

2000 ASCFG National Cut Flower Seed Trials

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This year six seed companies brought a diverse selection of great plant materials into the trial. Annual asters (*Callistephus*) were popular with several cultivars in the trial. One of the highest rated series was ‘**Serenade**’ from Sakata, which was noted for its rich colors and uniform growth. Benary’s ‘**Giant Princess Market Growers Mix**’ had a great color range and large flowers—maybe too large according to a couple of the respondents. Pan American’s ‘**Meteor Rose**’ was a nice addition to that vigorous series. As a group asters are quite susceptible to aster yellows, a devastating disease spread by leafhoppers which prevents many growers from growing this crop. If not susceptible to this disease, asters would be a more popular field cut due to their long, strong stems, wonderful colors and excellent postharvest life.

Three companies trialed selections of celosia, one of the most popular of the field cut flowers. Cramer’s ‘**Hi-Z**’ did very well – this tall, vigorous plant had red stems and long wheat-type flower spikes. Another striking cultivar was ‘**Super Crest**’ from Gloeckner. This vigorous cultivar had very large crested heads and was the talk of the ASCFG Conference in Austin. ‘**Temple Belles**’ and ‘**Kurume New Scarlet**’ were crested types and both received high marks from respondents for easy production, uniform growth and great colors. Rounding out the celosias were ‘**Enterprise Wine Red**’ and ‘**Star Trek Rose Pink**’, wheat types from Kieft.

Ageratum ‘**Blue Bouquet**’ added to the limited selection of tall cut ageratums. Similar to the popular ‘Tall Blue Horizon’, ‘Blue Bouquet’ was tall and free flowering. Two respondents noted that ‘Blue Bouquet’ was a little later to flower than ‘Blue Horizon’.

Each year the selection of lisianthus (*Eustoma*) increase. This North American native plant is one of my favorites and certainly one of the most beautiful flowers when well grown. Both Pan American and Sakata included lisianthus in the trial and one of the top performers was ‘**Avila Ivory**’ which was noted for its color and uniformity. Lisianthus are often not the easiest crop to produce, but successful growers value them greatly.

One new series of dianthus caught my attention. I watched over the summer as *Dianthus* ‘**Melody**’ flowered prolifically through all types of weather with either White, Pink or Blush Pink flowers. It was so productive that some respondents had a hard time keeping it harvested. The flowers were fragrant and the petals were distinctively frilled. The problem (and there always is a problem) - it was too short. For those participants that were able to grow taller plants, it was certainly a winner; unfortunately, it was not useable for many growers.

I also enjoyed watching the pepper (*Capsicum*) cultivars grow and mature. The well-named ‘**Spice Drops Yellow Drops**’ had round yellow fruit (some plants had elongated fruit also), while ‘**Spice Drops**

Scarlet Candles’ and **Friesdorfer Orange**’ and **Scarlet**’ had elongate red or orange fruit. In late summer as the peppers were rich with color as the fruit matured. The crop is not for everyone as the plants often take a long time to mature.

In reviewing the tables and comments you might notice a couple differences. This year we asked participating growers to rate the market appreciation based on their customers - whether they were wholesale, retail or direct to consumer. Note that relatively few gave wholesale ratings and the results should be interpreted accordingly. We also asked for the cold hardiness zone and added it onto some of the comments where we thought it would help. Hope you like the changes and I appreciate all the growers who took the time to answer a few more questions.

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. Thus, from the 2000 trials *Callistephus* ‘Serenade’ series, *Celosia* ‘Temple Belles Dark Rose’, *Ageratum* ‘Blue Bouquet’, *Celosia* ‘Hi-Z’, *Celosia* ‘Kurume NewScarlet’ (tie) and *Eustoma* ‘Avila Ivory’ (tie) are nominated as Cut Flowers of the Year and will join other nominations from ASCFG members and from the Cut Flower of the Year Panel. Experimental varieties are eligible for nomination if they are named and released.

Disclaimer: 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 lengths and yield data. If a plant does well for most of the respondents, it is likely to do well for you. On the other hand, if a cultivar didn’t appear to do well in the trial, it may still be a great cultivar for you. Thus, we have included summaries of the respondents comments to help interpret the data. Review the trial results carefully. If a species sounds interesting but did not appear to do well, try it anyway. The cultivar may work well for you.

Acknowledgments: 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 typing in everyone’s comments, Ingram McCall for data analysis, and Leah Aufill for taking care of the Oklahoma State University portion of the trials. In preparing the report I have edited the participantss’ comments for space and clarity; my apologies if I’ve altered the tone or content of anyone's comments. Thanks to everyone for making this service of ASCFG possible.

