



2020 ASCFG Seed Trial Report

John Dole, Nathan Jahnke, and Judy Laushman

Photo Nathan Jahnke

This is an anniversary year...of what, you ask? Marigolds. It was ten years ago that marigolds first appeared in the ASCFG Trials. At the time, they were met with a great deal of skepticism. While the marigold has been a major cut flower in some parts of the world, it had been thought of primarily as a bedding plant here in the United States and Canada. Their fragrance—some may say “odor”—was not loved by all. But ten years later it’s clear that cut flower marigolds are here to stay. Their productivity, reliability, and bright colors have made them an important product on many farms. Cut flower marigolds have long been part of the cultures of India, Pakistan, and Mexico, and have become increasingly popular with American and Canadian consumers as well.

This year we had nine **marigolds** in the trials (see great photos of all nine from Rachel Lord and Nathan Jahnke), including one billed as lime green with no odor. The quest for an odorless marigold has been long running, but maybe not on the order of the 50+ year quest by Burpee to find a white marigold. ‘**Nosento Lime Green**’ fit the bill with very little smell to the foliage. By the way, if you are wondering about the unusual name, say it slowly: “No sent Oh!” Not sure if there was a correlation but a number of the trialers noticed that Japanese beetles loved this cultivar. Here at NC State ‘Nosento Lime Green’ was the beetles’ favorite by far. While the billing of the cultivar as odorless was accurate, the color was not quite as advertised. Flowers started out a greenish yellow but quickly opened to a pale yellow. The color was unique in the trials, and many trialers liked it, but it was not lime green.



Photo Rachel Lord



'Nosento Lime Green'

Photo John Dole

The top performing marigold in this year's trial was **'Xochi Orange'**, with its vivid orange flowers, long, strong stems that averaged 22 inches (longest of all the marigolds in the trial), and high productivity of close to 10 stems per plant. One trialer said it most directly: "KEEPER!" Several noted that **'Xochi Orange'** was the tallest marigold in the trials, with one simply stating that it had "ridiculously tall plants". It appears that the days of trying to make short bedding cultivars work for cut flower production are over!



'Xochi Orange'

Photo Rachael Ackerman

If you are considering growing marigolds or are looking for a new cultivar or two, check out the other seven entries. All did well, although **'Bindi Gold'** and **'Royal Bali Gold'** tended to be too short. On the other hand, **'Bengal Orange'** was among the tallest at NC State, and for many others as well. It was special for at least one trialer: "This was my favorite cultivar! Tall sturdy stems. Nice orange color. Very prolific. I cut so many flowers from this plant. It also dried nicely too! I can't say enough good things about this one."

Each year we marvel at the photographs of flowering kale with large, lush heads adorned with white, pink, green, and sometimes red. The production images show tall, uniform, beautiful plants. Others show flowering kale as the striking focal point of a stunning arrangement. Alas, each year our hopes are dashed here in NC State: we germinate the seed, grow the plants, transplant them to the field, and then, watch them either die of heat exhaustion or be eaten by any of one of the many pests that love kale.

But ornamental kale is a prime example of why we do trials. While we can't grow a decent crop in our Zone 8a climate, growers in other areas can and they certainly loved the cultivar in this year's trials. **'Crane Ruffle Bicolor'** was the top-ranked cultivar in the trial. The ruffled, creamy white leaves were a "unique novelty to add to the selection of brassicas now available". The heads were a nice size, large enough to stand out but not so big as to limit their use. Stem length ranged from 12 to 30 inches with an average of 22 inches. Ornamental kale usually has a great vase life and this one is no different with trialers reporting an average of 12 days. Unfortunately, not all were enamored of it. All the top scores came from those in Zones 4 and 5. Certainly, we think there was some self selection going on; those who traditionally can't grow ornamental kale well in the spring may have passed on evaluating it.



'Jolly III Pink'

Photo Misty Moman

As more and more growers have learned to produce the temperamental **lisianthus**, cultivars have been doing better in the trials. This year **'Jolly III Pink'** was one of the highest scoring cuts in the trials for its long, sturdy stems topped with fully double flowers. Stem length averaged 21 inches, with growers getting anywhere from 12- to 36-inch stems (check out the stems that Misty Moman grew). Folks harvested about 3 stems per plant. As with most lisis, vase life was great, with flowers lasting over two weeks. One trialer wrote "Totally obsessed with this variety—perfect for wearable work". The other two, **'Echo Purple'** and **'Echo Pure White Improved'**, also did well (see the photo from Joy Longfellow); **'Echo Purple'** was especially beautiful with its dark velvety purple flowers that open from striking buds, striped with purple and lavender (check out photos of the buds). Both cultivars produced about 2 flowers per plant that averaged about 19 inches long.



'Echo Purple'

Photo John Dole



'Echo Pure White Improved'

Photo Joy Longfellow

Sunflowers generally do well in the trials and this year was no different with both **'Marley'** and **'Ziggy'** receiving high scores. Fast to flower, stems lengths averaged about three feet, and while most trialers treated them as one cut and done, a few harvested multiple stems. Here at NC State we got a good return crop from **'Marley'** of stems that were perfect for bouquets. The colors of **'Marley'** and **'Ziggy'** were very different from the typical orange sunflowers. **'Marley'** was described as having an "eggplant center fading to a cream" or "plum-red ray petals which lighten to lemon yellow at the tips of the petals". **'Ziggy'** was similar but darker with more red tones, although as with most bicolored sunflowers, there was quite a bit of variability in the colors. One trialer noted that the colors allowed the flowers to be used all season long, and another said "I like the bicolors. In a design, they are much more versatile". One surprise from the trialers' comments—no problems were listed for **'Marley'** and only one for **'Ziggy'**; not something we see very often!



'Ziggy'

Photo Jolea Gress



'Marley'

Photo Barbara Lamborne

Interestingly, the three nigellas, **'African Bride'**, **'Delft Blue'**, and **'Midnight Dark Blue'** (evaluated as a mix of the three cultivars) scored well on the trials, also likely due to the fact that nigella does well for only some growers and they evaluated them. Regardless, nigella is a great cut to try with its charming flowers and striking pods. Trialers especially loved the colors of **'Delft Blue'** and **'Midnight Dark Blue'** flowers, with one referring to **'Midnight Dark Blue'** as "stunning". The pods were mentioned by many as well. Some trialers harvested the entire plant while others harvested individual stems, resulting in an average of 4 stems per plant that averaged 17.5 inches long. Divisions Cut Flower Farm reported plant heights of 24 to 30 inches for **'African Bride'**, 18 to 24 for **'Delft Blue'**, and 28 to 32 inches for **'Midnight Dark Blue'**, when sown in fall under 4-foot poly tunnels. We had problems getting the nigellas to germinate, as did others, yet some had "great germination" with direct seeding.

One of the best things about reading the trial results is seeing how differently some cultivars perform for all of us. Of the three **celosias** here at NC State, **'Red Ace'** was very tall, with stems over 3 feet (see Jamie Sammons' photo of **'Red Ace'** next to her dog!), and **'Act Rima'** and **'Cristi Purple'** stems were a little over a foot tall. While a couple other trialers had results similar to ours, the majority had long or relatively long stems for all three, averaging 23 inches for **'Act Rima'**, 22 for **'Cristi Purple'**, and 26 for **'Red Ace'**. One reason could be photoperiod; celosia tends to be a facultative short day plant. It is possible that **'Act Rima'** and **'Cristi Purple'** are more sensitive to short day photoperiods than **'Red Ace'**. We started our plants in late winter when days were still fairly short and others may have started them later under longer days. However, there was a lot more agreement on other traits: all three were strongly single stemmed, although some side shoots were produced for **'Act Rima'**, with large, beautiful heads in rich colors.



Photo Jamie Sammons

23-24 inches, and both produced a good second and even third harvest for a number of trialers, including here at NC State. One trialer wrote that ‘Chantilly Deep Orange’ flowers “opened red/magenta and faded to a dark orange/brick red with purple throat”. Several reported that ‘Purple Peloric’ flowers were vibrant and fantastic!

The ASCFG seed trials are generally limited to annuals, but occasionally fast-flowering perennials, such as **verbena ‘Purple Haze’**, also do well. ‘Purple Haze’ is hardy in Zones 7 to 11 and hard to be beat for sheer productivity. The reported average was about 15 stems/plant, but some harvested up to fifty. Here in North Carolina they were so productive we got tired of harvesting them. Stems were a respectable 26 inches long. The downside was the small heads that tended to drop florets. This is not a species for straight bunches as it takes a long time to make a substantial bunch, but it works well for bouquets.



Photo Joy Longfellow

Campanula is another species for which planting time can affect performance. Generally, it also does best in tunnels or greenhouses with a period of cool temperatures and short days to get the plants up to size. Then, flowering is initiated by long days. Thus, this species does best when started early enough to bulk the plants up, unless it is grown where the photoperiod can be controlled. Plants averaged 18 to 19 inches tall with around three stems per plant. Here at NC State, ‘**Champion II Deep Blue**’ was the first to flower, followed by ‘**Rose**’, then ‘**Lilac**’.

For a couple fun fillers, check out **nicotiana ‘Bronze Queen’** and **lepidium ‘Green Dragon’**. ‘Bronze Queen’ produces open sprays of tubular brown flowers. Beauty is in the eye of the beholder: some loved the color and others not so much. Indeed, one trialer wrote “I like the color, definitely a great muddy tone to play with burgundy and fall colors”. Never before have we seen the word “muddy” used with “I like” and “great”—one of the many reasons specialty cut growers are the most creative! The productive plants yielded around 10 stems that averaged a little

over 20 inches long. Vase life was on the short side, and the leaves and stems are sticky, making it a bit hard to strip the lower foliage.

‘Green Dragon’ is grown for its short spikes of small green flowers and seeds. This versatile filler can be used fresh or dried. Many commented about it being too short, with stems only about 14 inches long. It was short here at NC State as well—this one may benefit from close spacing to get more height. ‘Green Dragon’ found its niche, however, as one trialer commented that “It gave my bouquets just the perfect touch of texture.” and another said “love it for corsage and personal event work bouquets”.

We tested two **snapdragons** this year, both of which were open-faced types. ‘**Chantilly Deep Orange**’ is part of a series, and ‘**Purple Peloric Expt.**’ was an experimental variety. As many of you know, botanists love to name plants, and in this case “peloric” refers to the mutation in snapdragons that causes normally asymmetric flower to become radially symmetric, or open face, as we horticulturists call them. Regardless of their names, both scored well for their attractive colors. Stems averaged about



'Purple Haze'

Photo James Martin



'Expt Purple'

Photo Jamie Sammons



Photo Jamie Sammons

In fact, one trialer commented that it was a “vibrant purple that lights up the bouquets”. They went on to say that “Verbena was my gateway flower when I first starting in design school.” How cool is that? ‘Purple Haze’ is billed as being 20% shorter than the original species, which seemed to be the case in our trials. Another trait we and others noticed is that the stems are scabrous and can scratch the skin. Wear gloves when harvesting this one.

Zinnias are the most commonly-grown cut flower in the United States and Canada. Consequently, we had high hopes for two experimental varieties: ‘Orange’ and ‘Purple’. They started promisingly, with disease-free foliage; uniform, fully double flowers; and stunning (“saturated”) orange and purple colors (is the breeder a Clemson fan?). Alas, the plants were way too short for most uses—many trialers described them as great bedding plants. Ouch, not what you want to hear in a cut flower trial! At NC State we were able to get some height on the plants late in the season after they were overshadowed by the marigolds, which caused them to stretch. We can hope breeders continue to work on this, one as one trialer said: “Get it taller and it’s a star!” Not to be deterred, Jamie Sammons dried the flowers and noted that they held their colors very well (see her photos). Talk about “making lemonade out of lemons”; the folks in our industry are always resourceful!

