Postharvest: Stocks need to have water changed frequently to prolong vase life; Bleach to prevent water clouding or delay.

Matthiola 'Aida Plum Light'

Good qualities: Beautiful color (8); Great fragrance (3); Strong stems (2); First field-grown stock we could use in our bouquets (stems longer than most field grown stock in our area); Best performing stock I have grown (Zone 5), I will grow stock again with this newly-restored faith in the plant; Eagerly snapped up by the first customer in the shop! Strong stems evenly covered by florets the full length of the stem, individual petals are smooth, not crinkled like so many other stocks; We had given up on growing *Matthiola*, but this variety has once again changed my mind and gives me hope; I have tried many varieties, we got pretty good stem length, and I thought an entirely acceptable number of doubles, we really like these for some of our first bouquets; Nice for an early crop; Easy to grow, customers like flowers with scent; A gorgeous cut overall.

Problems: Spikes had very few flowers; Never got tall enough for florists; No problems, have fall crop planted that is coming on well; Would like a longer harvest window, but

this could be a function of hotter climate (western U.S., Zone 4-5); A lot of effort for one stem; I need to learn how to select for doubles; Laterals sometimes came before main stem.

Postharvest: Stocks need to have water changed frequently to prolong vase life; Bleach to prevent water clouding or delay.

Additional comments: Similar to other stocks; Cuts available third week of June (early for field flowers in N.H.); We will certainly grow this one next year and want to try other colors in this series; Sowed in the greenhouse in 2/3/04, transplanted to 200 cell tray, good germination, harvest period from 6/22 to 6/29/04.

Matricaria 'Magic Lime Green'

Good qualities: Color was nice, stems marginally long enough - 12 inches, tight greenish flower heads; Strong stems, nice scent, nice green leaves, I really liked this flower in the three colors I trialed; Good; This is a very tall matricaria, very useful in mixed bouquets, good color, unusual lime/yellow; We had a cool wet spring and all matricaria were

substandard in performance; I will grow again and will be excited to see results, nice color alternative and great in bouquets; There were two flowers that people consistently stopped and asked the name of at our farmers' market - this matricaria and non other than gomphrena; for some reason, it really draws the eye though it is not lime green, more of a light, pretty yellow; Excellent filler for arrangements, robust plant requiring minimal cultivating or weeding, nice reflush of flowers after cutting back.

Problems: Needs staking, not very prolific - 2 to 3 stems/plant; No insect problems; While we like this flower, the name is misleading as it is not really lime green; I did not stake/net the plants, but I should have.

Postharvest: Hydraflor/Floralife; Cut into plain water.

Editor's note: see separate postharvest article in this issue for more information.

Additional comments: Going to try an overwintered crop for longer stems next season; Rabbit-and deer-free in an area where this is a problem, very nice in market bouquets; Harvest period 7/13 to 7/26/04, pretty much picked all there was, then it recovered and started blooming again in late Sept., sowed in greenhouse 2/3/04, transplanted to 128 cell tray.

Matricaria 'Magic White'

Good qualities: Strong stems, nice scent, nice green leaves, I really liked this flower in the three colors I trialed; Good; Nice, big heads, good white (sharp) color, no pest damage; Okay in mixed bouquets, good tall matricaria, color is not as striking as 'Magic Lime Green'; Easy, good filler for bouquets; Prolific, dainty and elegant flower; In the tunnel, strong stems, flowering by July 1; Outside, strong

stem, productive, individual florets attractive; Upright, did not require netting, foliage looks great in the garden and is very lush, thereby suppressing weeds in that area; Lots of it.

Problems: No insect problems; Too short; Needs netting, lots of foliage, require heavy stripping or flowers droop; In the tunnel, flowers too dense to make a good filler, a more open flower with smaller florets, and less stiff stems would make a more attractive filler; Plants stopped flowering by mid-Aug. in the tunnel (Zone 5) and did not resume. In contrast, the standard variety ('White Wonder', Stokes) started to flower again in early September; Outside, flowers too dense and stiff to make a good filler; Aphids like it a bit.

Postharvest: Cut into plain water.

Additional comments: Similar to 'White Wonder'; They all look the same; 'Magic White' (Stokes) is as productive outside, but has weaker stems, but also looser floret arrangement which works better in the vase; Rabbit and deer free in an area where this is a problem, very nice in market bouquets. In the tunnel, both varieties were nearly identical in stem height and yield per plant, stems were approximately 4 inches (10 cm) shorter than 'White Wonder'; Outside, this species grows better in the cooler conditions of outside, compared to the tunnel, but foliage yellowed after the main production season, and there was no regrowth. In the tunnel, the leaves stayed green, but only 'Magic White' started blooming again late; Did not get as an abundant reflush of flowers as with matricaria 'Magic Lime Green'; Inflorescence diameter 2.8 to 9.1 inches.

