

2010 ASCFG

John M. Dole a



Those who have read these reports over the years may have noticed that we have an affinity for North American native plants that have made it into the big time. Sunflowers, zinnias, liatris, and lisianthus are all major cut flowers native to North America. One other species that might be added to the list is the marigold. This beloved garden plant has not been as fully accepted as a cut flower. The strong fragrance (read “odor” if you don’t like it) of the foliage puts off customers and growers and the thick, heavily branched stems can be hard to cut efficiently. However, it might be time to rethink the marigold as a cut flower and consider its many positive traits. This year we had five cultivars from Gloeckner which were productive to a fault – they continued to produce many, many flowers all season long (too many according to the NCSU cut flower group). Marigolds show many similarities to zinnias - the first, and sometimes second flushes of the flowers should be sacrificed to allow the side shoots to get long enough to harvest. The flower heads are hollow where they meet the stems and are easy to pop off. After plants reach harvestable size the quality stems can be cut every couple of days and the beds cleaned of unmarketable flowers.

The large yellow to orange flowers quickly filled out bouquets and arrangements. The flowers have a respectable vase life of 8 to 14 days, depending on the cultivar (see postharvest article for more details) and use of a floral preservative.

Alas, the trial cultivars had the typical strong fragrance, which prompted one trialer to note that selling marigolds was a “love/hate affair”. For many trialers, all the cultivars were too short, but several cut 30-inch stems. For us, the tallest cultivar was ‘Narai Yellow’.

Several species of *Scabiosa* are used as cut flowers, but all are relatively unimportant because of short stems (*Scabiosa caucasica* and *S. stellata*) or small flower heads (*S. atropurpurea*). *Scabiosa caucasica* has the largest

Cut Flower Seed Trials

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flowers of the three and is available in white, pink, and close to a clear blue. Benary submitted four scabiosas in the trial – two improved varieties and two older comparison varieties. ‘Fama Deep Blue Improved’ was one of the top scoring cultivars for its large blue flowers, first-year flowering for most trialers and longer stems. While we had a hard time telling it apart from ‘Fama Deep Blue’, one trialer noted that the petals were “slightly darker than ‘Fama Deep Blue’” with some pink in the center and another noted that ‘Improved’ had more petals. ‘Fama White’ and ‘Perfecta’ were also similar and scored well with trialers. More than one respondent noted that the scabiosa make excellent wedding flowers for the white color and lace-hankie textures.

Of the three celosias in the trial, ‘Red Flame’ (Genesis) scored the highest. Trialers loved the deep red color of the flowers, leaves and stems and noted that many small to medium sized heads were produced on the side shoots. An average of 7 stems was harvested per plant and they were a little over 17 inches long. Some growers got up to 10 stems per plant and 24-inch stem lengths. Two other celosias in the trials, ‘Celway Purple’ and ‘Celway Terracotta’ (Kieft-Pro-Seeds) also had small flower heads, but a lot of them. Growers harvested 8 to 9 stems per plant with some getting 20 stems. The stems averaged 21-23 inches long.

Zinnia ‘Queen Red Lime’ (Benary) prompted discussion in our research group. I loved the subtle color and high degree of doubleness, while the rest of the group was not as impressed with its small flower size (relative to ‘Giant’ and ‘Uproar Rose’) and the fact that the color became a bit muddy a few days after harvest. The outer petals were an unusual maroon pink blending to the greenish color of the inner row or two of petals. In contrast, the centers were bright rosy pink. Trialers were also a bit split on this one, echoing the same likes and dislikes as we did, but overall, they liked it as they gave it one of the higher ratings in the trials. The companion submission, ‘Giant Lime’, also scored very high. While many cut flower growers are familiar with ‘Giant Lime’



it was nice to have it in the trials again. ‘Giant Lime’ has smaller flowers than the rest of the Giant series but produces more doubles than other green cultivars.

The lone sunflower in the national trials, ‘Summer Breeze’ (Takii), was a hit with trialers. It has large bright yellow flowers with green centers. The stems were as long as you want them. Plants were not branched, producing one flower per plant. No reports on the effects of pinching.

All of the stock cultivars did fairly well this year, but the top scoring color was ‘Katz Bright Rose’ (Ball), which was quite popular. Growers also loved the fragrance and the high percentage of doubles. However, one person noted only 42% doubles.

Both forms of snapdragons were in the trials this year. The regular snapdragons ‘Calima Pure White’ and ‘Calima Yellow’ (Sakata), were among the top-rated flowers with long stems averaging 17 inches, but up to 26 inches for some. Note that these data were for field production as greenhouse-grown snaps grow much taller. Growers averaged 5 to 6 stems per plant, with some getting up to 12 stems. Open-face snaps were represented by ‘Chantilly Yellow’ (Takii) with its bright yellow color. Stem length also averaged 17 inches (up to 30 inches for some), but growers were able to harvest more stems, 8 per plant.

The three dianthus ‘Fandango’ submissions from Goldsmith produced flowers prolifically with an average of 12 stems per plant, and up to 35 stems per plant for one trialer. The gorgeous flowers were in rich reds, purples and bicolors and prompted many positive comments. The drawback – and there is always at least one – is that the stems were very short, averaging 12 inches. Some growers were able to get 18-inch stems, suitable for bouquets.

As in many previous years several lisianthus were trialed. The top-rated cultivar this year was ‘Excalibur Yellow’ (Sakata). It had the substance and durability of ‘Excalibur White’, but with a clear lemon color. Other trialers thought

The outer petals of zinnia ‘Queen Red Lime’ were and unusual maroon pink blending to the greenish color of the inner row or two of petals. In contrast, the centers were bright rosy pink.

the color was more ivory than yellow. ‘Excalibur Yellow’ was one of the tallest lissies in the trials this year, with an average stem length of 24 inches and two trialers getting a stem length of 30 inches. Growers harvested a little over three flowers per plant. ‘Vulcan II Deep Purple’ (Takii) also performed well, with high ratings and an average stem length of 22 inches.

Eight companies supplied 56 cultivars. Based on trial results, the top five performers are automatically nominated for the ASCFG Cut Flower of the Year. Rankings are based on the

Cut Flowers of the Year and will join other nominations from ASCFG members.

Interpreting the trial results: The numbers reported are averages of all the respondents and many factors will affect the success of any plant species. Our participants are growing and harvesting the trial plants in a wide variety of ways. After looking at the average, check the range of responses listed below each number to see how the cultivar performed at its

best and its worst. If the range of responses in the ratings is narrow and high, i.e., 3-5 or 4-5, the plant was a winner for most of the respondents and is likely to do well for you. The ‘Repeat Again Rating’ is particularly important because it indicates if the trialer would take the time, money, and space to actually grow the cultivar again. Review the trial results carefully. If a cultivar sounds interesting but did not appear to do well, try it anyway. The cultivar may work well for you.

Acknowledgments: A hearty thank you to all 29 evaluators who returned their trial

reports and to the seed companies for providing such great cultivars. Congratulations to Dave Delbo for being the first trialer to return his evaluations. I would also like to thank Ingram McCall for taking care of the North Carolina State University portion of the trials, Brigitte Crawford, Erin Regan, Diane Mays, Michelle McElhannon, Brad Holland, and Tim Ketchie for assisting with the NCSU trials, Caroline

Richardson for laboriously condensing the comments and data, and Linda Twining for reformatting the tables. In preparing the report we have edited the participants’ comments for space and clarity; my apologies if we’ve altered the tone or content of anyone’s comments.