Based on the combined ratings score (market appreciation + repeat again + ease of cultivation), the top ten cultivars will be nominated for the ASCFG Cut Flower of the Year: ‘Jolly III Pink’ lisianthus; ‘African Bride’, ‘Delft Blue’, and ‘Midnight Dark Blue’ Mix nigella; ‘Crane Ruffle Bicolor’ ornamental kale, and ‘Marley’ and ‘Ziggy’ sunflowers.

Interpreting the trial results: The numbers reported are averages of all the respondents, and many factors will affect the success of any cultivar. Our participants grow and harvest trial plants using several methods. 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 variety sounds interesting, but did not appear to do well, try it anyway; it may work well for you.

Acknowledgments: Thank you to each of the 18 evaluators who returned their trial reports! We very much appreciate the time it takes to do the trials. We want to especially thank **Jason Funkhouser** from Divisions Cut Flower Farm for being the first trialer to return his evaluations! Thank you to the seed companies for providing the plant materials. In preparing the report we did a bit of editing of the comments for space and clarity; our apologies if we’ve altered the tone or content of anyone’s comments.

Photos: This year a number of our trialers sent photos, including **Rachael Ackerman, Jolea Gress, Morgan Hopkins, Barbara Lamborne, Rachel Lord, Joy Longfellow, James Martin, Andrew Moman, and Jamie Sammons. Some were just spectacular, and we included as many as possible in this report. Thank you, thank you!**

Participating Trialers

Rachael Ackerman

Blue Sky Farm
Lakeville, MN
Zone 4

Jolea Gress

Green Earth Growers
Prior Lake, MN
Zone 4

Barb Jewell

Island Meadow Farms
York, PEI
Zone 5b

Andrew and Misty Moman

Twin Rose Farm
Murfreesboro, TN
Zone 7

Mackenze Burkhart

Michelle Elston
Roots Cut Flower Farm
Carlisle, PA
Zone 6b

Drew Groezinger

Clara Joyce Flowers
Stockton, IL
Zone 5

Barbara Lamborne

Greenstone Fields
Purcellville, VA
Zone 7a

Lacey Russell

Alice Creek Specialty
Cut Flowers
Whitehouse, TX
Zone 8b

Connie Dam-Byl

William Dam Seeds
Dundas, ON
Zone 5

Janis Harris

Harris Flower Farm
St. Thomas, ON
Zone 6a

Joy Longfellow

Johnny's Selected Seeds
Fairfield, ME
Zone 5a

Jamie Sammons

Jayflora Designs
Fonda, NY
Zone 5

Dave Delbo

Dave's Flowers
Catawissa, PA
Zone 6a

Morgan Hopkins

Urban Buds: City
Grown Flowers
St. Louis, MO
Zone 6b/7a

Rachel Lord

Alaska Stems
Homer, AK
Zone 4/5

Jason Funkhouser

Divisions Cut Flower Farm
Darlington, WI
Zone 5a

Nathan Jahnke

John Dole
NC State University
Raleigh, NC
Zone 7b

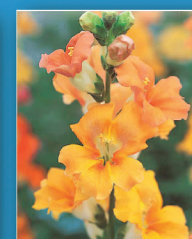
Jim Martin

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Charleston, SC
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Summary of Comments. The number in the parenthesis is the number of trialers who made the same comment. Comments from different individuals are separated by a “;”. Note: many respondents did not make specific comments on each cultivar and in a few cases, comments have been shortened because of limited space.

Brassica ‘Crane Ruffle Bicolor’

(American Takii)

Good Qualities: Beautiful texture and color (5); Beautiful ruffle (2) unique novelty to add to the selection of brassicas now available; The head size is nice and stays a smaller size when spaced tightly, we have experienced that other ornamental cabbages can become too large; Long vase life—nice and bulky; Once the frost came, always a hit in the fall at the market; A big favorite with our customers; Tall vigorous plants, slightly taller than ‘Crane White’, ‘Crane Red’, creamy white, ruffled leaves contrast with dark green outer leaves, the ruffled leaves provide contrast and interest compared to the others in the Crane series.

Problems: Flops if support is too high—needs to be pinched; There were none; Some rosetting (?), with small whorls coming up the sides and some stems (~10%) bolting; Coloured later than some others (Feathers), susceptible to cabbage worm damage; The trial suffered from heat and drought during the

summer and was hit hard by aphids—evaluation and harvests were limited on this crop as a result.

Similar Cultivars: None listed.

Postharvest Recommendations:

Chlorine tablets help with the smell.

Comments: This was a solid variety, we will likely grow it again; We grow ours in 6” spacing, we do have some moth pressure; Just was not worth growing, there was nothing other than the ruffle, which isn’t that phenomenal a trait to grow this, I also think the scale is too big, they always remind me of giant aliens getting ready to strike when the elongation occurs, sorry, give me one with smaller demeanor and some fantastic color changes in the foliage and I’m in; Outside, fall harvest; Needs staking and insecticides/netting for good outcome.

Campanula ‘Champion II Deep Blue’ (Sakata Seed America)

Good Qualities: Beautiful deep blue color (5); Super loved! the stem length and colours were amazing! customers had never seen before as a cut; Uniform growing for tunnels; Uprturned bells are pleasing, lots of buds on each stem, good hoophouse item; Sometimes had an artificial grape-like fragrance that was pleasant; A lot of blooms per plant; Tall, sturdy vigorous plants, blooms are slightly smaller than ‘Champion Blue Improved’, a little more slender and delicate.

Problems: Stems are fragile and break easily; Grew some in hoophouse and some in field with no irrigation, dry hot summer, the field grown were very short, however, they had colour all season; Not overly impressed—not heat tolerant at all; Significantly shorter than the ‘Rose’ & ‘Lilac’, I always struggle with netting and straight stems with these campanulas, and this was the hardest to get marketable lengths from.

Similar Cultivars: ‘Champion Pro’; This cultivar is very similar to ‘Champion Blue Improved’, the color is identical, although ‘Champion II Deep Blue’ was earlier to bloom by about 5 days, had slightly more slender, delicate bells, and plants were slightly taller than

Participating Companies

AmeriSeed

Lompoc, California
www.ameriseed.net

BloomStudios

West Chicago, Illinois
www.bloomstudios.com/en-us

East-West Seed

Sacatepequez, Guatemala
lat.eastwestseed.com

Evanthia Seeds & Plants

Monster, Netherlands
www.evanthia.nl/en

Fred C. Gloeckner & Company

Harrison, New York
www.fredgloeckner.com

Sakata Seed America

Morgan Hill, California
www.sakata.com

American Takii

Salinas, California
www.takii.com



‘Crane Ruffle Bicolor’

Photo Rachel Lord



Champion Series

Photo Nathan Jahnke

‘Champion Blue Improved’.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: High tunnel; We had low germination in this planting, due to higher-than-intended temperatures during germination, only 3 plants were planted and evaluated; It was a nice color, but just too short, I also planted it late spring, I would definitely try it again and plant it 4 weeks earlier in the tunnel, no usable cuts were harvested.

Campanula ‘Champion II Lilac’

(Sakata Seed America)

Good Qualities: Beautiful color (4), the color is slightly lighter lilac and with more pink tones compared to ‘Champion Lavender Improved’; The color was vibrant and soft at the same time; Super loved! the stem length and colours were amazing! customers had never seen before as a cut; Easy to germinate, no insect issues; Good uniform growing for tunnels; Very tall plants—the tallest in our trial at 35-38”, thick sturdy stems with large lilac bells, healthy plants; Both the lilac and rose were taller and straighter, with stronger stems.

Problems: Not overly impressed, not heat tolerant at all; Stems were fragile; Trouble netting and keeping straight enough for marketable stems.

Similar Cultivars: This entry is comparable to ‘Champion Lavender Improved’, but bloomed about 5 days earlier, on taller plants. ‘Champion II Lilac’ is also more pink-toned than ‘Champion Lavender Improved’. Both varieties are comparable in stem and bloom quality—both very good.

Postharvest Recommendations: Harvest when at least 2-3 blooms open. Holds well in cooler. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: Side shoots were definitely usable too; Watch for botrytis especially in cold, dark weather, plant where it will receive good air circulation, another year I would try some succession planting as a hoop house crop, wonder how an early

pinch would affect the numbers of stems and stem length, will experiment another year, would not recommend for field unless irrigated; Greenhouse grown, need support netting; They germinated nicely for us; Due to higher-than-planned temperatures during germination, only 4 plants germinated; High tunnel.

Campanula ‘Champion II Rose’

(Sakata Seed America)

Good Qualities: Unique dusty rose color (3), a little darker compared to ‘Champion Pink Improved’; Super loved! the stem length and colours were amazing! customers had never seen before as a cut; Useful for bouquets and design work, upward-facing blooms, easy to germinate, no insect issues; Both the lilac and rose were taller and straighter, with stronger stems; Good uniform plants for tunnel growing; Plants are shorter and bells are wider compared to ‘Champion II Deep Blue’ and ‘Champion II Lilac’.

Problems: Not overly impressed—not heat tolerant at all; Trouble netting and keeping straight enough for marketable stems; Stems are fragile; The plants were a little shorter than the other two campanula entries, and were shorter in general compared to other varieties in our trial, however, because of germination issues we had a small sample size and it’s possible the height we saw was not representative.

Similar Cultivars: None listed.

Postharvest Recommendations: Cut with 2-3 blooms open, holds well in cooler. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: Side shoots were definitely usable too; Customers enjoyed these, all colours in the series were popular, I will try starting these earlier, grow in hoop house with ample ventilation, try pinching to encourage more stems, have been trying the Champion series for years, finally successful with this series for stem length; High tunnel; Greenhouse grown, need support netting; I really liked this variety of campanula, they were more uniform than other



‘Act Rima’

Photo Joy Longfellow

varieties of campanula we have grown, making for easier, faster harvest; They germinated nicely for us; I loved the rose color on this variety, even though it was just a few shades darker than the ‘Champion Pink Improved’, it stood out from the other pink varieties in trial.

Celosia ‘Act Rima’

(Evanthia Seeds & Plants)

Good Qualities: Unique color (10), vibrant pink with hints of gold at edges; Has side shoots which make it useful as a continuous cut flower (3); We cut multi stems for bouquet use; Strong stems—dries well; Great head size that formed quickly, very uniform harvest; Good vase life; Nice plume shapes; Tall uniform plants with wide, full uniform combs, uniform stand and sturdy stems; Shape, very strong tall stem.

Problems: Head is very heavy (2); Needs netting; One and done plant, no side shoots; Not a clean smooth bloom, also not that it mattered with us, the height was inconsistent, 10 inches or more varied height; Single stem type, so the following stems are very lackluster; Not sure if this was because of the cultivar or because of some condition we put them through, but nearly

every stem of this was fasciated, this made them difficult to use in design and quite prone to bending and breaking, especially because of their large heads; Too many of the heads were too tiny to be usable, many had odd shapes, not at all consistent; We do not typically grow single-stem cockscomb; Slower heads did not form properly.

Similar Cultivars: Bombay; Similar to 'Neo Pink' or 'Neo Rose'.

Postharvest Recommendations: Would use some chlorine in the water to help keep water clean and avoid stem breakdown. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: I would definitely pinch this variety once established in the field to encourage multi stems, the large single head is not useful for our bouquet work and we would have very limited florist demand for large blooms, our summer weather was well suited to celosia production, not always the case; These were transplanted June 8 into an unheated tunnel with 6"x 6" spacing.

Celosia 'Cristi Purple'

(Evanthia Seeds & Plants)

Good Qualities: Vibrant magenta color (11); Strong stems (2); Nice plume shapes; Attractive shape; Uniform heads; The bloom was pleasingly ruffled; Dries well; Very early to form flowers, nice stem length, heads did not break easily; Good vase life; Very uniform bloom time; Shape was fantastic! customers loved them!; Toughness, this was a beautiful flower; The combs have a rich velvety look which is attractive, most plants have a single-layered wavy comb, 4-6" long; Very early to bloom, good fan shape, uniform growth and plant habit.

