

## 1998 CULTIVAR TRIALS OF BEDDING PLANTS

[Barbara A. Laschkewitsch, Agriculture Research Specialist, Department of Plant Sciences](#)

[Dr. Ronald C. Smith, Extension Horticulturist, Department of Plant Sciences](#)

### RESEARCH SUMMARY

#### Introduction

The Plant Sciences Department conducted performance trials on over 300 annual bedding plants during the 1998 growing season at North Dakota State University. In Fargo, the main trials are located in the plots on the west side of campus along 18<sup>th</sup> Street North. A trial garden is also located at the research station on State Avenue in Dickinson, ND. The weather and soil in Dickinson are considerably different than the Fargo site. The Fargo plots consist of a heavy clay soil while Dickinson has a much lighter soil and typically a drier climate.

#### Culture

Cultivars evaluated at both sites were seeded in [Jiffy Mix](#)<sup>2/91</sup> in the Horticulture and Forestry greenhouses on the NDSU campus January through April. The only exception was geraniums from Oglevee, which were received as rooted cuttings. When at the proper stage, seedlings were transplanted into cell packs containing Sunshine Mix<sup>2/91</sup> #1. Twelve plants of each cultivar were transplanted into the field at the Fargo site June 1-8, 1998. A projected frost for the nights of June 1<sup>st</sup> and 2<sup>nd</sup> delayed planting by a few days in Fargo. Plants were immediately watered in with Sterns Miracle-Gro<sup>2/91</sup> (15-30-15) water soluble fertilizer which was applied twice more during the growing season. In Dickinson, plants were set out May 28<sup>th</sup>, 1998, and were also watered in with Miracle-Gro<sup>2/91</sup>. Unfortunately, Dickinson reached 30<sup>2/91</sup>F on the night of June 3<sup>rd</sup> which killed a few of the annuals and set others back. Replacements were in by the second week of June. The Dickinson planting once again served as a hands-on

workshop for area county extension agents.

At both stations, overhead irrigation was applied as needed and weeding was done by hand. Once plants became established, both locations were treated with Surflan for weed control. Insecticides were applied on an as-needed basis, although there weren't any noticeable insect problems in 1998.

## Weather

At the Fargo station, average temperatures for June were slightly below normal while slightly above normal for the rest of the season. See Table 1 for specific weather averages. During May and June the area received over 13" of rain which caused saturated soil conditions. Some cultivars could not tolerate the high soil moisture as is noted in the body of the report under individual cultivar evaluations. Precipitation was near normal in July, August and September. Fargo had a light frost (32F) on the night of October 1<sup>st</sup> but didn't have an official killing frost (28F or lower for 2 or more hours) until November 3<sup>rd</sup> which lengthened the growing season quite a bit.

Dickinson also had a relatively wet, cool June which adversely affected some cultivars. Average temperatures in Dickinson for June were slightly below the average while July, August and September received slightly warmer than normal temperatures. Rainfall was also above average in June and August but slightly below normal in July. Dickinson also had a light frost on October 1<sup>st</sup> with a killing frost on October 13<sup>th</sup>.

Tables [1](#) and [2](#) show specific weather data from 1998 for both stations.

Table 1-1998 June-September Average Temperature and Precipitation for Fargo, ND. <sup>2</sup>				
	Temperature ( $\frac{2}{1}$ F)		Precipitation (inches)	
	Average 1998	Average 1960-1990	Totals 1998	Average 1960-1990
June	63.5	69	6.86	2.82
July	71	71.1	2.23	2.7

August	72.5	68.9	1.51	2.43
September	62.5	57.7	2.09	1.99
<sup>2</sup> Temperature and precipitation data are from NDAWN and the national Weather Service.				

Table 2-1998 June-September Average Temperature and Precipitation for Dickinson, ND. <sup>2</sup>				
	Temperature ( $\frac{29}{1}$ F)		Precipitation (inches)	
	Average 1998	Average 1960-1990	Totals 1998	Average 1960-1990
June	58.5	62.5	6.22	3.63
July	71.5	68.7	1.55	2.11
August	72	67.2	2.45	1.68
September	63.5	NA	1.88	NA
<sup>2</sup> Temperature and precipitation data are from NDAWN and the national Weather Service.				

## RESULTS AND DISCUSSION

Plants were evaluated twice over the season for height, spread, vigor, bloom quality, and overall appearance. In Fargo, the first evaluation was July 21<sup>st</sup> and the second was on August 21<sup>st</sup>, 1998. The Dickinson trials were evaluated on July 8<sup>th</sup> and September 4<sup>th</sup>, 1998. The July evaluation in Dickinson was done in conjunction with Field Days at the Experiment Station.

Following are cultivars that were performing the best at each station over the course of the entire season. They are not in any particular order but are simply cultivars that were blooming well and had uniformity, vigor and a good overall appearance.

## **Top Performers of 1998**

### **Fargo**

*Asclepias curassavica* 'Red Butterfly'

*Begonia semperflorens* as a group

*Celosia plumosa* 'New Look'

*Celosia cristata* 'Prestige Scarlet'

*Cleome hasslerana* 'Rose Queen'

*Melampodium paludosum* 'Derby'

*Petunia hybrida* 'Lavender Storm'

*P. hybrida* Milliflora group

*P. hybrida* 'PrimeTime Lavender'

*P. hybrida* 'PrimeTime Rose'

*P. hybrida* 'Purple Wave'

*Salvia farinacea* 'Strata'

*Tagetes patula* 'Aurora Mix'

*T. patula* 'Bonanza Bolero'

*Zinnia* as a group; particularly 'Profusion Cherry' and 'Profusion Orange'

### **Dickinson**

*Antirrhinum majus* 'LaBella Rose'

*Nicotiana affinis* 'Havana Mix'

*Osteospermum* 'Passion Mix'

*Petunia hybrida* 'Fantasy Carmine'

*P. hybrida* 'PrimeTime Rose'  
*Tagetes patula* 'Aurora Mix'  
*T. patula* 'Bonanza Bolero'  
*T. patula* 'Troubadour Yellow'  
*Zinnia* 'Profusion Cherry'  
*Z.* 'Profusion Orange'

## Frost Tolerances

After a mild frost (32  $\frac{29}{11}$  F) on the night of October 1<sup>st</sup>, notes were taken in the Fargo trials on cultivar reactions to the temperature. **Note:** If a genus appears in more than one category, some cultivars were more tolerant than others and were not specifically separated out.

### **Good frost tolerance:**(showed no damage)

*Antirrhinum majus*, *Asclepias curassavica*, *Calendula*, *Celosia spicata* 'Flamingo Feather', *Cleome*, *Dianthus*, *Dyssodia tenuifolia*, *Eustoma grandiflorum*, *Gaillardia*, *Helichrysum*, *Kniphofia uvaria*, *Lavandula angustifolia*, *Limonium sinuatum*, *Lobularia maritima*, *Nicotiana*, *Nierembergia*, *Pennisetum setaceum*, *Petunia hybrida*, *Rudbeckia hirta*, *Salvia farinacea*, *Scabiosa caucasica*, *Stipa*, *Tagetes tenuifolia*, *Verbena*, *Viola*, *Zinnia angustifolia*.

