# 2019 Cultivar Trials of Bedding Plants

Department of Plant Sciences  
North Dakota State University  
Fargo, ND

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2019 Cultivar Trials of Bedding Plants

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Introduction

Performance trials were conducted on 200 bedding plants in the Horticultural Demonstration and Research plots, part of the Department of Plant Sciences at North Dakota State University.

This garden is for education, research and display purposes and is open to the public throughout the growing season. Guided tours are also available and contact information for the gardens is located on page 5.

The Horticultural Demonstration and Research plots consist mainly of herbaceous ornamentals. This includes the bedding plant trials as well as different perennial areas. There is a large daylily area that is an official display garden of the American Hemerocallis Society, a collection of ornamental perennial grasses, a native meadow garden, a xeric garden and a shade area for both annuals and perennials.

The bedding plant trial is an official display garden of All-America Selections (more information on page 3). These plants are in the trials as well as in a separate bed showcasing their landscape qualities.

Site Information

The research plots are located at the corner of 18th Street and 12th Avenue North on the west side of the NDSU campus in Fargo. The majority of the annual beds are raised beds with a sandy loam-compost mix of soil. They are in full sun and receive water through drip irrigation using t-tape.

Shade annuals are grown in the poplar/pine grove that also contains shade perennials.

Culture

The plants for the trials were seeded in the horticulture and forestry greenhouse on the NDSU campus from January through April. Specific dates can be found in the report table found on pages 5-53. When at the proper stage, seedlings were transplanted into cell packs containing a peat-based growing medium and finished in the greenhouses.

Three cultivars were received as rooted cuttings on March 26 and immediately potted into cell packs with the peat-based growing medium.

Six to 12 plants of each cultivar were planted into the beds on May 29 and 30.

Hand weeding was done on a weekly basis but Razor® Pro¹ (glyphosate) was used for spot treating perennial weeds.

Miracle-Gro® Liquafeed 12-4-8 was foliarly applied June 6, July 3 and August 23.

Water was applied through drip irrigation (full sun beds) and overhead irrigation (shade beds).

¹ Disclaimer-Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by NDSU or the ND Agriculture Experiment Station is implied.
Weather

Fargo temperatures for June-September were close to average but precipitation was higher than the 30 year average in July, August and September. (Table 1).

Table 1. 2019 and 1981-2010 June-September Average Temperature and Precipitation for Fargo, ND. ²

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<td>Sept/ember</td>
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Problems

There were no major problems in 2019 but aphids were found on the ornamental peppers in July. No control was needed because lady bugs moved in and took care of them.

Liquid Fence® was applied early in the season to discourage jackrabbit browsing.

Events

The NDSU Yard and Garden Day was held Sept. 5 from 4:00-7:00 pm. Bryce Farnsworth was remembered for his contributions to the daylily garden and a plaque was installed in his memory. The event also included tours of the horticulture research area including fruit and vegetable research trials.

All-America Selections

The NDSU trial garden is an official display garden of All-America Selections (AAS). AAS was founded in 1932 as a way for home gardeners to learn about new and improved varieties of flowers and vegetables. The red, white and blue AAS logo found on seed packets, in catalogs, and in garden articles usually indicates superior cultivars that have been tested in a variety of locations across the United States and Canada. The following AAS winners from the previous 5 years were grown in 2019:

2015 winners:
- Dianthus ‘Jolt Pink’
- Petunia ‘Tidal Wave Red Velour’
- Salvia ‘Summer Jewel White’

2016 winners:
- Ornamental Pepper ‘Black Hawk’
- Salvia ‘Summer Jewel Lavender’

2017 winners:
- Celosia ‘Asian Garden’
- Dianthus ‘Supra Pink’
- Geranium ‘Calliope Medium Dark Red’
- Petunia ‘Evening Scentsation’
- Penstemon ‘Twizzle Purple’
- Verbena ‘EnduraScape Pink Bicolor’
- Vinca ‘Mega Bloom Orchid Halo’
- Vinca ‘Mega Bloom Pink Halo’
- Zinnia ‘Profusion Red’

2018 winners:
- Canna ‘South Pacific Orange’
- Cuphea ‘FlorGlory Diana’
- Gypsophila ‘Gypsy White Improved’
- Marigold ‘Super Hero Spy’
- Ornamental Pepper ‘Onyx Red’
- Zinnia ‘Queenie Lime Orange’

2019 winners:
- Begonia ‘Viking XL Red on Chocolate’
- Marigold ‘Big Duck Gold’
- Marigold ‘Big Duck Orange’
- Marigold ‘Big Duck Yellow’
- Marigold ‘Garuda Deep Gold’
- Nasturtium ‘Baby Rose’
- Petunia ‘Wave Carmine Velour’
- Vinca ‘Mega Bloom Polka Dot’
- Zinnia ‘Holi Scarlet’

² Temperature and precipitation data are from NDAWN and the National Climatic Data Center.
Evaluations

Plants were evaluated July 30 and Sept. 6. Measurements for average height and spread were taken and plants were rated on a scale of 1 (poor) to 5 (excellent) on bloom, uniformity and vigor. **Top performers** received all 5’s for both evaluations and are shown below. Detailed measurements and notes for each cultivar can be found on the report table on pages 5-53.

2019 Top Performers (listed alphabetically by genus):

- Alternanthera ‘Purple Prince’
- Amaranthus cruentus ‘Red Spike’
- Asclepias ‘Red Butterfly’
- Canna ‘Cannova Bronze Orange’
- Canna ‘Cannova Mango’
- Capsicum (Ornamental Pepper) ‘Black Hawk’
- Capsicum (Ornamental Pepper) ‘Midnight Fire’
- Capsicum (Ornamental Pepper) ‘NuMex Easter’
- Catharanthus (Vinca) ‘Mega Bloom Pink Halo’
- Catharanthus (Vinca) ‘Mega Bloom Polka Dot’
- Catharanthus (Vinca) ‘Merry Go Round Red’
- Catharanthus (Vinca) ‘Merry Go Round White’
- Celosia ‘Arrabona Red’
- Celosia ‘Asian Garden’
- Celosia ‘Chinatown’
- Celosia ‘Eternity Improved’
- Cleome ‘Queen Mixed’
- Cuphea ‘FloriGlory Diana’
- Gomphrena ‘QIS Mix’
- Gomphrena ‘Strawberry Fields’
- Lobularia ‘Royal Carpet’
- Melampodium ‘Jackpot Gold’
- Petunia ‘Easy Wave Yellow’
- Petunia ‘Evening Scentsation’
- Petunia ‘Purple Wave Improved’
- Petunia ‘Shock Wave Deep Purple’
- Petunia ‘Shock Wave Pink Vein’
- Petunia ‘Tidal Wave Hot Pink’
- Petunia ‘Tidal Wave Red Velour’
- Petunia ‘Wave Carmine Velour’
- Salvia ‘Lighthouse Purple’
- Senecio (Dusty Miller) ‘New Look’
- Tagetes (Marigold) ‘Queen Sophia’
- Thunbergia ‘Blushing Susie’
- Thunbergia ‘Mix’
- Verbena bonariensis
- Zinnia ‘Queen Red Lime’

Acknowledgements

‘Thank you’ to supporters of the 2019 gardens including All-America Selections and Ball Horticultural Company. We are grateful for the support of these companies and hope results from our efforts are beneficial in their research for new and improved cultivars.

I’d also like to extend a special ‘thank you’ to Esther McGinnis, coordinator of the Master Gardener (MG) program, and the MG volunteers who provided over 200 hours of service from May through October. Their help, from spring clean-up to planting the trial gardens to summer maintenance and fall clean-up, is greatly appreciated.

Contact Information

For more information about the Horticultural Demonstration and Research plots at North Dakota State University, visit [www.ag.ndsu.edu/plantsciences/research/gardens](http://www.ag.ndsu.edu/plantsciences/research/gardens) or contact:

Barb Laschkwitsch in the Department of Plant Sciences
NDSU Dept. 7670, PO Box 6050
Fargo, ND 58105-6050

Phone: 701-231-7484
E-mail: barbara.laschkwitsch@ndsu.edu
Ageratum houstonianum ‘Aloha Blue’

*seed source: Park Seed*

July 30 Height: 7-12” Spread: 11-16”

Sept. 6 Height: 8-9” Spread: to 20”

Bloom was nice all summer but there were some differences in size. Seed for Ageratum was started in the greenhouse on March 11, 2019.