Problems: Plants were short (3), we left half to see if it would get more height and it didn't; Didn't retain its color as well as others we grow; We typically do not grow cockscomb varieties where we will only get one stem per plant, perhaps this variety could have been pinched?; Needs netting; Did not love this plant, very heavy flimsy heads, heads broke



Photo Morgan Hopkins

most of the time, one and done cut; Stem could be thick, grew really large and heavy, I could have harvested earlier, but the thick stem seemed too large for the bloom; Single stem type, so the following stems are very lackluster; None; Most stems were fasciated, making them prone to breaking and difficult to use in arrangements; Some variation in bloom form and depth of folds on the comb; Plants are short compared to most other varieties in the trial (20-26") and stems are thinner and weaker compared to other varieties.

Similar Cultivars: Bombay (2); Chief; Neo; Not really.



Photo Morgan Hopkins

Postharvest Recommendations: The foliage comes off very easily, so if you are wanting to have foliage on your flower, be careful; Plain water. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: My favorite trial variety, definitely growing it next year; I love celosia so I am biased but this one is fantastic; We did not know this was a cockscomb variety when we planted it, so we did not net it, for the most part it stood on its own, which is impressive; There were no side shoots with this one, I did not end up with many plants, I lost some in the seedling tray.

Celosia 'Red Ace'

(Evanthia Seeds & Plants)

Good Qualities: Unique dark red/dark terra cotta color (11); SUPER TALL! (4); Nice plume shapes; We did not net this because we did not know it was a cockscomb and it stood well on its own, this color is very "in" right now with bohemian weddings looking for rusty-orange colors; Sturdy stems, heads didn't seem to break like the other varieties; Pleasing shape, easy to grow; This one was not as heavy a bloom as 'Act Rima', a lot cleaner head, field grown without insect or disease issues; Strong stems, dries well; Early to form flowers; Good vase life; Uniform bloom time; The large fan shape; The size of the flower; Uniform combs, very uniform stand, thick, sturdy stems, combs are very uniform and deeply frilled—good quality blooms.

Problems: Many stems too short (2); One and done cut (2); The color was nice, however, we seeded it for midsummer harvest and it was a tough color to incorporate with our bright summer colors, we tried drying it but it ended up a brown; We do not typically grow cockscomb varieties that are single stem, it would be hard to justify the space; None; Many fasciated stems, making them prone to breakage and difficult to use in arrangements; My only hesitation with this variety is that the rusty red color can look a little dingy, more of an autumn tone than a high summer color—would

probably pair well with sunflowers later in the season if growing again.

Similar Cultivars: Chief; Don't know of one that has similar shape and that color.
Postharvest Recommendations: Keep water clean and add small amount of chlorine, keep stems recut; Plain water; We cut celosia into water with chlorine tabs and do not hold it long in the cooler, this cultivar was fine being left on the plant until we harvested for market on Friday. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: My florists loved them, super tall stems, they were as long as our dog (see photo showing just that!); This one did not produce even one side shoot, would definitely recommend pinching to see if they would produce more stems instead of one large unusable one.



Photo Jamie Sammons

Delphinium 'Jenny's Pearl Blue'

(American Takii)

Good Qualities: Beautiful truest dark blue I've ever seen (6). People raved about the color (3); The florists loved it! I would grow again just for its true blue color; The stems are great to use as soft filler in bouquets; Good vase life, interesting florets and branching; Striking, delicate 1-2" florets on branching stems give an airy, whimsical look to bouquets, because of the short stem length, probably best suited to design work.

Problems: Very short (3); Slow growing (2), especially compared to other delphiniums (Magic Fountain, etc.); Like 'Diamonds Blue', the branching can be an issue with number of usable stems (enough height) per plant; I transplanted some into my tunnels to overwinter,

maybe it will be taller as a second year plant?; Flops if support is too high; Failed to grow after transplant; Didn't have great germination luck with the seeds; Would consider growing again but main concern is the short stems and low vigor plants; Super short, but it's a first-year perennial, so will know better next year.

Similar Cultivars: 'Diamonds Blue'.

Postharvest Recommendations: None listed.

Comments: Our drought was not great for any of the delphiniums, however, 'Jenny's Pearl' had great vigor in germination and in the ground, hopefully it overwinters well for productive flowering next season; Again, I love this plant, it's just short; High tunnel, I'm hoping that the plants overwinter well and they can put out some stronger growth in their second year, we love delphiniums here under cover, and this color was fantastic!; Feel like we need to wait till next year to have a better opinion, just let them flower—they did flower all summer.

Delphinium 'Jenny's Pearl Pink'

(American Takii)

Good Qualities: Beautiful pale pink blush color (7) that stayed pink even in summer heat; Glistened in the field, customers loved the color; Especially good for weddings, strong stems; Interesting floret and branching habit.

Problems: Too short (5); Unusable unless in a short centerpiece; Flops if support is too high, very slow growing; Failed to grow after transplant; Weak growth in its first year, insects loved it; Would consider growing again for the color but main concern is the short stems and low vigor plants; It's a first-year perennial, so will know better next year.

Similar Cultivars: 'Planet Light Pink'.

Postharvest Recommendations: None listed.

Comments: Perhaps try in a hoop house; Our drought was not great for any of the delphiniums, however, 'Jenny's Pearl' had great vigor in germination and in the ground, hopefully it overwinters well for productive flowering next season; Feel like we need to wait till next year to have a better opinion.



Photo Jamie Sammons

Dianthus Expt. Pink Magic

(BloomStudios)

Good Qualities: Attractive mix of white, light pink, and dark pink florets (5); Blend of shades was easy use in mixed bouquets and designs (3); Variety is still producing after mild frost; Great germination, 2-5" wide spray-type blooms, the stand is highly uniform; Long vase life, Nice that it was a smaller head for a dianthus but I rarely saw all the flowers on it open at once, they seemed to age quickly, it kept flowering for quite a while, we eventually stopped harvesting it due to the fact we didn't really use it, but even ignored, it kept throwing up blooms; Good stem length, strong stems; They are pretty tough plants; Bloom timing was similar across the four colours in the series, good for a bedding plant; Nice long stems—great succession cuttings.
Problems: Too short for most uses (4), suitable for masons, but too short in comparison to other dianthus varieties; I don't love dianthus as a cut because it never seems to get tall enough for me, we transplanted some to overwinter in our tunnel to see if it will make a difference in height; Thin-stemmed, small flower heads; Plants typically produced 1-2 taller stalks with several shorter side

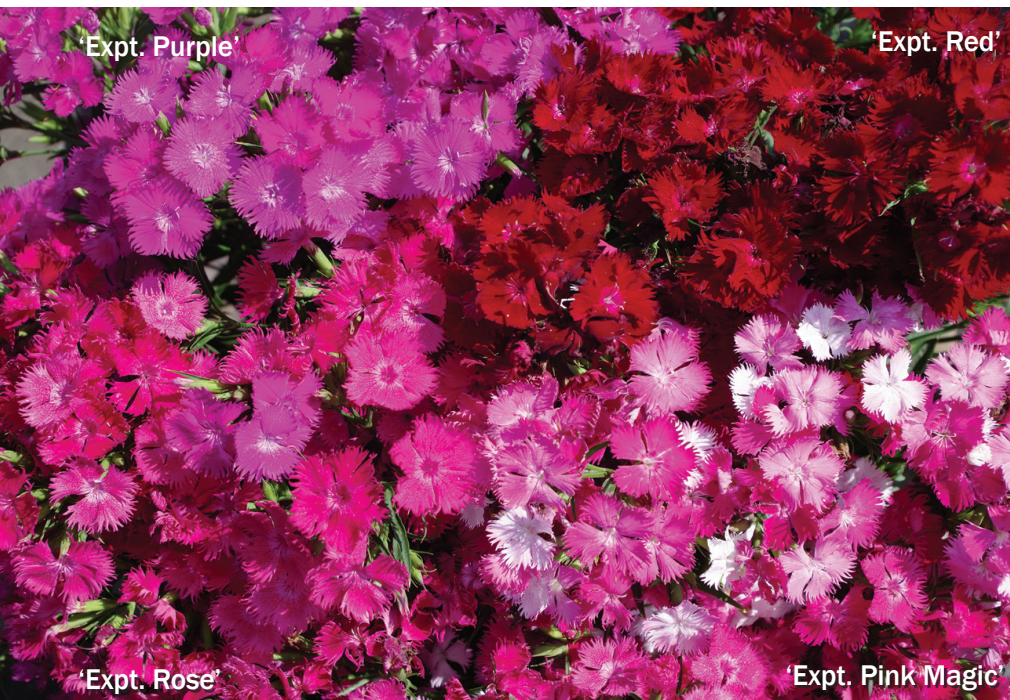


Photo John Dole

shoots. We found the side shoots were more challenging to clean and harvest and at typically between 8-12" were a little shorter than ideal; I noticed that I had to harvest right when they started to open, if I waited until more of the blooms were open, the first one was starting to brown; The flowers were small, it possibly would have been taller with irrigation, drought and high temps may have been a factor in performance, also the single bloom does not entice; Consistent water is a must—could perform better in a greenhouse setting.

Similar Cultivars: Dianthus 'Sweet Pink Magic'; Colors are comparable to the Sweet series, although bloom form is different, more of a spray type and less globe-shaped; Amazon series, 'Rose Magic'; 'Amazon Pink' dianthus.

Postharvest Recommendations: I noticed that I had to harvest right when they started to open, if I waited until more of the blooms were open, the first one was starting to brown; Plain water. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: The plant height may be shorter than normal due to our drought and lack of irrigation, spray type flower is easy to use as filler; Other dianthus per-

form much better in the field; Larger floret size than Sweet series, but otherwise unremarkable; We grew these varieties alongside the Sweet series and preferred the rounded, globe-shaped and more compact blooms of the Sweet series to these spray-type blooms, while the colors are bright and the stands are uniform, the Sweet series was a little easier overall to harvest; We planted these as a fall succession, they came on in September, they were a little more robust than the purple ones we did in the spring planting; These were sent a bit late for us in Texas to plant dianthus, I think that is why they were so short for me; These dianthus were affected with thrips early in the season, I noticed them doing poorly and treated them, they recovered but never grew tall enough to bother cutting.

Dianthus Expt. Purple (BloomStudios)

Good Qualities: Dazzling colour! (4); Loved the cut and grow again nature of the plant (3); Long vase life (2); Bloom timing was similar across the four colours in the series, good for a bedding plant; Spray-type flower is great as filler; Plays well with other colors in design; Uniform blooms and sturdy stems, tallest of these experimental dianthus vari-

eties; Super tall, large number of flowers per stem, long bloom time; Nice that it was a smaller head for a dianthus but I rarely saw all the flowers on it open at once, they seemed to age quickly, it kept flowering for quite a while, we eventually stopped harvesting it due to the fact we didn't really use it but even ignored it kept throwing up blooms.

Problems: This one did not grow tall enough for me to harvest (5); The flowers were small., it possibly would have been taller with irrigation, drought and high temps may have been a factor in performance, also the single bloom does not entice; Short in comparison to other dianthus varieties; Very thin stemmed, small flower heads; Consistent water is a must—could perform better in a greenhouse setting—processing is slow due to the thick leaves; The neon purple color is not as versatile in mixed bouquets as the rose and red; Super saturated color, similar to many dianthus; I noticed that I had to harvest right when they started to open, if I waited till more of the blooms were open, the first one was starting to brown.

Similar Cultivars: Colors are comparable to the Sweet series, although bloom form is different—more of a spray type and less globe-shaped; All the EXP Dianthus did the same for us.