### **Average frost tolerance:**(showed some blackening/wilting)

*Ageratum houstonianum*, *Canna x generalis*, *Gomphrena globosa*, *Gypsophila muralis*, *Petunia hybrida*  
Grandiflora class, *Linaria*, *Lobelia erinus*, *Pelargonium x hortorum*, *Tagetes erecta*, *Tagetes patula*, *Zinnia angustifolia*.

### **Poor frost tolerance:**(total blackening/death of plant)

*Ageratum houstonianum*, *Canna x generalis*, *Begonia semperflorens*, *Browallia*, *Catharanthus roseus*, *Celosia*

*cristata, Celosia plumosa, Dahlia x hybrida, Gypsophila muralis, Hypoestes, Impatiens wallerana, Melampodium paludosum, Pelargonium hortorum, Pentas, Petunia hybrida Grandiflora class, Portulaca grandiflora, Salvia splendens, Tagetes erecta, Tagetes patula, Tithonia rotundifolia, Tropaeolum majus, Zinnia angustifolia, Zinnia elegans.*

The beds were cleaned on October 22<sup>nd</sup>, 1998. At that time, the following were still looking good: *Lobularia maritima, Dianthus, Antirrhinum majus and Violas*. The lowest temperature to that point was 29F on October 13th.

## **Field Days**

The first annual flower, ornamental grasses, and turfgrass field day was held August 1<sup>st</sup> at the Fargo plots. We hope to make this an annual event open to the general public, growers, and industry people. The Dickinson experiment station holds tours of the display gardens in conjunction with field days there.

The trial garden at NDSU is an official All-America Selections display garden and is open to the public throughout the growing season. Also on display are over 300 perennials that are evaluated over the season for bloom, vigor, winter hardiness and general overall quality. The daylily bed has also been designated as an official display garden of the American Hemerocallis Society.

## **Acknowledgments**

We would like to thank official supporters of our 1998 trial gardens: Daehnfeltdt, Inc., Ernst Benary of America, Inc., Oglevee Ltd., Goldsmith Seeds, Inc., and Waller Flowerseed Company. We hope the results from our trial gardens are beneficial in their research for new and improved flower cultivars.

## **1998 BEDDING PLANT TRIALS RESULTS**

### **DEPARTMENT OF PLANT SCIENCES, NORTH DAKOTA STATE UNIVERSITY, FARGO, ND**

**Note-** Cultivar measurements that are **underlined** and in **bold** indicate varieties that were performing particularly well during that evaluation period. Seed sources are indicated by abbreviations at end of cultivar names. The

seed source list can be found on the last page of the report.

<p><b>Ageratum houstonianum- Ageratum, Flossflower.</b> These did not perform that well this year. The heavy June rains in Fargo and cool, rainy June in Dickinson kept them small. By the second evaluation, they had improved greatly at both locations, although dead heads, as usual, detracted from their appearance. 'Blue Lagoon' looked very nice in Dickinson in September.</p>									
Ageratum	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Blue Hawaii-Bod	4-6"	4-6"	4-6"	6-8"	—	—	—	—	Fargo - Blue; not too vigorous; dead heads detracted in July Dickinson- Not planted at Dickinson
Blue Horizon-Pk	10-12	6-8	8-15	8-12	10-12"	6"	12-14"	10-12"	F- Blue; slow to bloom; not as vigorous as last year D - Blooming well July through September
Blue Lagoon-Pk	5	6	6-7	6-8	4-6	6	<u>6-8</u>	<u>8-12</u>	F-Blue; plants not uniform D-Nice mass of blue in September; floriferous and healthy
Hawaii Royal-Pk	2-4	4	4-5	4-6	2	2-4	4	8-10	F-Purple; small, no vigor D -Poor early- no vigor; healthy and full in September
Neptune	5	4-6	6	6-8					F-Blue; Did alright early; lost two plants by August

Blue-GS									D -Not planted in Dickinson
White Hawaii-Bod	4-6	4-5	4-6	6-8					F-White; not uniform; lots of dead heads and browning flowers by August D -Not planted in Dickinson

***Antirrhinum majus-Snapdragons.*** In Fargo, the snaps were in an area of the plots that stayed saturated much of June; many of them didn't survive or they were slowed significantly. In Dickinson, the cool and wet June slowed the snapdragons development so the July evaluations weren't very good. By September, though, after a relatively dry July and August, they looked good in Dickinson.

Snapdragons	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Bells Mix-GS	4"	4"	4"	4"	6"	4-6"	6"	10-12"	Fargo -White, burgundy, red; adversely affected by saturated conditions in June Dickinson- Slow to bloom due to cool June but nice in September
Bronze Chimes-GS			2	2					F-Barely survived the heavy June rains; not blooming by August



Chimes-GS									D -Not planted in Dickinson
Chimes Mix-GS	_____	_____	2	4	4-6	4-6	4-6	6-8	F-A few plants survived the saturated soil but they stayed small with no vigor D -Mix; not blooming uniformly and had declined more than others by September
LaBella Bronze-GS	_____	_____	_____	_____	8	6	8-12	6-10	F-Didn't survive the heavy June rains D-Orange; looked alright
LaBella Lavender- GS	_____	_____	_____	_____	4-6	4-6	<u>10-12</u>	<u>10-12</u>	F -Didn't survive the heavy June rains D -Burgundy; nice in September-uniform, floriferous, nice color
LaBella Light Pink- GS	_____	_____	_____	_____	4-8	2-6	10-15	6-8	F-Didn't survive the heavy June rains D-Light pink; not uniform early but better by September.
LaBella Pink-GS	_____	_____	_____	_____	6	4	<u>10-12</u>	<u>10-12</u>	F-Didn't survive the heavy June rains D-Pink; nice in September-uniform, floriferous, healthy
LaBella Purple-GS	_____	_____	_____	_____	4	4	<u>12</u>	<u>12</u>	F-Didn't survive the heavy June rains D-Velvet burgundy;

Purple-GS									nice in September-uniform, floriferous, full
LaBella Red-GS	_____	_____	_____	_____	4-8	4-6	12	12	F-Didn't survive the heavy June rains D-Deep velvet red; didn't bloom as well as some other snapdragons in Dickinson
LaBella Red and White-GS	4	2	6	6	6-8	4-6	<u>12</u>	<u>12</u>	F -Deep red-yellow throat; finally bloomed in September and looked quite nice D-Not blooming uniformly early but looked nice in September-full, uniform, healthy
LaBella Rose-GS	4-6	2	4-6	4-6	<u>6-8</u>	<u>6</u>	<u>12-14</u>	<u>12-14</u>	F-Deep pink; another one that finally bloomed and looked nice in September D-Performed well all season in Dickinson
LaBella White-GS	4	2	8	6	4-8	4-6	10-12	12-14	F-Didn't bloom, even by the end of the season D-Creamy white; not as uniform or floriferous as other snaps in Dickinson
LaBella									F-Didn't survive the heavy June rains