Participating Seed Companies

Benary Seed
1444 Larson St.
Sycamore, IL 60178

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

Cramers' Posie Patch
116 Trail Rd. N.
Elizabethtown, PA 17022

Kieft Seeds
2209-B Bulson Rd.
Mount Vernon, WA 98274

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

Sakata Seed America, Inc.
18095 Serene Dr.
Morgan Hill, CA 95037

Participating Growers

Leah Afill
Oklahoma State University
Stillwater OK

Douglas and Gloria Austin
Austin Gardens
Flushing MI

Phil and Dorothy Bartlett
Bartlett's Ocean View Farm
Nantucket MA

Leon Carrier
Plant Masters
Gaithersburg MD

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

Chas and Linda Gill
Kennebec Flower Farm and Nursery
Bowdoinham ME

Jeff Hartenfeld
Hart Farm
Solsberry IN

Betsy Hitt
Peregrine Farms

Graham NC

Cathy Jones
Perry-Winkle Farm
Chapel Hill NC

Sharon Hamilton/Phillip Katz
PanAmerican Seed
Santa Paula CA

Judy Low
Molino Creek Farm
Davenport CA

Ruth Moore
Heritage Farm
Middlebourne, WV

Jim Nau/Susan Schmitz
Ball Seed Company
West Chicago, IL

Karen Pendleton
Pendleton's Country Market
Lawrence KS

Carolyn Ramsbotham
Riverview Farm

Madbury NH

Vicki Stamback
Bear Creek Farms
Stillwater OK

Jeanne Vana
North Shore Farms
Waialua, HI

Cheryl Wagner
Wagner's Homestead Farms
Belleville MI

Kim Wickwire
Olds College
Olds Alberta

Lulu Wootton
Cape Farm
Marlboro VT

2000 ASCFG Seed Trial Results

Cultivar	Yield (stems/plant)	Stem length (inches)	Market appreciation rating ^Ø			Repeat again rating ^Ø	Ease of cultivation rating ^Ø
			Wholesale	Retail	Consumer		
Benary							
<i>Achillea ptarmica</i> Pearl Reselected	6.7	15.0	2.5	2.2	3.3	2.8	4.1
<i>Ageratum houstonianum</i> Blue Bouquet	8.5	18.9	4.0	3.5	4.0	3.9	4.6
<i>Callistephus chinensis</i> Giant Princess Market Growers Mix	4.1	17.1	1.0	1.7	3.5	3.6	3.6
<i>Tanacetum parthenium</i> Tetrawhite	5.9	18.1	2.4	3.8	3.1	3.6	4.4
<i>Tanacetum parthenium</i> Snow Crown	5.8	13.7	2.3	3.0	2.5	2.7	4.1
Cramer's Posie Patch							
<i>Celosia</i> Hi-Z	11.7	24.9	3.5	3.8	3.6	3.9	5.0
Fred C. Gloeckner							
<i>Capsicum</i> Spice Drops Scarlet Candles	3.3	24.5	3.0	3.5	2.7	2.8	5.0
<i>Capsicum</i> Spice Drops Yellow Drops	3.3	21.6	4.0	3.6	3.6	3.4	4.4
<i>Capsicum</i> Friesdorfer Orange hybrids	4.3	22.3	4.0	3.8	3.3	3.2	4.5
<i>Capsicum</i> Freisdorfer Scarlet hybrids	4.1	19.6	3.0	3.0	3.2	2.7	4.1
<i>Celosia cristata</i> Super Crest Burgundy	1.6	30.1	3.0	3.4	2.7	2.5	4.6
<i>Celosia cristata</i> Super Crest Mixed	2.8	25.6	3.0	3.0	2.9	2.9	4.8
<i>Celosia cristata</i> Temple Belles Dark Rose	7.4	17.2	4.0	4.3	4.0	4.3	4.9
<i>Celosia cristata</i> Kurume New Scarlet	6.3	20.3	3.7	3.8	4.0	4.1	4.5
<i>Helianthus</i> Golden Glory	1.5	37.9	3.0	3.8	4.0	3.2	4.5
Kieft							
<i>Armeria</i> Joystick Red	9.3	15.4	2.0	2.0	3.3	3.3	3.8
<i>Celosia</i> Enterprise Wine Red	7.5	17.2	2.5	2.5	3.4	3.8	4.4
<i>Celosia</i> Startrek Rose Pink	6.7	15.1	2.3	2.3	3.1	2.9	4.6
<i>Catananche caerulea</i> Amor Blue	10.8	8.8	2.0	2.3	3.0	2.0	4.5
<i>Catananche caerulea</i> Amor White	3.4	6.6	2.0	1.5	2.3	2.0	4.0

<i>Tanacetum parthenium</i> Summer Spirit	5.8	15.1	2.5	3.2	3.4	3.3	4.2
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PanAmerican

<i>Callistephus</i> Meteor Rose	7.1	17.1	1.0	2.0	3.8	2.8	3.6
<i>Eustoma</i> Avila Ivory	2.5	16.4	3.0	4.5	4.8	4.5	3.8
<i>Eustoma</i> Balboa Blue	2.3	16.5	3.0	4.5	4.4	4.2	3.4
<i>Eustoma</i> Catalina Yellow	2.2	16.0	3.0	4.0	3.3	3.8	3.2
<i>Eustoma</i> Laguna Blue Blush	2.0	15.5	3.0	4.0	4.5	4.2	3.2
<i>Trachelium caeruleum</i> Lake Sunset	4.3	15.0	3.0	4.5	3.8	4.5	4.0

Sakata

<i>Callistephus</i> Serenade Blue Tipped White	6.0	17.3	4.0	4.0	4.8	4.8	4.5
<i>Callistephus</i> Serenade Carmine	4.7	16.0	4.0	4.0	4.5	4.5	4.5
<i>Callistephus</i> Serenade Light Blue	10.7	16.9	4.0	4.3	5.0	3.8	4.8
<i>Callistephus</i> Serenade Rose	5.6	15.3	4.0	4.0	4.7	4.7	4.7
<i>Callistephus</i> Serenade Rose-tipped White	8.4	16.5	4.0	4.3	4.8	4.8	4.6
<i>Callistephus</i> Serenade Scarlet	12.4	15.5	4.0	3.5	5.0	4.0	4.7
<i>Campanula</i> Champion Light Blue	1.5	12.6	1.0	2.6	3.1	2.9	3.1
<i>Dianthus</i> Melody Blush Pink	7.8	12.4	2.0	4.3	2.8	2.9	4.3
<i>Dianthus</i> Melody Pink	9.5	15.3	2.0	4.0	3.3	3.5	4.9
<i>Dianthus</i> Melody White	8.2	12.8	2.3	4.3	3.2	3.2	4.4
<i>Eustoma</i> Flamenco Blue Rim	1.4	14.0	3.5	4.0	4.3	3.2	2.8
<i>Eustoma</i> Flamenco Purple Rose	1.6	17.4	3.0	4.0	4.7	4.3	3.7
<i>Eustoma</i> Heidi Champagne	1.8	17.8	3.0	4.0	4.3	4.5	3.8
<i>Matthiola</i> Mid Cheerful White	1.0	19.7	-	4.3	3.5	2.3	3.5
<i>Matthiola</i> Mid Cheerful Yellow	1.0	22.0	-	4.0	3.0	1.0	2.0

Ø1 to 5 scale, with 5 being the best.

Summary of comments

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

Benary

Achillea ptarmica Pearl Reselected

Good Qualities: Good clear white color (3); Color lasts long (2); Good filler (2); Flower size (2); Strong stems (best quality), length; Flowers first season; Numerous blooms for first season; Cut center stems and good laterals followed; This perennial looks good, we got a few short stems this year, should be great next year as white works well in garden bouquets; Half double flowers, good cut for dried.