‘Queen Red Lime’

combined ratings score: market appreciation (average of wholesale, florist, and consumer) + repeat again + ease of cultivation. Thus, from the 2010 trials, snapdragons ‘Calima Pure White’, ‘Calima Yellow’ and ‘Chantilly Yellow’, sunflower ‘Summer Breeze’, and zinnia ‘Benary’s Giant Lime’ are nominated as

Participating Seed Companies

American Takii
Salinas, California
www.takii.com

Ball Horticultural
West Chicago, Illinois
www.ballhort.com

Benary Seed
DeKalb, Illinois
www.benary.com

Fred C. Gloeckner & Company
Harrison, New York
www.fredgloeckner.com

Genesis Seeds Ltd.
Ashalim, Israel
www.genesisseeds.com

Goldsmith Seed
Gilroy, California
www.goldsmithseeds.com

Kieft-Pro-Seeds
Venhuizen, Netherlands
www.kieft-pro-seeds.com

Sakata Seed America, Inc.
Morgan Hill, California
www.sakata.com

Participating Growers

Cynthia Alexander
Bloomlust
Frisco, TX

Janet Bachmann
Riverbend Gardens
Fayetteville, AR

Erin Benzakein
flore
Mount Vernon, WA

Christof Bernau
UCSC Farm & Garden
Santa Cruz, CA

Leon Carrier
Plantmasters
Laytonsville, MD

Maureen Charde
High Meadow Flower Farm
Warwick, NY

Josie Crowson
Josie's Fresh Flowers
Nacogdoches, TX

Shravan Dasoju
Ball Horticultural Company
Santa Paula, CA

Dave Delbo
Dave's Flowers
Elysburg, PA

Becky Devlin
Roost Flowers and Designs
Virginia Beach, VA

Linda Doan
Aunt Willie's Wildflowers
Blountville, TN

Everett Emino
Everett's Flower Farm
New Germany, NS

Thea Folls
Foll's Flower Farm
Auburn, NY

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

Charles Hendrick
Yuri Hana Flower Farm
Conway, SC

Chazz Hesselein
Alabama Cooperative Extension System
Mobile, AL

Laurie Hodges
Dept. Agronomy and Horticulture
Lincoln, NE

Kathy Horn
CELEBRATE! Gardens
Lindenwood, IL

Ingram McCall/John Dole
North Carolina State University
Raleigh, NC

Jim Mercer
Sheepscot Flower Farm
Newcastle, ME

Don Mitchell
Flora Pacifica
Brookings, OR

Catherine Mix
Sequim Growers Cooperative
Sequim, WA

Tom Parker
Parkerhouse Nursery
Mays Landing, NJ

Ed Phillips
Field and Flower
Piedmont, SC

Judith Reith-Rozelle
West Madison Ag. Research Station
Verona, WI

Brenda Smith
Smith & Smith Farms
Dayton, NV

Cheryl Wagner
Wagner's Homestead Farms
Belleville, MI

Chris Wien
Cornell University
Ithaca, NY

Bob Wollam
Wollam Gardens
Jeffersonton, VA

2010 ASCFG Seed Trial Results. The first row of data for each cultivar is the average and the second row is the range of responses. Note when only one response is listed, either only one person responded for that category or several responded and all gave the same rating. The single highest score and the single lowest score in each category for each cultivar have been dropped.

Species Cultivar Company	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ¹	Repeat again rating ¹	Ease of cultivation rating ¹	Average postharvest life (days)
<i>Amaranthus caudatus</i> 'Mira' Gloeckner	4.6 1-10	32.9 12-66	2.9 1-4	3.1 1-5	3.6 1-5	10.4 5-18
<i>Asclepias tuberosa</i> 'Oro' Genesis Seeds	4.6 1-7	12.2 8-24	3.1 1-5	3.3 1-5	3.2 1-5	9.0 4-14
Aster 'Nina Semi Double Rose' American Takii	4.8 1-10	16.2 8-30	4.3 3-5	3.9 2-5	3.4 2-5	10.8 7-14
Aster 'Nina Semi Double Salmon Pink' American Takii	5.8 1-10	18.0 12-23	4.2 3-5	3.7 2-5	3.8 2-5	9.3 7-14
Aster 'Nina Semi Double White' American Takii	5.2 1-12	19.0 12-25	3.8 3-5	3.7 2-5	3.8 2-5	12.8 7-20
Aster 'Palette Mix' Gloeckner	5.0 1-2	17.3 10-30	4.0 3-5	3.5 2-5	3.2 1-4	10.3 5-21
Campanula 'Campana Deep Blue' Kieft-Pro-Seed	4.5 1-12	18.3 10-29	4.0 3-5	3.7 2-5	3.8 3-5	11.4 7-18
Campanula 'Campana Pink' Kieft-Pro-Seed	5.1 1-15	18.1 12-22	4.1 3-5	3.8 2-5	4.0 3-5	11.4 7-14
Carthamus 'Oranage Granade' Genesis Seeds	3.3 1-7	17.5 12-30	3.4 2-5	3.3 1-5	3.4 2-5	7.4 5-10
Celosia 'Celway Purple' Kieft-Pro-Seed	9.8 1-20	22.7 12-30	3.6 2-5	3.6 1-5	4.1 2-5	8.2 5-10
Celosia 'Celway Terracotta' Kieft-Pro-Seed	8.8 1-20	21.2 12-24	3.7 2-5	3.7 1-5	4.5 3-5	9.6 5-10
Celosia 'Red Flame' Genesis Seeds	7.6 1-10	17.2 12-24	3.9 2-5	4.1 2-5	4.3 3-5	9.8 5-21
Dianthus 'Fandango Crimson' Goldsmith Seeds	8.1 1-35	12.2 8-18	3.0 1-4	2.5 1-5	4.1 1-5	7.1 3-14
Dianthus 'Fandango Crimson Picotee' Goldsmith Seeds	9.8 1-35	11.6 6-18	3.1 1-5	2.5 1-5	4.2 1-5	8.2 5-14

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

Species Cultivar Company	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ¹	Repeat again rating ¹	Ease of cultivation rating ¹	Average postharvest life (days)
Dianthus 'Fandango Purple Picotee' Goldsmith Seeds	9.3 1-15	12.2 6-18	2.9 1-4	2.5 1-5	4.0 1-5	8.6 5-14
Dianthus 'Sweet Red with White Eye' Ball	8.0 8-15	14.3 6-24	3.6 2-5	3.3 1-5	4.0 1-5	21.6 7-14
Dianthus 'Volcano Mix' Genesis Seeds	6.3 1-12	15.4 8-24	3.4 2-4	3.3 1-5	4.3 2-5	9.8 5-15
Iberis 'Spray' Genesis Seeds	3.1 1-10	10.8 6-22	2.7 1-4	2.2 1-5	3.1 2-5	7.3 5-9
Kale 'Lucir Red' American Takii	1.8 1-5	16.0 8-36	2.8 1-4	2.5 1-4	3.5 1-5	8.7 6-12
Kale 'Lucir White' American Takii	1.0 1-5	17.9 8-36	3.3 1-5	3.2 1-5	3.4 1-5	12.4 6-18
Larkspur 'Galilee Carmin' Genesis Seed	3.3 1-7	19.0 8-4	3.9 2-5	3.5 1-5	7.0 6-8	13.5
Lisianthus 'ABC 1-3 Green' Ball	2.7 1-7	19.6 4-28	4.1 3-5	3.8 1-5	3.2 1-5	13.3 10-16
Lisianthus 'ABC 1-3 Misty Blue' Ball	2.6 1-7	16.9 4-21	4.3 4-5	3.9 1-5	3.3 1-5	13.0 10-16
Lisianthus 'Arena III Red' American Takii	2.2 1-4	21.9 14-29	4.0 3-5	3.4 1-5	3.0 2-4	13.5 13-14
Lisianthus 'Arena IV White' American Takii	2.8 1-4	21.3 8-28	4.0 3-5	3.4 1-5	3.0 2-4	12.0 12
Lisianthus 'Excalibur Pure White' Sakata Seed	2.8 1-6	21.6 12-30	4.0 3-5	3.9 2-5	3.4 2-5	12.0 7-14
Lisianthus 'Excalibur Yellow' Sakata Seed	3.3 1-6	23.2 10-30	4.3 4-5	4.2 3-5	3.4 2-5	12.2 7-16
Lisianthus 'Mariachi Carmine' Sakata Seed	2.9 1-6	16.5 8-26	4.0 3-5	3.9 2-5	3.7 3-5	11.5 6-14
Lisianthus 'Mariachi Pink Picotee' Sakata Seed	2.8 1-6	22.5 8-30	4.3 3-5	4.0 2-5	3.2 2-4	11.5 6-14