Ageratum houstonianum ‘Timeless Mix’

*seed source: Johnny’s Select Seed*

July 30 Height: 17-20” Spread: 21-25”

Sept. 6 Height: 25-28” Spread: to 30”

Very nice in July with good bloom and size uniformity. Declined in bloom by September.

Alternanthera brasiliana ‘Purple Prince’

*seed source: Ball Seed*

July 30 Height: 8” Spread: 20”

Sept. 6 Height: 8” Spread: 31”

Purple foliage was striking next to Dusty Miller. Very good uniformity and vigor. Seed was started January 25, 2019.

Amaranthus caudatus ‘Coral Fountain’

*seed source: Johnny’s Selected Seeds*

July 30 Height: 30-36” Spread: to 36”

Sept. 6 Height: to 36” Spread: to 42”

Did well most of the season but was a little chlorotic in September. Seed for all Amaranthus was started April 3, 2019.

*Indicates a top performer during that evaluation time.*
Amaranthus caudatus—Love-Lies-Bleeding

seed source: Burpee

*July 30* Height: 34-38" Spread: to 36"

*Sept. 6* Height: 36" Spread: to 42"

This was doing very well in July but showed chlorosis by September.

Amaranthus caudatus 'Pony Tails'

seed source: Thompson and Morgan

*July 30* Height: 34-38" Spread: to 36"

*Sept. 6* Height: 36" Spread: to 42"

Looked good in July but was declining by early September and some were dying.

Amaranthus cruentus 'Hopi Red Dye'

seed source: Johnny's Selected Seeds

*July 30* Height: 34-36" Spread: to 36"

*Sept. 6* Height: 30-42" Spread: to 60"

This amaranth was very nice in July but some strong storms caused it to lean over by September. Bloom was good all season.

Amaranthus cruentus 'Red Spike'

seed source: Johnny's Selected Seeds

*July 30* Height: 36-42" Spread: 30-36"

*Sept. 6* Height: 36" Spread: 40-42"

Big accent plant with upright flowers. Nicer in July than September because strong storms blew some of the stems over.
Antirrhinum majus (Snapdragon) 'Black Prince'
seed source: Park Seed

July 30 Height: 20" Spread: 9-15"
Sept. 6 Height: 18-20" Spread: 20-24"

This snapdragon had good vigor and uniformity all season. Red flowers contrasted nicely with burgundy tinged foliage. Snapdragons were started March 28, 2019.

Antirrhinum majus (Snapdragon) 'Chantilly Mix'
seed source: Park Seed

July 30 Height: 20-24" Spread: 11-14"
Sept. 6 Height: 15-22" Spread: 17-20"

This butterfly-flowered snapdragon mix includes light yellow, pink and white. Did well all season.

Antirrhinum majus (Snapdragon) 'Rocket Golden Hybrid'
seed source: Park Seed

July 30 Height: 20-30" Spread: 9-18"
Sept. 6 Height: 20" Spread: 20"

Looked nice in July but by September only one plant of six was alive. The others broke off at the soil line and I'm not sure if it was an insect or something else. Nice yellow blooms.

Antirrhinum majus (Snapdragon) 'Twinny Mix'
seed source: Park Seed

July 30 Height: 7-9" Spread: 8-11"
Sept. 6 Height: 7-10" Spread: 10-15"

Another butterfly-flowered snapdragon with a mix of pastel colors. Lacked uniformity in bloom between the different colors but otherwise looked nice.
Begonia 'Dragon Wing™ Pink'

*Indicates a top performer during that evaluation time.
Begonia x benariensis 'BIG® Red with Green Leaf'

Seed source: Park Seed

July 30 Height: 9-10" Spread: 8-10"

Sept. 6 Height: 10-12" Spread: 10-14"

This was grown in the shade garden under the poplar trees. They stayed small all season but the bloom on the plants was good.

Begonia boliviensis 'Santa Cruz® Sunset'

Seed source: Park Seed

July 30 Height: 10-11" Spread: 15-18"

Sept. 6 Height: 10-16" Spread: 13-18"

This begonia was grown in the ground in the shade garden under the poplar trees. It did alright but I've seen it growing better in pots.

Begonia x hybrida ‘Viking™ XL Red on Chocolate'

Seed source: All-America Selections

July 30 Height: 4-6" Spread: 5-7"

Sept. 6 Height: 5-8" Spread: 8-11"

2019 All-America Selections (AAS) Flower Winner. Started these on Feb. 22 because I didn't receive the seed until then. The plants were small when I put them out and were never very vigorous.

Brassica oleracea (Ornamental Kale) 'Glamour Red'

Seed source: All-America Selections

July 30 Height: 8-14" Spread: 13-17"

Sept. 6 Height: 9-14" Spread: 15-20"

2011 All-America Selections (AAS) Cool Season Bedding Plant Winner. Nice foliage but they don't start to color up until the night temperatures reach 50°F or lower. Started seed March 28.
**Calendula officinalis 'Alpha'**

*seed source: Johnny's Selected Seeds*

**July 30** Height: 15-22" Spread: 18-22"

This had the best bloom before the end of July but had good vigor throughout the summer. Seeds of Calendula were started in the greenhouse on April 3.

**Sept. 6** Height: 20-24" Spread: 18-20"

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**Calendula officinalis 'Calexis Orange'**

*seed source: Burpee*

**July 30** Height: 13-17" Spread: 17-19"

This also had better bloom before the end of July but good vigor all summer.

**Sept. 6** Height: 11-13" Spread: 14-16"

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**Calendula officinalis 'Princess Mix'**

*seed source: Johnny's Selected Seeds*

**July 30** Height: 18-24" Spread: 16-22"

This mix of gold, orange and yellow flowers was slightly less floriferous than the other Calendula.

**Sept. 6** Height: 12-14" Spread: to 20"

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**Canna x generalis 'Cannova® Bronze Orange'**

*seed source: Ball Seed*

**July 30** Height: 36" Spread: 18-24"

Nice color combination of orange and bronze foliage. This did well all season with good bloom, vigor and uniformity. The cannas were all started from seed in the greenhouse on March 15.

**Sept. 6** Height: 38-42" Spread: 20-24"

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*Indicates a top performer during that evaluation time.*
Canna x generalis 'Cannova® Mango'

*July 30* Height: 35-36" Spread: to 24"

*Sept. 6* Height: 45" Spread: to 30"

Did well all summer with nice bloom, vigor and uniformity.

Canna x generalis 'Cannova® Orange Shades'

*July 30* Height: 12-34" Spread: 12-20"

*Sept. 6* Height: 40" Spread: to 36"

Very good bloom and vigor all season although one of the six plants was smaller than the others.

Canna x generalis 'South Pacific™ Orange'

*July 30* Height: 24-25" Spread: 19-23"

*Sept. 6* Height: 32-34" Spread: to 30"

2018 All-America Selections (AAS) Flower Winner. Not quite as floriferous as other cannas early in the season but very nice well into the fall.

Canna x generalis 'South Pacific™ Scarlet'

*July 30* Height: 29-30" Spread: 19-22"

*Sept. 6* Height: 36-42" Spread: to 36"

2013 All-America Selections (AAS) Flower Winner. A little less bloom than other cannas early in the season but full of blooms later.
Capsicum annuum (Oriental Pepper) 'Black Hawk'

Seed source: All-America Selections

*July 30* Height: 14-15" Spread: 15-16"

*Sept. 6* Height: 18-22" Spread: to 25"

2016 All-America Selections (AAS) Flower Winner. Nice uniformity and vigor all season. Black peppers slowly turn red. Ornamental peppers were started in the greenhouse on Feb. 22.

Capsicum annuum (Ornamental Pepper) 'Midnight Fire'

Seed source: Ball Seed

*July 30* Height: 6-9" Spread: 10-12"

*Sept. 6* Height: 6-10" Spread: 12-16"

Bright red peppers contrast nicely with deep purple foliage. Aphids on all the peppers mid-July but Lady Bugs moved in and took care of the problem.