Matricaria 'Magic Yellow'

Good qualities: Nice background color for bouquet filler; Strong stems, nice scent, nice green leaves – I really liked this flower in the three colors I trialed; Good; Healthy plants, no insects or diseases; Okay, but not quite as strong of a color as the 'Lime Green' in this series; Blends well with other flowers in bouquets; We had a cool wet spring and all matricaria were substandard in performance; I will grow again and will be excited to see results, nice color alternative and great in bouquets; Easy to grow and so pretty but aster yellows can be a problem (Central U.S.) for me so I will stay away from this plant in my field; In the tunnel strong stems, flowering by July 6; Outside, strong stem, productive, individual florets attractive; We liked the color.

Problems: Needs staking, which I didn't do since I've never staked (support netted) the 'White Tetra' matricaria (a staple crop here); No insect problem; Short, "weedy" looking; Flower heads tend to 'brown' in high humidity, rain;

The center cut is much larger than the side shoots.

Postharvest: Hydraflor/Floralife; Cut into plain water.

Additional comments: Similar to 'Magic Lime'; In the tunnel, flowers too dense to make a good filler, a more open flower with smaller florets, and less stiff stems would make a more attractive filler – plants stopped flowering by mid-Aug in the tunnel (Zone 5) and did not resume – in contrast, the standard variety ('White Wonder', Stokes) started to flower again in early September; Outside, flowers too dense and stiff to make a good filler; Outside: 'Magic White' (Stokes) is as productive, but has weaker stems, but also looser floret arrangement which works better in the vase; Rabbit-and deer-free in an area where this is a problem, very nice in market bouquets; In the tunnel, both varieties were nearly identical in stem height and yield per plant, stems were approximately 4 in (10 cm) shorter than 'White Wonder'; Outside, this species grows better in the cooler conditions of outside, compared to the tunnel, but foliage yellowed after the main production season, and there was no regrowth, in the tunnel, the leaves stayed green, but only 'Magic White' started blooming again late.

Sakata Seed America

Campanula rapunculus 'Heavenly Blue'

Good qualities: Great color (5); Good filler (3); Long stems; Many small flowers for bouquet use: Gives a bouquet a great airy graceful look, long lasting in vase, no other annual looks like it; More lavender than blue, just keeps flowering, strong wiry stems; Easy to grow; We liked it.

Problems: Will never grow outside in N.H., will grow in tunnel only; Somewhat tedious to harvest to get the long stems, the flower stems just keep coming so we harvest the whole plant and in a couple of weeks more flowers, even the short stems are useful in small bouquets; Dead blooms stay on and are hard to remove for a "clean" look, Is this a cultivar that becomes invasive?

Postharvest: Cut when first flowers show. *Editor's note: see separate postharvest article in this issue for more information.*

Additional comments: We grow other campanulas, but none with the fine and delicate colors of this one; In the tunnel - second heavy flowering on very short stems; We will certainly grow this one next year.



Helianthus 'Double Quick'

Good qualities: Really nice double (3); Large flowers (2); Foliage seemed less prone to fungal disease - remained disease free all through flowering period; It is an OK sunflower; Seems to all come into bloom at once (over 2 to 3 days) as opposed to say 'Sunbright' which is 10-14 days, nice height; Customers were astonished at size, seems fast to get such a large flower; Strong stems, great color, nice 'Teddy Bear' alternative; Earlier than 'Giant Sungold', also a single stem, which is great; 'Double Quick' was superb! bright warm golden color and fuzzy blossoms, harvested about 70 days after direct seeding (Zone 6/7).

Problems: Not as fast as Pro Cut series; At opening, centers are somewhat squeezed and angularly folded up (awkward looking) when fully opened, produces a somewhat "shaggy" appearance because petals are large and coarse-toothed, cool fall weather-it gets rust; Lost much of crop to early frost (Zone 4); Would not grow in hoop house again, stems were soft and plants tended to fall over; Heads too big or weak to hold upright in spite of decent size, strength week/stems, seemed to be more prone to spotting on flowers and leaves than most.

Postharvest: Water only, no cooler.