Problems: Powdery mildew (2); Not all flowers double (2); Better landscape plant than cut flower; This and all other yarrows tend to get very weedy and are a pain to cultivate; Flowers aren't marketable and stems too lazy; Plant height not uniform; Need to support otherwise good ground cover flower.

Additional Comments: Similar to Matricaria (2); Gypsophila, tanacetum, Achillea PT; The Pearl Superior; Baby's Breath and Mini daisy; Pearl from Johnny's Selected Seed was weaker and shorter stems; Possible greenhouse planting may make it taller for commercial grower; Questionable use for commercial grower, basal branching, might be more feasible as a landscape plant; Needs to be seen 2nd year; Most home gardeners see this only a perennial and not as a real cutflower; Good plant, more for roadside vegetable market stands; The Pearl Superior has better plant habit and more double flowers; Variations from plant to plant, vase life 3 days.

Ageratum houstonianum Blue Bouquet

Good Qualities: Tall (3); Color (4); Long stems (2); Slightly stronger than Blue Horizon; Good, helpful in mixed bouquet use; Stem strength; Nice fragrance, easy to clip old flowers off, best one I've grown; Free flowering; Heads held up well despite all the rain and are still blooming; Long lasting - blooms all season; Good growth in greenhouse trial; Florist loved it and it looked nice in field; No problems, insect free, good sturdy stems.

Problems: Later to flower than Blue Horizon (2); For some reason most florists in my area were not enthusiastic about ageratum; Not as prolific as other cutting Ageratums; Very few flowers, all foliage; Up and down habit, plants fell open and needed 1 layer of staking; Blue Horizon is better and more preferred than Blue Bouquet; Seemed to be somewhat straggly in stature, slower to bloom and heads not as large as Blue Horizon; Grows too tall in field with weak stems.

Additional Comments: Similar to Blue Horizon (5); Blue Horizon is better (3); Ageratum did well despite moisture, however, because of late date plant never truly matured to full production; Our cutters preferred to cut in the Blue Bouquet bed later in the season rather than the Blue Horizon bed; Performance is poor compared to Ageratum potential and may be cultural conditions or cultivar; Sorry I didn't plant enough; Vase life - 5 days.

Callistephus chinensis Giant Princess Market Growers Mix

Good Qualities: Color (and color range) (3); Large flowers (3); I thought that they were a little more tolerant of our growing conditions than many other asters (Zone 7a); Strong stems, compact petals, great aster!; Excellent flower type - didn't rot or get "yellows" even with very wet season; Natural day length (Zone 9), 16" in height; stiff stem, primary flower allowed to bloom, white is taller than red, red is a good rose pink color, yellow center, good form.

Problems: Aster yellows (3); Flowers too large (2); Typical disease susceptibility; Of all the asters grown this year, this variety suffered Aster Yellows the worst; Disease and insect caused malformation in flowers and quick decline in plant health.

Additional Comments: Similar to 'Matador'. May be best suited to farmer's market, bunches rather than commercial sales; Few plants yielded up to 18 stems per plant. Almost a perfect aster, best large aster we have ever grown on our farm - made us money.

Tanacetum (Chrysanthemum) parthenium Tetrawhite

Good Qualities: Good filler flower (2); Nice size flowers; Uniform, clear white, strong stems, yellow disk, mild fragrance, highly floriferous; The best one of the three *Tanacetum* trialed, traditional white flower color and double appearance; Big plant, long stems; Good flower dusters.

Problems: Strong stems but most were bent; I would recommend fall seeding (Zone 7.5) as the stems would have been longer and flowers more prolific; May be susceptible to Aster yellows; I just can't grow because of Asters Yellows; It attacked the majority of the planting; Growth habit not uniform, flower is open and a bit wild looking.

Additional Comments: This crop seemed to do better in straight soil than in black plastic mulch; Florists' preferred this cultivar over 'Snow Crown' and 'Summer Spirit'; Need one layer of support-sometimes two; We had 7 tanacetums in trial this year, all were quite similar except bloom times and plant height; Vase life - 7 days.

Tanacetum (Chrysanthemum) parthenium Snow Crown

Good Qualities: Uniform (2); Nice flower color, clean white; Useful in bouquet making, easy; Cute small puffy flower, excellent filler flower; Never free flowering; Tetra blew the doors off this one for flower power and performance; Perennial that looks good; Harvested a few short stems; Should be great next year; Good flower shape, dark foliage.

Problems: May be susceptible to Aster yellows; I just can't grow because of Asters Yellows; It attacked the majority of the planting; Needs some treatment to achieve greater plant height.

Additional Comments: Very similar to Tetrawhite in growth habit; Florists' preferred 'Tetra White' to this one; Need one layer of support - sometimes two.

Cramer's Posie Patch

Celosia Hi-Z

Good Qualities: Great color (6); Very nice (2); Strong stems (2); Nice long stems, easy to pick; Prolific grower, uniform; Red stem very attractive, useful in bouquet making, easy, different form, re-grows if cut

back hard early enough in the season (spaced 8 x 10 inches) (Zone 7a); Good spike flower height in late summer; Nice sprays - each cut has multiple branches; Dries well; Even, uniform, less falling over than others; Many stems did great under adverse conditions; Was different, florists either loved it or hated it; Good filler.

Problems: None (3); Not a particularly striking shape (flower form), flower nearly too long for easy mixed bouquet use, some have cockscomb types; Might be slightly more sensitive to cold temperatures than other celosia, takes several to make color statement; Foliage is green in my field, doesn't look like picture in Johnny's Seed Catalog; Could not sell as straight bunch at farmer's markets, too spiral for good bouquet mix; Good length first cut, then subsequent cuttings were too short for our fresh bouquets; Need to be kept harvested so heads don't get too long and seedy.

Additional Comments: Similar to Enterprise Wine Red but taller (3) and to Plumed Wheat Celosia; Everyone liked this one!; Would grow in small quantities to see what market does; Burgundy rose flower color, Flamingo type, 1 layer of strings used.