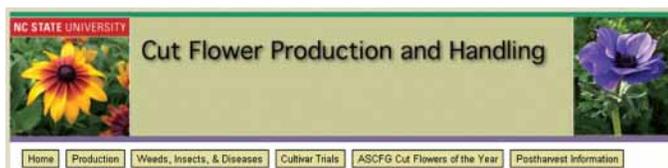
¹ 1 to 5 scale, with 5 being the best. Market ratings are based on sales to wholesales, retailers, or final consumers direct.

Species Cultivar Company	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ¹	Repeat again rating ¹	Ease of cultivation rating ¹	Average postharvest life (days)
Lisianthus 'Mariachi Yellow Imp.' Sakata Seed	3.4 1-6	23.1 8-30	3.8 1-5	3.4 1-5	3.0 1-4	11.0 6-14
Lisianthus 'Piccolo 2 Pure White' Sakata Seed	3.1 1-5	19.3 10-28	3.4 1-5	3.0 1-5	3.1 1-4	13.0 17
Lisianthus 'Piccolo 2 Purple' Sakata Seed	3.0 1-5	18.2 10-28	3.3 1-5	2.7 1-5	2.9 1-4	17.0 17
Lisianthus 'Rosita 2 Jade' Sakata Seed	3.1 1-6	19.7 8-29	3.7 2-5	3.9 2-5	3.6 3-5	13.0 7-18
Lisianthus 'Rosita 2 Purple' Sakata Seed	2.8 1-6	17.8 8-31	3.9 2-5	3.9 2-5	3.5 3-5	11.2 7-14
Lisianthus 'Vulcan II Deep Purple' American Takii	2.3 1-4	22.1 16-31	4.3 3-5	4.0 2-5	3.6 3-4	13.0 12-14
Marigold 'American Babuda Deep Gold' Gloeckner	6.1 1-10	19.0 10-32	3.6 2-5	3.7 2-5	4.2 2-5	9.5 5-16
Marigold 'American Babuda Yellow' Gloeckner	5.9 1-16	17.7 10-31	3.3 2-5	3.0 1-5	4.2 2-5	8.7 5-16
Marigold 'American Bali Yellow' Gloeckner	4.1 1-7	14.7 6-29	3.1 1-5	2.8 1-5	4.1 2-5	10.4 7-16
Marigold 'American Narai Yellow' Gloeckner	6.0 1-10	15.1 10-30	3.4 2-5	3.1 2-5	4.1 2-5	9.5 7-16
Marigold 'American Pagoda Yellow' Gloeckner	4.6 1-10	14.3 10-23	3.7 2-5	3.3 2-5	4.4 3-5	9.1 7-15
Matthiola 'Katz Apricot' Ball	1.0 1	17.9 12-24	3.6 2-5	3.7 2-5	4.6 4-5	8.9 7-10
Matthiola 'Katz Bright Rose' Ball	1.2 1-3	17.0 10-25	4.0 3-5	3.7 3-5	4.3 4-5	7.8 7-10
Matthiola 'Katz Lavender Blue' Ball	1.4 1-3	17.3 13-24	4.0 3-5	3.5 3-5	4.0 3-5	7.5 7-10
Molucella 'Country Bells' Genesis Seeds	5.1 1-15	17.6 10-32	3.9 2-5	3.7 1-5	3.6 2-5	7.8 5-10

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

Species Cultivar Company	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ¹	Repeat again rating ¹	Ease of cultivation rating ¹	Average postharvest life (days)
Scabiosa 'Fama Deep Blue' Benary	5.9 2-15	16.1 9-24	3.9 3-5	4.0 3-5	3.9 3-5	8.0 7-9
Scabiosa 'Fame Deep Blue Imp.' Benary	9.5 3-25	18.8 8-30	4.3 4-5	4.3 3-5	4.1 1-5	8.4 7-11
Scabiosa 'Fama White' Benary	4.4 1-8	13.5 11-36	3.6 3-5	3.6 1-5	3.9 3-5	6.8 5-9
Scabiosa 'Perfecta White' Benary	5.8 1-10	12.3 10-32	3.8 3-5	3.6 2-5	4.0 3-5	8.0 6-10
Sea oats 'Green Oat' Genesis Seeds	7.8 4-12	22.8 6-28	3.6 1-4	3.1 1-5	3.1 1-5	7.3 4-10
<i>Setaria italica</i> 'Red Jewel' Gloeckner	10.7 1-40	22.2 12-40	3.3 2-4	3.9 2-5	4.5 3-5	10.8 7-14
Snapdragon 'Calima Pure White' Sakata Seed	5.4 1-12	17.5 10-22	4.0 3-5	4.0 3-5	4.4 4-5	6.3 5-8
Snapdragon 'Calima Yellow' Sakata Seed	6.7 1-12	17.0 12-26	4.2 3-5	4.1 3-5	4.3 3-5	6.0 5-8
Snapdragon 'Chantilly Yellow' American Takii	8.4 1-35	17.2 8-30	4.0 3-5	4.2 3-5	4.4 3-5	7.1 6-10
Sunflower 'Summer Breeze' American Takii	1.0 1	55.2 22-72	4.6 4-5	4.1 2-5	4.5 2-5	8.9 7-14
Zinnia 'Benary's Giant Lime' Benary	9.8 3-25	19.1 12-30	4.2 2-5	4.1 2-5	4.5 2-5	7.7 2-16
Zinnia 'Queen Red Lime' Benary	8.9 2-25	16.3 10-30	4.1 2-5	3.9 2-5	4.5 1-5	7.2 3-16

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NCSU Cut Flower Website Updated

Have you ever wondered if *Pycnanthemum* 'Mountain Mint' would make a good cut flower? How about *Eupatorium* 'Carin', *Weigelia* 'Alexandra', or *Lavatera* 'Salmon Beauty'? The place to find the answers to these questions and many more is www.ncsu.edu/project/cutflowers/. You can find all the seed

trial results since 1993 and the perennial and woody trial results since we started those trials in 1998 and 2004, respectively. For each cultivar, you will find the trial data, participant comments, supplier and photos, in some cases. Beside trial information, the website also includes our postharvest reports and links to other sites.

Summary of Comments

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

Amaranth

Amaranth 'Mira' (Gloeckner)

Good Qualities: Strong stems (2); Easy to grow (2); Novel, striking appearance; Good accent in large bouquets; Interesting mix of purple and green; Thick, spiraling, two-toned tails; Funky; Popular with floral designers and individuals looking for the unusual; Vigorous, nice color, multiple stems/plant.

Problems: Leaves were attacked by an unknown insect (2) and were full of holes. Most leaves had to be removed; Leaves yellow prematurely in field, due to root rot; less severe in tunnel; Weak lanky growth; Difficult to support (took 3 layers of netting) tall plant, not popular with most market customers; Thick and chunky; Not a lot of color in the inflorescence, appearance varied from plant to plant; Plants died after transplanting to field; Very large, requires a special market to utilize effectively. Unable to use it in bouquets due to its large size. However, I did bunch it in 5-stem bunches and bring it to the market. It attracted a lot of attention and comment. However, it never attracted a buyer; Stems droop/falls over after harvest.