Labella Yellow-GS	—	—	—	—	4-6	2-4	8-14	10-12	<b>D</b> -Bright yellow; not as uniform or vigorous as other snaps
Liberty Mix-GS	6	1	6	4	2-8	2-6	10-14	10-14	<b>F</b> -Didn't bloom at all, even by September-October <b>D</b> -Mix; not as uniform as others and bloom declined significantly by September
Purple and White Chimes-GS	3	2	2-4	4-6	—	—	—	—	<b>F</b> -Didn't bloom <b>D</b> -Not planted in Dickinson
Red Chimes-GS	—	—	2	2	—	—	—	—	<b>F</b> -Not blooming, even by September; small with no vigor due to heavy June rains <b>D</b> - Not planted in Dickinson

***Asclepias curassavica*-Butterfly Weed.** This was the first year we've had *Asclepias* in the annual trial gardens. It performed well all season in Fargo while in Dickinson it was slow to bloom yet did well into August and September. The plants were healthy, vigorous and the flowers were a nice two-toned orange and orange-red combination.

Asclepias	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	

Red Butterfly-Pk	<u>12"</u>	<u>6-8"</u>	<u>15"</u>	<u>6-10"</u>	8"	6"	<u>24"</u>	<u>12"</u>	<i>Fargo</i> -Orange-red; vigorous, uniform, nice flower <i>Dickinson</i> -Slow to bloom but very nice in September; similar to performance in Fargo
------------------	------------	-------------	------------	--------------	----	----	------------	------------	---

**Begonia semperflorens-Wax Begonia.** Wax begonias continue to perform well in Fargo. They were grown under shade (except for 'Cocktail' and 'Victory Green Leaf Mix' which were just at the edge and received full sunlight) and with few exceptions, performed well the entire growing season. In Dickinson, they didn't perform well at all this year. Part of this may have been due to replanting to straighten out rows that occurred after the May 28 planting date. They were also in full sunlight which was not a problem last year but may have contributed to the poor performance this year. Top performers in Fargo included most of the '**Ambassador**' series, '**Senator White**', '**Super Olympia Coral**', '**Super Olympia Rose**' and most of the '**Victory**' series. '**Inferno Red**' and '**Ambassador Scarlet**' were the nicest ones in the Dickinson plots.

Wax Begonia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Alfa Mix-Da	<u>8"</u>	<u>8-10"</u>	6-8"	8-10"	6"	6"	6"	6"	<i>Fargo</i> -Mix; nice early; by August it seemed to be suffering water stress <i>Dickinson</i> -Small but uniform
All Round Mix-Da	10-12	8-10	<u>10-12</u>	<u>8-10</u>	6-8	8	6	6	<i>F</i> -Mix; vigorous, healthy but some dead heads detract from overall look <i>D</i> -Nice early but lost vigor by September

Ambassador Coral-Da	<u>8</u>	<u>8</u>	8	8-10	2-6	4-6	2-6	4-6	<i>F</i> -Coral-green foliage; uniform, vigorous early; lost some vigor by Sept. <i>D</i> -Small with no vigor
Ambassador Deep Rose-Da	<u>8</u>	<u>6-8</u>	<u>8-10</u>	<u>6-8</u>	2-4	4-6	2-4	4-6	<i>F</i> -Rose-green leaves; floriferous, uniform, nice all season <i>D</i> -Small with no vigor
Ambassador Pink Improved-Da	<u>6-8</u>	<u>6-8</u>	<u>6-8</u>	<u>6-8</u>	6	6	6	6	<i>F</i> -Pink-green leaves; nice, uniform, floriferous all season <i>D</i> -Uniform; bloomed alright
Ambassador Rose-Da	<u>6</u>	<u>6-8</u>	<u>6-8</u>	<u>8</u>	2-4	4-6	2-4	4-6	<i>F</i> -Rose-green leaves; uniform and floriferous all season <i>D</i> -Small, no vigor
Ambassador Rose Blush-Da	<u>8</u>	<u>8</u>	<u>8</u>	<u>8</u>	4	4-6	4	4-6	<i>F</i> -Rose-green leaves; uniform, floriferous and full all season <i>D</i> -No vigor
Ambassador Salmon-Da	6-10	6-10	6-10	6-10	4-6	4-6	4-6	4-6	<i>F</i> -Salmon-green leaves; not as uniform or full as others <i>D</i> -No vigor
Ambassador Scarlet-Da	<u>8</u>	<u>8</u>	6-8	8	4-6	4-6	<u>6-8</u>	<u>8-10</u>	<i>F</i> -Red-green leaves; uniform and full early but lost some vigor by August <i>D</i> -One of the nicest in the Dickinson trial gardens; floriferous, vigorous
									<i>F</i> -Pale pink-green leaves;

Ambassador Soft Pink-Da	6	6-8	6-8	6-8	4-6	4	4	4	not as full, vigorous or floriferous as some others <b>D</b> -No vigor
Ambassador White-Da	6-8	6-8	6-8	6-8	2-4	4-6	—	—	<b>F</b> -White-green leaves; not as full or vigorous as others <b>D</b> -Not blooming much in July; disappeared by September evaluation
Ambassador White/Salmon Red Margin-Da	6-8	6-8	6-8	4-6	2-4	3-5	2-4	3-5	<b>F</b> -Pale pink-dark margin; no vigor but was in a part of the bed that was dry <b>D</b> -No vigor
Cocktail-Ben	6-8	6-8	6-8	6	4-6	6	4-6	6	<b>F</b> -Grown in full sun; uniform but only pink and white colors; bronze leaves <b>D</b> -Did alright
Espresso Mix-Da	<u>8</u>	<u>8-10</u>	6-8	8-10	4-6	6	4-6	6	<b>F</b> -Pink, white, coral-bronze leaves; more vigor and bloom in July than Aug. <b>D</b> -Small with no vigor
Inferno Appleblossom-Da	<u>8</u>	<u>6-8</u>	<u>8-10</u>	<u>8-10</u>	4-8	6-8	4-8	6-8	<b>F</b> -Pale pink-green foliage; uniform, floriferous, nice all season <b>D</b> -Not uniform
Inferno Pink-Da	8	8	<u>8-10</u>	<u>6-8</u>	6	8	6	8	<b>F</b> -Pink-green foliage; floriferous and uniform <b>D</b> -Uniform
									<b>F</b> -Red-green foliage with