Capsicum annuum (Ornamental Pepper) 'NuMex Easter'

Seed source: All-America Selections

*July 30* Height: 7-9" Spread: 10-13"

*Sept. 6* Height: 6-8" Spread: 8-10"

2014 All-America Selections (AAS) Bedding Plant Winner. These ornamental peppers turn from lavender to a golden orange; very showy.

Capsicum annuum (Ornamental Pepper) 'Onyx Red'

Seed source: All-America Selections

*July 30* Height: 9-12" Spread: 7-10"

*Sept. 6* Height: 9-14" Spread: 10-15"

2018 All-America Selections (AAS) Flower Winner. Some size differences with these all season long. Black peppers slowly turn red.
Catharanthus roseus (Vinca) 'Mega Bloom Orchid Halo'

*seed source: All-America Selections*

**July 30** Height: 9-10" Spread: 9-11"

**Sept. 6** Height: 12-14" Spread: 15"

*2017 All-America Selections (AAS) Flower Winner.* Lots of blooms on small plants early. Very uniform in size later-good performer. All vinca seeds were started in the greenhouse on Feb. 22.

Catharanthus roseus (Vinca) 'Mega Bloom Pink Halo'

*seed source: All-America Selections*

*July 30* Height: 9" Spread: 11-12"

**Sept. 6** Height: 12-14" Spread: 13-15"

*2017 All-America Selections (AAS) Flower Winner.* This was a top performer all summer with good bloom, vigor and size uniformity.

Catharanthus roseus (Vinca) 'Mega Bloom Polka Dot'

*seed source: All-America Selections*

*July 30* Height: 9-10" Spread: 11-12"

**Sept. 6** Height: 12-14" Spread: 13-15"

*2019 All-America Selections (AAS) Flower Winner.* This was also a top performer all summer with good bloom, vigor and size uniformity.

Catharanthus roseus (Vinca) 'Merry Go Round Red'

*seed source: Burpee*

*July 30* Height: 19-20" Spread: 19-20"

**Sept. 6** Height: to 24" Spread: to 24"

One of the top performing vinca with good bloom, vigor and uniformity.

NDSU Department of Plant Sciences - 2019 Bedding Plant Trial Report - * Indicates a top performer during that evaluation time.
Catharanthus roseus (Vinca) 'Merry Go Round White'

*July 30 Height: 20-21" Spread: 19-20"

*Sept. 6 Height: to 24" Spread: to 24"

Very similar to 'Merry Go Round Red' vinca with good bloom, vigor and uniformity.

Catharanthus roseus (Vinca) 'Tattoo Black Cherry'

*July 30 Height: 6-8" Spread: 7-8"

Sept. 6 Height: 8-9" Spread: 9-13"

Very uniform early in the summer with good bloom. At the end of the season bloom was still good but there were some differences in the size of some plants.

Catharanthus roseus (Vinca) 'Tattoo Papaya'

July 30 Height: 5-6" Spread: 7-10"

Sept. 6 Height: 8-9" Spread: 12-16"

The flower color on this seemed washed out but the bloom was good. There were some differences in spread of the plants.

Catharanthus roseus (Vinca) 'Merry Go Round Black'

July 30 Height: 8-10" Spread: 8-11"

*Sept. 6 Height: 10-11" Spread: 14-16"

This was the nicest 'Tattoo' vinca with good bloom, vigor and size uniformity. It was also the most vigorous of the 'Tattoo' series here.
Catharanthus roseus (Vinca) 'Tattoo Tangerine'

*Seed source: Park Seed*

July 30 Height: 5-8" Spread: 8-11"

Sept. 6 Height: 7-9" Spread: 8-14"

This was the least vigorous of the 'Tattoo' vinca. The flower colors seemed to fade as the plants aged.

Celosia argentea (cristata group) 'Prestige Scarlet'

*Seed source: Burpee*

July 30 Height: 16-18" Spread: 12-22"

Sept. 6 Height: 15-22" Spread: 14-26"

My only complaint on this celosia was the size differences between the plants. Bloom was nice all summer. Seed for all celosia was started in the greenhouse on March 20.

Celosia argentea (cristata group) 'Red Velvet Cake'

*Seed source: Burpee Seed*

July 30 Height: to 22" Spread: to 10"

Sept. 6 Height: 23-30" Spread: 10-15"

The heads on this celosia were huge and staking was needed.

Celosia argentea (plumosa group) 'Arrabona Red'

*Seed source: Burpee*

*July 30 Height: 15-17" Spread: 14-16"

*Sept. 6 Height: 16-19" Spread: to 20"

This has been a top performer in the gardens for a few years and this summer was no exception. I definitely recommend this showy, red celosia.

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*Indicates a top performer during that evaluation time.*
Celosia argentea (plumosa group) ‘Century Pink’

July 30 Height: 20-23" Spread: 13-14"

Sept. 6 Height: 17-19" Spread: 15-18"

Did well most of the summer but blooms looked a little ragged by September.

Celosia argentea (plumosa group) ‘Chinatown’

July 30 Height: 22-24" Spread: 14-16"

Sept. 6 Height: 27-29" Spread: 20-22"

This was a top performer all summer. The red foliage and red flower combination is very striking.

Celosia argentea (plumosa group) ‘Dragon’s Breath’

July 30 Height: 14-19" Spread: 12-20"

Sept. 6 Height: 26-28" Spread: 18-22"

The foliage here is just as striking as the flower color. Very vigorous celosia, as well.

Celosia argentea (plumosa group) ‘Eternity Improved’

July 30 Height: 30-32" Spread: 18-20"

Sept. 6 Height: to 32" Spread: 24"

Celosia ‘Eternity Improved’ was a top performer all summer. The painted lady butterflies were also attracted to this celosia.
Celosia argentea (plumosa group) 'First Flame Red'

*July 30* Height: 15-17" Spread: 15-16"  
*Sept. 6* Height: 15-18" Spread: 16-18"

Vigor was good on this all year but the blooms were looking ‘beat up’ by September.

Celosia argentea (plumosa group) 'First Flame Yellow'

*July 30* Height: 12-17" Spread: 8-13"  
*Sept. 6* Height: 13-15" Spread: 12-16"

Not as vigorous as 'First Flame Red' celosia. Blooms were nice early but ‘dirty’ and ‘beat up’ looking in September.

Celosia argentea (plumosa group) 'Fresh Look Red'

*July 30* Height: 15-20" Spread: 14-17"  
*Sept. 6* Height: 18-20" Spread: 18-20"

There were some differences in height early in the season but growth evened out over the summer. Bloom was fantastic all season.

Celosia argentea (plumosa group) 'Pampas Plume'

*July 30* Height: to 36" Spread: 24-28"  
*Sept. 6* Height: to 42" Spread: to 36"

These are tall and need some space in a garden. They were vigorous and floriferous all season.
Celosia argentea (plumosa group) 'Rainbow Sherbert'

*seed source: Park Seed*

**July 30** Height: 8-9" Spread: 7-10"  
**Sept. 6** Height: 6-9" Spread: 7-11"

The plants looked nice in July but by September they had declined. Blooms were faded and drying while the plants had no vigor.

Celosia argentea (spicata group) 'Asian Garden'

*seed source: All-America Selections*

**July 30** Height: to 24" Spread: to 20"  
**Sept. 6** Height: to 30" Spread: to 30"

2017 All-America Selections (AAS) Flower Winner. Another celosia that was a top performer all summer. The painted lady butterflies also liked this flower.

Centaurea cyanus 'Black Button'

*seed source: Johnny's Selected Seeds*

**July 30** Height: 17-23" Spread: 13-15"  
**Sept. 6** Height: 16-18" Spread: 18-20"

This was doing well early in the summer but declined in bloom by September and wasn't quite as vigorous as earlier. Seed was started April 10.

Centratherum intermedium 'Button Beauty'

*seed source: Park Seed*

**July 30** Height: 13-15" Spread: 13-16"  
**Sept. 6** Height: 16-18" Spread: 23-25"

Vigor and uniformity were good all season but bloom was better in August and September. Seed for Centratherum was started February 14.
Cleome hassleriana 'Queen Mixed'

Seed source: Burpee

*July 30* Height: to 48" Spread: to 36"

*Sept. 6* Height: to 62" Spread: to 40"

Cleome 'Queen Mixed' needs some space but puts on a nice show every year. Seed was started on Feb. 22.