Similar Species: *Amaranth* 'Love Lies Bleeding'.

Postharvest Recommendations: Fleshy stems, so the vase water should be changed regularly; Use postharvest products.

Additional Comments: Does not fit my market; Stems reached 38 inches in height and were cut down to 26 inches; May be more productive if pinched; Used it a lot late in season and dried; Died from lack of water; Leaves wilted and turned brown but flowers still looked really nice.

Asclepias

Asclepias tuberosa 'Oro' (Genesis)

Good Qualities: Beautiful shade of pure orange (6); ball shape was attractive and versatile; long lasting; Seed pods may be useful; Long vase life; unusual filler in mixed bouquets; Loved that I could grow this from seed; Will be stronger next year I'm sure.

Problems: Too short for us to properly evaluate as a cut (4); Aphids (3); Seedlings did not survive transplanting (2); Very sprawling growth habit; Need to stake; Heads were on small side; Most plants did not hold up well in our wet climate ('Silky' series of asclepias held up well in same conditions); Would try to grow again; Never flowered.

Similar Species: Silky series.

Postharvest Recommendations: Cut into plain water; Use Floralife; Conditioning overnight is a must; Seal the ends by dragging them across the soil before placing them in water; Do not leave buckets in the hot sun very long.

Additional Comments: Hope they will come back next year (2); With a very dry summer and no irrigation, the plants did not yield any blooms this year (2); This was one of my top 5 favorites.



Aster

Aster 'Nina Semi Double Rose' (Takii)

Good Qualities: Beautiful bright rose color (3); Popular with customers (3); Tall, central stem for large bouquets and short side stems useful for Oasis work; Good filler.

Problems: Side stems too short (3); Aster yellows; Fusarium wilt, Root rot, Rust; Short season.

Similar Species: Palette Mix.

Postharvest Recommendations: Stored with holding solution and then flower food.

Additional Comments: Crop failure; Aster yellows.



Aster 'Nina Semi-Double Salmon Pink' (Takii)

Good Qualities: Great color (2); Excellent filler (2), Popular with customers (2); Multiple blooms on each stem.

Problems: Too short (2); Root rot (fusarium?); Rust.

Similar Species: 'Palette Mix'.

Postharvest Recommendations: None.

Additional Comments: Plants grew under a fabric-covered row tunnel from transplanting to first flower to protect against leafhopper-carried aster yellows disease. That succeeded, but root disease (fusarium?) still killed the plants.

Aster 'Nina Semi Double White' (Takii)

Good Qualities: Excellent filler (2); Large spray of small blooms; Taller than most Chinese asters previously grown; Productive; Very pretty.

Problems: Too short (2); Root rot (fusarium?); Rust.

Similar Species: 'Palette Mix'.

Postharvest Recommendations: None.

Additional Comments: Crop failure; Aster yellows.

Aster 'Palette Mix' (Gloeckner)

Good Qualities: Excellent color mix (4); Nice sprays; Wonderful filler for bouquets; Great vase life.

Problems: Fusarium wilt and root rot (3); Too short (3) and too many unusable stems; Aster yellows (2); Rust (2); Plants died slowly after transplanting to field; Difficult to germinate.

Similar Species: China asters.

Postharvest Recommendations: Floralife and cool water; Put in shade soon after cut.

Additional Comments: Plants grew under a fabric-covered row tunnel from transplanting to first flower to protect against leafhopper-carried aster yellows disease (2). That succeeded, but root disease (fusarium?) still killed the plants; Not much success with any aster this season; Palette Mix (along with other asters) takes a long time to flower. Field-planted transplants from 108 trays during the third week in May - began cutting on August 14th. I tried direct seeding a row and germination was spotty. I hope more disease resistance can be built into asters as they are such a great cut.

Campanula

Campanula 'Campana Deep Blue' (Kieft)

Good Qualities: Nice color (more purple than blue) (4); Good vase life (4); Very productive (2); Strong stem; Attractive upward-facing cups, continued to open in vase.

Problems: Shorter than 'Campana Blue' (2); Flowered about a week later than Champion series (2); Poor germination; Thrips magnet.

Postharvest Recommendations: Cut when buds are colored but still closed; Use postharvest products.

Similar Species: Champion series.

Additional Comments: Customers loved these, many had never seen a bellflower; I prefer 'Campana Pink' to 'Campana Blue'; Died due to lack of water.

Campanula 'Campana Pink' (Kieft)

Good Qualities: Beautiful, clear, pink especially nice for bridal bouquet work (4); Very productive (3); Good stem length (2); Very long vase life.

Problems: Thrips magnet; It can't take the heat, would have done better planted much earlier than March; Short stem length below flowers (3); One week later than Champion series.

Postharvest Recommendations: Cut in colored bud; Use postharvest products.

Similar Species: Champion series.

Additional Comments: Died due to lack of water.



'Campana Pink'

Carthamus

Carthamus 'Orange Granade' (Genesis)

Good Qualities: Beautiful orange color (5); Good, rigid stems (2); Large seed head that dried well (2); Unique texture for bouquets.

Problems: Planted in March, but by the time they bloomed, I think it was too hot for them; Will try again with an earlier planting; A total failure, not due to the plant, but rather to deer. The day after planting the deer jumped the fence and ate off all the carthamus right down to the roots; Planted it late, sat in plug tray too long; Short stems; Lots of stem, but very little flower; Looked like a weed; Aphids; Hard to harvest due to thorns. Had 2-3 plants that were taller than rest of the population.

Similar Species: 'Tall Lasting Orange' from Modena.

Postharvest Recommendations: Cut flower before too open to extend vase life (3); Put stems immediately into water; Use Floralife and room temperature water.



'Orange Granade'

Additional Comments: Color changed from yellow to orange as it grew; Multiple flowers per stem; Also planted *Carthamus* 'Granade Series Mix' from Germania for comparison and these were no better. I had no marketable stems from either variety; Was set out late due to heavy rain delays; Would not grow again.

Celosia

Celosia 'Celway Purple' (Kieft)

Good Qualities: Long, strong stems (4); Great color (4), vibrant magenta-purple; Kept producing if kept cutting (3); Very uniform in quality (3). Small leaves (2); Prolific bloomer; Long-lasting; Liked the multifaceted head; Good filler in mixed bouquets; Veins and edges of leaves unique because they are a reddish/purple; Attracts *Tachinidae* flies that parasitize cabbage looper; Can plant more densely than other celosias; Branched with thin stems that the florists prefer.

Problems: Flower heads never quite look mature; Low vigor; Has a branched Christmas-tree shape requiring a choice of one tall 30-inch cut of the whole plant, or cutting short 12 to 18-inch branches; Foliar disease.

Similar Species: Has the deep magenta color of 'Cramer's Amazon' at 1/4 the size (2); 'Celway Terra Cotta'.

Postharvest Recommendations: Chrysal Pro #1; Floralife and cool water; Also good dried. **Additional Comments:** Plants get about 4-6 inches bigger than 'Celway Terra Cotta'; Most branches were bundles of spikes at the tip, but almost every plant displayed a sport of a crested form on the lowest branch.

Celosia 'Celway Terra Cotta' (Kieft)

Good Qualities: Nice color (4); Long sturdy stems and uniform stem length (4); Long-lasting (3); Very productive (3), Liked the multifaceted head (2); Early plume type; Not as much seed drop after harvest; Attracts *Tachinidae* flies that parasitize the cabbage looper; Can plant more densely than other celosias; Small leaves; Uniform in bloom size and time of blooming.