Postharvest Recommendations: Water; I noticed that I had to harvest right when they started to open. If I waited till more of the blooms were open, the first one was starting to brown. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: These dianthus were affected with thrips early in the season. I noticed them doing poorly and treated them, they recovered but never grew tall enough to bother cutting; The plant height may be shorter than normal due to our drought and lack of irrigation; Individual flowers turned brown quickly in the field before other flowers opened; Larger floret size, but smaller overall head size than Sweet series; We grew these varieties alongside the Sweet series and preferred the rounded, globe-shaped and more compact blooms

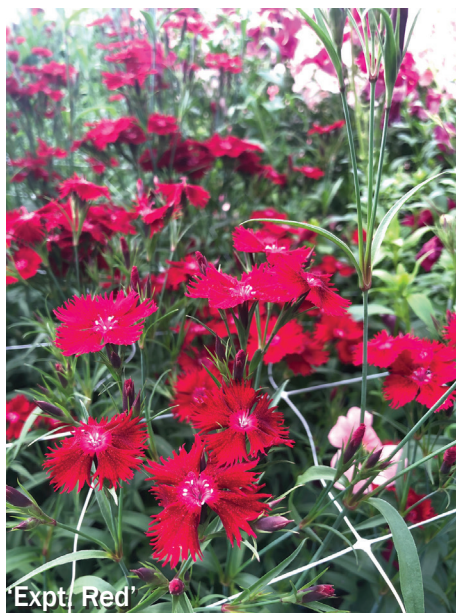
of the Sweet series to these spray-type blooms, while the colors are bright and the stands are uniform, the Sweet series was a little easier overall to harvest; All the dianthus in the trial were grown in a high tunnel, had a long bloom time, which is awesome, also very long vase life; We planted these in the spring, they did seem to get a little taller after the first few blooms, while they got taller the flower heads seem to get a little smaller.

Dianthus Expt. Red

(BloomStudios)

Good Qualities: I love the velvety deep red color (7); Bloom timing was similar across the four colours in the series, good for a bedding plant; Easy to use as a colourful filler, produces blooms all summer long, and into fall; Straight stems; Nice long stems, great succession cuttings; Healthy, uniform plants and uniform blooms; Long vase life; Nice that it was a smaller head for a dianthus but I rarely saw all the flowers on it open at once, they seemed to age quickly, it kept flowering for quite a while, we eventually stopped harvesting it due to the fact we didn't really use it but even ignored it kept throwing up blooms; I loved it—slightly shorter than the other dianthus; Open flower, it is a little more airy.

Problems: Too short for bouquets (4); Shorter in comparison to other dianthus varieties (3); The flowers were small, it possibly would have been taller with irrigation, drought and high temps may have been a factor in performance, also the single bloom does not entice; It can be hard to incorporate in with other colors but the red definitely has its place, I personally loved the color but others didn't care for it; Thin-stemmed, small flower heads, individual florets turn brown quickly before other florets open; Consistent water is a must—could perform better in a greenhouse setting—processing is slow due to the thick leaves; I noticed that I had to harvest right when they started to open, if I waited till more of the blooms were open, the first one was starting to brown; When are they going to breed for some-



'Expt. Red'

Photo Rachel Lord

thing more than what is already out there colorwise in the marketplace?

Similar Cultivars: Colors are comparable to the Sweet series, although bloom form is different—more of a spray type and less globe-shaped; All the EXP Dianthus did the same for us.

Postharvest Recommendations: I noticed that I had to harvest right when they started to open, if I waited till more of the blooms were open, the first one was starting to brown. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: These dianthus were affected with thrips early in the season, I noticed them doing poorly and treated them, they recovered but never grew tall enough to bother cutting; The plant height may be shorter than normal due to our drought and lack of irrigation; Harvested very few stems, larger floret size, but smaller overall head size than Sweet series, otherwise unremarkable; We grew these varieties alongside the Sweet series and preferred the rounded, globe-shaped and more compact blooms of the Sweet series to these spray-type blooms, while the colors are bright and the stands are uniform, the Sweet series was a little easier overall to harvest; We planted these in the fall, we don't grow a lot of red flowers so that was nice for a change; Retail customers and florists really liked the color, the stems were

way too short for me to use it more than a few times, I think if I plant in the fall here in Texas it would have been taller; Amazon still has them all beat.

Dianthus Expt. Rose

(BloomStudios)

Good Qualities: Bright cherry-pink color, very vibrant (5); Bloom timing was similar across the four colours in the series, good for a bedding plant; Spray-type is easy to use, vigorous plant growth; Kept re-blooming all season, a better dianthus variety but I am not in love with dianthus due to their shortness, first cuts as always the tallest but not quite tall enough for bouquets, fine for centerpieces; Great germination; Nice long stems, great succession cuttings; Blooms on sturdy stems, uniform blooms and stand; Long vase life; Nice that it was a smaller head for a dianthus but I rarely saw all the flowers on it open at once, they seemed to age quickly, it kept flowering for quite a while, we eventually stopped harvesting it due to the fact we didn't really use it but even ignored it kept throwing up blooms; It is more open than Amazon cultivars which I actually like, it isn't such a mass of color, a little more translucent in arrangement work; I really liked the fringed edges.



'Expt Rose'

Photo Morgan Hopkins

Problems: Too short for most uses (6); The flowers were small, it possibly would have been taller with irrigation, drought and high temps may have been a factor in performance, also, the single bloom does not entice; Thin stemmed, small flower heads; Consistent water is a must, could perform better in a greenhouse setting, processing is slow due to the thick leaves; I noticed that I had to harvest right when they started to open, if I waited till more of the blooms were open, the first one was starting to brown; Like many dianthus, the color is a little too saturated.

Similar Cultivars: Colors are comparable to the Sweet series, although bloom form is different—more of a spray type and less globe-shaped; All the EXP Dianthus did the same for us; Amazon. *Postharvest Recommendations:* Plain water; I noticed that I had to harvest right when they started to open. If I waited till more of the blooms were open the first one was starting to brown. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: These dianthus were affected with thrips early in the season, I noticed them doing poorly and treated them, they recovered but never grew tall enough to bother cutting; The plant height may be shorter than normal due to our drought and lack of irrigation, all of the EXP Dianthus were quick to bloom from May seeding and end June transplant: first buds end July; Other dianthus perform much better in the field; Larger floret size, but smaller overall head size than Sweet series, otherwise unremarkable; We grew these varieties alongside the Sweet series and preferred the rounded, globe-shape and more compact blooms of the Sweet series to these spray-type blooms, while the colors are bright and the stands are uniform, the Sweet series was a little easier overall to harvest; We planted these in the spring, started shorter than got taller, most likely won't grow any of the EXP ones again.



Photo Nathan Jahnke

Lepidium 'Green Dragon'

(Fred C. Gloeckner)

Good Qualities: Love this dainty cress, it gave my bouquets just the perfect touch of texture, dries green, and I can't wait to use it in wreaths, lasts a super long time; Attractive in bouquets and design work, held up well out of water when mature, used in wedding bouquets, useful green, dries really well, good for wreaths, crowns, dried bouquets, shorter side shoots useful in table centres, when mature and before seed drop the stems take on a pleasing rosy glow; Fun texture; We went crazy for it and so did our florist customers; Uniform growth, love the tiny little seed heads versus the regular pennycress.

Problems: Short, but could be due to when I planted it; Requires adequate moisture for stem length, would suggest succession sowing to ensure supply; Does not withstand heat—bolts very quickly; It didn't germ very well for us, we got just a handful.

Similar Cultivars: 'Emerald Beads', I would consider 'Green Dragon' an improved cultivar; Native pennycress.

Postharvest Recommendations: Make sure it is mature before cutting.

Comments: I have grown a similar variety, 'Emerald Beads', for several seasons with mixed results, with 'Emerald Beads' short stems can be expected early in the season, I feel this could be overcome with irrigation, hoophouse

I would expect to yield taller stems, was pleased with the stem length from 'Green Dragon', field grown no irrigation, we are cutting it now after several frosts and 0C temp, field grown Oct 21, frost hardy late season, valuable green, recommended, expect some self-seeding; Poor germination—unable to evaluate; Had never used pennycress before as a cut because it is a "weed" for us, this is much better than our native pennycress; Love it for corsage and personal event work bouquets, etc., great dried also; Short, but might benefit from closer spacing to get better stem length.

Lisianthus 'Echo Pure White Imp.'

(Sakata Seed America)

Good Qualities: Crisp white colour (6); Earlier blooming; Good germination, customers love all lisi; Nice height; Huge, full, semi-double heads, awesome stems; Early to bloom; Reliable, uniform bloom time, good stem length even after being started and planted late and outside, nice top-blooming cultivar, centers don't detract from the rest of the bloom by being too dark or too yellow or too green like some other varieties can; 2-4" wide blooms on sturdy stems, uniform, healthy plants, good quality blooms—a strong white variety.

Problems: None; The bloom is large and didn't hold up well in the field, hoop-house was better, however, it did not appreciate the condensation drip from hoop roof, I was late sowing these and feel there would be a much better result from an earlier (Feb.) sowing, did not get as tall as 'Echo Champagne', even with pinching it did not offer many stems; Make them grow faster (hahaha); Flops if support is too high; Not as vigorous as other types in our trial, blooms not as full as other doubles in our trial; Not as resistant to rain damage (brown and melty petals) as our other field-grown standard cultivars like 'ABC White' and 'Arena White'.

Similar Cultivars: 'Borealis White'.

Postharvest Recommendations: Harvest when at least 2 blooms are open; Plain water.

Comments: Dry summer probably shortened the stem length; The ‘Echo White’ did not perform well in the field; We grow our lisianthus in a greenhouse, nice height, pure white color, designers loved for weddings; This trial was seeded a little later than ideal for a Group I—transplanted to the tunnel 6/25/20, so plants were potentially shorter in this planting than if they had been seeded and transplanted earlier in the season.

Lisianthus ‘Echo Purple’

(Sakata Seed America)

Good Qualities: Dark velvety colour (4); Early blooming; Huge, full, semi-double heads, awesome stems; Loved this lisi, good stem length despite being started/planted late, and field grown, hard to “wow” me with yet another purple lisianthus but this one does stand out, flowers are a deep, dark purple that stands out among the more standard purple lisianthus, buds have interesting dark purple striping on them, a fun additional visual element in bouquets and wearable designs; Darkest blue variety in trial, the buds are striking—striated with purple and lavender, overall a very attractive variety that stood out for the dark, velvety color.

Problems: None; Less than double flowers, compared to the other doubles in trial, stems were falling over without support; The purple colour showed up blemishes on the blossom, typical of all dark-coloured lisi especially later in the season; Flops if support is too high; The Echo series is a “softer” lisianthus that must be handled, and specially packed, delicately, petals bruise very easily if sleeved or packed too tightly in a bucket; They seem to blow open a little quicker than others we grow.

Similar Cultivars: This variety was grown alongside ‘ABC 2 Purple’ and ‘ABC 2 Blue’, and while bloom time was comparable, the dark blue of the ‘Echo Purple’ stood out as darker, compared to both ‘ABC 2 Purple’ and ‘ABC 2 Blue’.

Postharvest Recommendations: Plain water. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*



Echo Series

Photo Morgan Hopkins

Comments: Dry summer probably shortened stem length; Would recommend starting seed in February and pinching, plant for an early to mid-season bloom to avoid blemishes caused by insects and condensation; We grow our lisianthus in a greenhouse, nice height.

Lisianthus ‘Jolly Type III Pink’

(American Takii)

Good Qualities: Soft pink color (7) that is very popular now; Sturdy stem (5); Great vase life (2); Loved that it came on a little after our Champions and Corelli, nice height; Very vigorous growth, kept its pink colour even in the heat, very double flowers; Beautiful rose-like blooms; Hard not to love a lisianthus, had lots of blooms per stem, bloom heads were smaller but a nice size; This lisi did well for us, it was late and planted in the hoop house, grew tall and had a nice growth habit; Amazing stems and bud count; Totally obsessed with this variety, tall, VERY STRONG stems despite being started/planted late, and field grown, smaller, rose-shaped blooms perfect for wearable work, not as small as Doublini, very hardy blooms that can withstand some abuse without bruising; Petals are scalloped, giving a delicate, lightly ruffled look to the multi-layered blooms.

Problems: None; Did not have a lot of plants, lost some seedlings in production; Flops if support is too high; Not knowing about it sooner/not being able to find other colors!