Cosmos bipinnatus 'Double Click Mix'

Seed source: Johnny's Selected Seeds

*July 30* Height: 36-48" Spread: 23-26"

*Sept. 6* Height: to 48" Spread: to 36"

Nice early with good bloom and vigor. By September there was a decline in bloom and stems were falling over. All cosmos seeds were started on April 10.

Cosmos bipinnatus 'Mandarin Orange'

Seed source: Burpee

*July 30* Height: 9-12" Spread: 9-11"

*Sept. 6* Height: 10" Spread: 8-10"

Nice early but only 1 of 6 plants alive in September. I’m not sure what killed them.

Cosmos bipinnatus 'Peppermint Candy'

Seed source: Park Seed

*July 30* Height: 17-19" Spread: 9-11"

*Sept. 6* Died

This didn't do well this summer. The plants were declining by July and all were dead by September.
This was doing well early although there were some differences in size. By September some were still nice while others were falling over or dying.

Bloom wasn't uniform between plants in July. By August some plants were dying while others were nice.

This cosmos also started out looking nice but by September, 3 of 6 plants had died and the rest weren't very vigorous or floriferous.

*July 30* Height: 6" Spread: 12"

*Sept. 6* Height: 7" Spread: 16"

2018 All-America Selections (AAS) Ornamental Vegetative Winner. This Mexican heather was unbelievably uniform in its growth habit this year. It also bloomed better than last year.
Dianthus barbatus 'Sweet™ Black Cherry Hybrid'

Seed source: Burpee

July 30 Height: 9-14" Spread: 7-12"

Sept. 6 Height: 11-13" Spread: 8-16"

This declined over the course of the summer in both vigor and bloom. All Dianthus were seeded March 11, 2019 in the greenhouse unless otherwise noted.

Dianthus barbatus interspecific 'Jolt™ Pink'

Seed source: All-America Selections

July 30 Height: 12-14" Spread: 12-14"

Sept. 6 Height: 13-15" Spread: 13-15"

2015 All-America Selections (AAS) Bedding Plant Winner. ‘Jolt Pink’ was a top performer in July. By September bloom had declined and it needed deadheading.

Dianthus barbatus interspecific ‘Jolt™ Pink Magic’

Seed source: Ball Seed

July 30 Height: 12-13" Spread: 12-14"

Sept. 6 Height: 12-14" Spread: 12-15"

Similar to ‘Jolt Pink’ in that it was a top performer with excellent bloom early in the summer. By September it needed deadheading and had declined in bloom.

Dianthus x barbatus interspecific ‘Rockin™ Red’

Seed source: Ball Seed

July 30 Height: 11-14" Spread: 10-12"

Sept. 6 Height: 11-14" Spread: 11-15"

Looked nice in July but by September bloom had declined.
Dianthus deltoides ‘Arctic Fire’

*seed source: Burpee*

*July 30* Height: 2-3"  Spread: 7-10"

*Sept. 6* Height: 2-3"  Spread: 8-12"

These plants were healthy looking all year but had few blooms. This Dianthus was started on January 25.

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Dianthus interspecific ‘Supra Pink’

*seed source: All-America Selections*

*July 30* Height: 7-9"  Spread: 8-10"

*Sept. 6* Height: 6-8"  Spread: 6-10"

*2017 All-America Selections (AAS) Flower Winner,* The plants were doing well early but by September they had declined in bloom and vigor.

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Echinacea purpurea ‘Cheyenne Spirit’

*seed source: All-America Selections*

*July 30* Height: 9-15"  Spread: 9-12"

*Sept. 6* Height: 13-18"  Spread: 10-18"

Interesting mix of colors. There were some size differences but overall these did well. Seed was started in the greenhouse on January 10, 2019.

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Euphorbia marginata -Snow-on-the-Mountain

*seed source: Johnny's Selected Seeds*

*July 30* Height: 20-28"  Spread: 17-27"

*Sept. 6* Height: 29-36"  Spread: to 36"

These grew really well but some of the stems were falling over by September. Seed was started on January 10 but erratic germination occurred through early April.
### Eustoma grandiflorum 'Doublini Blue'

*seed source: Johnny's Selected Seeds*

**July 30** Height: 14-17" Spread: 8-10"  
**Sept. 6** Height: 15-19" Spread: 10-12"

Nice plants but bloom wasn't uniform; some plants were blooming while others weren't. All *Eustoma* seeds were started in the greenhouse on January 10, 2019.

### Eustoma grandiflorum 'Doublini Rose Pink'

*seed source: Johnny's Selected Seeds*

**July 30** Height: 12-15" Spread: 8-10"  
**Sept 6** Height: 15-18" Spread: 10-12"

Similar to 'Doublini Blue' with bloom that wasn't uniform. Nice plants with heavy blooms that caused some plants to fall over.

### Eustoma grandiflorum 'Mariachi Blue'

*seed source: Johnny's Selected Seeds*

**July 30** Height: to 15" Spread: 8-10"  
**Sept. 6** Height: 7-15" Spread: 8-10"

All six plants were full of blooms and buds in July. By September bloom and vigor had declined.

### Eustoma grandiflorum 'Mariachi Pink'

*seed source: Johnny's Selected Seeds*

**July 30** Height: to 15" Spread: 8-10"  
**Sept. 6** Height: 10-22" Spread: 8-12"

Bloom wasn't uniform between the plants. Heavy flower heads required staking as well.
**Eustoma grandiflorum 'Voyage 2 Blue'
seed source: Johnny's Selected Seeds**

*July 30* Height: 12-15" Spread: 8-10"

*Sept. 6* Height: 15-22" Spread: 10-12"

This was full of buds in July but no open flowers. Lots of open flowers in September with some stems having to be staked due to the heavy heads.

**Eustoma grandiflorum 'Voyage 2 Pink'
seed source: Johnny's Selected Seeds**

*July 30* Height: 12-15" Spread: 8-10"

*Sept. 6* Height: 18-20" Spread: 10-12"

This was also full of buds in July with only a few open flowers. Much nicer in September with lots of flowers and good vigor.

**Gomphrena globosa 'Fireworks'
seed source: Burpee**

*July 30* Height: 30-32" Spread: 36-40"

*Sept. 6* Height: to 40" Spread: to 40"

Top performer all summer with great bloom, good vigor and uniform plants. All gomphrena were started in the greenhouse on April 3.

**Gomphrena globosa 'QIS Mix'
seed source: Burpee**

*July 30* Height: 19-22" Spread: 20-25"

*Sept. 6* Height: 27-30" Spread: 32-36"

Did well all summer with good bloom, vigor and nice uniformity.
Gomphrena haageana 'Strawberry Fields'

seed source: Burpee

July 30 Height: 19-24” Spread: 22-24”

*Sept. 6 Height: 30” Spread: 30”

This gomphrena also did well all summer with good bloom, nice vigor and uniform plants.

Gypsophila muralis 'Gypsy White Improved'

seed source: All-America Selections

July 30 Height: 2-3” Spread: 5-6”

Sept. 6 Height: 2-3” Spread: 3-6”

2018 All-America Selections (AAS) Flower Winner. This has not done well in the NDSU trial gardens for 2 years in a row. Plants have no vigor and die off. Seed started March 20.

Hibiscus moscheutos 'Honeymoon Deep Red'

seed source: Park Seed

July 30 Height: 16-20” Spread: 17-20”

*Sept. 6 Height: 19-20” Spread: 18-20”

Bloom on these was a bit spotty through July but by August all plants were covered in flowers and buds. Nice size uniformity.

Ipomoea nil (Morning Glory) 'Scarlet O'Hara'

seed source: Burpee

July 30 Spreading 5-6’

*Sept. 6 Spreading 6-7’

This is always very vigorous but there are very few blooms. The Ipomoea seeds were started March 22, 2019.
This morning glory was also very vigorous with blue and pink flowers.