Inferno Red-Da	8	6-10	6-10	6-10	<u>4-6</u>	<u>6-8</u>	6-8	8-10	red edges; not as uniform as some others <b>D</b> -Most vigorous begonia in July; not bad in September, either
Inferno Rose/Bronze Leaves-Da	8-10	6-8	8-10	6-8	2-6	4-6	2-6	4-6	<b>F</b> -Pale rose; not as full, floriferous or uniform as others <b>D</b> -Not uniform but nice bloom
Inferno Rose/Green Leaves- Da	8	6-8	<u>8-10</u>	<u>8-10</u>	6	6-8	6	6	<b>F</b> -Pale rose; not as floriferous as some in July; much nicer in August <b>D</b> -Not much vigor or bloom
Inferno White-Da	4-6	4	4-6	4-6	4	4-5	4	4-5	<b>F</b> -White-green foliage; lacked vigor but was in a drier part of the bed <b>D</b> -Nicest white begonia in Dickinson trial garden
Senator Deep Rose-Da	6-8	6-8	<u>8</u>	<u>8-10</u>	4-6	4-6	4	4	<b>F</b> -Rose-bronze leaves; leggy early; full, uniform and floriferous in August <b>D</b> -Uniform but no vigor
Senator Pink-Da	<u>6-8</u>	<u>6-8</u>	6-8	6-8	4-6	4-6	4-6	4-6	<b>F</b> -Pink-bronze leaves; nice early; not as vigorous or floriferous in August <b>D</b> -Did alright
Senator Rose-Da	<u>8</u>	<u>8</u>	<u>8</u>	<u>6-8</u>	2-6	4-6	2-6	4-6	<b>F</b> - Pale rose-bronze leaves; uniform, healthy, full all season <b>D</b> -Small, not uniform

Senator Rose/White Center- Da	<u>8</u>	<u>8</u>	<u>8</u>	<u>8</u>	4	4	4	4	<b>F</b> -Rose with white center-bronze leaves; uniform, floriferous, full all season <b>D</b> -Small, uniform but no vigor
Senator Scarlet- Da	<u>6-8</u>	<u>8-10</u>	6-8	8-10	2-6	2-6	3-8	4-8	<b>F</b> -Red-bronze leaves; more full, uniform and vigorous in July than August <b>D</b> -Not uniform but individual plants looked alright
Senator White- Da	<u>8</u>	<u>8-10</u>	<u>8-10</u>	<u>8-10</u>	2-4	4-6	4	4	<b>F</b> -White-bronze foliage; full, uniform, floriferous all season <b>D</b> -Alright but not much vigor or bloom
Super Olympia Coral-Ben	<u>8-10</u>	<u>8-10</u>	<u>8-10</u>	<u>8-10</u>	6	6-8	6	6	<b>F</b> -Coral-green foliage; nice all season; healthy, floriferous, uniform <b>D</b> -Nice little plants in July but declined by September
Super Olympia Mix-Ben	4-8	6-8	4-10	4-8	2-4	6	4	6	<b>F</b> -Mix with green foliage; lacked uniformity <b>D</b> -Small with no vigor
Super Olympia Pink-Ben	4-8	4-8	6-10	6-10	4	6	4	6	<b>F</b> -Pink-green foliage; not as uniform or floriferous as other pink begonias <b>D</b> -Uniform with good bloom but never thrived



Super Olympia Red-Ben	6-8	6-10	4-8	4-10	6	6	6-8	6-8	<i>F</i> -Red-green foliage with bronze tips; not uniform-individual plants are nice  <i>D</i> -Small but bloomed well
Super Olympia Rose-Ben	<u>8</u>	<u>8-10</u>	<u>8</u>	<u>8-10</u>	6	6	6	6	<i>F</i> -Rose-green leaves; uniform, floriferous, vigorous all season <i>D</i> -Uniform but not very vigorous
Super Olympia White-Ben	6-8	6-10	6-10	6-10	2-4	4-6	4	6	<i>F</i> -White-green foliage; Lacked uniformity but floriferous and healthy <i>D</i> -Did alright but not too vigorous
Victory Bronze Leaf Pink-GS	<u>8</u>	<u>8</u>	<u>8-10</u>	<u>8-10</u>	2-4	4	2-4	4	<i>F</i> -Pale pink; nice all season; floriferous, uniform, healthy <i>D</i> -Poor-no vigor, lack of bloom
Victory Bronze Leaf Scarlet GS	8	6-8	8	6-8	1-5	1-4	2-5	2-4	<i>F</i> -Red; some browning on foliage tips which detracted from appearance <i>D</i> -Poor-no vigor.
Victory Bronze Leaf White-GS	4-6	4-8	4-6	4-8	2-4	2-6	2-4	2-6	<i>F</i> - White; not as vigorous as others but was in a drier area of the bed <i>D</i> - Did poorly, no vigor
Victory Green Leaf Mix-GS	6-8	6-8	6-8	6-8					<i>F</i> -Mix of colors; in full sun but did alright; no leaf burn; uniform and full

Leaf Mix-GS									<i>D</i> -Not planted at Dickinson station
Victory Green Leaf Pink-GS	6	6-8	6-8	6-8	4-6	4	4-6	4	<i>F</i> -Pale pink; not under shade but did alright with no leaf burn visible <i>D</i> -Poor, no vigor
Victory Green Leaf Rose-GS	<u>6-8</u>	<u>6-8</u>	<u>8-10</u>	<u>6-8</u>	1-5	2-6	1-5	2-6	<i>F</i> -Rose; very nice; full, uniform, floriferous <i>D</i> -Poor
Victory Green Leaf Rose Bicolor-GS	6-8	8	<u>6-8</u>	<u>8</u>	3-5	3	—	—	<i>F</i> -Pink-light center; full, uniform, floriferous especially during August <i>D</i> - Poor early; gone in September
Victory Green Leaf Scarlet-GS	<u>8-10</u>	<u>8</u>	<u>8-10</u>	<u>6-8</u>	2-4	4-6	2-4	4-6	<i>F</i> -Red; floriferous, healthy, full-nice all season <i>D</i> -Poor, no vigor
Victory Green Leaf White- GS	<u>8</u>	<u>8-10</u>	<u>8-10</u>	<u>8-10</u>	4	4-6	4	4-6	<i>F</i> -White; nice all season; uniform, floriferous, full <i>D</i> -Poor, not uniform, no vigor
Vodka-Ben	6-8	6-10	<u>8-10</u>	<u>6-10</u>	4	4	4	4	<i>F</i> -Red-bronze foliage; not as uniform as others but full and floriferous <i>D</i> -No vigor

***Begonia tuberhybrida*-Tuberous Begonia.** Tuberous begonias didn't perform well in either Fargo or Dickinson this year. In Fargo, they did not survive all the rain we had in June. In Dickinson, they had

no vigor and didn't bloom much.