Fred C. Gloeckner

Capsicum Spice Drops Scarlet Candles

Good Qualities: Color (2); Nice size pod; Very decorative small round bright red peppers, good side branches; Fun little red peppers on long stems, peppers face up not down, dried well for fall and winter color; Later to flower/fruit than Friesdorf Scarlet; Sold all I had.

Problems: Long crop time for few stems; Maturing late September, probably caused by cold, wet summer; Fruit spaced out on branch, would like peppers to be closer in set, matured very late in season (Zone 5); Lodges freely, hard to keep upright once fruiting, weaker stemmed than Friesdorfer; I didn't get enough plants started early enough; I will next year because it was very popular.

Additional Comments: Similar to 'Friesdorfer Scarlet'; Not impressed with pod display; Need to remove all leaves before marketing stems to show off the fruit; Cold summer probably delayed fruit coloring; Need one layer of support, sometimes two; Consumers thought peppers were edible .

Capsicum Spice Drops Yellow Drops

Good Qualities: Color (4); No problems growing this one; Easy, great color mix; Small round yellow peppers, dainty attractive shape, very decorative, good side branching; Good for big bouquets; Cute item, excellent appeal; Shapes, good yield of fruit; Novel size and color for arrangements.

Problems: Short stems (2); Variable fruit shape (2); Matured late (2); Lots of cool rainy weather delayed this crop (Zone 7.5), we are just starting to color up lower peppers (10/3); Not uniform in height or fruit shape; Very variable, fruit color was red to yellow; Less than 10% of the plants were actually yellow, needs to be cleaned up genetically; Didn't dry well (color was dull), would like to see fruit set closer together; Would prefer to have more rounded fruited and more uniform; Non-uniform ripening on stem, lower fruit dried up before top peaked in color.

Additional Comments: Nothing else like it; Probably better started earlier and moved up then planted out (not great for us small growers); Hot; Cold summer probably delayed coloring of fruit; Need one layer of support, sometimes two; Fun to use.

Capsicum Friesdorfer Orange hybrids

Good Qualities: Color (4); Should have sold better; Excellent side branches; Nice size fruit (looked like Christmas bulbs), dried okay; Nice item but the orange fruit color did not grab the attention--however, when I mentioned Halloween sales, the mood changed, I like this item but most preferred the red, I think this would have rated better (most of the decision makers were men - not women, and women buy the Halloween items).

Problems: Matured late (2); Fruit too large (2); Fruits are low on the plant, this makes them more difficult to use; Not many peppers per stem; early leaf disease somewhat stunted these; Long crop time for few stems; Grasshoppers ate on the peppers a little.

Additional Comments: Similar to Nippon Taka; Market didn't seem ready so may take time to improve appreciation; Removed all leaves before marketing stems to show off the fruit; Early in season decided this was a loser, but by end of season, it had won me over, great for big display with fall colors; Need one layer of support, sometimes two; I sold them all; Consumers thought peppers were edible.

Capsicum Freisdorfer Scarlet hybrids

Good Qualities: Color (4); Good stems, fruit up and down stem; Easy; Nice size pod; Excellent side branches, 3 colors on plant same time green with tangerine, orange with red; Hardy, nice green color, peppers all upright - nice shape, not too crowded, hot like a jalapeno; Red is longer stemmed than orange which I know was a factor in reducing Orange's marks, also, red is more robust, more vigorous than the Orange; Well accepted, size of fruit, no disease; Interesting in arrangements.

Problems: Short stems (2); This seed had very poor germination and we didn't get any results from it; Some plants more vigorous than other; spotting on foliage; Long crop time for few stems; Maturing late September (Zone 5) probably caused by cold, wet summer; Peppers look too large to be used in the home for vase use, looks out of place or odd; Maybe needs more heat to get red color?, taking a long time - 5 months to get color?.

Additional Comments: No pepper weevil damage observed; Not impressed with pod display; Removed all leaves before marketing stems, labor intense but necessary to show off fruit and condition; Will sell when (if) fruit turns red (still waiting 10/10/00) (Coastal CA); Need one layer of support, sometimes two; Consumers thought peppers were edible.

Celosia cristata Super Crest Burgundy

Good Qualities: Color (4); Unusual flower head (2); Has side branches that flower; Easy; Nice flower head, maybe too big to grow on large scale; Big and gaudy, late season cut and need to pick at young stage; Even through strong stemmed, people prefer Temple Belles Dark Rose since more uniform and got more cut flowers; The larger florists loved the big long stems and some loved the color; Stem length, dries well; Exotic looking, pest free.

Problems: Stems too thick (3); High proportion of foliage to flower, one plant with bad fasciation; Many plants didn't regrow after 1st cut; Difficult to use in bouquets; I don't like the color (too flat); Despite different spacing, they fell over when other celosias in the bed were still upright - weak root system; No problems; For the smaller florists it was too big but everyone can't be happy; Has side shoots at flower base; Flower head sheds.

Additional Comments: Temple Belles Dark Rose has similar color, but in a much more useful form;

Similar to Red Velvet but actually flower forms are more saleable and larger crest on Red Velvet; Similar to Bombay; I was surprised at the customer's acceptance of the form of this celosia; I thought that people would not like it but they did; May have better flower size if plants were pinched back softly (12") to force many side shoots; More of a novelty rather than a professional cut; It was nice to have a large different variety to go along with Chief mix; 12" wide flowers; Didn't know prime time to cut flowerhead, various stages to cut flower heads, vase life - 7 days.

Celosia cristata Super Crest Mixed

Good Qualities: Color (4); Good color mix (3); Unusual flower form (2); Some very nice flower forms - tighter selection would help; Vigorous; Easy, quite different from celosias that I am familiar with; Good stem length; This was one of the florists favorites, because of the color; Pest free, good filler.

Problems: This series was extremely varied (in flower form), half were unuseable, did not resemble 'Supercrest Burgundy' at all; Very variable with different types in the mix, Cristata, spicata, intermediates; Heads smaller than normal - probably due to cool, wet season; Stem diameter is too large and not much color to flowers, lost most plants after 1st cut; Very thick stem and sometimes distorted crest, difficulty to use in bouquets, crest sometimes look like a freak; Difficult to manage in the field, too up and down; Size of heads were small; Pythium destroyed the plants; Flower heads shed; Twisted heads.