**Ipomoea quamoclit (Cypress Vine) 'Red'**

*seed source: Burpee*

**July 30** Spreading 2-3’

**Sept 6** Spreading to 4’

This cypress vine was very vigorous and had good flower production until the end of the summer when there was a decline in bloom.

**Ipomoea quamoclit (Cypress Vine) 'White'**

*seed source: Burpee*

**July 30** Spreading 2-3’

**Sept 6** Spreading to 4’

This was very vigorous all year. Bloom was good but declined by the September evaluation.

**Lablab purpureus (Dolichos lablab) 'Ruby Moon'**

*seed source: Johnny's Selected Seeds*

**July 30** Spreading 2-4’

*Sept 6* Spreading 4-5’

Vigorous vine that did well this year, as it usually does. Started this on April 3, 2019.
**Lavandula angustifolia 'Rosea'**

*seed source: Park Seed*

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<thead>
<tr>
<th>Date</th>
<th>Height</th>
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<tbody>
<tr>
<td>July 30</td>
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<tr>
<td>Sept. 6</td>
<td>10-11&quot;</td>
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This never bloomed but the plants had good size uniformity and vigor. Seed was started Feb. 14, 2019 in the greenhouse.

**Limonium latifolium (Statice) 'Mixed Bold Colors'**

*seed source: Burpee*

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<tbody>
<tr>
<td>July 30</td>
<td>21-24&quot;</td>
<td>18-21&quot;</td>
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<tr>
<td>Sept. 6</td>
<td>to 30&quot;</td>
<td>to 36&quot;</td>
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Just starting to bloom for the July evaluation but blooming very nicely in September. Good vigor, bloom and size uniformity. Seed was started April 3.

**Limonium latifolium (Statice) 'Seeker Mix'**

*seed source: Johnny's Selected Seeds*

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<tr>
<td>July 30</td>
<td>19-28&quot;</td>
<td>22-25&quot;</td>
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<tr>
<td>Sept. 6</td>
<td>to 24&quot;</td>
<td>to 30&quot;</td>
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Good vigor on this all summer but there were some size differences early. Bloom was good all season.

**Linaria maroccana 'Licilia Azure'**

*seed source: Park Seed*

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<tr>
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<tbody>
<tr>
<td>July 30</td>
<td>18-23&quot;</td>
<td>15-18&quot;</td>
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<tr>
<td>Sept. 6</td>
<td>16-18&quot;</td>
<td>18-20&quot;</td>
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This was rated highly on July 30 with very good bloom and vigor. By September, though, bloom and vigor had declined significantly. Seed was started in the greenhouse on April 10.
Lobularia maritima 'Carpet of Snow'
seed source: Burpee

*July 30* Height: 13-15" Spread: 24-36"

Sept. 6 Height: 12-15" Spread: to 24"

Bloom was good all summer but there were some differences in spread between the plants. Seed for Lobularia was started in the greenhouse on April 3.

Lobularia maritima 'Royal Carpet'
seed source: Burpee

*July 30* Height: 10-11" Spread: 15-18"

Sept. 6 Height: 10-11" Spread: 20-22"

A top performer all summer with good bloom, size uniformity and vigor.

Melampodium paludosum 'Jackpot Gold'
seed source: Burpee

*July 30* Height: 8-9" Spread: 10-12"

*Sept. 6* Height: 13-14" Spread: 18-20"

This did well all season. Bloom, size uniformity and vigor were consistent all season. Seed was started April 3.

Melinis nerviglumis 'Savannah'
seed source: Germania

July 30 Height: 14-15" Spread: 21"

Sept. 6 Height: 36" Spread: 28"

These don’t bloom until later in the summer but by late August through September they produce many pink heads. Good vigor and plant texture all season. Seed was started January 25, 2019.
Very nice for the July evaluation: great bloom and vigorous plants. By September one plant was dying and bloom wasn’t as good. Seeds for *Mirabilis* were started March 7, 2019 in the greenhouse.

**Mirabilis jalapa (Four O’Clocks) ‘Kaleidoscope Mix’**

*July 30* Height: 20-24” Spread: 18-22”

*Sept. 6* Height: 24-28” Spread: 20-24”

Like ‘Kaleidoscope Mix’, these looked better for the first evaluation although they did fine all season.

**Mirabilis jalapa (Four O’Clocks) ‘Marbles Mix’**

*July 30* Height: 20-23” Spread: 18-20”

*Sept. 6* Height: 24-28” Spread: 20-24”

This grew well but never bloomed much. There were size differences and powdery mildew was a problem in September. Seed was started in the greenhouse on March 20.

**Monarda didyma ‘Panorama Mix’**

*July 30* Height: 9-19” Spread: 9-19”

*Sept. 6* Height: 13-30” Spread: 10-24”

These plants were struggling all summer and eventually all 12 plants died. Seed was started March 11 and they were planted in the shade garden under the poplar trees.

**Nemophila menziesii ‘Baby Blue Eyes’**

*July 30* Height: 3-4” Spread: 5-6”

*Sept. 6* Dead

*Indicates a top performer during that evaluation time.*
These had some differences in size this summer but were still nice specimen grasses. Seed was started January 25, 2019.

Ocimum basilicum (Basil) 'Aromatto'
seed source: Johnny's Selected Seeds

July 30 Height: 20-24" Spread: 23-25"
Sept. 6 Height: to 32" Spread: 30-36"

This basil did well all summer but needed to be trimmed back a few times. Works well as a foliage or filler in floral designs. Seed was started March 28, 2019 in the greenhouse.

Pelargonium x hortorum (Geranium) 'Calliope® Medium Dark Red'
plant source: All-America Selections

July 30 Height: 9-10" Spread: 15-16"
Sept. 6 Height: 7-11" Spread: 8-14"

2017 All-America Selections Ornamental Vegetative Winner. Nice early with good bloom, vigor and uniformity but bloom declined by September. Rooted cuttings were received and potted on March 26.

Pelargonium x hortorum (Geranium) 'Pinto Premium White to Rose'
seed source: All-America Selections

July 30 Height: 10-11" Spread: 14-15"
Sept. 6 Height: 14" Spread: 20"

2013 All-America Selections (AAS) Bedding Plant Winner. Bloom and uniformity were good all season although bloom was better in July. Seeds were started in the greenhouse February 14, 2019.

Pennisetum glaucum 'Copper Prince'
seed source: Ball Seed

July 30 Height: 18-33" Spread: 15-24"
Sept. 6 Height: 25-40" Spread: 17-30"

These had some differences in size this summer but were still nice specimen grasses. Seed was started January 25, 2019.
**Penstemon barbatus 'Arabesque Red'**

*seed source: All-America Selections*

*July 30* Height: 16-17" Spread: 17-18"

*Sept. 6* Height: 24-26" Spread: 20-22"

**2014 All-America Selections (AAS) Flower Winner.** Nice show of red flowers but needs deadheading to stay clean. Seed for Penstemon was started January 10, 2019.

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**Penstemon barbatus 'Twizzle Purple'**

*seed source: All-America Selections*

*July 30* Height: 19-34" Spread: 16-19"

*Sept. 6* Height: 24-30" Spread: 20-24"

**2017 All-American Selections (AAS) Flower Winner.** Good vigor all season but bloom was inconsistent between plants. Also needs frequent deadheading to stay clean looking.

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**Pentas lanceolata 'Glitterati Purple Star'**

*seed source: Burpee*

*July 30* Height: 6-10" Spread: 6-11"

*Sept. 6* Height: 7-10" Spread: 10-12"

These stayed rather small all summer and bloom was better in July than in September. Seed was started in the greenhouse on January 25, 2019.

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**Petunia x hybrida 'Blink'**

*seed source: Burpee*

*July 30* Height: 10-12" Spread: 30"

*Sept. 6* Height: 11-3" Spread: 30-36"

Petunia 'Blink' looked really good through July with good bloom, vigor and size uniformity. Bloom declined by September but vigor was still good. All petunias were started in the greenhouse March 20, 2019.
Bloom and vigor were better early in the summer. By September bloom had declined.

Petunia x hybrida 'Celebrity Blue' (Floribunda)

Top performer early in season with good bloom, vigor and size uniformity. Bloom was declining by September and plants were a little leggy.