Additional comments: Similar to 'Giant Sungold' (2) but 'Double Quick' was better; Similar to 'DoubleShine' (2); Not so different from any regular sunflower such as 'Sunbright'; Similar to 'Starburst Aura'; Impressive size of blooms overcame shaggy factor for consumers, good mixed with other sunflowers; After the main flower blooms, secondary blooms form very close to the main stem, an interesting look; Not a great year for spot diseases on petals and leaves of stems in general, may have better possibilities if pinched early.

Helianthus 'Pro Cut Bicolor'

Good qualities: Beautiful bicolor (8); Mixed well or by itself, strong stems, well accepted; Strong-stemmed dark colored sunflower, a welcome break from the usual weak-necked darker introductions; Favorite new sunflower, quick crop time; Best bicolor I've grown, very uniform production; Flower coloration distinctive, useful for fall bouquets, fast, nice size, consistent, flowers and height plant; Nice petal formation, strong stem, but not too thick, nice head size; Two weeks earlier than 'Ring of Fire'; Nice flower size.

Problems: Drops petals readily in postharvest (2); No problems (2); Stems are very thick! A lot of market customers did not like this, too big for florist use. I would not grow again because of this; Poor germination; Coloration - brownish red; color fades in bright sunlight, final coloring faint; Opens fast and turns sideways, color could be a more contrasting bicolor like 'Orange Mahogany'; Weak stems, floppy flower heads.

Postharvest: Used Floralife; Did not use any postharvest treatment; Did not refrigerate; water only. *Editor's note:*

see separate postharvest article in this issue for more information.

Additional comments: Similar to 'Terra Cotta', 'Ring of Fire', and 'Orange Mahogany'; One of the better of a 10 varieties tried; Not particularly good, contrast of colors; Will definitely grow again; Good single stem.

Helianthus 'Pro Cut Lemon'

Good qualities: Great color (7); Fast crop time (3); Very uniform flowering time (3); Held up as well as 'Sunbright'; Great by themselves, good quality size flowers, long stems, sturdy stems; Strong stems, petals seemed less susceptible to bruising than most yellows; One of the best sunflowers I have ever grown - I grew the whole series this year and they are all fabulous, 'Pro Cut' is the one to beat; Favorite new sunflower; Earlier than 'Sunrich Lemon'; Harvested about 70 days after direct seeding; Big, even, consistent-headed flower with a very crisp look, held heads up in spite of size, no doubt smaller stems would hurt this attribute, but if heads were smaller as well....

Problems: Stems too thick (3); Too big for florist use - I would not grow again because of this; Customer likes deeper color, too pale; Didn't really like the size of the heads, the disk was too big in proportion to the ray petals, the stems were much too big, could not handle them, this could be a function of transplanting spacing so if I were to try again, I would plant closer, opens fast and turns sideways, 5 off-types in a 15 foot row; Stems too short.

Postharvest: Did not use any postharvest treatment.

Additional comments: Similar to 'Sunrich Lemon' (2) or 'Moonbright' - but much stronger head - beautiful yellow, double petals; Seeded directly to a 128 cell tray, 4/16/04, harvested 6/30/04; Good single stem; Flower diameter was 6.3 inches; Quick producer, though I didn't record dates, will try much closer spacing to bring stem size down.

Helianthus 'Pro Cut Orange'

Good qualities: Great flower color (3); Short crop time (3); Very uniform flowering time (2); Nice strong rays, strong stem and neck; Very large flower, sold for \$2.00 stem; Customers returned week after week for more 'Pro Cuts'; Favorite new sunflower; Very exciting new crop; Best sunflower I've grown in a few years!; Nice color, nice height, not too tall; 2 weeks earlier than 'Sunrich Orange'; Size flower head good; Nice flower size; Big, even consistent headed flower with a very crisp look, held heads up in spite of size, no doubt smaller stems would hurt this attribute, but if heads were smaller as well....

Problems: Stems too thick (2); Poor germination, bit raggedy; The stems are too large (fat around) to use in mixed bouquets; I went on to purchase this seed and use it throughout the season, stems got progressively shorter and smaller, my cut this week of 10/10 is only 3 feet tall but customers are still buying it, we needed to put additional stems in the bunch though; Opens fast and turns sideways; Weak stems, floppy flower heads; Stalks were soft and got

a brown rot – many plants fell over, would only grow in the field in the future; Stems too short; Slight problem with powdery mildew.