Problems: Color washed out (2); Ugly color and form; Short stems; Same as 'Celway Purple'; some plants bloomed, several plants had wide, fasciated stems.

Similar Species: Celosia 'Enterprise'.

Postharvest Recommendations: Chrysal Pro #1; Floralife and cool water; Also good dried. **Additional Comments:** A keeper for color mixing; One of my top 5; Flowers lasted a lot longer than the leaves; A few inches shorter than 'Celway Purple'.

Celosia 'Red Flame' (Genesis)

Good Qualities: Nice deep red color including stems and leaves (4); Nice long stems (2); Very prolific, lots of medium and smaller heads that worked nicely in bouquets; Productive over the whole season; Shape is more *spicata* than *cristata*. Good vase life.

Problems: Plants are top-heavy and stems could not support them.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Put in shade shortly after cutting.

Additional Comments: Deer ate it late in the season; Didn't attract *Tachnidae* flies like the Celway line; When planted in pots the plants didn't get as big but the flowers were much bigger; Seedlings seemed stunted with curled leaves at planting, but they grew out of it.

Dianthus

Dianthus 'Fandango Crimson'

(Goldsmith)

Good Qualities: Nice deep red/crimson color.(4); Long vase life (3); Lots of stems per plant (2); Some fragrance (2); Would make a lovely bedding plant; Good germination and seedling vigor; Larger florets and more disease resistant than other Fandango varieties.

Problems: Too short (7); Not as prolific a bloomer as 'Fandango Purple Picotee'; Did not germinate well; Tedious to cut with small stems so usually cut whole plant back at one time.

Similar Species: Other 'Fandango' dianthus.

Postharvest Recommendations: Did not use an ethylene inhibitor which it may require. Individual blossoms in the flower head went down fast; Use postharvest products.

Additional Comments: A stunning bedding plant but too short for cut flowers; Used only in small farmers' market bouquets; We'll see if it overwinters and yields longer stems next year.

Dianthus 'Fandago

Crimson Picotee'

(Goldsmith)

Good Qualities: Very nice dark pink/white edging (4); Would make a lovely bedding plant (2); Prolific blossoms (2), continuing beyond light frosts; Mild fragrance (2); Good germination and seedling vigor; Lots of stems per plant.

Problems: Short stems (6); Time-consuming to pick (2); Not suitable as cut flowers; Would be good as a bedding plant; Combination of the bicolor and frilliness of the

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flowers may limit its usefulness; Susceptible to disease; Colors faded a little after being in vases and became very hard to tell apart from 'Fandango Purple Picotee'.

Similar Species: Other 'Fandango' dianthus.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Too short (3), but kept blooming; Nice bicolor; Slightly longer postharvest life than 'Fandango Purple Picotee'; Will leave in the ground over winter and see if they produce longer stems next spring.

Dianthus 'Fandango Purple Picotee'

(Goldsmith)

Good Qualities: Would make a lovely bedding plant (3); Prolific bloomer (3), old-fashioned look; Good vase life (2); Beautiful burgundy and purple colors with a nice scent; Uniform stem length.



Problems: Even with cutting back, stems were still way too short (5); Low germination.

Similar Species: Other 'Fandango' dianthus.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Used primarily in small farmers' market bouquets; Wide range of stem length; Seemed to be more flowers per stem than other dianthus; Will leave in the ground over winter and see if they produce longer stems next spring.

Dianthus 'Sweet Red and White Eye' (Ball)

Good Qualities: Wonderful color (4); Nice fragrance (2), Very prolific (2); Strong stems (3); Great in bouquets (2); Large flower head.

Problems: Stems too short (7); Nuisance to harvest, strip and bunch; Fungal disease; Did not do well in the Southern heat; Much prefer to grow the Neon series of dianthus. For early flowering Hollandia and Electron have taller stems than the Sweet. Don't know if Sweet will overwinter but we have left it to see.

Similar Species: Biennial sweet William.

Postharvest Recommendations: None.

Additional Comments: A nice addition to the Sweet series.

Dianthus 'Volcano Mix' (Genesis)

Good Qualities: Nice mix of colors (5); Good vase life (2), Strong stems (2); Large flower heads.

Problems: Most stems too short (3); Unable to set this out early due to excessive rains. It languished in the heat and did not yield any salable stems; About one-fourth of the plants got bigger but never developed stems so may be reverting back to biennial life cycle; Mixed colors, prefer one color.

Similar Species: Similar to Hollandia (2); Biennial sweet Williams.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Bloomed from late June to mid-July when other dianthus had finished.

Iberis

Iberis 'Spray' (Genesis)

Good Qualities: Bright white color (4); Good fragrance (2), Holds well in hand-tied bridal bouquets; Bees loved it, though this led to quick pollination and petal drop.

Problems: Very short, most stems not usable (6).

Similar Species: *Iberis amara* ‘White Pinnacle’ and *Iberis amara* ‘Iceburg Superior’.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Will try this again next year (2) in hopes of longer stems.

Kale

Kale ‘Lucir Red’ (Takii)

Good Qualities: Smaller heads (3) made this cultivar easier to use in bouquets than the Crane series; Unique flower head that filled a bouquet; Thin stems easier to arrange.

Problems: Water smelled and needed to be changed more often than other flowers (2); Into October and heads still not colored (2); Stem length was sporadic; A little inconsistent in head size; Very susceptible to flea beetles that disfigure leaves; Flowers didn’t develop correctly.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Chrysal CVBN; Do not cut in the heat.

Additional Comments: Our customers didn’t seem to know what to do with this product. We cut a few stems and used them as novelty ‘flowers’ but we won’t grow it again; Leaves lack normal waxy bloom, may be reason for flea beetle susceptibility?

Kale ‘Lucir White’ (Takii)

Good Qualities: Tight head (3); Easy to mix into bouquets (3); Slightly earlier to show color than ‘Crane Bicolor’; attractive white center; thin stem facilitates arranging; Shiny round leaves; Less insect damage than the Cranes; Looks similar to a rose when tucked into a dense bouquet; Long vase life; Shiny, dark green foliage.

Problems: Thin stems need support (2); Into October heads still not colored; Head size was sometimes inconsistent; Susceptible to flea beetles; Foul-smelling water needed to be changed often; Had to spray repeatedly for various worms.

Similar Species: ‘Crane’; ‘Sunrise’; ‘Sunset’.

Postharvest Recommendations: Chrysal CVBN; Floralife and cool water; Wilts if cut/displayed on hot days.

Additional Comments: Lovely but took up a lot of room in the display gardens; Positive customer response.

Larkspur

Larkspur ‘Galilee Carmin’ (Genesis)

Good Qualities: Beautiful pinkish red color (3); Tall, uniform blooms; Good vase life; Great in bouquets and small arrangements.

Problems: Poor germination (3), Too short (2); Some powdery mildew.

Similar Species: QIS larkspur

Postharvest Recommendations: Kept well in cooler; Longer vase life when cut at only 25% open.

Lisianthus

Lisianthus ‘ABC 1-3 Green’ (Ball)

Good Qualities: Nice color (3); Earlier than most other lisianthus (3); Good stem length (2); Productive.

Problems: Poor germination (3); Short stems (3).

Similar Species: None.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Dried out in plug tray; Nice green color that blends well with ‘Little Lamb’ hydrangea; Looks good for flower and stem qualities.

Lisianthus ‘ABC 1-3 Misty Blue’ (Ball)

Good Qualities: Beautiful delicate color (3); Early bloomer (3); Uniform stem length (2); Productive in field and tunnel; Unique.

Problems: Short stems (2); Poor germination.

Similar Species: None.



‘Mariachi Carmine’

Postharvest Recommendations: Use postharvest products.

Additional Comments: Dried out in plug trays; Looks good for flower and stem qualities.