Additional Comments: Similar to several other cultivars, since most types of Celosia are in the mix; Also, similar to other long stem crested celosia (Kurume, e.g.) and Red Velvet (Red Velvet forms a better crest - full at crest); A veritable "dog's breakfast"; not appealing; I was surprised at the customer's acceptance of the form of this celosia, I thought that people would not like it but they did; May produce better with soft pinch @ 12"; The colors in this were the best quality, Yes, the stems were very large, but the pastel victorian-like colors made it a winner; Various stages to cut flower heads, keep soil moist, vase life - 7 days.

Celosia cristata Temple Belles Dark Rose

Good Qualities: Color (7); Easy; Pretty good head developed; Excellent producer; Velvet looking flower, very nice; Easy to grow and required only 1 layer of support but is strong stemmed for such a tall plant; The florists who didn't care for the fan shaped Supercrest liked this one so growing both is a good thing for me; Pest free, nice dried, self sows/second generation within 6 months.

Problems: Stems too thick (2); Somewhat later than other crested cockscomb, stems a bit weak, early on, then they strengthen; Heads not as large as could be; Sometimes twisted stems or blooms.

Additional Comments: Similar to Kurume and Chief Celosia; Dries well; I personally liked this one; Vase life - 10 days, keep soil moist.

Celosia cristata Kurume New Scarlet

Good Qualities: Color (6); Uniform growth, good foliage color; Easy, earlier than other celosia; Nice Cristata!; Bronze foliage - great!, crest is formed perfect, velvet looking; Vivid red, bronze foliage, if unpinched, then get 1 large flower cluster to develop to 4 in. across, if pinched, then get up to 10 short stemmed cuts (14 - 18 in. long); Red foliage; Nice length; Heads of varying size; Pest free, nice dried; Self sows, second generation after 6 months.

Problems: Many of the stems are a bit on the short side; Small heads; No problems, almost perfect celosia, some side shoots with weak stems - cannot hold up extra large crests, just need to cut earlier;

Weak stemmed, plants collapsed and had to use two layers to keep plants upright; Disease caused malformation, much later than Bombay's; Seemed to get some dark spots on heads.

Additional Comments: Similar to Temple Belles New Scarlet and Kurume Scarlet; Mixed with Blue Horizon ageratum and my customers snapped them up; Best red I've grown and will grow for years to come; Grew shorter than other Kurumes in our greenhouse; Vase life - 10 days, keep soil moist, variations in flower head development.

Helianthus Golden Glory

Good Qualities: Gold color (4); Nice size flower for bunching; Very uniform, attractive single stem sunflower; Strong stems; Short harvest window, nice sunflower; Flowers opened ok, nice disk; Flowered in August (Zone 5); Size of flower; Multiple cuts, nice size for vase work;

Problems: Did not germinate in field, tried a flat in greenhouse - weak plants, did not transplant. Droopy look of long petals - may appeal to florists; None; No disease or insect problems.

Additional Comments: Similar to 'Sunbright' and 'Soraya; Another sunflower that looks like many other ones; Yield would be 1.0 stems/plant if deer weren't so hungry; Need one layer of support.

Kieft

Armeria Joystick Red

Good Qualities: Color (3); Good germination; Good stem length (8 x 8 in spacing); Tall; Beautiful antique color as opposed to Park's Armeria, which is very neon; Good strong stems; Flowers quickly from seed, no pests, nice color, germination was very good; OK color, but not exceptional; Flowers were small but gave good dimension to bouquets; Tolerant of poor conditions; Good flower shape, size; Strong stems, long lasting flowers.

Problems: I'm not sure Armeria can reach its full size in the Vermont climate; Other tufts remain fairly small (8" diameter) here and production is low, will leave plants in to mature; Flowers senesce on top of umbel, looks like a bald guys head, non uniform for flowering; Flower unmarketable, only 30% survival of plants; Inconsistent yield, more for roadside market rather than a professional cut, unreliable to flower, better as a garden perennial; Size of flower, plants grew well, just wasn't impressed with them, planted some in my own flower beds, but they seemed lost among other plants, not enough color or sizeable flowers to show up; Flowers brown fast; Didn't germinate; Took 7 months to bloom, very small globe flower heads, size of a jawbreaker; grows very slow, hard to establish.

Additional Comments: Similar to other Armerias; For some reason florist do not like - mostly I think because one needs so many to make them look buyable, I put 20-25 per bunch and the bunches still looked skimpy, Also, they do not hold up well in 42°F cooler, their heads droop; Very good show late in August; May be better second year; We planted this in our display beds, and it was beautiful.

Celosia Enterprise Wine Red

Good Qualities: Color (5); Strong producing plant, useful in mixed bouquets; Flowers quickly from seed, no pests, nice color, germination was very good, smaller size "sprays" make it good for bouquet makers, re-blooms after a hard cut; Is a spike flower; Good to mix with other flowers but rather difficulty color to

combine, mixes well with yellow and orange fall flowers; Pest free.

Problems: Too short (4); Did not evaluate because the groups I showed this to preferred Hi-Z, which was longer spiked but about the same flower color; Not enough color on tip of flower unless several stems are together; Could not sell as straight bunches at farmer's markets; None; Pythium wiped out plants; 6" flower head, lower third browns early.

Additional Comments: Similar to Hi-Z (4) but shorter; Similar to Wheat Celosia, Pink Candle, Startrek, and Enterprise Pink; I would grow again just for the color!!!; Dries very well, keeps color; Needs one layer of support, similar to Flamingo Feather types; Keep soil moist.

Celosia Startrek Rose Pink

Good Qualities: Color (5); Stiff stems, commercial uses; Flowers quickly from seed, no pests, nice color, germination was very good, smaller size "sprays" make it good for bouquet makers; good flower development despite cool, damp season; Great to use in with mixed flowers for contrast, combines with many different colors well, Great flower shape; Even uniform but nothing grand; OK variety; Good as cut or dry, long lasting color, unique flower shape; Self sows; second generation plants within 6 months, multiple flower heads per stem, flower heads approx. 2" each, great filler.