Tuberous Begonia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Fortune Mix-Da	—	—	—	—	1-3"	1-3"	2"	2"	<b>Fargo</b> -Too much water in June; drowned <b>Dickinson</b> -Poor; no vigor and not blooming
Galaxy Mix-Da	—	—	—	—	1-3	1-4	2	2	<b>F</b> -Too much water in June; drowned <b>D</b> -Poor; no vigor; not blooming
Pin Up Flame-AAS(99)	—	—	—	—	—	—	—	—	<b>F</b> -Didn't survive heavy June rains <b>D</b> -Low germination so didn't plant in Dickinson

***Browallia speciosa*-Amethyst Flower, Sapphire Flower.** This is the first year we've grown browallia in the plots and it didn't do well at all. In Dickinson it didn't survive transplanting and in Fargo it just never thrived. Browallia is often used as a hanging-basket plant and grows best in full sun (cooler areas) to partial shade (warmer areas). It produces white to blue flowers on plants that grow about 12 inches. We'll try it again in 1999 and hope it does better.

Browallia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
									<b>Fargo</b> -White, blue; no vigor;

Ocean Mix-Da	1-3"	1-3"	1-3"	1-3"	—	—	—	—	bloomed some but was poor <b>Dickinson</b> -Didn't survive transplanting
--------------	------	------	------	------	---	---	---	---	---

**Calendula officinalis-Calendula, Pot Marigold.** Between the rabbits and the high soil moisture, the calendula didn't stand a chance. This season, only two of the five cultivars we grew survived the whole growing season; those were 'Golden Prince' and 'Prince Mix'. None of the *Calendula* was grown in Dickinson this year.

<b>Canna x generalis-Canna.</b> Two dwarf cannas were grown in Fargo in 1998; ' <b>Tropical Red</b> ', a new introduction, and ' <b>Tropical Rose</b> ' which we've tested in the plots the last 4 - 5 years. These were not grown in Dickinson. ' <b>Tropical Rose</b> ' looked nicer than in past years and didn't have the weather-beaten look it sometimes gets. ' <b>Tropical Red</b> ' also did alright but the dead heads on it were more pronounced and unattractive than on ' <b>Tropical Rose</b> '.					
Canna	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Tropical Red-Pk	10-12"	8-10"	12"	8-12"	Red; dead heads unattractive
Tropical Rose-Pk, AAS(92)	8-12	8-12	12-30	8-12	Pink; not uniform but plants nicer than in previous years; not as weather beaten

<b>Catharanthus roseus-Vinca.</b> The cool, rainy June weather in Fargo and Dickinson significantly slowed this heat loving crop. By the end of August and into September, though, they were finally starting to look good in Fargo. ' <b>Pacifica Burgundy</b> ' looked good all season in Fargo and at the end of the season in Dickinson.		
	Fargo	Dickinson

Vinca	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Apricot Delight-WFS	4"	6"	4-6"	6"	—	—	—	—	<b>F</b> -Pale, salmon pink; small but uniform <b>D</b> -Not planted at Dickinson station
Bikini Deep Pink-GSG	6	6	6-8	6-8	—	—	—	—	<b>F</b> -Deep pink; slow to bloom; not uniform but pretty color <b>D</b> -Not planted at Dickinson station
Heat Wave Deep Rose-Bod	6	6	6	6-8	—	—	—	—	<b>F</b> -Bright, deep rose; slow to bloom; small but uniform <b>D</b> -Not planted at Dickinson station
Heat Wave Grape-Bod	4-6	4-6	6	6	—	—	—	—	<b>F</b> -Lavender; lacked vigor <b>D</b> -Not planted at Dickinson station
Heat Wave Mix-Bod	6	6	6-8	6-8	—	—	—	—	<b>F</b> -Lavender, pink, light pink; didn't bloom much all summer <b>D</b> -Not planted at Dickinson station
Heat Wave Orchid-Bod	6	6	6	6	—	—	—	—	<b>F</b> -Deep lavender; pretty color but never bloomed much <b>D</b> -Not planted at Dickinson station
Heat Wave Peppermint-	4-6	4-6	4-6	4-8	—	—	—	—	<b>F</b> -Pale, pale salmon-correct plants?; lacked uniformity; poor bloom

Bod									<i>D</i> -Not planted at Dickinson station
Heat Wave Pink-Bod	6	6	6	6	—	—	—	—	<i>F</i> -Pink-dark pink eye; uniform <i>D</i> -Not planted at Dickinson station
Heat Wave White-Bod	6	6	8	6-8	—	—	—	—	<i>F</i> -White; did alright <i>D</i> -Not planted at Dickinson station
Pacifica Apricot-WFS	4-6	4-6	4-8	4-8	4"	2"	<u>6-8"</u>	<u>6-8"</u>	<i>F</i> -Pale apricot-dark eye; never really thrived and lacked uniformity <i>D</i> -Slow to start but nice in September
Pacifica Burgundy-WFS	<u>6</u>	<u>6</u>	<u>6-8</u>	<u>6-8</u>	4	4	<u>6-8</u>	<u>6-8</u>	<i>F</i> -Bright burgundy; nicest of the vincas here; many blooms, healthy <i>D</i> -Slow start but nice in September
Pacifica Lipstick Mix-WFS	4-6	4-6	4-8	4-8	—	—	—	—	<i>F</i> -Mix; not uniform <i>D</i> -Died after transplanting
Pacifica Mix-WFS	4-6	4-6	4-6	6-8	—	—	—	—	<i>F</i> -Mix; not uniform but individual plants blooming well by August <i>D</i> -Low germination in greenhouse; never planted in Dickinson
Trailing Lilac-WFS	6	4-6	4-6	4-10	1	1	2-4	4-8	<i>F</i> -Deep lilac; not uniform <i>D</i> -Poor; not uniform; no vigor

Trailing White-WFS	6	4-8	4-6	6-8	—	—	—	—	<b>F</b> -White; lacked uniformity <b>D</b> -Low germination in greenhouse; never planted in Dickinson
--------------------	---	-----	-----	-----	---	---	---	---	---

**Celosia species-Celosia, Cockscomb.** The celosia did quite well in Fargo this year. '**Prestige Scarlet**' and '**New Look**' both did well all season. '**Castle Mix**' also looked good during the August evaluations. '**Prestige Scarlet**' did well toward the end of the season in Dickinson.