Lisianthus ‘Arena III Red’ (Takii)

Good Qualities: Interesting deep red color (3); Long stems.

Problems: 30 days later than standards; Low yield; More than 50% rosetting in field; Short stems, small flowers.

Similar Species: None.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Semi-double flowers; Very late but good flower color.

Lisianthus ‘Arena IV White’ (Takii)

Good Qualities: Long stems (2); Large double white flowers; Bloomed earlier than our fall-planted Mariachis.

Problems: Too late; Most plants rosetted in field and tunnel; Low germination of this non-pelleted seed; Although they bloomed earlier than our fall-planted Mariachis, they were about 10 to 12 inches shorter.

Similar Species: None.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Large, double flowers; Not good, late to flower and shows rosetting.

Lisianthus ‘Excalibur Pure White’ (Sakata)

Good Qualities: Big blooms (3); Tall stems (2); Productive; Great vase life.

Problems: Did not germinate well; Only about half of plants had white flowers, rest were green.

Similar Species: ‘Piccolo 2 Pure White’.

Postharvest Recommendations: Floralife and cool water; Put in shade after cutting.

Additional Comments: Smaller flowers and plants than ‘Excalibur Yellow’; Looks good.

Lisianthus ‘Excalibur Yellow’ (Sakata)

Good Qualities: Strong, long stems (3); Good yellow color (2); Prolific flowers.

Problems: Poor germination (2); Yellow was more of an ivory color.

Similar Species: ‘Mariachi Yellow Improved’ (2).

Postharvest Recommendations: Floralife and cool water; Put in shade after cutting.

Additional Comments: One of the tallest lisianthus we grew; Nice pale yellow flowers with green centers and yellow stamens; Not good, flimsy/weak stem quality.

Lisianthus ‘Mariachi Carmine’

(Sakata)

Good Qualities: Unique color (5); Strong stems (2); Productive.

Problems: Short stems (3); Petal color fades (2); Poor germination from seed; 8 to 10 inches shorter than those grown from fall-started plugs last year.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: None.

Lisianthus ‘Mariachi Pink Picotee’

(Sakata)

Good Qualities: Gorgeous flower color (4); Nice stem length (2); Large blooms.

Problems: Poor germination (3); Short, floppy stems (2); Half of plants in field trial rosetted.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Large double flowers; Worth trying again, but rosetting a worry; Not good for overall quality.

Lisianthus ‘Mariachi Yellow

Improved’ (Sakata)

Good Qualities: Large, double flowers (3); Long stems (2).

Problems: Stems too short (3).

Similar Species: Flowers look like ‘Excalibur Yellow’ with green centers and yellow stamens.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Much shorter than other Mariachis; Overall quality looks good.

Cornell comments on tunnel production:

Seeded on February 10, 2010 into 288 flats. Covered with plastic wrap and placed in postharvest cooler until Feb 27, 2010 when moved to mist 6 sec/30 min. June 17, 2010: transplanted lisianthus to 72 plug in greenhouse. Transplanted to High tunnel 1 (south side) on July 9, 2010. First flowering of ‘Echo Purple White’ on week of August 23, 2010 (approx. 45 days from planting; 194 days from seeding; 177 days from removed from cooler to mist bench). First flowering of ‘Mariachi Yellow’ on week of August 30, 2010. All stems short (less than 12 inches) due to lack of cold treatment, and very hot weather after transplanting to the high tunnels.

Lisianthus ‘Picolo 2 Pure White’

(Sakata)

Good Qualities: Pure white; Lots of buds on tall stems.

Problems: Too short to harvest; Foliage hides the flowers; Buds were at such varying heights on the stem that it was awkward to use in bouquets or arrangements.

Similar Species: ‘Twinkle White’.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Flowers were smaller than most lisianthus.

Lisianthus ‘Piccolo 2 Purple’

(Sakata)

Good Qualities: Beautiful deep purple color (4); Good form (2); Lots of buds on each stem.

Problems: Short stems (3); Poor germination; Thrips damage easier to see on dark flowers.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Small single flowers (2); Looks okay/average.

I swore off marigolds a few years ago, but ‘American Babuda Deep Gold’ made me reconsider.

Lisianthus ‘Rosita 2 Jade’ (Sakata)

Good Qualities: Long, strong stems (2); High bud count (2); Gorgeous rich jade-green petals.

Problems: Poor germination.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Yellow-green color; Early blooming; Smaller flower; Looks good.

Lisianthus ‘Rosita 2 Purple’ (Sakata)

Good Qualities: Gorgeous deep purple color (3) and form; Loads of buds per stem; Customers loved it.

Problems: Poor germination; Thrips damage easily seen; Color began to fade on the flowers that opened first before all the other buds opened; Small bloom size; Short stems.

Similar Species: None.

Postharvest Recommendations: Floralife and cool water; Cut when partially open.

Additional Comments: Double flowers (2); Later to bloom than ‘Rosita Jade’; A lot of petals; Bigger and more open flowers than other cultivars; Not very good.

Lisianthus ‘Vulcan II Deep Purple’

(Takii)

Good Qualities: Long stems (2); Popular color; Attractive form.

Problems: Moderate productivity in tunnel; small single flowers; 2 weeks later than standards.

Similar Species: None.

Postharvest Recommendations: Use postharvest products.

Additional Comments: Semi-double flowers with a very deep, purple color; Looks good; Loved the intense purple.

Marigold

Marigold ‘American Babuda Deep Gold’ (Gloekner)

Good Qualities: Good deep golden yellow color (2); strong stems (2); lots of blooms, large flower heads; Less smelly than some; Nice yield.

Problems: Hard to ignore the stinky foliage (2); Short stem length (2); Susceptible to leafhoppers in field which nearly eliminated production; Customers aren’t used to marigolds as cuts; Foliage susceptible to fungus; Stems often could not support the large flowers; Looked nice as a bedding plant; Hard to cut – stems were thick and branched, customers did not seem interested in marigolds as a cut flower, bloomed very late in the season (Zone 5).

Similar Species: ‘Gold Coin Orange’.

Postharvest Recommendations: Chrysal CVBN; Use post-harvest products.

Additional Comments: I swore off marigolds a few years ago, but this one made me reconsider; Crew disliked the strong fragrance; Marigolds are not really known as a cut flower; Florists did not purchase; Disbudded first flower to create spray look; Japanese beetles liked yellow marigolds more than gold; Would not grow again.

Marigold ‘American Babuda Yellow’ (Gloekner)

Good Qualities: Long stem length (4); Large, bright, yellow flowers (2); Nice color; Less smelly than some; Daylight neutral; Tolerated very humid weather well.

Problems: Stems often could not support the large flowers; Stinky foliage; Susceptible to insect attack in field (leafhopper and Japanese beetle); Looked nice as a bedding plant; Hard to cut – stems were thick and branched, too short, customers did not seem interested in marigolds as a cut flower, bloomed very late in the season (Zone 5).

Similar Species: ‘American Bali Yellow’ and ‘American Narai Yellow’.

Postharvest Recommendations: Use postharvest products; Chrysal CVBN

Additional Comments: Stems began to root in vase after about four days; ‘Babuda Yellow’ was not as nice as ‘Babuda Deep Gold’ (blooms were smaller, stems shorter); Selling was a love/hate affair; Would not grow again.

Marigold ‘American Bali Yellow’ (Gloekner)

Good Qualities: Attractive large double flower (2); bright yellow with green center (2); Long vase life.

Problems: Too short (5) for cut flowers; Would be a good bedding plant (2); Strong fragrance; Hard to cut – stems were thick and branched, customers did not seem interested in marigolds as a cut flower, bloomed very late in the season (Zone 5).

Similar Species: ‘Babuda Yellow’, Gold Coin series, ‘American Bali Yellow’ and ‘American Narai Yellow’.