Problems: Too short (5); No problems (2); Color somewhat weak, 'Enterprise' in this series like a much better cut flower; A few cockscomb types; Maybe fine for mixed bouquets, but not suitable for our single stem, "make you own bouquet" system; Looks ragged; Could not sell as straight bunches at Farmer's Markets; Small heads, may be due to wet growing season (Zone 5); My customers if they had a choice would rather buy the headed celosias; Pest free; Might make a good bedding plant, not a great cut flower.

Additional Comments: Similar to other Wheat Celosia, Pink Candle, and Enterprise; I really like the look of this one; Nice color and different form; May have been able to increase height with a closer spacing; Dries very well, keeps color; Rose flower color, Flamingo Feather type with triad of blooms at top; The heat we had could have forced this to bloom when it was short (Zone 6b); We are also growing in greenhouse in pots with good success; Self sows, second generation, 6 months, keep soil moist, long vase life - 10 days; on the plant - 90 days.

Catananche caerulea Amor Blue

Good Qualities: Color (2); Easy to establish; Attractive flower form, many flowers; We disregarded the flower as too wispy but the flower pods have an almost Mother of Pearl look to them, we used more of the unopened buds than the flowers.

Problems: None; Timing; Hates life in the South (Zone 7a), looked so bad in the flat I didn't bother to plant in field; Flower unmarketable; The flowers close up at night; All plants died; Didn't germinate.

Additional Comments: Hope it overwinters here. (Zone 2); Week 34 flowering, variable timing; May be better second year; Better as a home cut but a novelty and not a prime cut; Hasn't bloomed yet, slow growth.

Catananche caerulea Amor White

Good Qualities: Long stems, good weather tolerance; Lots of really short 6-inch stems; We disregarded the flower as too wispy but the flower pods have an almost Mother of Pearl look to them, we used more of the unopened buds than the flowers.

Problems: Flower unmarketable, approximately 50% survival; Hates life in the South (Zone 7a), looked so bad in the flat I didn't bother to plant in field; The flowers close up at night; Crop seemed to be under too much stress and faded out (Zone 5); All plants died; Some blue tips, late.

Additional Comments: May be better second year; Better as a home cut but a novelty and not a prime cut; Hasn't bloomed yet, slow growth.

Tanacetum parthenium Summer Spirit

Good Qualities: Uniform (3); If a perennial, I will definitely keep, blooms quickly from seed, beautiful, sturdy pom-poms of clear color on strong stems; Lasts for 2 weeks (or more) in cooler plus keeps color; Slower to flower than tetra, stiff stem; Easy, good for bouquet makers; Excellent filler flower; Good tight flowers, semi-continuous blooming; late flowers had shorter stems; Dark foliage, later blooming for continuous *Tanacetum*; Good flower clusters; Cut with 5 days otherwise gets dirty, good filler.

Problems: Short (3); May be susceptible to aster yellows; Needs something to achieve greater plant height; Leaf miners.

Additional Comments: Similar to 'Snowball'; Never free flowering, Tetra blew the doors off this one for flower power and performance; Benary's *Tanacetum* was started 2 weeks after Kieft's and still (as of 9/21) has not bloomed, Kieft's began to steadily bloom about 4 weeks after transplanted, tubular ray flowers/petals; Florists' preferred Tetra White to this one; Need one layer of support, sometimes two, pompon type; Would like to grow again to see if stems will be longer; Vase life - 7 days.

PanAmerican

Callistephus Meteor Rose

Good Qualities: Color (2); Large flower size (2); Uniform; Perfect form; Groups preferred smaller blooms which are easier to work with; Full flower, very tall plant, later to bloom than others by 3 weeks; Mixed beautifully with other later annuals, (some baby's breath), tiny, sweet flowers at the end - very nice colors (all three).

Problems: Disease took its toll and there was no harvest, we had lots of cool rainy days; More prone to aster yellow (caused by leafhopper) than all other varieties trialed (8 total), some blooms partly white; Probably better as a greenhouse cut rather than a field cut; lodged (fell over) too easily and required two layers of support to keep it upright; Later to bloom than others by 3 weeks.

Additional Comments: Nice color; The tallest aster in trial for this summer.

Eustoma Avila Ivory

Good Qualities: Color (3); Uniform (2); Double flower; Flower size good, stem length good, good bud count, no fungus on leaves, no wilt; Great vase life.

Problems: None.

Additional Comments: I got very near 100% germination on this one in 10 days; Good job on producing the seed PanAmerican; One layer of support; *Eustoma* takes a lot of attention after germination; we just don't have enough help to keep track of it.

Eustoma Balboa Blue

Good Qualities: Color (4); Uniform (2); Double (2); Size of flowers, good bud count, greenhouse crop better than field crop, great vase life.

Problems: None; Outdoor production does not produce high enough quality for professional florists.

Additional Comments: This one grows really well and gets tall (Zone 7a); If you are having a hard time growing Lisianthus, try this one; One layer of support; Eustoma takes a lot of attention after germination, we just don't have enough help to keep track of it.

Eustoma Catalina Yellow

Good Qualities: Color (4); Uniform (2); Double (2); No wilt or insect problems.

Problems: None; Easier to rosette than others; Poor color and quality in field.

Additional Comments: Used one layer of support.

Eustoma Laguna Blue Blush

Good Qualities: Color (2); Uniform; Single flower, later to bloom than Avila, Catalina and Balboa; Flower size was smaller than other varieties.

Problems: None; Eustoma does not perform well in Zone 2; We had a couple stems produce flowers but not usable; Plant height not as good, maybe due to excessive weeds in area where planted.

Additional Comments: Similar to other Lisianthus blush; Poor germination in greenhouse, lots of damping off; People love these "blush" Lisianthus; one layer of support, pale lavender and white.

Trachelium caeruleum Lake Sunset

Good Qualities: Great color; Has tiny white flowers - wonderful contrast to dark purple stems and leaves very "cosmic" look; Beautiful variety with vivid purple flowers and stems; I've grown this before and love it for a late season cut.

