

2008 Cultivar Trials of Bedding Plants

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Introduction

The Plant Sciences Department at NDSU conducted performance trials on over 300 annual bedding plants during the 2008 growing season. The main research garden is located in Fargo, on the corner of 18th street and 12th avenue north. Two other sites are located at the Research Extension Centers in Dickinson and Williston, ND. Official entries (usually 150-200) are grown at all three sites while an additional 150-200 cultivars are also grown at the Fargo site.

The Horticulture Demonstration and Research plots in Fargo are for education, research and display purposes. Current gardens include the bedding plant trials, daylily display gardens and iris display gardens. Two small shade beds for annuals were added this year as well as pathways in the perennial area and a wheelchair accessible garden. Additional gardens being planned include a rose garden, an Indian garden, an area for vegetables and a sensory garden. The bedding plant trial is an official display garden of All-America Selections. The daylily garden is an official display garden of the American Hemerocallis Society and houses more than 1100 cultivars of daylilies, most of which are considered historical, or pre-1970, cultivars.

The beds are open to the public throughout the growing season and guided tours are available upon request. See 'Contact Information' on page 5 for more information.

Culture

The majority of the plants for the bedding plant trials are seeded in the horticulture and forestry greenhouse on the NDSU campus from

January through April. When at the proper stage, seedlings are transplanted into cell packs containing a peat-based growing medium. Exceptions to this are entries from Fischer USA, Inc. which were received as rooted cuttings in March and finished in the greenhouses.

The Dickinson and Williston sites had six plants of each official cultivar tested while Fargo had twelve of each official cultivar, 12 plants of mixed cultivars, and 6 of the unofficial cultivars planted. The Dickinson beds were planted May 20 and the Williston beds on May 21. In Fargo, planting took place from May 28 until June 10. Rain during the first week in June delayed the Fargo planting a bit.

In Dickinson and Williston plants were watered in with Scotts Miracle-Gro® Liquafeed™ (12-4-8)¹ while Preen® Garden Weed Preventer Plus Fertilizer (9-17-9) was put down at the Fargo site. Preen was also put down at the Dickinson site. Fargo plants were fertilized once more in July with Miracle-Gro® Liquafeed™ while the Dickinson staff fertilized June 16 and July 30. Liquid iron was also applied to the *Verbena* and *Calibrachoa* in Dickinson to combat yellowing foliage.

Weeding was done by hand in Dickinson and Williston while Razor® and Preen® were used in Fargo along with hand-weeding.

The Dickinson site has overhead irrigation set up on a timer, while Williston and Fargo have drip irrigation applied as needed.

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 North Dakota Agriculture Experiment Station is implied.

Site Information

Fargo

The main trial garden is located in Fargo at the corner of 18th street and 12th avenue north on the west side of campus. The majority of the annual beds are raised with a loam-compost mix of soil. Drip irrigation using t-tape is built into the beds.

Two shade beds for annuals were added into some trees on the site in 2008. This area will be expanded in the future. Wheelchair accessible gardens were also added and will be planted in spring 2009 with a mix of flowers and vegetables.

There were no major insect or disease problems at the Fargo site in 2008. Some Aster Yellows showed up late in the season on marigolds, vinca and some petunias.

As seen in table 1, temperatures in Fargo were slightly below average in May and June and slightly above average in July and August. Precipitation was especially heavy in June and August.

Table 1. 2008 and 1971-2000 May-August Average Temperature and Precipitation for Fargo, ND. ²

	Average Temperature (°F)		Precipitation (inches)	
	2008	1971-2000	2008	Avg. 1971-2000
May	54	57.4	2.19	2.61
June	64	66.0	6.38	3.51
July	71	70.6	1.67	2.88
August	70	69.0	4.52	2.52

Dickinson

The Dickinson Trial garden is located at the Research Extension Center on the west side of State Street. The soil here is lighter and sandier than in Fargo and the weather tends to be drier. Shade plants are grown in raised beds under natural shade provided by trees.

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

As last year, *Calibrachoa* in Dickinson declined after July and were all dead by the September evaluation. Other than that, there were no significant insect or disease problems.