Celosia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
<i>Celosia cristata</i> 'Amigo Mix'-Ben	6"	4-8"	6"	6-8"	2-6"	4'	—	—	<b>F</b> argo-Mix; did alright but not too vigorous <b>D</b> ickinson-Not very uniform and died by September
<i>C. cristata</i> 'Prestige Scarlet' - AAS(97)	<u>8</u>	<u>6-8</u>	<u>8-10</u>	<u>10-12</u>	4-6	4	<u>10-12"</u>	<u>8-12"</u>	<b>F</b> -Red flowers-foliage with red tips; nice, floriferous, vigorous <b>D</b> -Slow to bloom but by September plants were full, uniform, floriferous
<i>C. plumosa</i> 'Castle Mix'-AT	6-8	6-8	<u>6-8</u>	<u>8-10</u>	—	—	—	—	<b>F</b> -Mix; vigorous, full, nice in August <b>D</b> -Not planted at Dickinson station
<i>C. plumosa</i> 'Castle Pink' AAS(90)	6-8	6	6-8	6	—	—	—	—	<b>F</b> -Salmony pink; did alright <b>D</b> -Not planted at Dickinson station

<i>C. plumosa</i> 'Dance Gold'- GSG	6-8	6	6-8	6	—	—	—	—	<b>F</b> -Gold plumes; color washed out <b>D</b> -Not planted at Dickinson station
<i>C. plumosa</i> 'Gloria Mix'- Ben	6-8	6	6-8	6-8	4-8	2-4	—	—	<b>F</b> -Nice mix of colors; some colors washed out in August <b>D</b> -Same situation as Amigo Mix; died by September
<i>C. plumosa</i> 'New Look'- Ben	<u>6-10</u>	<u>8</u>	<u>10-12</u>	<u>10-12</u>	4-6	4	8-10	6-8	<b>F</b> -Red foliage and flowers; floriferous, vigorous, showy all season; nice <b>D</b> -These performed better in Fargo but still did alright at Dickinson
<i>C. spicata</i> 'Flamingo Feather'-Bur	12-15	6	24-30	10-12	—	—	—	—	<b>F</b> -Pink; washed out color; floriferous and healthy plants <b>D</b> -Not planted at Dickinson station

<b><i>Cleome hasslerana</i>-Spider Flower, Cleome.</b> This did very well at Fargo in 1998. It has a very unique flower and its height makes it a striking plant in any flower garden.					
Cleome	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Rose Queen-Unk	<u>20"</u>	<u>10"</u>	<u>30"</u>	<u>24"</u>	Pale pink; healthy, floriferous, nice all season-even into September



**Cosmos species-Cosmos.** Cosmos has typically done well in the test plots but not in 1998. Part of the problem in Fargo were the rabbits. They also didn't transplant well and that may have been due to the heavy rains we got after planting. In Dickinson, 'Pied Piper Red' and 'Lemon Twist' did well, although 'Pied Piper Red' was overtaking 'Lemon Twist' by the end of the season.

Cosmos	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
<i>Cosmos bipannatus</i> 'Pied Piper Red'-Pk	—	—	12"	12"	12-30"	12"	24-30"	—	<b>Fargo</b> -Deep, lavender rose; only one plant survived; falling over; rabbit eating <b>Dickinson</b> -Nice plants early but few blooms; falling over in September
<i>C. bipannatus</i> 'Tickle Pink'-GSG	—	—	—	—	—	—	—	—	<b>F</b> -Died <b>D</b> -Not planted at Dickinson station
<i>C. sulphureus</i> 'Klondyke Bright Lights'-Pk	24"	12"	20	12	—	—	—	—	<b>F</b> -Golden orange; did alright <b>D</b> -Not planted at Dickinson station
<i>C. sulphureus</i> 'Lemon Twist' - Pk	6-8	4-6	8	6-8	12	6-8	—	—	<b>F</b> -Yellow; only two plants survived; not much vigor <b>D</b> -Doing alright in July but being overrun by 'Pied Piper Red' in September

**Dahlia x hybrida-Dahlia.** Dahlias can sometimes be challenging to grow but '**Garden Pride Mix**' seemed to grow well in both Fargo and Dickinson with no special care. Although slow to bloom in both places, it was worth the wait for the nice floral show. 'Sunny White' and 'Sunny Yellow' did not perform as well as 'Garden Pride Mix'. Something (rabbits?) seemed to be eating those blossoms.

Dahlia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Garden Pride Mix-Ben	6-8"	6-8"	8-10"	10-12"	4-6"	4-6"	<u>10-12"</u>	<u>10-12"</u>	<b>Fargo</b> -Nice mix of colors; slow to bloom but nice in August <b>Dickinson</b> -Slow to bloom but very nice in September; floriferous, healthy
Sunny White-AT	6-8	6-8	6-8	8-10	—	—	—	—	<b>F</b> -White; not blooming much; rabbits might be eating blossoms <b>D</b> -Not planted at Dickinson station
Sunny Yellow-AT	8-10	8	10-12	10-12	—	—	—	—	<b>F</b> -Yellow; nicer than the white; more blooms and fuller plants <b>D</b> -Not planted at Dickinson station

**Dianthus chinensis (x barbatus)-Dianthus, Pinks.** These always perform well in our Fargo plots. '**Princess Pink**' and '**Telstar Mix**' were the two that looked consistently good all season. The one drawback to dianthus is that they have a shorter bloom time than other annuals, often treated as

perennials in the landscape.

Dianthus	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Ideal Violet-AAS(92)	4-6"	4-6"	4-6"	4-8"	Deep, red purple; floriferous and healthy, especially in July; declining in bloom by August
Magic Charms Mix-GS	4-6	4-6	4-6	6-8	Mix of colors; not uniform and declined in bloom by August
Princess Crimson Eye-GS	4-6	4-8	6	6-8	Crimson with light edges; bloomed well all season but lacked uniformity early
Princess Mixture-GS	3-6	4-6	4-6	4-8	Nice mix of colors but not uniform in size of plants
Princess Pink-GS	<u>6</u>	<u>8</u>	<u>6-8</u>	<u>8-10</u>	Salmony pink; nice color, uniform, floriferous, healthy
Princess Purple-GS	4-6	6	4-6	6-8	Deep, red-purple; fairly uniform, did alright
Princess Salmon-GS	4-6	4-6	4-8	6-8	Salmon; nice color but not as uniform as some other dianthus
Princess Scarlet-GS	4-6	6-8	<u>6-8</u>	<u>8-10</u>	Deep red; uniform, floriferous and full plants in August
Princess White-GS	6	6	6	8	White; uniform plants
Raspberry Parfait-GS	4-6	4-6	4-6	6-8	Deep burgundy center with light edges; not uniform in size or bloom

Strawberry Parfait-GS	4-6	4-6	4-6	6-8	Red center with light edges; not as uniform as others
Telstar Mix-AT	<u>6</u>	<u>8</u>	<u>6-8</u>	<u>8-10</u>	Nice mix of colors; uniform, healthy; blooming better in July than August but still nice

***Dyssodia tenuifolia* - Dahlberg Daisy.** These plants were full of tiny golden flowers. They lacked uniformity, however, in size of plants and bloom time. By August they were vigorous, nice little plants.