Problems: Poor germination - ended up with 16 plants in the field; Deer ate this one down to a very short stub; Difficult to tell when blooming, bleeds white against dark purple stems; Crop failure, too much damping off in spring; Lost all plants to Pythium; Flower heads rotted before they opened.

Additional Comments: Great surprise here in Zone 2; Would try again under tunnels in the early summer; I was surprised it didn't seem to appeal to chic-chic buyers, but it did to the young-student types; Need one layer of support, sometimes two.

Sakata

Callistephus Serenade Blue Tipped White

Good Qualities: Money maker, easy to sell, mix with Blue Horizon Ageratum for quick bouquets that sells with ease, customers loved color variations on same stem, full of flowers at the same time; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; Flowers small, nice color, bloom is a full head almost all at the same time, nice filler in bouquets.

Problems: Rust hit late bloomers; Lost all plants to *Pythium*.

Additional Comments: We cut the center then side branches for a quick made bouquet, seem to grow more stems per plant when two plants grown in same hole; the best of the six Serenades trialed; Use one

layer of support in the field to keep upright in open areas.

Callistephus Serenade Carmine

Good Qualities: Easy bouquet maker, color combines with many different flowers; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; Good full heads, nice color, filled out bouquets.

Problems: Only fair sales compared to Serenade Scarlet and Serenade Blue Tipped White, still excellent sales; No branching, flower heads small, no disease or insects; Lost all plants to Pythium.

Additional Comments: All Serenades are excellent asters; Use one layer of support in the field to keep upright in open areas.

Callistephus Serenade Light Blue

Good Qualities: Color (2); Long breaks, very versatile; Uniform, stiff stems, nice as filler, lots of branching, clean foliage, nice Blue, mixed well with Blue Ageratum, excellent sales; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; Good mini vase flowers, flower dusters on stem.

Problems: Bad Aster Yellows this year (Alberta); This one was 1.5' tall and disease wiped it out; Short in field; Few flowers open on stem same time; Leaf miners.

Additional Comments: One bunch/plant - great value for florists; Taller, slower than other two, lights would increase height, The least liked of 6 Serenades trialed because lack of many flowers on each stem, use one layer of support in the field to keep upright in open areas; Fast to bloom - 6 weeks, did not rebloom, plant lived only 6 weeks, vase life - 7 days.

Callistephus Serenade Rose

Good Qualities: One plant results in one full bouquet; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; Great color, many good flower clusters, mini vase flowers.

Problems: This color is not appreciated by my customers as much as other Serenades, if this was the only one we grow in series, customers would probably love them; Leaf miners.

Additional Comments: All Serenades are excellent asters; Use one layer of support in the field to keep upright in open areas; Fast to bloom, 5 weeks, did not rebloom, 6 weeks plant life, vase life - 7 days.

Callistephus Serenade Rose-tipped White

Good Qualities: Color (4); Long breaks; Uniform, stiff stems, nice as filler, lots of branching, clean foliage, color variations on same stem, dainty flowers, color mixes well with other types of flowers, very bushy plant, full of flowers at the same time; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; No rust, color good, nice full stems, great filler for bouquets; Many good flower dusters, mini vase flowers.

Problems: Bad Aster Yellows; Short in field; None; Cut all at once, leaving rows to be replanted or weedy; Would like more continuous blooming time, flowers small, Leaf miners.

Additional Comments: Fastest and shortest of the three Serenade varieties; Third best of Serenades trialed, two plants in same planting hole resulted in up to 14 stem total; Use one layer of support in the field to keep upright in open areas; Fast to bloom, 5 weeks; did not rebloom, 6 weeks plant life, vase life - 7

days.

Callistephus Serenade Scarlet

Good Qualities: Color (3); Uniform, few plants later to flower; Dainty flowers, quick selling, money maker, full of bright red flowers at the same time; Dependable, reliable and attractive series, the easiest asters to grower with less Aster Yellows and lodging; Flower clusters, mini vase flowers.

Problems: All the Asters were diseased and we had no harvest, however, we had Matsumoto Asters 2 rows over and they did fine; Some plants are fading, tips fade first; Difficulty to use in mixed bouquets because of color - white statice or Blue horizon ageratum mixed well; Leaf miners.

Additional Comments: Cut large centers then side sprays for quick bouquet, 2nd best of the six Serenades trialed on our farm; Use one layer of support in the field to keep upright in open areas; Did not rebloom, short lived, 7 day vase life.

Campanula Champion Light Blue

Good Qualities: Color (7), lighter purple than “Champion Blue”; Strong stiff main stem, 8 open flowers; Uniform; Great to have a *Campanula calycanthema* type variety throughout season, good for bouquets; Appealing shape of flowers; No insects and no fungus.

Problems: Too short (3); Better as a greenhouse cut (2); Did not tolerate heat (2); Really had a hard time establishing in the field (Zone 2); Variable flowering time, sheds pollen; Will have to try again, planting earlier, to see if they will produce as well as “Champion Blue” and “Pink”; Timing is tricky - should be staked - poor yields and short stem length (compared to what is expected for cultivar), disease prone; Never amounted to too much in the field, in the garden it was in full bloom all June, however, grew like a bedding plant and not a cut flower; After 1 July, too hot and stems not marketable; Too costly to produce in our climate (Zone 5); My customers love the annual *Campanula medium*, however, ‘Champions’ are a poor substitution for the biennial we grow; Needs to be started early; Lost all plants to Pythium; Took 12 months to bloom.

Additional Comments: Was not light blue but was purple (3); Similar to *Campanula calycanthema* and to Champion Blue; Produced 8-10 side shoots, with smaller stem than main shoot; No support problems (necessary).

Dianthus Melody Blush Pink

Good Qualities: Very floriferous (3); Great smell (2); Dianthus are durable, held up well in arrangements and wedding work; Bright color; Excellent flowering all season; Of this group Pink was the best while White is weaker and not worthy of an award; Customers loved the blushing color of Blush Pink.

Problems: Too short (3); Needs to be harvested/deadheaded regularly (2); Takes lots of stems for a nice bunch; Color seems a bit muddy; Flowers get pretty ragged looking after rain, If planted earlier (Zone 6B), may have had more marketable stems; Lack of customer interest perhaps because we market a lot of *Dianthus barbatus* which has more colors; None.