Similar Cultivars: ‘Corelli Pink’; The color and timing are comparable to ‘ABC 3 Rose’, but the bloom form is different, ‘Jolly Type III’ has shorter, more scalloped blooms.

Postharvest Recommendations: Harvest when at least 2 blooms are open; Plain water.

Comments: This was one of our favorite flowers out of all the flowers grown on



‘Jolly Type III Pink’

Photo Jolea Gress



Photo Jamie Sammons

the farm this year; This cultivar stood out for vigor in a trial of 22 varieties; Dry summer probably shortened stem length; a nice pink, was pleased with the stem length and colour; This gem made all those marigolds worth it!

Marigolds—All Cultivars. Four trialers made comments on all or almost all of the cultivars so we are combining them here, rather than repeating for all cultivars. They provide valuable recommendations for those thinking about growing marigolds.

- I over-planted and under-staked all of our marigolds in the trial (all were planted in a high tunnel)! It was a crazy mess, leading to significant challenges in harvesting and disease management. I was still able to harvest a decent number of stems from each variety. Next time I will plant on 24" spacing with two layers of netting.
- Intense pest pressure (Japanese beetle, tarnished plant bug) and unseasonable heat limited production on the entire marigold planting this year: many varieties failed to fully flower, and yield was unable to be evaluated on many varieties as a result.
- This is an overall observation for all 9 of the marigolds trialed. I planted all the marigolds through compostable plastic mulch. Spaced 18" apart, alternating 12" across. Sowed them 2 weeks later than 2019. Previous years the marigolds grew too heavy to support with netting and I gave

them more space. Also, the necks were weak, unable to support the large blooms at harvest. Upon suggestions from Dr. Dole last fall, I planted them in zero fertilizer-amended soil, same as the sunflowers. With less available nitrogen combined with the hot dry summer, the marigolds were overall much improved

for stem strength. Going forward I will use this method. Spider mites, despite the hot dry season, did not seem to be a problem. The summer events that typically required marigolds were cancelled due to COVID. I still find it difficult to get employees to use marigolds in bouquets. Foliage fragrance would be the main drawback. However, I have tried to strip stems in the field, which seemed to help. The orange marigolds seemed especially useful in autumnal bouquets.

- The marigolds were all nice, I don't sell very many as people strongly dislike the smell in mixed bouquets (which is my primary focus). I did get one cut off a few varieties and then the Japanese beetles came in and destroyed them for the remainder of the season. They had nice strong stems and my favorite was the light yellow 'Nosento Lime Green'.

Marigold 'Bengal Orange'

(East-West Seed)

Good Qualities: Beautiful light orange color (4), lighter orange than 'Coco', 'Jedi', 'Xochi', etc. but not gold; Tall plants and long stems (4); This was my favorite cultivar! sturdy stems, very prolific, I cut so many flowers from this plant, it also dried nicely too! I can't say enough good things about this one; Nice ball shape for bouquets; Fairly strong and productive; Long stems with branching for bunching, flower has good doubleness; Strong stems, early flower-

ing, dries well; 1.5 - 2.5" wide blooms, good quality—dense, full blooms, vigorous, productive plants, given the hot, dry season, comparable to 'Xochi Orange' with respect to height, bloom time, habit but blooms are a lighter orange; This was a close second favourite for orange marigold in the trial, the blooms were smaller with an average 2.5" overall plant height 100 cm, excellent natural branching; Good medium to large heads; Long vase life.

Problems: Would not necessarily call it an orange; Plants flop in the late season, support is needed if not consistently harvesting; Smaller bloom size.

Similar Cultivars: Comparable to 'Xochi Orange' in plant habit and bloom time, but blooms are slightly lighter orange. Also comparable to 'Giant Gold' with respect to bloom time and habit.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: See general comments above.

Marigold 'Bindi Gold'

(AmeriSeed)

Good Qualities: The color is a standout (8), easier to use in mixed bouquets than the bright yellow or orange; Large flow-



'Bengal Orange'

Photo John Dole



'Bindi Gold'

Photo James Martin

ers (3); Super long lasting (2), holds well out of water; Doubleness of the bloom is good; I grew very fond of marigolds this year; Nice long stems, low fragrance; Dark green foliage, vigorous and dense plants, full, attractive 2.5 - 4" wide flowers; Long stems, able to harvest with good branching; Continuous bloom, 3.5 - 4" bloom size.

Problems: Very short (7); Very large heads (2), which cause them to break easier; Slow to bloom; Not prolific; Flop in wind; Plants were 25-29" tall and did not yield usable stems; Very branched; The brassy gold colour was not a favourite; Stem length and stem strength—same story, different marigold; For marigolds in the fall in Texas, the demand was for the bright orange.

Similar Cultivars: Most other cut flower marigolds.

Postharvest Recommendations: Cut before heads are fully developed and fluffy, they look nicer and hold up better, the heads don't get as large and heavy, breaking the stems. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: Reminded me that I love marigolds; There are taller gold varieties with longer stems that we would grow instead of this variety; Would not grow again; The blooms were high quality—wide, dense and uniform—and could possibly be useful for garlands or as bedding plants but stems were too short for cuts; This would make a good bedding plant where gold colour is required; See also general comments above.

Marigold 'Chedi Yellow'

(AmeriSeed)

Good Qualities: Great yellow color (5); Tall plants/long stems (5), 36-45"; Long vase life (2); Low fragrance; Strong plants, stems, productive; Large flowers, good double blooms; Lasts well out of water; Yielded sturdy stems; Able to harvest with good branching, filled out market bouquets nicely; Smaller blooms; None; After removing the leaves, it has a nice fragrance.

Problems: Flop in wind; Much higher pest pressure for Japanese beetles than orange varieties, browns quickly at maturity; Tall, but flimsy, it grew big heavy puffy heads that break easily, stems were not as thick and strong as other cultivars; Blooms are slightly looser and lightly ruffled—less dense compared to 'Bindi Gold' or 'Giant Gold'; This was a massive grower reaching a height of 4-5' before even going into flower, it has to be supported, mine completely broke apart in a rain storm from the branches just breaking off, it acted like it was on steroids until it completely fell apart.

Similar Cultivars: 'Coco Yellow'; Compared this variety to 'Giant Gold', the color and plant height is comparable, while 'Chedi Yellow' blooms slightly later in our planting and blooms were not



'Chedi Yellow'

Photo John Dole



'Hermant Deep Gold'

Photo Rachael Ackerman

quite as full compared to 'Giant Gold'; Other cut flower marigolds.

Postharvest Recommendations: Cut before head fully matures. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: Reminded me that I love marigolds; See also general comments above.

Marigold 'Hermant Deep Gold'

(East-West Seed)

Good Qualities: Vibrant gold colour (4); Strong stems (2), the strongest marigold we grew, least likely to have snapped stems and popped off heads, despite large bloom size; Good doubleness; Early flowering, dries well; 2-4" wide blooms on tall stems, dense, uniform blooms; Blooms averaged 3.5-3.75 inches, our summer was very dry and hot it did not seem to affect the quality of bloom, plant height 35.5"; Super dense stem count per plant; Long vase life; Early and strong, less browning than some other gold varieties.

Problems: Plants flop in the late season, support is needed if not consistently harvesting; Edges browned quickly; Shortest of all of the marigold trials, got buried among the other cultivars, a lot

of botrytis; Short, less prolific.

Similar Cultivars: ‘Coco Gold’; Color is comparable to ‘Coco Gold’ but plants bloomed 4-5 days earlier than ‘Coco Gold’ in our trial, and were slightly shorter and less vigorous.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: See general comments above.

Marigold ‘Janthra Yellow’

(East-West Seed)

Good Qualities: Bright yellow blooms (4); Strong plants (3); Tall stems (3); Great stem length, I loved this yellow; Less susceptible to browning, seemed to blow out more slowly than ‘Chedi Yellow’; Did not topple over in strong winds, good flower shape and size; Another keeper for sure! Sturdy heads and prolific, best producer!; Early flowering—dries well; Attractive 2-4” wide blooms on vigorous, plants 36-48”, color is comparable to ‘Giant Gold’ but plants are taller and blooms are later; Good vase life.

Problems: Plants flop in the late season, support is needed if not consistently harvesting; Did not produce enough blooms to fully evaluate.

Similar Cultivars: ‘Chedi Yellow’; Color is comparable to ‘Giant Gold’ but plants are taller and blooms are later.

Postharvest Recommendations: Cut before heads are fully bloomed. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: I would say that for a yellow marigold this is a strong option; See also general comments above.

Marigold ‘Mayan Orange’

(AmeriSeed)

Good Qualities: Bright orange color (5); Uniform plant growth; Nice long stems—low fragrance; Could have potential for garland use; Long stems, able to harvest with good branching, full blooms; The flower size is 1/3 the size of most marigolds in this class and the scale of the flower is a good one for arrangement work, this is the favorite of



‘Mayan Orange’
Photo Rachael Ackerman



‘Nosento Lime Green’
Photo Rachael Ackerman

all those trialed this year; The flowers were a bit smaller than the other marigolds tested but that made it easier to put in mixed bouquets; Very long vase life. *Problems:* Small heads and short plants (5); Weak and not productive to begin with, did gain some height later in the season, overall not a competitive variety compared to ‘Coco’, ‘Jedi’, and ‘Chedi’; Japanese beetles love marigolds; We didn’t cut it, the orange colour is quite pale; Flop in wind; None, other than nobody buys cut marigolds in my area; Did not yield usable stems, would grow again only if considering for garland

production; Some petal-less plants?; Nothing special; Stem length and stem strength, marigolds would be so much more useful as a cut if someone would breed strong stems into this plant, this is the same story over, and over and over; The plants were smaller in this variety. *Similar Cultivars:* ‘Bindi Gold’; Other cut flower marigolds.

Postharvest Recommendations: Plain water. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: We will not grow this variety again; Reminded me that I love marigolds; Breed for stronger stems and the marigold would become a cut flower favorite.

Marigold ‘Nosento Lime Green’

(Evanthia Seeds & Plants)

Good Qualities: Unique pale yellow/green blooms (8); Minimal marigold scent was a plus, the light, almost neutral bloom colour was helpful in summer bouquets; Great size blooms for mixed bouquets; Great trap crop! no matter how many times we sprayed this variety, they were consistently coated with Japanese beetles all summer; Nosento... no...sent...o.....NO SCENT, OH! this marigold smells like nothing! if you’ve been checking to make sure you can still smell, these marigolds make a terrible at-home COVID test, they would give you a false positive for sure! I’ve been led astray before by other varieties purported to have low or no scent; this is the first one I can truly say does not smell like a marigold; There were none; Good vase life; Attractive.

Problems: Japanese beetles loved this cultivar (4), much more so than the other cultivars; The stems were skinnier and not very sturdy (2); Odd color, definitely not what I’d call lime green, but definitely yellow headed in a green direction (2); Not very vigorous, was overshadowed by other varieties on either side; Slow, short; Plants flop in the late season; Flowers were small, best used in small jar/vase arrangements; Short plants, harvested for use in mason jars only, petals browned quickly so not

good to harvest; Seems to have more insect damage on leaves than the other cultivars in the trial, especially spittle bugs; The flowers on this did not stay firm, meaning the petals parted, giving the flower an open look, as though it was coming apart, I have never seen this before in a cultivar, not sure what the terminology for this is, but it made them unusable; Plants succumbed early to pest pressure and drought stress, very few blooms over the course of the season—could not harvest/evaluate.

Similar Cultivars: None listed.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: The colour of this marigold would make it easier to include in summer bouquets, the stems were more difficult to cut, to avoid this I would recommend cutting the centre stem in early August to encourage more usable stems, average bloom size was 2", overall height was 26-28", the typical marigold odour was minimal, we have so many other flower choices for August and early September that we did not use it much in our bouquets; Would not say that this is a very reliable or prolific variety, doesn't contribute as much vibrancy or bright color to a bou-



'Royal Bali Gold'

Photo John Dole

quet either, lack of scent might actually contribute to beetle pressure?; We do not usually pinch our marigolds, but these may have been better with a pinch; We liked the color, it was a magnet for the beetles, they seemed to love this one the most!; I loved this marigold, I grew in early summer and it worked well with 'White Lite' suns, I will try also it again in the fall with other marigolds next year.