Dahlberg Daisy	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Golden Fleece-Exp	4"	6-10"	<u>6"</u>	<u>8-12"</u>	Golden yellow; nice plants although they could have been a bit more uniform

***Eustoma grandiflorum (Lisianthus russelianus)* -Lisianthus.** These looked better during the July evaluation than the August one. Part of that was due to dead-heading that did not get done; dead blossoms detracted from the appearance and probably kept the plants from blooming as much as they could have. 'Echo Mix' also wasn't much of a mix this year; most of the flowers were lavender or blue colors and the heads were so big the stems could not support them.

Lisianthus	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	

Blue Rose-Bur	<u>12"</u>	<u>6-8"</u>	12-15"	6-8"	Blue-double blossoms; floriferous and full early, decline in bloom by August and should have dead-headed more
Echo Mix-Pk	12-15	6-8	12-15	6-8	Mostly lavender and blue colors; weak stems which were falling over

***Gaillardia pulchella*-Gaillardia.** This is another flower that performs consistently well year after year. Although the color isn't as showy as a fuchsia or yellow, the vigorous and healthy nature of this cultivar makes up for that.

Gaillardia	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Red Plume-AAS (91)	8-10"	8"	<u>12"</u>	<u>12"</u>	Rust colored; healthy, full, floriferous by August

***Gerbera jamesonii*-Gerbera Daisy, Transvaal Daisy.** Typically a pot plant, Gerbera daisies did not perform well at the Fargo plots this year. They did much better in Dickinson. As with many other plants, the saturated soil and rabbits did them in. Only a few plants of each cultivar survived after transplanting in Fargo. In Dickinson, they were also slowed by cool, wet June weather but came back nicely by the end of the growing season.

Gerbera Daisy	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	

Festival Mix-Da	4"	6"	—	—	4-6"	4-6"	6-8"	6-8"	<b>Fargo</b> -Only 2/9 plants survived transplanting; the rest died later <b>Dickinson</b> -White, orange, pale pink, gold; Did alright but slow to bloom
Mardi Gras Mix-Da	—	—	—	—	6	6	6-8	6-8	<b>F</b> -Disappeared after transplanting; either too much water or rabbits ate it <b>D</b> -Peach, salmon, yellow; slow to bloom but otherwise alright
Masquerade Mix-Da	4	6	—	—	6	6	6-8	6-8	<b>F</b> - Again, only 2/9 plants survived transplanting; others disappeared later <b>D</b> - Pink, yellow, white, gold, red; slow to bloom

<b>Gomphrena globosa-Gomphrena, Globe Amaranth.</b> Another favorite of the rabbits, gomphrena typically does well in Fargo but couldn't get established this year due to grazing by the bunnies.					
Gomphrena	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Bicolor Rose-JSS	2"	2"	2"	2"	Only one plant survived and it was eaten by the rabbits
Strawberry Fields-Pk	2-4	4-6	2-6	2-8	Rabbits also kept this trimmed back

**Gypsophila muralis-Annual Baby's Breath.** These two cultivars looked best in Fargo during the second evaluation but best in Dickinson during the first evaluation. The main reason they did not get a good rating in September in Dickinson was due to an infestation of blister beetles that kept them from blooming.

Annual Baby's Breath	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Garden Bride-Da	2-3"	4-8"	<u>2-4"</u>	<u>6-10"</u>	<u>2-4"</u>	<u>6-8"</u>	2-6"	8-10"	<b>Fargo</b> -Pink; spread out nicely by August; floriferous and healthy <b>Dickinson</b> -Nice in July; in September it was infested with blister beetles
Gypsy-Da, AAS(97)	2-3	4-6	<u>2-3</u>	<u>6-8</u>	<u>2-4</u>	<u>4-6</u>	4	6	<b>F</b> -Pink-double blossoms; better in August than July; floriferous and uniform <b>D</b> -Nice in July but beetles eating flowers in September

**Helichrysum species - Strawflower.** These plants are grown mainly for use in the floral design class taught in the spring semester. They did not perform as well this year as they have in the past, and many of the plants died off over the course of the summer.

Strawflower	Fargo		Comments
	7-21-98	8-21-98	

	Hgt.	Spr.	Hgt.	Spr.	
<i>Helichrysum bracteatum</i> -JSS	8-12"	6-8"	8-12"	6-8"	Gold, rose; floriferous, did alright
<i>H. monstrosum</i> 'Fiery Red'-Pk	10-24	8-10	36	8-10	Rust colored; slow to bloom and not uniform early in the season
<i>H. m.</i> 'Park's Pastel Mix'-Pk	12-18	6-8	20-30	6-8	Mix; slow to bloom and didn't bloom as well as some others
<i>H. m.</i> 'Rose'-Pk	10-24	6	24	6-8	Rose; lacked uniformity early-better later
<i>H. m.</i> 'Salmon'-Pk	12	6	12-30	6-8	Coral, rust; slow to bloom
<i>H. m.</i> 'White'-Pk	6-15	6	—	—	White; only two small plants survived until August
<i>H. m.</i> 'Yellow'-Pk	4-24	6-8	24	10	Yellow-gold

**Hypoestes-Polka Dot Plant.** This is the second year we've grown *Hypoestes* in the plots. Despite a slow start, they were very nice in both Fargo and Dickinson by the end of the season. As with last year, a problem existed with the individual plants varying so much in size, but the overall quality and coloration of the plants was very nice.

Polka Dot Plant	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	



Confetti Mix-Da	2-6"	4-8"	<u>4-12"</u>	<u>6-12"</u>	1"	3"	<u>4-10"</u>	<u>6-12"</u>	<b>Fargo</b> -Mix not uniform but individual plants full and colorful in August <b>Dickinson</b> -Poor with no vigor in July; really looked good in September
-----------------	------	------	--------------	--------------	----	----	--------------	--------------	--

**Impatiens wallerana-Impatiens.** In Fargo, these are always more full and vigorous than in Dickinson. It's assumed the difference is related to the heavier soil in Fargo versus the light, sandy soil in Dickinson. '**Accent Lilac**', '**Accent Watermelon**' and '**Victorian Rose**' did particularly well in Fargo. '**Accent Violet**' was one of the better performers in Dickinson.