Petunia x hybrida 'Celebrity Desert Sky Mix' (Floribunda)

Nice color mix with good bloom early. Less bloom by September with some disease showing up.

Petunia x hybrida 'Debonair Dusty Rose'

Another petunia that looked really nice through July but then declined in bloom with some disease showing by September.
<table>
<thead>
<tr>
<th>Variety</th>
<th>Seed Source</th>
<th>July 30 Height:</th>
<th>Spread:</th>
<th>Sept. 6 Height:</th>
<th>Spread:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Petunia x hybrida 'Dolcissima Flambe' (Multiflora)</em></td>
<td>Park Seed</td>
<td>12-14&quot;</td>
<td>28-30&quot;</td>
<td>12-13&quot;</td>
<td>to 30&quot;</td>
</tr>
<tr>
<td><em>Petunia x hybrida 'Easy Wave® Burgundy Velour' (Spreading)</em>**</td>
<td>Park Seed</td>
<td>9-10&quot;</td>
<td>to 36&quot;</td>
<td>12-14&quot;</td>
<td>36-40&quot;</td>
</tr>
<tr>
<td><em>Petunia x hybrida 'Easy Wave® Pink Passion' (Spreading)</em>**</td>
<td>Park Seed</td>
<td>9-10&quot;</td>
<td>22-24&quot;</td>
<td>6-8&quot;</td>
<td>to 36&quot;</td>
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</table>

Good vigor but bloom not as nice as other petunias at July evaluation. Leggy with decreased bloom by early September.

Pretty, double blooms but not as floriferous as other petunias. Very leggy by September.

Very nice early with good bloom, vigor and uniformity. Getting a little leggy with less bloom by September.

Nice bloom most of the season but it was best through July. Some disease was showing up by September.
Bloom was good early but there were some differences in spread. Bloom not as good in September but better than many other petunias.

One of the few petunias that had good bloom, vigor and uniformity all season.

*2017 All-America Selections (AAS) Flower Winner.* Bloom was best early but it still looked nice in September when other petunias had declining bloom.

Nicest for July evaluation; bloom declined by September.
**Petunia x hybrida 'Purple Wave® Improved' (Spreading)**

*Seed source: Park Seed*

*July 30* Height: 9-11" Spread: 38-40"

*Sept. 6* Height: 6-8" Spread: over 40"

This was a top performer all season. A solid mass of purple in July.

**Petunia x hybrida 'Shock Wave® Coral Crush' (Spreading)**

*Seed source: Park Seed*

*July 30* Height: 9-11" Spread: 24-30"

Sept 6 Height: 12-14" Spread: 30-32"

Nice show of color early. Was a little leggy with a decline in bloom by September.

**Petunia x hybrida 'Shock Wave® Deep Purple' (Spreading)**

*Seed source: Park Seed*

*July 30* Height: 7-9" Spread: 28-36"

*Sept. 6* Height: 6-8" Spread: 36-40"

Top performer all season with good bloom, vigor and uniformity

**Petunia x hybrida 'Shock Wave® Denim Shades' (Spreading)**

*Seed source: Park Seed*

*July 30* Height: 10-11" Spread: 24-26"

*Sept. 6* Height: 11-13" Spread: 20-22"

This was never as vigorous as other petunias although bloom was good in July. Leggy with decline in bloom by September.
Petunia x hybrid 'Shock Wave® Pink Shades' (Spreading)

* July 30 Height: 7-9” Spread: 25-36”
Sept. 6 Height: 8-10” Spread: 22-24”

Nice show of pink for most of the summer. Slight decline in bloom by September and some disease showing up.

Petunia x hybrid 'Shock Wave® Pink Vein' (Spreading)

* July 30 Height: 7-9” Spread: 34-36”
*Sept. 6 Height: 13-14” Spread: 36-38”

This did well all season with good bloom, vigor and uniformity.

Petunia x hybrid 'Shock Wave® Red' (Spreading)

July 30 Height: 7-8” Spread: 18-20”
Sept. 6 Height: 8-10” Spread: 18-20”

One of the least vigorous and least floriferous petunias all summer.

Petunia x hybrid 'Shock Wave® Rose' (Spreading)

July 30 Height: 7-9” Spread: 12-24”
Sept. 6 Height: 8-10” Spread: 22-24”

Good bloom in July. One small plant looked like it had Aster Yellows in September.
Good bloom early but differences in size and a decline in bloom by September.

**Petunia x hybrida 'Spellbound Dark Purple'**

*seed source: Burpee*

**July 30** Height: 9-15" Spread: 20-21"  
**Sept. 6** Height: 6-14" Spread: 20-23"

This petunia has huge, purple flowers but the plant is a little leggy.

**Petunia x hybrida 'Spellbound White Blush'**

*seed source: Burpee*

**July 30** Height: 4-12" Spread: 6-30"  
**Sept. 6** Height: 6-14" Spread: 26-28"

Bloom and vigor were not as good on this petunia as others. Many differences in height and spread as well.

**Petunia x hybrida 'Tickled Pink'**

*seed source: Burpee*

**July 30** Height: 18-24" Spread: 32-36"  
**Sept. 6** Height: 24" Spread: 36-40"

Very nice show of pinkish-purple all season but some decline in bloom by September.
Petunia x hybrida ‘Tidal Wave® Hot Pink’ (Hedgiflora)

*July 30* Height: 10-12" Spread: to 36"  
*Sept. 6* Height: 14-15" Spread: 48"+

Nice carpet of pink all season long.

Petunia x hybrida ‘Tidal Wave® Red Velour’ (Hedgiflora)

*July 30* Height: 16-18" Spread: 36"+  
*Sept. 6* Height: 15-16" Spread: 48"+

2015 All-America Selections (AAS) Flower Winner. Very floriferous and vigorous all season.

Petunia x hybrida ‘Tidal Wave® Silver’ (Hedgiflora)

*July 30* Height: 18-20" Spread: 36"+  
Sept. 6 Height: 13" Spread: 48"+

Nice early with good bloom and vigor but by September there was some disease showing up.

Petunia x hybrida ‘Wave® Carmine Velour’ (Spreading)

*July 30* Height: 6-7" Spread: to 36"  
*Sept. 6* Height: 8-10" Spread: 40"+

2019 All-America Selections (AAS) Flower Winner. Top performer all season with good bloom, vigor and uniformity.
**Plectranthus scutellarioides (Coleus) 'Watermelon'**

*seed source: Burpee*

- **July 30**: Height: 6-7” Spread: 6-8”
- **Sept 6**: Height: 7-10” Spread: 6-12”

This was grown in the shade garden and didn’t get quite as big as it should have. It was still a nice color addition to the area. Seed was started March 7, 2019.

**Rudbeckia hirta ‘Chim Chiminee Mix’**

*seed source: Johnny’s Selected Seeds*

- **July 30**: Height: 12-18” Spread: 13-16”
- **Sept 6**: Height: to 20” Spread: 15-22”

Only 2 plants of this were in the trial due to low germination. One plant did really well while the other was not very vigorous. Seed for the Rudbeckia was started March 7 in the greenhouse.

**Rudbeckia hirta ‘Indian Summer’**

*seed source: Johnny’s Selected Seeds*

- **July 30**: Height: 15-22” Spread: 15-18”
- **Sept 6**: Height: 21-31” Spread: 19-20”

The biggest drawback for me on this was the size differences I saw all summer. Bloom was nice, however.

**Rudbeckia hirta ‘Prairie Sun’**

*seed source: Johnny’s Selected Seeds*

- **July 30**: Height: 10-19” Spread: 9-14”
- **Sept 6**: Height: 17-26” Spread: 12-15”

Not uniform in bloom early and there was one plant (of 6) that was smaller. Had very good bloom by the second evaluation.
Salvia coccinea 'Summer Jewel Lavender'

*seed source: All-America Selections*

**July 30** Height: 16-20" Spread: 18-22"

**Sept. 6** Height: 15-17" Spread: 18-22"

**2016 All-America Selections (AAS) Flower Winner.** Good vigor and size uniformity. Bloom was alright although they needed deadheading by late August. Salvia seeds were started March 28, 2019.