Marigold 'Royal Bali Gold'

(East-West Seed)

Good Qualities: Great color (3); Early to bloom, strong plants, better height and stem length than other gold varieties, still not as tall our favorite orange varieties like 'Coco' & 'Jedi'; Another great marigold; Strong stems—early flowering—dries well; Attractive 1.5-2.5" orange blooms, uniform plants and blooms, tidy, neat appearance; Big blooms/balls.

Problems: Shortest cultivar (3), no reason to grow a short marigold; Colour was more of a pale orange than gold; Not as prolific as other cut marigolds, heads tend to break a little easier than others; Plants flop in the late season, support is needed if not consistently harvesting; Weak attachment of bloom to pedicel; Susceptible to botrytis.

Similar Cultivars: None listed.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: For a variety named 'Royal Ball', the flower was rather flat, especially when compared to 'Hemant Gold'.

Marigold 'Xochi Orange'

(BloomStudios)

Good Qualities: Loved the deep orange color of this variety (7); Long stems (6); Long-lasting flowers (2); KEEPER! sturdy heads, kept blooming even after a frost, very prolific and make a great dried flower too; Comparable height to other tall orange varieties, strong plants, productive, good doubleness in each bloom; Great succession cuttings; A top performer in trial, blooms sit high above foliage on sturdy stems, one of



'Xochi Orange'

Photo Rachael Ackerman

the few varieties in our trial to keep blooming through a hot, dry pest-ridden summer, productive, full, dense blooms, 1-2 shades darker orange compared to 'Bengal Orange'; The tallest of the marigolds that we grew, flower seemed like a normal orange marigold; This marigold had the best natural stem length making it easy to harvest, desirable for fall bouquets, bloom size was 3.5", I liked this marigold, it was the tallest of the marigolds in the trial, the stems especially the necks seemed to hold well; Stood out among the other marigolds, relatively strong plants; Giant heads, ridiculously tall plants.

Problems: Plants flop in the late season without support.

Similar Cultivars: 'Garland'—very similar; Comparable to 'Giant Orange' and 'Bengal Orange' in height, vigor and timing, slightly darker color than 'Bengal Orange'.

Postharvest Recommendations: Plain water. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: We really liked the height of this one, we have Japanese beetles so marigolds are hard to harvest with all the damage; I would grow this marigold again, would plant for late season bloom with minimal nitrogen, I did not net the trial marigolds this year but used support string on each side of the row, our



'Bronze Queen'
Photo James Martin

growing season was very dry and with no field irrigation the marigolds were off to a slow start, the height overall was 110 cm, this was my favourite orange marigold in the trial; See also general comments above.

Nicotiana 'Bronze Queen'

(Fred C. Gloeckner)

Good Qualities: The color is exceptional (7), this color goes so well with all the antique, browns, bronzes, and coral colors; Darker than 'Tinkerbelle'; Dark filler, has cut and grow again habit, good floret size; Long stems, I loved this nicotiana, strong plants, my customers loved it, good vase life, bloomed over a very long period; I love nicotiana, unique for sure and definitely has its place in those moody, antique-themed bouquets; Easy to grow, excellent germination, no insect damage, no disease, bloomed all season, has had a few frosts and seems unaffected, the unusual colour would be a possible specialty designer item; Fun texture—very productive; Productive plants yielded multiple cuts of tall, straight stems, easy to germinate and quick to flower in the field, transplanted to field on 5/21, first harvest was 7/6 and plants were still producing quality cuts 8/31, powered through the hot, dry summer, bronze color and nodding blooms are an interesting addition to mixed bouquets.

Problems: It is loved by hornworms, but still vigorous to grow back, seed pods become unattractive, so extra cleaning is needed; Flowers were not

impressive, no interest from florists; We never quite got the height we do with 'Tinkerbelle', it didn't seem to throw up as many blooms either; The aphids LOVED this nicotiana and preferred it to the other few varieties growing in the same area; Customers thought it was past its prime because of color; Not a favorite with all customers; This plant was not attractive or eye-catching in the least, the blooms were sparse and made it difficult to incorporate in a bouquet or design; Doesn't hold well once cut, very small harvesting window; Some variability in plant height/vigor—most plants were 28-36" tall but a few plants were shorter, with fewer usable stems, stems are easy to strip and bunch but leave a sticky residue on hands and harvest tools; Messy, flower drop can be a problem if going out for anything other than party/event work.

Similar Cultivars: 'Starlight Dancer' for plant habit; Closest thing we grow is 'Tinkerbelle'.

Postharvest Recommendations: Cut when stems have hardened. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: Would be willing to try again; High tunnel; I like the color, definitely a great muddy tone to play with burgundy and fall colors; The airy qualities of this make for a good filler cut.

Nigella 'African Bride', 'Delft Blue' and 'Midnight Dark Blue' Mix

(Fred C. Gloeckner)

Good Qualities:

- All three cultivars: Beautiful color mix—striking range of dark blue, purple, and light blue flowers on healthy, sturdy plants; We direct seeded with great germination, consistent height and bloom time, was able to harvest the whole row in blocks, very good producer, usually harvested the whole plant as the main stem.
- 'African Bride': I grow for pods, not the flower, great blackish-purple large seed pods; Sold really with our designers.
- 'Delft Blue': We have grown this one before and we like it, both for the flowers and the pods; the blue color.

- 'Midnight Dark Blue': The blue purple color, the pods; the color in this one is stunning; Fun texture, color holds well, dries beautifully.

Problems:

- All three cultivars: The seed was sent as a mix of all 3, unfortunately the germination was 0, I do grow several nigella and had no germ issues; We grow from transplants, would love a little more height but wonder if we could direct sow if that would make a difference (we have heavy clay and it's hard to direct sow); They really hate the South and just as they are flowering, it gets hot, shortening their ability to keep flowering, they melt to fast in the field with too much rain and humidity; Does not withstand heat—bolts very quickly.
- 'Delft Blue': Of all varieties I grow, this is by far the shortest.

Similar Cultivars: None listed.

Postharvest Recommendations: None listed.

Comments: Love it for corsage and personal event work bouquets etc. great dried also; We have never pinched our nigella, might try and see if that makes any difference in height too; Very prolific self-seeders, if left to mature; It wasn't always noticed but our customers that did notice the flowers in bouquets really liked them, we all love them; Very pretty, I had it in the tunnel and didn't get netting on it right away and it was like "Jack and the Beanstalk", it really needs a strong netting, I would grow this again and I got a decent amount of cuts off of it.

Snapdragon 'Chantilly Deep Orange' (American Takii)

Good Qualities: Great rusty color (8), good contender for autumnal bouquets; Blooms open red/magenta and fade to a dark orange/brick red with purple throat; Long vase life—plants held up to four rounds of cutting; Worked well with the 'Bronze Queen' nicotiana, customers liked it; Plants recovered well after a very hot dry summer, which is not the best for any snaps, plant height today (Oct. 18) from 26-33 inches; Open floret style is trendy; Tall bloom column,



'Chantilly Deep Orange'

Photo Rachael Ackerman

lightly fragrant; Long vase life; Nice deep orange color that fits in well with the others in the Chantilly series, adding a nice color between the “bronze” and “velvet” colors; Grew a great second flush of blooms that were taller; We have grown Chantilly before, always a hit, the color was pretty but would move to fall plantings in the future; Nice thick stems, large flower head.

Problems: Flops if support is too high; Didn't rebloom well; Plant had less resistance to heat and drought than the other snaps in our garden; Planted this in the spring field planting (transplanted 5/15/20) for early summer blooms, plants were weak—tall, thin, with little vegetative growth, the color got varying reviews—some people loved it, some did not like the brick red tones; Chantillys do best for us in the early spring, and this color is not a good spring color, if we are able to figure out how to get quality Chantilly snapdragons in the fall in our area, this color will be a welcome addition; The first flush of blooms was short (18”) and much brighter reddish than I was expecting; None.

Similar Cultivars: None listed.

Postharvest Recommendations: Harvest early when blossoms are half open. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: Great orange texture in arrangements; If I was to grow again I would plant for fall only, too dark for summer, I would describe the colour as deep rust, it seemed to have more vigour than the rest of the Chantilly series, this might be a good variety to trial for late season hoophouse; All of our orange colours were odd in the heat and drought, so we may not have seen the true colour this season; Never quite as tall as our Potomacs, but love the open face, we grow our snaps in a 4x4 spacing, one and done, nice color, deeper orange than expected, but overall we liked it; Greenhouse grown; Was the winner of the seed trials, beautiful color, beautiful stems, I would 100% grow this every year, I harvested it multiple times, just beautiful.

Snapdragon 'Purple Peloric'

(BloomStudios)

Good Qualities: Vibrant colour (8); Customers raved about it, nice stem length and overall decent snapdragon; This was a perky snap, in the field the colour was bright, it was reblooming here for the past couple of weeks, in October the stems were much taller than in the spring (it was dry and hot), no irrigation, nearly all the stems were ready to harvest the same day; Nice long stems—great succession cuttings; Large flower head, tall plants; Large florets; Very tall plants with sturdy, thick stems, uniform and high quality blooms, grew alongside the Chantilly series in a field planting, transplanted 5/15/20; This variety was a high-quality open-faced snapdragon variety, stems were much sturdier and higher quality compared to the Chantilly series.

Problems: Needs to be netted, died out after spring harvest, most of my other varieties of snaps will keep reblooming into the summer, this one did not quickly rebloom; Support is a must—greenhouse performance is superior to field; None; The florets are loosely spaced on the stem; The bright magenta color is not very versatile—would love to see this stem/bloom quality in a range of colors.

Similar Cultivars: Chantilly; Comparable to the Chantilly series in the open bloom form, but more vigorous plants and better stem quality compared to the Chantillys. **Postharvest Recommendations:** Use a tall bucket to support and encourage straight stems, cut early morning. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: I liked this one, the colour is different than the normal open snaps, the bright purple colour would be usable year round, actually was one of my top favourites in the trial this season, (Oct. 18) it is reblooming, lots of buds coming and the plants look very healthy and vigorous, the stems today are up to 35 inches in the field, no irrigation, with proper irrigation I'm sure this will be a promising snap to grow for bouquet work; Greenhouse grown; Perhaps this snapdragon isn't meant for outdoor growing in summer in the North; This snapdragon was somewhere between a standard snapdragon and a fully open-faced Chantilly snapdragon, was not particularly striking, no standout features.



'Purple Peloric'

Photo Rachael Ackerman



'Milla Salmon'

Photo Misty Moman

Stock 'Milla Salmon'

(Evanthia Seeds & Plants)

Good Qualities: Beautiful color—peachy pink (6); Mostly all were doubles (2); We have not seen the bloom of this variety yet, but compared to the JADS we also planted for the fall, it seems to be stronger; Open florets, softer leaves and strong stem than Iron series; Vigorous plants, the plants observed today in the field are very lush height of 17 inches, they seem to be enjoying the cooler temps and short days, no sign of rebloom as yet Oct. 18; 1.5-2" wide florets on sturdy stems, the outer edges of the florets darken slightly to rose, 'Iron Apricot' is more gold-toned, with slightly more ruffled florets, and 'Katz Apricot' is earlier, with longer internodes on the bloom column.

Problems: None (2); Slow, high aphid pressure; I had a small percentage of stems with quickly wilting lower florets, but never figured out what was causing it, of all the stock we grew, this was the only variety where I experienced the issue; Poor heat tolerance; Due to timing of receiving seed, this stock was planted in our very last succession of stock, which generally does struggle a bit in the warmer temperatures, planted among other varieties in the Katz, Iron,

and Cheerful series, this variety was unable to overcome the conditions and never grew well or bloomed, while all others did.