Postharvest: *Editor's note: see separate postharvest article in this issue for more information.*

Additional comments: Similar to 'Sunbright Supreme' (2) or 'Sunrich Orange'; Not a very bright orange; 'Pro Cut Bicolor' flowered first, then 'Pro Cut Orange' and then 'Pro Cut Lemon' – planted several plantings thru season; Good single stem; Quick producer, though I didn't record dates, will try much closer spacing to bring stem size down; Will plant again.

2004 ASCFG National Perennial Trials by John Dole

This year's trial highlighted a few unconventional plants. Neither *Persicaria* 'Brush Strokes' or 'Silver Dragon' (from Terra Nova Nurseries) were particularly notable as cut flowers but were great as cut foliage. 'Brush Strokes' has large light green leaves with darker bronze markings, and 'Silver Dragon' has small burgundy leaves that age to silvery green with burgundy veins. 'Brush Strokes' does not produce flowers until very late in the season - only 25% of trialers reported flowering plants. 'Silver Dragon' is much more floriferous but to be honest, the flowers are small and the foliage is easier to use without the flowers. Stem length for both cultivars averaged 22 to 24 inches. Growers harvested 8 stems/plant for 'Brush Strokes' and 40/plant for 'Silver Dragon'. Interestingly, while consumers appeared to like persicaria and it worked well in mixed bouquets, the florists or wholesalers were apparently less interested. One trialer noted that 'Brush Strokes' had a vase life of 12 days and the vase life for 'Silver Dragon' was 11 to 31 days.

Another interesting plant was the grass *Andropogon* 'Silver Sunrise' (University of Nebraska), derived from our native grasses. This bluestem has a bluish green color during the summer that darkens to burgundy in the fall. While one trialer thought it looked like a weed, another referred to the 39-inch long stems as "a designer's choice at the retail florist." Trialers reported an average vase life of 10 days.

Lobelias have always been among my favorite flowers for their intense reds, blues and purples. *Lobelia* 'Ruby Slippers' (Terra Nova Nurseries) is no different with long spikes, averaging 31 inches, of rich red flowers that everyone seemed to appreciate. Postharvest is always a concern with lobelias, but the vase life of 'Ruby Slippers' ranged from 8 to 10 days.

The purple coneflower is undergoing a revolution with many new and interesting forms and hybrids now on the market, some of which we may have in the trials next year. This year's selection, *Echinacea purpurea* 'Ruby Star', (Gro 'N' Sell) is one of the standard coneflowers but it is a great one. It produced 22+ inch long stems topped with spectacular flowers. The large flowers have bright purple, horizontal petals with a rich orange-red cone. Trialers averaged a little over 5 stems/plant.

Campanulas are always interesting and the trial included two species, plus *Adenophora* 'Amethyst'

(Walters Gardens), a relative of the campanula. 'Amethyst' had long spikes of nodding purple flowers. Stems averaged 28 inches long and trialers harvested about 14 stems/plant. The plant was easy to grow and flowered over a long period. *Campanula* 'Kent Belle' (Walters Gardens) also had purple flowers but they were larger. Stems were about 23 inches long and growers harvested 8 stems/plant. Trialers reported an average vase life of 9 days for 'Amethyst' and 11 days for 'Kent Belle'.

While many rudbeckias are best treated as an annual, *Rudbeckia triloba* (Gro 'N' Sell) can be handled as a short-lived perennial. This very productive plant produces sprays of dark-centered yellow flowers on 36-inch stems. Trialers harvested a little over 10 stems per plant. The plant is easy to grow.

Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year competition. The rankings are based on the combined ratings score: market appreciation (average of wholesale, florist, and consumer) + repeat again + ease of cultivation for those cultivars where more than three trialers responded. Thus, from the 2004 trials *Adenophora* 'Amethyst', *Andropogon* 'Silver Sunrise', *Echinacea purpurea* 'Ruby Star', *Lobelia* 'Ruby Slippers', and *Persicaria* 'Brush Strokes' 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. For example, with annual asters some people harvest the entire plant as one bunch while others harvest each individual flowering branch, giving very different stem lengths and yield data. After looking at the average, check the range of responses listed below each number to see how the cultivar performed at its best and its worst. If the range of responses in the ratings is narrow and high, i.e., 3-5 or 4-5, the plant was a winner for most of the respondents and is likely to do well for you. The 'Repeat Again Rating' is particularly important because it indicates if the trialer would take the time, money, and space to actually grow the cultivar again. Review the trial results carefully. If a species sounds interesting but did not appear to do well, try it anyway. The cultivar may work well for you.