Salvia coccinea 'Summer Jewel White'

*seed source: All-America Selections*

**July 30** Height: 20-22" Spread: 22-24"

**Sept. 6** Height: 18-20" Spread: 22-24"

**2015 All-America Selections (AAS) Bedding Plant Winner.** Similar to 'Summer Jewel Lavender' with good vigor and uniformity. Bloom alright but needed deadheading.

Salvia farinacea 'Victoria'

*seed source: Burpee*

**July 30** Height: 26-37" Spread: 16-24"

**Sept. 6** Height: 26-40" Spread: 27-30"

Bloom was good but size uniformity was lacking.

Salvia longispicata x farinacea 'Big Blue'

*seed source: Park Seed*

**July 30** Height: 21-30" Spread: 20-21"

**Sept. 6** Height: 42-45" Spread: 28-30"

Slow to bloom but vigor and size uniformity were good. By September the plants were full of deep, blue flowers that attracted many painted lady butterflies.

*Indicates a top performer during that evaluation time.*
Salvia nemorosa 'New Dimension Rose'  
seed source: Park Seed

**July 30** Height: 10-13" Spread: 9-10"

**Sept. 6** Height: 11-15" Spread: 12-20"

Bloom was good early and plants were deadheaded but did not rebloom much. Also had spider mites in September.

Salvia splendens 'Lighthouse Purple'  
seed source: Burpee

**Jul 30** Height: 21-22" Spread: 15-16"

**Sept. 6** Height: 28-30" Spread: 18-20"

Top performer early in the season with good bloom, vigor and uniformity. Still looking nice in September but needed deadheading.

Salvia splendens 'Vista Mix'  
seed source: Park Seed

**July 30** Height: 10-13" Spread: 9-14"

**Sept. 6** Height: 11-13" Spread: 9-14"

Nice mix of colors. Very good bloom early in the season but needed deadheading later on.

Scabiosa atropurpurea 'Formula Mix'  
seed source: Johnny's Selected Seeds

**July 30** Height: 21-31" Spread: 10-15"

**Sept. 6** Height: to 36" Spread: 19-20"

Nice mix of colors and good bloom most of the season. Some size differences but had good vigor. Seed for Scabiosa was started Feb. 14, 2019.
This dusty miller also did well this summer. A nice mix of colors and good bloom. There were some size differences early.

Tagetes erecta (African Marigold) 'Big Duck Gold'

Seed source: All-America Selections

*July 30: Height: 14-16” Spread: 18-20”

Sept. 6: Height: 28-30” Spread: 28-30”

2019 All-America Selections (AAS) Flower Winner. Very good bloom, vigor and uniformity through July. Still nice in Sept. but bloom had declined a little. Marigolds were started April 3, 2019.
2019 All-America Selections (AAS) Flower Winner. Nicest through July with a decline in bloom by September.

**Tagetes erecta (African Marigold) 'Big Duck Orange'**

*seed source: All-America Selections*

**July 30** Height: 14-16" Spread: 18-20"

**Sept. 6** Height: 17-19" Spread: 22-24"

2019 All-America Selections (AAS) Flower Winner. Did well all season with good bloom, vigor and size uniformity.

**Tagetes erecta (African Marigold) 'Big Duck Yellow'**

*seed source: All-America Selections*

**July 30** Height: 19-22" Spread: 15-19"

**Sept. 6** Height: 23-24" Spread: 23-24"

2019 All-America Selections (AAS) Flower Winner. Big marigold that did well all season with the best bloom in July and August.

**Tagetes erecta (African Marigold) 'Garuda Deep Gold'**

*seed source: All-America Selections*

**July 30** Height: 28-32" Spread: to 26"

**Sept. 6** Height: to 42" Spread: to 40"

*Indicates a top performer during that evaluation time.*
Tagetes erecta (African Marigold) 'Key Lime'

Not quite as vigorous or floriferous as some other marigolds in the trial this summer.

Tagetes erecta (African Marigold) 'Mission Giant Yellow'

Good bloom all season but there were some size differences.

Tagetes erecta (African Marigold) 'Snowman Hybrid'

This did well all season but had the best bloom at the end of the season. It was one of the top performing marigolds in September.

Tagetes hybridra (Hybrid Marigold) 'Endurance Hybrid Mix'

Nice bloom all season but there were some differences in height between the colors. Really nice bloom in September.
Tagetes lucida (Sweet Marigold) 'Licorice'

Seed source: Burpee

*July 30* Height: 6-10" Spread: 13-20"

Sept. 6 Height: 8-10" Spread: 10-20"

This is also known as Mexican Tarragon because its leaves have an anise-like aroma. It performed well all season with good bloom and vigor.

Tagetes patula (French Marigold) 'Alumia Vanilla Cream'

Seed source: Park Seed

*July 30* Height: 9-11" Spread: 13-15"

Sept. 6 Height: 12-14" Spread: 18-20"

Good bloom, vigor and size uniformity all season.

Tagetes patula (French Marigold) 'Bonanza Bolero'

Seed source: PanAmerican Seed

*July 30* Height: 7-9" Spread: 10-13"

Sept. 6 Height: 9-10" Spread: 15-17"

Nice bloom and vigor all season but bloom was a little better in July.

Tagetes patula (French Marigold) 'Bonanza Orange'

Seed source: PanAmerican Seed

*July 30* Height: 10-12" Spread: 14-17"

Sept. 6 Height: 16-17" Spread: 20-22"

Good bloom all season but there were some size differences early in the season.
**Tagetes patula** (French Marigold) 'Bonanza Yellow'

*seed source: PanAmerican Seed*

*July 30* Height: 7-9" Spread: 10-14"

*Sept. 6* Height: 8-10" Spread: 12-14"

This marigold performed well all season but bloom was better in July than September.

**Tagetes patula** (French Marigold) 'Cottage Red'

*seed source: Burpee*

*July 30* Height: 27-30" Spread: to 36"

*Sept. 6* Height: to 36" Spread: to 42"

This looked better in July than September. The plant was showing signs of Aster yellows at the end of the season.

**Tagetes patula** (French Marigold) 'Janie Mix'

*seed source: Park Seed*

*July 30* Height: 3-5" Spread: 6-10"

*Sept. 6* Height: 5-9 Spread: 6-12"

Bloom was good but there were big differences in size all summer. Some competition from the nearby Mirabilis stunted one row of plants.

**Tagetes patula** (French Marigold) 'Queen Sophia'

*seed source: Burpee*

*July 30* Height: 10-11" Spread: 13-15"

*Sept. 6* Height: 14-17" Spread: 20-23"

This was a top performer all summer with good bloom, vigor and size uniformity.
Tagetes patula (French Marigold) 'Super Hero Spry'

*seed source: All-America Selections*

**July 30** Height: 6-9" Spread: 12-16"

**Sept. 6** Height: 11-14" Spread: 18-20"

**2018 All-America Selections (AAS) Flower Winner.** Very good bloom early with a slight decline by September. Good vigor but there were some size differences.

Thunbergia alata 'Blushing Susie'

*seed source: Park Seed*

*July 30* Spreading 2-3"

*Sept. 6* Spreading to 3"

Good bloom and vigor all season. Seed for Thunbergia was started March 11, 2019.

Thunbergia alata 'Mixed'

*seed source: Burpee*

*July 30* Spreading 3-4"

*Sept. 6* Spreading to 4"

This wasn’t much of a color mix but plants were vigorous and bloomed well all season.

Tithonia rotundifolia 'Fiesta del Sol'

*seed source: Park Seed*

*July 30* Height: 18-22" Spread: 18-20"

*Sept. 6* Height: 23-26" Spread: 22"

Very uniform and vigorous plants with good bloom. A little powdery mildew by September but plants still looked nice.
**Tropaeolum majus (Nasturtium) 'Double Gleam'**

*seed source: Burpee*

**July 30** Height: 12" Spread: to 36"

**Sept. 6** Height: 12" Spread: to 42"

This nasturtium was very vigorous. Foliage had some browning on it early in the season. Nasturtiums were started April 10 in the greenhouse.