Similar Cultivars: 'Iron Apricot' is very similar, with a more ruffled/tight floret; Plant habit and color are comparable to 'Iron Apricot', although the 'Iron Apricot' is more gold-toned, with slightly more ruffled florets, 'Katz Apricot' was a similar color but earlier in our planting, with longer internodes on the bloom column; 'Katz Apricot'; 'Iron Stock Apricot'.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: Designers adored this flower for its color, it was one of my favorite flowers that we grew all year on our farm!; High tunnel, spring grown; Greenhouse grown, need support netting; Great colour, would try in the hoop house also might be a late-season contender, very popular colour, will be trying this one next year, if available; Oddly they were not bothered by insects as were the other varieties we grew; We had only foliar growth, perhaps due to summer heat, or maybe this stock isn't meant for summer growth in the North; This crop was grown in an unheated

tunnel, transplanted 4/15/2020; I planted in the spring in the tunnel and because of time constraints, It never got out of the tunnel so they stayed all season, the 'Milla Salmon' never flowered for me. I waited all year and zero blooms?

Stock 'Sahin Anytime' Mix

(Gloeckner)

Good Qualities: Fun color mix (6), especially the burgundy; The earliest of our stock to bloom; Strong stems; Nearly all were doubles; Really is an anytime mix—good spikes in early fall, fragrant; Densely packed blooms on short stems, good quality blooms and very uniform plants; Very full blooms, good vase life.

Problems: Very short (4); None; If growing again, I would sow it earlier and grow in the hoop house; White colour were singles and stunted; We aren't fans of mixed colors, not heat tolerant at all; Plants are short and this is true in both the spring tunnel (transplanted 4/15/20) and spring field planting (transplanted 5/15/20), although bloom quality was good and bloom columns were compact and dense, the plants were shorter than the Iron series in multiple environments.



'Sahin Anytime Mix'

Photo Barbara Lamborne

Similar Cultivars: Glory series; Habit is comparable to the Iron series—sturdy stems, compact and dense blooms columns—but plants are shorter.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: Greenhouse grown, need support netting; If I were to grow again, I would plant into the hoop house early and would try it again for late fall, stock does not do well in the heat of summer, also insects flea beetles daily seemed very fond of all our stock varieties, customers love stock; Super short, but we did have a warm spring; I planted in the spring in the tunnel and because of time constraints, it never got out of the tunnel so they stayed all season, the ‘Sahin Anytime’ mix was okay, I don’t like using mixes, but there were a few in there that had nice long stems and nice color and some that were just too short, I harvested a handful of stems, but nothing significant.

Sunflower ‘Marley’

(Takii)

Good Qualities: Great color eggplant center fading to a cream (7), it was an all-season colour rather than just for fall; This is a strong sunflower for a multi-colored sunflower, arguably stronger than ‘ProCut Red’, a good option for a specialty sunflower, although light, we did not have pest issues with this variety, although we planted it later than the light sunflowers we had pest issues with, with ‘ProCut White Nite’ and ‘White Lite’ we tend to have cucumber beetle damage; Lots of side shoots; A nice bloom size and the petals seemed to overlap nicely almost like a double row, did not notice any loss of petals as in similar colours; Early to bloom, good size flower that stayed small as it aged instead of becoming monstrous; Nice branching habit; Healthy, sturdy plants, a strong variety; Loved the double overlapping petals, had a nice full appearance; Did well as transplants, had a fairly staggered bloom time, even within the same planting.

Problems: None listed.

Similar Cultivars: This variety is com-



Photo Joy Longfellow

parable in appearance to ‘ProCut Red/Lemon Bicolor’, the red coloring on the ray petals is more diffuse and the distinction between the red/lemon is less pronounced on this variety compared to ‘ProCut Red/Lemon Bicolor’, plants were taller and 2-3 days later than ‘ProCut Red/Lemon Bicolor’ with slightly smaller blooms at harvest stage; Was really similar to ‘Ziggy’, just a little bit of difference; Similar to ‘ProCut Plum’, but more variation in color.

Postharvest Recommendations: Cut in early morning when petals are starting to lift. NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: Our customers like traditional sunflowers, so we don’t typically grow specialty sunflowers, however, this was a strong option if we were to do so; Great bicolor as one cut 42” but also had at least 4-6 usable 10-12” side shoots; This is a good bicoloured sun, I would recommend it, not typically a fan of bicoloured suns, however, I really liked this one, creamy colour and the plum highlights are very attractive, I planted the same as ‘Ziggy’, bloom time, height, and bloom size were similar, from a July 30 sowing ‘Marley’ we started cutting 68 days later (October 8); We planted in our fall sunflowers, everyone liked it!; Planted late which likely resulted in a short stem length; Flowered fast but the

first flower was too short and surrounded by side shoots that were longer, hard to cut—should have either pinched or removed the first flower and waited for the side shoots to be harvestable.

Sunflower ‘Ziggy’

(BloomStudios)

Good Qualities: Attractive gold and copper bicolor blooms (7), similar to ‘Marley, with more red tones; For a specialty sunflower this was a good quality variety, nice and strong, lots of specialty options feel very fall, but this one was unique in that it still felt like a summer option; Great side shoots for masons and shorter bouquets; Seemed to keep its petals well, 8 of 50 blooms cut August 10 and the remainder through the rest of the week, bloom size 4.5 inches, nice clean stems no extra buds, they did develop some decent sides, I sowed these twice, June 12 direct seeded to a 50 cell plug tray, started cutting August 10, and again July 30, they were cut October 8, these developed good side shoots ranged from 12-16 inches, they held up well; Nice



Photo John Dole

long stems—great succession cuttings and branching habit; Tall plants (70-80”) and sturdy stems, blooms 5-7” wide, with narrow, tapering ray petals; Nice sturdy stems, loved it, was in our later plantings for fall bouquets; Did well as transplants, had a fairly staggered bloom time, even within the same planting.

Problems: I wouldn’t say that the light orange center was very visible until the flower was fully open; None.

Similar Cultivars: Had similar growth and bloom time as ‘Marley’; Colors are comparable to ‘ProCut Bicolor’ but plants are taller and 3-4 days later to bloom in our trial; Similar to ‘The Joker’ and ‘ProCut Bicolor’ varieties, but lighter red than the ‘Joker’ and more color variation than ‘ProCut’.

Postharvest Recommendations: NC State conducted vase life testing of this cultivar; see article in this issue for details.

Comments: We liked this a lot, will grow again, no naughty heads (droopy); Planted late which likely resulted in a short stem length; Outside; I like the bicolors, in a design, they are much more versatile, nice long petals on this one with the color distributed throughout the petals; We likely wouldn’t grow this again because the effect isn’t that different from a traditional sunflower and our customers are mostly interested in the traditional vs. specialty; Would plant this for fall, not a great summer colour, our summer was extremely hot and dry, once they are transplanted in the field they are not irrigated, the second transplants may have been delayed a bit waiting for some rainfall, all our suns are grown without any fertilizer, soil was amended with cow manure in late fall.

Tanacetum ‘White Crown’

(Evanthia Seeds & Plants)

Good Qualities: Best germination success of all my matricaria, strong plants, did well both in the high tunnel and outside, many stems per plant; Uniform growth; Nice sturdy stems, cute button blooms; Unusually tiny blooms, good germination, plants are looking vigorous today (October 18); Dainty white filler with fresh green foliage, good for repeat

cutting; Lovely color, very prolific, performs great in a hoop, greens and blooms hold in vase, can rebound from spider mites; Easy to grow, had potential for a reasonable second flush in the fall if plants are cut back; Good vase life; Really loved the height.

Problems: All ready at once and turns brown if you wait for it to look its best; I didn’t love this variety compared to other feverfew that we grow, the white flowers browned really easily making them unsalable, would not recommend; Short stems, very branchy and hard to get a decent stem, turned brown quickly but could have been due to hot, dry summer and no irrigation; Did not like the way these formed a “clump” of flowers, difficult to use in design work, flowers did not ever really look fully open before they began to brown; This plant was very slow and late compared with other varieties in the trial (‘Tetra White’, ‘Virgo’ were also in my trial), the entire trial was hit by tarnished plant bug and unseasonable heat, so there were some significant environmental stresses at work, this crop did not produce and was not able to be evaluated; Super cute buttons but they seemed to brown fast on us before we could harvest, it could have been us, since we didn’t know exactly what they were going to look like, but we would wait a little for them to open and some would be brown; Destroyed by spittle bugs, most plants did not flower; Plant grew well but flowers never fully developed; Difficulties with browning, simply not as attractive of a bloom as other feverfew varieties, we will not grow again.

Similar Cultivars: More ruffled than ‘Vegmo’ and ‘Virgo’; Other white matricaria like ‘Ball’s Ultra Double Tetra White’ and ‘Vegmo Snow Ball Extra’ have an airier habit, with more stems per plant without pinching.

Postharvest Recommendations: None listed.

Comments: High tunnel and outside—taller and nicer blooms inside; This variety may really benefit from an early pinch, might help to make more usable stems rather than one large ‘club’ of



‘White Crown’

Photo Jolea Gress

a stem; Prefer ‘Vegmo Snowball’ or ‘Virgo’ for a white; This was not what I expected when the blooms were so very tiny, it did come in handy doing corsage work and as a filler, I think it would be worth a try in a hoop house where it could be irrigated, I would expect it would potentially grow much taller inside, it wasn’t very impressive growing here this hot/dry summer, I will be checking to see if any winter over and if so how they fare compared to this year, sown the same time as our main crop of ‘Magic Single’, ‘Vegmo Yellow’ and ‘Double White’ and ‘Tetra’, it was at least 2 weeks later to bloom than the other varieties; We should have staked this item to keep the growth upright; Nice height, they seemed to be 2-3 weeks behind other matricaria that were in the same seeding week, would try again just to see if we were harvesting at the proper time with the browning; Could have had many stems if insect damage had not been so severe.

Verbena ‘Purple Haze’

(Gloeckner)

Good Qualities: It seemed to never stop producing! (4); Fun airy texture (3); Beautiful color (3); Very productive (3); Easy to grow (2); Healthy foliage in cool weather when verbenas can get mildew, floriferous compared to the generic version; Long stems; Good yield, good filler, super long and strong stems, very hardy, I had only a few plants and they were mostly forgotten, but they grew strong and were cold hardy into the late fall; We love *Verbena bonariensis*, adds just the right pop, and so delicate, and it keeps giving; I love verbena, verbena was my gateway flower when I first starting in design school; Excellent germination, sometimes the *bonariensis* can be irregular but these were good, the burgundy coloured seedlings turned green after a couple of weeks, they started blooming early and stayed all season, did not require netting, stayed upright without support; Vigorous, stems are sturdy and square and easy to harvest, yielded 18-24” primary stems with many shorter, thinner (12-18”) side shoots, all usable; Compared to the straight species, it is a good, clean substitute, it stayed in bloom 3 times longer than the species; Vase life, could harvest long, branching stems as well as shorter stems for use in small arrangements.



‘Purple Haze’

Photo John Dole

Problems: Petals shatter (3), I use it in event work, but for bouquet work it drops too much for a good client experience; Takes many stems to make a large bunch; Very wiry stems; Stems are scabrous and will damage skin, seeds were a little difficult to start; Terrible germination—I ended up with only 5 plants, the stems were incredibly long and widely branching, with very small florets at the top, not interesting enough to use the space to grow; I did not see any difference between this cultivar and the original *bonariensis*.

Similar Cultivars: Couldn’t tell the difference from the general *Verbena bonariensis* that we grow.

Postharvest Recommendations: Nothing special needed. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*

Comments: Verbena has a tendency to shatter after a few days; High tunnel; Great purple texture but not a huge impact, better suited for flower bed or potted annual; With the consistent bloom even if not deadheaded, they continued to show colour all season and are still blooming despite some frost damage today (October 18), would think it would make a good tall landscape plant, grown without irrigation; survived the extreme heat/drought; I like the cultivar and the way it performed in our southern humidity, it did act as an annual, unlike our species which is a perennial in our landscape; The verbena was great, to be honest, I don’t think I could tell it apart from the other *Verbena bonariensis* I grow, I would try it again possibly side by side.