Postharvest Recommendations: Chrysal CVBN; Use postharvest products.

Additional Comments: Strong fragrance; Makes an attractive hedge-type bedding plant; Disbudded first flower to create spray look; Selling was a love/hate affair; Flowers don’t get as brown as fast as the other marigolds tested; Stems quickly began to root in the vase water; All the marigolds need to be netted; Would not grow again.

Marigold ‘American Narai Yellow’ (Gloekner)

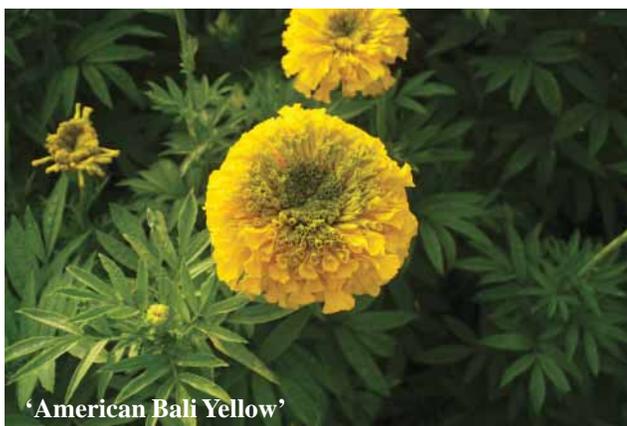
Good Qualities: Productive, even in the field; earliest variety in trial: 80 days from sowing in tunnel; 67 days in field; Grew tallest, Great color (almost peachy); Uniform stem length; A long-day marigold.

Problems: Stems too short for cut flowers (2); Color paler than preferred; Strong fragrance; Stems often could not support the large flower heads; Attracted more Japanese beetles than other marigolds; Customer interest in marigolds is very irregular; Looked nice as a bedding plant; Hard to cut – stems were thick and branched, customers did not seem interested in marigolds as a cut flower, bloomed very late in the season (Zone 5)

Similar Species: ‘American Bali Yellow’ and ‘American Babuda Yellow’.

Postharvest Recommendations: Chrysal CVBN.

Additional Comments: Strong fragrance; Selling was a love/hate affair; Stems quickly



‘American Bali Yellow’

began to root in the vase water; All of the marigolds need to be netted; Would not grow again.

Marigold ‘American Pagoda Yellow’ (Gloekner)

Good Qualities: Bright yellow, quality blooms (2); Grew tallest of varieties trialed.

Problems: Plants were nice, but too short for a cut flower (3); More suited to use as a bedding plant; Strong fragrance; Liked this variety much better than ‘Crackerjack’; Medium late: 88 days from sowing in tunnel; 78 days in field.

Similar Species: ‘Moonstruck Yellow’.

Postharvest Recommendations: Chrysal CVBN.

Additional Comments: Strong fragrance; Bigger and less ruffled petals than other marigolds; Had to remove lots of buds to get good stem length; Stems quickly began to root in the vase water. All of the marigolds need to be netted; Selling was a love/hate affair; Would not grow again.

Matthiola

Matthiola ‘Katz Apricot’ (Ball)

Good Qualities: Fresh peach color (5); Strong, tall stem (3), Fragrant (3); Earliest of series; About 63% double flowers; Good stem length in greenhouse.

Problems: Color not appealing to many customers; Too short; Serious problems this year with tarnished plant bug which ruined buds and blossoms.

Similar Species: ‘Vivas’.

Postharvest Recommendations: Remove some foliage; Sleeving may cause browning of petals.

Additional Comments: I loved this one!; Well liked by customers.

Matthiola ‘Katz Bright Rose’ (Ball)

Good Qualities: Good color (5); Fragrant; Doubles were very fully double and percentage of doubles was good; Nice stem length in greenhouse.

Problems: Stem moderately susceptible to bending after transplanting in high tunnel; Only 42% of plants with double flowers; A lot of singles, was difficult for us to select for doubles.

Similar Species: ‘Vivas’, ‘Anytime Rose’.

Postharvest Recommendations: Sleeving may cause browning of petals.

Additional Comments: Seed sown in greenhouse, transplanted to high tunnel April 14; Well liked by customers.

Matthiola ‘Katz Lavender Blue’ (Ball)

Good Qualities: Great color (5); Tall, strong stems (2); Almost looked like a bicolor at times; Slightly darker than ‘Vivas Blue’; Fragrant; Good stem length in greenhouse.

Problems: If harvested as first florets open, stems are weak and will not be erect in vase (2); Poor germination in comparison with other colors in the Katz series; A lot of singles, was difficult for us to select for doubles.

Similar Species: ‘Vivas Blue’ (2).

Postharvest Recommendations: For maximum stem strength, harvest when most florets are open.

Additional Comments: Prefer this cultivar to ‘Vivas Blue’ (taller, stronger stem, darker color); Sown March 1 in greenhouse, transplanted to high tunnel April 14; Well liked by customers.

Molucella

Molucella ‘Country Bells’ (Genesis)

Good Qualities: Good seedling vigor (2); Popular with customers (2); Good stem rigidity and little leaf calyx brown spot; Defined bells and very good color. Spiny bracts were not as spiny as other bells of Ireland (this is a big plus); Looks good, long stems.

Problems: Weak, short stems that droop in the vase (3), Didn’t seem as strong as regular bells of Ireland cultivar; Thorns (2); Flowers bleached readily in the field; Low germination (even with soaking and chilling); Need to be covered to germinate; Need to be netted or flowers will bend; Tedious to remove the leaves from the stems.

Similar Species: Does not seem markedly different from the standard unnamed variety or ‘Antique Apple Green’ (3).



'Fama Deep Blue Improved'

Postharvest Recommendations: Does not like being cut in the heat (3); Strip the leaves off the stem to expose flower; Floralife and cool water.

Additional Comments: Similar to traditional bells of Ireland except shorter with fewer branching stems; more resistant to fungus than other varieties; Short, but worked great in small bouquets; Almost 100% germination by first sowing them in a 288 tray under lights (to give them warm, moist conditions) for three days and then putting them in the cooler (dark, cold moist conditions) for two weeks. Then, back under lights to grow on.

Scabiosa

Scabiosa 'Fama Deep Blue' (Benary)

Good Qualities: Nice, moderately deep lavender color (4); Strong stems (3); Semi-double flowers; Decent production for a first-year blooming perennial in a hot summer; Large, showy flowers that continued to open once picked; Easy to grow, low energy input.

Problems: Poor germination; Not enough production; 3 of 8 plants died just before bloom; Insects; Slow to flower, too long of a crop time, branches on top - reducing the stem length; Petals turn brown fairly quickly, not sure when to pick.

Similar Species: 'Fama Deep Blue Improved' (2).

Postharvest Recommendations: Harvest at the first sign of a flower forming, put in flower food for hard water and let them open inside. If left outside to open, bugs spoiled them right away; Tended to wilt.

Additional Comments: Crop failure; Did not bloom the first year.

Scabiosa 'Fama Deep Blue Improved' (Benary)

Good Qualities: Large, showy flowers that continue to open once picked; Deep blue in high demand for bridal bouquets; Slightly darker than 'Fama Deep Blue' and some pink in the center; 'Improved' had more petals, giving the flowers the appearance of more substance.; Strong stems (3); Good color, easy to grow, low energy input.

Problems: Poor germination; Insects; 2 of 8 plants died just before bloom; Slow to flower, too long of a crop time, branches on top, reducing the stem length; Petals turn brown fairly quickly, not sure when to pick.

Similar Species: 'Fama Deep Blue' (2), maybe slightly darker than 'Fama Deep Blue'.
Postharvest Recommendations: Harvest at the first sign of a flower forming, put in flower food for hard water and let them open inside. If left outside to open, bugs spoiled them right away; Tended to wilt.