Additional Comments: Seeds 45° one week before planting, great germination; Customers would not purchase if mixed with other Dianthus or just one variety, useful in mix bouquets only if used sparingly; No support needed; My customers loved it; It would make an excellent bedding plant.

Dianthus Melody Pink

Good Qualities: Color (3); Easy (2); Prolific flowering (2); Fragrant (2); Early bloom, extended harvest; Uniform, good vase life; Dianthus' are durable; held up well in arrangements and wedding work; Stems short after 3rd cut; Long stems; Excellent flowering all season, of this group Pink was the best while White is weaker and not worthy of an award, customers loved the blushing color of Blush Pink; Multiple blooms, nice mixer, no fungus, long stems, attracted no bugs; Color and use ability in garden bouquets.

Problems: Flowers get pretty ragged looking after rain, need to be harvested/deadheaded regularly; If planted earlier (Zone 6B), may have had more marketable stems; Lack of customer interest, I liked a lot more than my customers did; Waited too long on cutting, grows in vase - not "self-grooming"; None; Tedious to cut because of small flower; Was a little short but with proper nutrition I'm sure will be better.

Additional Comments: Looks very much like "Gypsy" although not as big; Reasonable as large filler; Stored seeds at 45^oF one week before planting - great percent of germination; Useful only if mixed 2 or 3 stems in bouquets; Carnations, etc. are considered too ordinary by consumers; No support needed; My customers loved it.

Dianthus Melody White

Good Qualities: Fragrant (3); Prolific flowering (2); Easy to establish, early bloom, extended harvest; Very pretty early flower, looks good in mixed bouquets (when stems were long enough); Uniform, easy, good vase life, first to bloom in the Melody series; Dianthus' are durable; held up well in arrangements and wedding work; Excellent flowering all season, of this group Pink was the best while White is weaker and not worthy of an award, customers loved the blushing color of Blush Pink; White is a very clean white.

Problems: Short (4); Flowers get pretty ragged looking after rain, need to be harvested/deadheaded regularly; If planted earlier (Zone 6B), may have had more marketable stems; No customer interest, lot of cutting for a filler; None; Difficult to find the right time to pick; some were gone by the time the stem was ready to pick.

Additional Comments: Good filler, small vase work; Pretreated seeds at 45^oF for one week - great percent germination; Useful only if mixed 2 or 3 stems in bouquets; Customers like Biennial Sweet William best; No support needed; My customers loved it; It would make an excellent bedding plant.

Eustoma Flamenco Blue Rim

Good Qualities: Color (2); People love these blues, nice stems; Very attractive flower, survived mild drought in field, single flower, later to bloom than Avila, Catalina and Balboa; No wilt, no disease, no insects; Loved by all who saw them, especially outdoors vs. greenhouse cultivation, unique bi-color.

Problems: Terrible germination - no better than Purple Rose; Tiny transplants and lots of care in greenhouse, takes a really long time - has not bloom 10/10/00 (Coastal CA); Height short, not good blanching; Eustoma takes a lot of attention after germination; Long growing period, disease turned most blooms brown; None.

Additional Comments: Probably needs warmer temps than here (Coastal CA); One layer of support, pale lavender and white.

Eustoma Flamenco Purple Rose

Good Qualities: Color (3); Large stiff stems; Single flower, later to bloom than Avila, Catalina and Balboa; Can't say enough; no disease, no insects, no wilt; Good vase life.

Problems: Very slow to flower, rosettes; Germination was horrible. Not good branching, too short;

Eustoma takes a lot of attention after germination; None.

Additional Comments: Very attractive color, segregating shorter rose plants, variable height, good stems and spray; One layer of support, outstanding color but very late (August/September) (Zone 5).

Eustoma Heidi Champagne

Good Qualities: Color (2); Good stems, no rosetting; Single flower, later to bloom than Avila, Catalina and Balboa; Can't say enough, no rust or disease.

Problems: Probably needed to get this one started earlier in the season; We got hot fast this year; But what a color; Champagne color looks dirty to customers; None.

Additional Comments: Reasonable spray, variable timing, light pink, blush color, small color; One layer of support, Outstanding color but very late (August/September) (Zone 5). Eustoma takes a lot of attention after germination.

Matthiola Mid Cheerful White

Good Qualities: Color (2): The only stock that has bloomed for us; Good stem length, good stress tolerance, would expect better field performance with normal growing practices; Fragrance is wonderful, good double flower; Good full heads, long lasting into season; None.

Problems: Did not recover in the field after transplanting, like many stocks we have tried, not economical as a field cut (Zone 2); Spindly stems not real full; This is the wrong plant for the South (Zone 7a); I've grown Cheerful White and Yellow for years and they have always done very well; This one is supposed to be later, and it is, but we get too hot; What a disappointment!; Need to be staked, flower heads did not elongate much; Immediately succumbed to hot, variable, Indiana spring - barely grew, faded quickly, no flowers - not much 'midseason' as the name implies.

Additional Comments: Similar to Cheerful White; Maybe this should have been put out earlier 3/15? (Zone 7.5); Flowered in pack, transplanted in flower, holds up well under moderate heat; Bring back good old regular Cheerful!; Forget about "Mid".

Matthiola Mid Cheerful Yellow

Good Qualities: Similar to white, good stem length, good growth under our delay in transplanting stress. Nice fragrance, nice color, nice double flowers, unusual in our market.

Problems: No good qualities; Did not recover in the field after transplanting; like many stocks we have tried, not economical as a field cut (Zone 2); This is the wrong plant for the South (Zone 7a); I've grown Cheerful White and Yellow for years and they have always done very well; This one is supposed to be later, and it is, but we get too hot; What a disappointment!; Needs staking, short flower heads.

Additional Comments: Similar to Cheerful Yellow or Cheerful White; Bring back good old regular Cheerful!; Forget about "Mid"; Both stocks were lovely - but do not field grow well for us and not worth taking up greenhouse space to grow again - can't get price per stem necessary to keep as greenhouse crop.