Zinnia Expt. Orange

(BloomStudios)

Good Qualities: Very vibrant orange color (14), that held in the field for a long time; Love, loved that every flower was a double! (3); Would make a great bedding plant; Makes a nice dried flower; Nice size bloom—would possibly make a good bedding plant, it grew very dense and I would be concerned with disease in a normal summer, we had record drought and heat; Flower form was amazing!



‘Expt. Orange’

Photo James Martin

colour was more vibrant than ‘Benary Orange’, mildew tolerance outlasted frost; Amazingly uniform bloom time, long vase life; did not experience any of the usual “zinnia meltdown” with these, however, I don’t know that we harvested enough of these to determine if they really are any better than Benarys, etc. in that respect; Clean foliage; Very large blooms! Prolific—a lot of stems per plant; No other orange zinnia like it that I know; Size of the flowers; Extremely uniform orange blooms on dense, mounding plants, bloom quality are excellent, comparable to the Benary series.

Problems: Way too short (15); Better as a garden plant or potted plant (6); Not usable as a cut flower (6); We even tried cutting them for a bit to see if we could get some height but it just got bushier; Used short stems in mason jar arrangements because the colour made the stem length forgivable; Branched; Too saturated orange for our markets. started off blooming very short, but put on good stem length within a few weeks; Plants have a low, mounding habit and did not produce stems long enough for cuts.

Similar Cultivars: Color similar to Benary; ‘Benary Orange’.

Postharvest Recommendations: Chlorine tabs in harvest water, refresh with Chrysal 2 and chlorine, use that day; Plain water. *NC State conducted vase life testing of this cultivar; see article in this issue for details.*



'Expt. Purple'

Photo Rachael Ackerman

Comments: I hated this zinnia for most of the season, it was so vibrant and grew in a nice mass (it would make a great landscape planting) but it was so terribly short! it wasn't until the end of the season when I cut a few of those vibrant heads and stuck them in a box of silica to dry, they came out amazing, the orange dried to more of a reddish coral color but still vibrant and stunning; Not a cut flower contender due to very short/unusable stems, made a nice show in the field for colour but was significantly shorter; Started to bloom at 10 inches, like a bedding plant, we had a severe drought, so I thought this might be part of the issue, comparisons (Benary Giants & Takii Sunshine) put on more height before blooming, EXP's never achieved the same height, but did have better plant health and quality of blooms; Would make a good bedding/pot plant; Get it taller and it's a star! we loved the flowers, just not the height; If it had longer stems, I'd grow it, the flower size was a medium which is more useful sometimes than the large Benary size flower in arrangement work; We did all we could to use them because their color was so gorgeous, just too short;

I grew the orange zinnia in the tunnel and it was really short, I pinched it hard twice and by the end of the season, I was able to get one cut of 8-12" stems, really branchy, it was hard to get a nice single stem cut, I would not grow them again.

Zinnia Expt. Purple

(BloomStudios)

Good Qualities: Colour was SO purple!! (14), that held for a very long time in the field; Love loved that every flower was a double! (3); Would make a great bedding plant; Dries nice; Nice size bloom; Productive long stems, great disease tolerance; Amazingly uniform bloom time, long vase life; did not experience any of the usual "zinnia meltdown" with these, however, I don't know that we harvested enough of these to determine if they really are any better than Benarys, etc. in that respect; When blooms were mature, they had great petal count/full heads; None; Large blooms, lots of stems per plant; Long lasting; Vigorous plants and highly uniform blooms, color and bloom quality are excellent—comparable to the Benary series.

Problems: Very, very short (14); Unusable as a cut flower (5); Better as a garden plant or potted plant (4); "Marketable" stems for this and the other zinnia variety is a loose term—they are usable only in super short arrangements like jelly jars, in past years we would not have spent the time to harvest these, but due to weird ways COVID has shifted our markets, we have been selling everything, super short stuff included; We even tried cutting them for a bit to see if we could get some height but it just got bushier; Used short stems in mason jar arrangements because the colour made the stem length forgivable; Branched; Not a good clean purple; Not a popular color for our markets, started off blooming very short, but put on good stem length within a few weeks; I may have planted them too early, I'll be interested to see what other growers thought; Plants have a low, mounding habit, later in the season these plants started to stretch a little, yielding a few short harvestable stems but overall not well-suited for cuts.

Similar Cultivars: Color similar to Benary; Not that I know.

Postharvest Recommendations: Chlorine tabs in harvest water, refresh with Chrysal 2 and chlorine, use that day; Plain water.

Comments: Recommend as a bedding plant (2); The purple dried really nice, too, again hated these zinnias until I saw how well they dried, but other than drying them, they really make a terrible cut flower; Started to bloom at 10-inch height—like a bedding plant, we had a severe drought, so I thought this might be part of the issue, comparisons (Benary Giants and Takii Sunshine) put on more height before blooming, EXP's never achieved the same height, but did have better plant health and quality of blooms; Designers really enjoyed this this zinnia for its color, they had no problem using them in arrangements, but for market bouquets, they were too short; Get it taller and it's a star! we loved the flowers, just not the height, I would say the purple was a tiny bit taller than orange, but still short; Zinnias all grown in a high tunnel; Like the orange, we wanted to use them, every flower was perfect, just too short; The purple I field grew and it never got above 3-6", really branchy, it was hard to get a nice single stem cut, I would not grow them again.



'Expt. Purple'

Photo Jamie Sammons

Table 1. 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 shown in the range line, all respondents gave the same rating.

Species and cultivar	Yield (stems/plant)	Stem length (in.) ¹	Market appreciation rating ²	Ease of cultivation rating ²	Grow again rating ²	Average postharvest life (days)
Brassica Crane Ruffle Bicolor	1.4	21.5	5.0	4.3	4.8	12.0
	1-4	12-30	5	1-5	4-5	5-21
Campanula Champion II Deep Blue	2.8	17.8	3.9	3.9	3.1	7.7
	1-8	12-30	1-5	1-5	1-5	5-10
Campanula Champion II Lilac	2.9	19.0	3.6	4.0	3.3	7.5
	1-8	12-33	1-5	1-5	1-5	5-10
Campanula Champion II Rose	3.0	19.0	3.7	4.0	3.3	7.5
	1-8	12-36	1-5	1-5	1-5	5-10
Celosia Act Rima	2.0	22.7	4.4	3.3	4.5	8.7
	1-6	8-42	3-5	1-5	4-5	7-14
Celosia Cristi Purple	1.4	21.8	4.1	3.6	4.6	10.6
	1-5	4-42	1-5	1-5	3-5	7-14
Celosia Red Ace	1.4	25.8	4.2	3.6	4.5	10.1
	1-5	8-48	2-5	1-5	3-5	7-14
Delphinium Jenny's Pearl Blue	3.5	15.6	3.5	3.3	3.6	7.0
	1-10	9-24	1-5	1-5	1-5	7
Delphinium Jenny's Pearl Pink	2.4	14.5	3.4	2.9	3.6	7.0
	1-6	8-24	1-5	1-5	2-5	7
Dianthus Expt. Pink Magic	7.2	14.2	2.8	2.6	4.5	8.6
	3-20	10-24	1-5	1-5	3-5	5-14
Dianthus Expt. Purple	7.3	15.6	2.6	2.6	4.3	7.4
	3-20	3-36	1-4	1-4	3-5	5-10
Dianthus Expt. Red	6.9	14.2	2.6	2.6	4.4	7.9
	3-20	10-24	1-5	1-4	3-5	5-10
Dianthus Expt. Rose	7.7	14.3	2.6	2.5	4.4	7.9
	3-20	10-24	1-4	1-4	3-5	5-10
Lepidium Green Dragon	3.8	14.3	3.8	4.0	3.7	9.5
	1-10	6-24	1-5	1-5	1-5	5-"forever"
Lisianthus Echo Pure White Imp.	2.1	19.3	4.4	4.0	3.9	12.7
	1-6	10-36	3-5	2-5	3-5	9-14
Lisianthus Echo Purple	1.9	19.1	4.8	4.0	3.8	13.5
	1-4	10-36	4-5	2-5	3-5	12-14
Lisianthus Jolly Type III Pink	2.6	20.6	5.0	4.7	4.3	15.0
	1-5	12-36	5	4-5	3-5	12-21
Marigold Bengal Orange	9.8	21.4	3.5	3.5	4.5	11.0
	1-50	12-36	2-5	1-5	3-5	7-21
Marigold Bindi Gold	9.6	15.8	3.4	2.3	4.6	11.3
	2-35	6-24	2-4	1-4	3-5	7-21

Species and cultivar	Yield (stems/plant)	Stem length (in.) ¹	Market appreciation rating ²	Ease of cultivation rating ²	Grow again rating ²	Average postharvest life (days)
Marigold Chedi Yellow	9.0 4-20	20.6 12-30	3.4 2-4	3.1 1-5	4.4 3-5	12.9 7-21
Marigold Hermant Deep Gold	6.1 2-9	18.8 12-30	3.2 2-4	2.8 1-4	4.1 2-5	8.5 7-10
Marigold Janthra Yellow	9.8 5-30	19.0 12-30	3.2 2-4	3.5 2-5	4.3 3-5	11.3 7-21
Marigold Mayan Orange	9.3 1-35	16.7 6-36	3.1 2-4	2.7 1-4	4.7 4-5	13.3 7-21
Marigold Nosento Lime Green	4.6 2-15	16.6 6-36	3.3 1-5	2.6 1-5	4.1 3-5	9.8 7-15
Marigold Royal Bali Gold	8.5 2-20	17.8 12-24	3.4 2-4	2.3 1-4	4.3 3-5	11.7 7-21
Marigold Xochi Orange	9.6 3-30	22.3 12-48	3.9 2-5	4.1 2-5	4.5 3-5	11.4 7-21
Nicotiana Bronze Queen	9.8 1-30	21.1 12-36	2.4 1-5	3.2 1-5	4.5 3-5	4.8 3-7
Nigella African Bride, Delft Blue, and Midnight Dark Blue Mix	4.0 1-8	17.5 7-32	4.3 4-5	4.3 3-5	5.0 5	6.3 5-7
Snapdragon Chantilly Deep Orange	3.6 1-8	22.5 10-36	4.3 3-5	3.8 3-5	4.3 3-5	8.8 7-14
Snapdragon Purple Peloric	5.1 1-10	23.6 12-36	4.3 3-5	4.2 3-5	4.4 3-5	7.8 7-10
Stock Milla Salmon	1.0 1	17.8 12-24	4.1 1-5	4.2 1-5	4.1 1-5	9.3 7-14
Stock Sahin Anytime Mix	1.3 1-3	13.9 8-22	3.2 1-4	2.2 1-4	4.2 1-5	7.0 5-10
Sunflower Marley	1.5 1-6	36.7 10-60	4.2 2-5	4.4 3-5	4.8 4-5	8.4 5-14
Sunflower Ziggy	1.5 1-5	36.8 12-60	4.3 2-5	4.1 3-5	4.9 4-5	8.1 5-10
Tanacetum White Crown	4.4 1-10	18.1 11-36	3.1 1-5	2.6 1-5	4.3 3-5	7.8 7-10
Verbena Purple Haze	15.1 4-50	25.8 12-48	3.6 2-5	3.6 1-5	4.4 2-5	7.3 5-14
Zinnia Expt. Orange	5.2 2-15	10.3 5-18	3.1 1-5	1.4 1-5	4.4 1-5	8.6 5-20
Zinnia Expt. Purple	5.1 2-10	10.1 4-28	3.5 1-5	1.5 1-5	4.4 1-5	8.6 5-20

¹Data shown are from the respondents who harvested stems. Some trialers may have not harvest stems because they were too short.

²1 to 5 scale with 5 being the best; market appreciation ratings are based on sales to wholesalers, retailers and/or final consumers.