Additional Comments: Produced lots of blooms even in the first year; Did not flower the first year; Crop failure.

Scabiosa 'Fama White' (Benary)

Good Qualities: Gorgeous, almost-double, pure white color (4); Large flowers for a scabiosa; Easy to grow from seed (2); Strong, long stems (2); Low energy input.

Problems: Poor germination (2); Petals turned browned earlier than other cultivars (2); Quickly went past harvesting prime due to the interest of the bees (2); Low yield; Secondary stems tend to be shorter than the first flowers; Slow to flower, too long of a crop time, branches on top, reducing the stem length; Petals turn brown fairly quickly, not sure when to pick.

Similar Species: 'Perfecta White' (2), didn't see much difference.

Postharvest Recommendations: Cut early in the day; Tended to wilt; Floralife and cool water.

Additional Comments: Did not flower the first year; Prefer 'Perfecta White' over 'Fama White'.

Scabiosa 'Perfecta White' (Benary)

Good Qualities: Strong and long stems (2); 'Perfecta' has a double row of petals making the white seem brighter than 'Fama White'; Floral designers preferred 'Perfecta' for wedding arrangements; Lasted 4 days longer than 'Fama White'; Easy to grow, low energy input, good color.

Problems: Secondary stems tend to be shorter; Low yield; Short stems; Color did not stay pure white for long, quickly grayed; Slow to flower, too long of a crop time, branches on top, reducing the stem length. Perfecta is slightly less preferred than Fama's; Petals turn brown fairly quickly, not sure when to pick.

Postharvest Recommendations: Floralife and cool water.

Similar Species: 'Fama White' (2), didn't see much difference.

Additional Comments: Crop failure; Did not flower the first year.

Sea Oats

Sea Oats 'Green Oat' (Genesis)

Good Qualities: Long vase life (3); Very nice filler; Harvestable 156 days from sowing; Blooms blended well in most mixed bouquets; Tolerated hot and humid climate; Ease of cultivation.

Problems: Poor germination (3); Cutting tedious; Netting needed.

Similar Species: None.

Postharvest Recommendations: None.

Additional Comments: Died due to lack of water; Need help with germination methods; Plants in full sun struggled and put off very few, short stems; Plants in shade did great and kept putting out stems for about 2 weeks longer; Although the flowers were great, this plant is very weedy looking. Many grasses we grow are useful as foliage, but this isn't one of them.



'Green Oat'

Setaria

Setaria 'Red Jewel' (Gloekner)

Good Qualities: Fast grower (3); Very productive (2); Good color (2); Long lasting; Strong, long stems with a good seed head; Good spike quality, ease of cultivation; nice filler.

Problems: Some genetic variability in color: although most plants had a very distinct purple tinge to the foliage and seed head, a number of plants were just green; Stems too short; Would use 'Highlander' instead; Short harvest period requiring multiple plantings; Thin stems and small head so difficult to sell in bunches.

Similar Species: 'Limelight' millet.

Postharvest Recommendations: Used fresh flower food.

Additional Comments: Died due to lack of water; Did not rebloom after large, initial flush.

Snapdragon

Snapdragon 'Calima Pure White' (Sakata)

Good Qualities: Beautiful, straight, long, strong stems (2); Large flower head, Productive.

Problems: The pure white was not as productive as the yellow; Weak, short stems.

Postharvest Recommendations: Floralife and cool water.

Additional Comments: Heavy wind and rain caused a more horizontal growth; Need to give them more space.

Snapdragon 'Calima Yellow' (Sakata)

Good Qualities: Bright, clear color (3); Strong stems (2); Full and productive.

Problems: Poor germination.

Similar Species: 'Chantilly Yellow'.

Postharvest Recommendations: Floralife and cool water.

Additional Comments: Heavy wind and rain caused a horizontal growth; Should have netted them earlier.

Snapdragon 'Chantilly Yellow' (Takii)

Good Qualities: Bright, cheerful, not-neon yellow (4); Strong stems (3); Early bloomer (3); Did well in both greenhouse and tunnel.

Problems: Short, weak stems (3); Low germination.

Similar Species: 'Calima Yellow'.

Postharvest Recommendations: Floralife and cool water.

Additional Comments: Will try again with a fall planting (2); Did get additional secondary stems, but the primary spike was the best.

Sunflower

Sunflower 'Summer Breeze' (Takii)

Good Qualities: Cheery, bright yellow color with a green center (3); Double row of petals, some of them irregular as if being blown by a summer breeze. Strong, uniform stems; Good vase life.

Problems: Too tall (2); Stink bugs, corn rootworm beetle.

Similar Species: 'Sunrich Gold', 'ProCut Yellow'.

Postharvest Recommendations: Chrysal Pro 1; Use chlorine tablets and tell customer to change the vase water every day; Cut when petals just starting to unfurl.

Additional Comments: Holds better than other yellows; Petals less susceptible to insect damage; Huge flower heads; Very top heavy in the vase.



'Summer Breeze'

Cornell comments on tunnel production:

Transplanted on May 6 to high tunnel 2 ('Superior Gold'), 5 ('ProCut Lemon Lite'), or 6 ('Summer Breeze'). Hand-watered in after transplanting and drip irrigated 6 X 6 inch spacing. 'ProCut Lemon Lite' was first harvested June 23 (63 days after transplanting) with plants greater than 72 inches. 'Superior Gold' and 'Summer Breeze' were 8-10 feet tall when harvested and the first harvest for both cultivars was July 2 (71 days after transplanting) with the last harvest July 17. In a late summer planting direct seeded in the field on July 22, 'Summer Breeze' was about 4 days later than 'Superior Gold' (49 days after planting for 'Superior Gold', 53 for 'Summer Breeze'). Plant heights were about 6 feet. Large difference in postharvest life depending on how open the flower: a flower that was all the way open

started to lose petals and leaves began to turn brown in only 2 day; a flower only partially open looked as good as when it was cut for much longer.

Zinnia

Zinnia 'Benary's Giant Lime' (Benary)

Good Qualities: Very popular lime green color (4) with much improved size from previous seed releases; Strong and long stems; Does not need support netting; Long vase life.

Problems: Shorter than the other Benary Giants (2); Odd color: not really lime, ranges from a minty green to a yellow green to a very pale yellow; 'Benary Lime' is much better accepted; Flowers browned out easily; Bacterial leaf spot; Powdery mildew; Not all flowers were doubles.

Similar Species: Needs to be improved to match the size and vigor of the other Benary Giants.

Postharvest Recommendations: Floralife and cool water; Cut flowers when full open; Do not add any bleach.

Additional Comments: Will continue to try to grow lime zinnias for their popularity with customers; Stem length varied.

Zinnia 'Queen Red Lime' (Benary)

Good Qualities: Unique, old-fashioned-looking color (6); Most flowers fully double (2); Grew well from direct seeding; Did not need floral netting; Continuous bloom from early August (early June seeding) until frost;

Long-lasting.

Problems: Mildew; Color turns "muddy" very quickly in postharvest (2); Some heads were on small side (2); Stem length OK, but much shorter than Benary Giants; Unpredictable vase life; Lots of variability in the color and form; Typical mildew susceptibility; Did not catch many people's eyes.

Similar Species: 'Queen Lime'; Smaller than 'Benary Giant Lime', but higher petal count. Postharvest Recommendations: Chrysal CVBN; OVB upon harvest then Floralife Hard Water Food; Do not add any bleach because they are very sensitive

Additional Comments: Very dry year kept stem length short; Liked this color enough to put up with vase life; Would like to try this again for the fall market; Looks good with 'Benary's Giant Lime' since the center petals are almost the same lime color; Probably would not grow again.