**Tropaeolum majus (Nasturtium) 'Park's Fragrant Giants'**

*seed source: Park Seed*

**July 30** Height: 16-18" Spread: 24-36"

**Sept. 6** Height: 15-17" Spread: to 36"

This nasturtium was very vigorous but blooms were hidden under the foliage.

**Tropaeolum minus (Nasturtium) 'Baby Rose'**

*seed source: All-America Selections*

**July 30** Height: 7-10" Spread: 8-12"

**Sept. 6** Height: 12-15" Spread: 16-20"

*2019 All-America Selections (AAS) Flower Winner.* This nasturtium was more compact and had darker foliage than the other ones. The pink flowers contrasted nicely with the dark bluish-green leaves.

**Verbena bonariensis - Verbena on a Stick**

*seed source: Johnny's Selected Seeds*

**July 30** Height: to 40" Spread: to 36"

**Sept. 6** Height: to 36" Spread: to 36"

This was a top performer all summer with good bloom, vigor and size uniformity. Seed for this was started March 11.

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NDSU Department of Plant Sciences- 2019 Bedding Plant Trial Report- *I* indicates a top performer during that evaluation time.
**Verbena peruviana ‘EnduraScape™ Pink Bicolor’**

*Plant source: All-America Selections*

<table>
<thead>
<tr>
<th>Date</th>
<th>Height</th>
<th>Spread</th>
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<tbody>
<tr>
<td>July 30</td>
<td>8-9&quot;</td>
<td>21-27&quot;</td>
</tr>
<tr>
<td>Sept 6</td>
<td>8-10&quot;</td>
<td>28-30&quot;</td>
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</table>

**2017 All-America Selections (AAS) Flower Winner.** This drought tolerant, low growing Verbena has done well each of the 3 years it's been in the trials. Rooted cuttings were received and potted March 26.

**Zinnia elegans ‘Benary's Giant Mix’**

*Seed source: Johnny's Selected Seeds*

<table>
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<th>Date</th>
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<td>27-32&quot;</td>
<td>20-30&quot;</td>
</tr>
<tr>
<td>Sept 6</td>
<td>to 36&quot;</td>
<td>to 36&quot;</td>
</tr>
</tbody>
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Nice color mix and good bloom but stems tended to fall over later in the season. All zinnias were started April 3 in the greenhouse.

**Zinnia elegans ‘Burpeanna Giants Mix’**

*Seed source: Burpee*

<table>
<thead>
<tr>
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<tr>
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<td>17-32&quot;</td>
<td>14-22&quot;</td>
</tr>
<tr>
<td>Sept 6</td>
<td>to 36&quot;</td>
<td>to 36&quot;</td>
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Very vigorous with a nice color mix although there were size differences between the colors. Stems tended to fall over later in the season.

**Zinnia elegans ‘Cut and Come Again’**

*Seed source: Burpee*

<table>
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</tr>
<tr>
<td>Sept 6</td>
<td>to 42&quot;</td>
<td>to 36&quot;</td>
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</table>

Very vigorous but like the other zinnias, stems were falling over by the end of the season.
This did better in July. By September vigor and bloom had declined and some disease was present.

One of the top performing zinnias in July. Still looking good in September but bloom declined.

Looked better early in the season. Some disease was showing up in late August-early September.

*2019 All-America Selections (AAS) Flower Winner. Looked very nice in July but by Sept. it was showing leaf spotting and disease.*
This zinnia had a nice color mix and good bloom. Vigor and bloom declined a little by September.

Zinnia elegans 'Queen Red Lime'
seed source: Johnny's Selected Seeds

This was nice all season. It had good bloom and vigor and wasn't showing any of the disease or leaf problems some of the other zinnia had.

Zinnia elegans 'Queen Lime Orange'
seed source: All-America Selections

2018 All-America Selections (AAS) Flower Winner. Nice bloom all season but there was a slight decline by September. It wasn't showing any disease or leaf spotting.

Zinnia elegans 'Sunbow Mix'
seed source: Johnny's Selected Seeds

Nice color mix with good bloom, vigor and uniformity all season.
Zinnia elegans 'Zowie! Yellow Flame'
seed source: Park Seed

July 30 Height: 20-22" Spread: 17-18"
Sept. 6 Height: 23-32" Spread: 18-20"

Top performer for the July evaluation with good bloom, vigor and size uniformity. Bloom was still nice in September but some leaf disease was present and bloom had declined a bit.

Zinnia hybrida 'Mazurkia' (Hidden Dragon)
seed source: Park Seed

July 30 Height: 17-28" Spread: 20-22"
Sept. 6 Height: 18-22" Spread: 20-22"

This performed better than Zinnia 'Macarenia' in bloom and vigor but there were some size differences.

Zinnia hybrida 'Macarenia' (Crouching Tiger)
seed source: Park Seed

July 30 Height: 11-23" Spread: 12-20"
Sept. 6 Height: 10-18" Spread: 10-20"

Only 3 plants were put out due to low germination of the seed. Vigor and bloom was good early but there were size differences. It significantly declined in bloom and vigor by September.

Zinnia hybrida 'Profusion Red'
seed source: All-America Selections

July 30 Height: 8-11" Spread: 11-14"
Sept. 6 Height: 10-12" Spread: 15-17"

2017 All-America Selections (AAS) Flower Winner. Had very good bloom early in the season but it wasn't uniform in size. Still blooming well into September but had to remove 2 plants due to disease.
Zinnia peruviana 'Andes Jewel'

*seed source: Burpee*

"July 30" Height: 27" Spread: 19-20"

Sept. 6 Height: to 33" Spread: to 22"

Looked good during the first evaluation but had a decline in bloom and vigor by September.

Zinnia scabiosa 'Zinderella Orange'

*seed source: Park Seed*

"July 30" Height: 27-30" Spread: 24-26"

Sept. 6 Height: to 34" Spread: 28-30"

This looked really nice for the July evaluation with good bloom and vigor. By September the bloom had drastically declined and it wasn't as vigorous.

Zinnia scabiosa 'Zinderella Purple'

*seed source: Park Seed*

"July 30" Height: 9-30" Spread: 9-20"

Sept. 6 Height: 34-36" Spread: to 30"

Good bloom and vigor. One of the plants (of 6) was small but others were fairly uniform in size.
### Seed Source List-2019

<table>
<thead>
<tr>
<th>All-America Selections</th>
<th>Ball Seed (W)²</th>
<th>Burpee (R)</th>
</tr>
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<tbody>
<tr>
<td>1311 Butterfield Road, Suite 311</td>
<td>622 Town Road</td>
<td>300 Park Ave</td>
</tr>
<tr>
<td>Downer's Grove, IL 60515</td>
<td>West Chicago, IL 60185-2698</td>
<td>Warminster, PA 18974</td>
</tr>
<tr>
<td>all-americaselections.org</td>
<td>ballseed.com</td>
<td>burpee.com</td>
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</table>

<table>
<thead>
<tr>
<th>Germania Seed Company (W)</th>
<th>Johnny's Selected Seeds (R)</th>
<th>PanAmerican Seed (W)</th>
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<tbody>
<tr>
<td>5978 North Northwest Hwy</td>
<td>955 Benton Avenue</td>
<td>622 Town Road</td>
</tr>
<tr>
<td>Chicago, IL 60631</td>
<td>Winslow, Maine 04901-2601</td>
<td>West Chicago, IL 60185-2698</td>
</tr>
<tr>
<td>germaniaseed.com</td>
<td>Johnnyseeds.com</td>
<td>panamseed.com</td>
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<table>
<thead>
<tr>
<th>Park Seed (R)</th>
<th>Thompson and Morgan (R)</th>
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<tr>
<td>3507 Cokesbury Road</td>
<td>(Now listed as Gurney's Seed &amp; Nursery Co.)</td>
</tr>
<tr>
<td>Hodges, SC 29653</td>
<td>P.O. Box 4178</td>
</tr>
<tr>
<td>parkseed.com</td>
<td>Greendale, IN 47025-4178</td>
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<tr>
<td></td>
<td>gumeys.com</td>
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¹ Disclaimer: Company names are included for public information; no discrimination is intended and no endorsement by NDSU or the North Dakota Agriculture Experiment Station is implied.

² 'W' after a company name indicates a wholesale or breeding company while an 'R' after a company name indicates a retail company.