As seen in table 2, temperatures were a bit below average in May and June but a bit above average in July and August. Rainfall was below average all summer.

Table 2. 2008 and 1971-2000 May-August Average Temperature and Precipitation for Dickinson, ND.

	Average Temperature (°F)		Precipitation (inches)	
	2008	1971-2000	2008	Avg. 1971-2000
May	53	53.4	1.70	2.24
June	61	62.4	2.04	3.57
July	72	68.1	1.70	2.20
August	71	67.3	0.74	1.65

Williston

The Williston Trial garden is located at the Research Extension Center on Highway 2 west of Williston. The soil here is also fairly light but heavier than in Dickinson. Drip irrigation is used for supplemental watering and shade plants are grown under the natural shade of pine trees.

There were no major insect or disease problems in the Williston beds. The geraniums were nice but did not perform as well this year as they have in the past.

Table 3 shows temperature and precipitation data for Williston.

Table 3. 2008 and 1971-2000 May-August Average Temperature and Precipitation for Williston, ND.

	Average Temperature (°F)		Precipitation (inches)	
	2008	1971-2000	2008	Avg. 1971-2000
May	54	57.1	1.38	2.09
June	62	65.7	2.13	2.72
July	72	71.1	0.78	2.45
August	70	70.2	1.30	1.63

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 are AAS winners grown at all three locations in 2008.

2004 Winners:

Celosia 'Fresh Look Red'
Celosia 'Fresh Look Yellow'
Gypsophila 'Gypsy Deep Rose'
Hollyhock 'Queeny Purple'
Petunia 'Limbo Violet'

2005 Winners:

Gaillardia aristata 'Arizona Sun'
Vinca 'First Kiss Blueberry'
Zinnia 'Magellan Coral'

2006 Winners:

Dianthus 'Supra Purple'
Diascia 'Diamonte Coral Rose'
Nicotiana 'Perfume Deep Purple'
Ornamental Pepper 'Black Pearl'
Salvia farinacea 'Evolution'
Viola F1 'Skippy XL Red-Gold'
Zinnia 'Zowie! Yellow Flame'

2007 Winners:

Celosia 'Fresh Look Gold'
Petunia 'Opera Supreme Pink Morn'
Vinca 'Pacifica Burgundy Halo'

2008 Winners:

Osteospermum 'Asti White'
Viola F1 'Skippy XL Plum Gold'

2009 Winner:

Viola 'Rain Blue and Purple'

Evaluations

Plants were evaluated twice over the growing season for height, spread, vigor, uniformity of size and bloom, and overall appearance. In Fargo, the first evaluation was July 29 while the second was September 8 & 9. The Dickinson evaluations were July 9 and September 4. Williston plants were evaluated July 10 and September 3.

If plants had good bloom but were lacking in size uniformity, there is an * preceding the height and spread measurement on the evaluation table for that site (pages 17-48). If the cultivar had good bloom, vigor and uniformity of size and bloom, there is ** preceding each height and spread measurement; and if a cultivar was an outstanding performer, there is *** preceding each height and spread measurement.

Top performers (*, **, or *** for **either** evaluation time) and star performers (*, ** or *** for **both** evaluation times) for each location are on pages 6-16 of the report. The following 12 cultivars got top ratings at all 3 locations for both evaluation times:

Begonia 'BIG Red Green Leaf'
Begonia 'BIG Rose Bronze Leaf'
Capsicum 'Calico'
Gaillardia 'Sunburst Burgundy Picotee'
Lobelia 'Techno Heat Upright Light Blue'
Osteospermum 'Tradewinds Deep Purple'
Pelargonium 'Americana Rose Mega Splash'
Pelargonium 'Avenida Mosaic Red'
Pelargonium 'Graffiti Double Salmon'
Verbena 'Lanai Lavender Star'
Verbena 'Lanai Royal Purple with Eye'
Verbena 'Lanai Upright Magenta'

Field Days

Field Days in Dickinson and Williston were held July 9 and July 10, respectively, in conjunction with field days at the research extension centers. Field day in Fargo was not held this year due to construction in the beds.

Acknowledgements

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Contacts

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