Impatiens	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Accent Bright Eye-GS	4"	6"	4"	6-8"	2-4"	2-6"	4-6"	8-10"	<b>Fargo</b> -Pale pink-dark eye; not blooming as well as others <b>Dickinson</b> -Poor early, looked better in September
Accent Burgundy-GS	4-6	6-8	6	8-10	2-4	4-6	4-6	10-12	<b>F</b> -Deep burgundy pink; nice color, slightly more vigorous than some of the other cultivars <b>D</b> -Poor early, better later
Accent Coral-GS	4-6	6	4-6	8-10	4	6	6-8	10-12	<b>F</b> -Pale pink; did alright although early in the season it didn't seem as vigorous as others <b>D</b> -Poor early but again, did

									better later in the season.
Accent Cranberry-GS	4	6-8	4-6	6-8	2	4	6	10-12	<b>F</b> -Dark pinkish-red; did alright in Fargo <b>D</b> -Poor early but had more vigor later in the season
Accent Deep Pink-GS	4	6-8	4-6	6-8	2-4	2-6	4-6	8-10	<b>F</b> -Dark pink; didn't bloom very well in Fargo compared to other cultivars; chlorotic <b>D</b> -Did alright in Dickinson, similar to the other impatiens
Accent Lavender Blue- GS	4	6-8	<u>6</u>	<u>8-10</u>	2	4	4-6	4-10	<b>F</b> -Pale lavender; looked good in August, uniform and floriferous <b>D</b> -Poor; no vigor and lacked uniformity
Accent Limited Edition Mix-GS	2-4	4-8	2-6	4-8	2-4	2-6	4-6	8-12	<b>F</b> -Lavender, pink, red, coral; nice mix of colors but not as uniform as others <b>D</b> -Small plants early and not uniform
Accent Lilac-GS	<u>4</u>	<u>6</u>	<u>6</u>	<u>8-10</u>	2-4	4-6	4-6	8-12	<b>F</b> -Lavender-rose; nice color; full, healthy, floriferous all season <b>D</b> -Poor early, did better later
Accent Orange-GS	4	6	4-6	6-8	4	6	4-6	4-10	<b>F</b> -Orange; did alright <b>D</b> -Poor, no vigor, not uniform
Accent Pink-GS	4	6-8	4-6	6-10	2-4	4-6	6	10	<b>F</b> -Light pink; not as uniform as some others <b>D</b> -No vigor early; better in September and very uniform

Accent Red-GS	<u>4</u>	<u>8</u>	4	6-8	2	4-6	4-6	10-12	<b>F</b> -Red; looked good early-floriferous and full; not as nice later <b>D</b> -Poor early, more vigor later
Accent Rose-GS	4	6	6	8	2-4	4-6	4-6	6-10	<b>F</b> -Rose; uniform, nice color <b>D</b> -One of the nicer impatiens early in Dickinson; uniform
Accent Salmon-GS	4	4-6	4-6	6-8	4	4-6	4-6	8-10	<b>F</b> -Salmon; not as full or vigorous as others in Fargo <b>D</b> -After a slow start, looked o.k. in September
Accent Salmon Picotee- GS	4	6-8	4-6	6-8	2-4	2-6	4-6	6-10	<b>F</b> -Salmon-dark edges; not as floriferous as some <b>D</b> -Typical of the impatiens in Dickinson
Accent Violet-GS	<u>4</u>	<u>6-8</u>	4-6	6-8	4	6-8	<u>6-8</u>	<u>10-14</u>	<b>F</b> -Deep lavender rose; looked good earlier in the season; floriferous, full, healthy <b>D</b> -Although it was poor early, it was floriferous, vigorous and full in September
Accent Watermelon-GS	<u>4-6</u>	<u>6-8</u>	<u>6</u>	<u>8-10</u>	2-4	4-6	6-8	8-14	<b>F</b> -Deep coral; nice color; vigorous and floriferous all season <b>D</b> -Lacked uniformity in Dickinson
Accent White-GS	4	4-6	4	6-8	2-4	4	4-6	8-14	<b>F</b> -White; not much vigor or bloom compared to others <b>D</b> -Poor early and no uniformity
Carnival Deep Pink-Da	4-6	6-8	4-6	6-8	2-4	4-6	4-6	8-10	<b>F</b> -Pink; did alright <b>D</b> -Poor, no vigor

Carnival Deep Rose-Da	4	6	4-6	6-8	2	2-4	4-6	8-14	<i>F</i> -Deep rose; not as floriferous or vigorous as others in July; better in August <i>D</i> -Poor, not uniform
Carnival Lilac-Da	4	4-6	4-6	6-8	2-4	4	4-6	6-8	<i>F</i> - Lavender-rose; not as vigorous as other lilacs <i>D</i> - Poor; only 3/6 plants survived transplanting
Carnival Metallic Deep Salmon-Da	4	4-8	4-6	6-8	2-4	4-6	<b>6-8</b>	<b><u>10-12</u></b>	<i>F</i> - Deep salmon; not as uniform as others in July; better in August <i>D</i> -One of the nicest impatiens in Dickinson trial garden
Carnival Mixture-Da	2-4	6-8	4-6	6-8	1-3	2-6	4-6	8-12	<i>F</i> -White, pink, red, orange; nice color mix but not too vigorous in July; uniform in August <i>D</i> -Poor early, no vigor; one really nice plant
Carnival Orange-Da	<b><u>4</u></b>	<b><u>6-8</u></b>	4	6-8	2	4-6	4-6	6-12	<i>F</i> - Orange; had more vigor in July <i>D</i> -Poor, not uniform
Carnival Pink-Da	4	6-8	4-6	6-8	2-4	6	6	8-10	<i>F</i> -Pale pink-darker center; more floriferous in August than July <i>D</i> -Poor, no vigor
Carnival Red-Da	4	4-6	4-6	4-8	2-4	4-6	4-6	10-12	<i>F</i> -Red; not as floriferous, vigorous, or uniform as other impatiens <i>D</i> -Poor, especially early

Carnival Rose-Da	4	6-8	6	8	2	6	4-6	8-14	<b>F</b> - Rose; did alright <b>D</b> -Poor, not uniform
Carnival Scarlet-Da	2-4	6	2-4	6-8	2	4-6	4-6	8-12	<b>F</b> -Red-orange; did alright <b>D</b> -Poor, not uniform
Carnival White-Da	4	4-8	4	6-8	2-4	4-6	4-6	8-12	<b>F</b> -White; not very vigorous or floriferous <b>D</b> -Poor early-no vigor; better in September but not uniform
Mosaic Lilac-GS	4	4-6	4-6	6-8	4	6	6-8	10-12	<b>F</b> -Pale lavender rose-white streaking; not much bloom or vigor most of the season <b>D</b> -No vigor early; a little better in September
Mosaic Rose-GS	6	6-8	<u>6-8</u>	<u>8-10</u>	2	2-4	6-8	8-12	<b>F</b> -Pink with white streaks; floriferous; more vigor than others in Fargo <b>D</b> -Poor early; not uniform
Victorian Rose-GS, AAS (98)	<u>6</u>	<u>6-8</u>	<u>8-10</u>	<u>8-10</u>	2	4	6	10	<b>F</b> -Deep rose; semi-double blossoms; showy, floriferous, vigorous all season <b>D</b> -No vigor but uniform

***Kniphofia uvaria*-Tritoma, Red Hot Poker.** This 1999 All-America Selection did not bloom in Fargo until September and wasn't blooming at all in Dickinson, even by the second evaluation in September. In 1999 the seeds will have to be started sooner than in 1998 to get (hopefully) earlier blooming. Another problem in Fargo was, again, the rabbits. They really liked the taste of this one and kept it trimmed down most of the early season. When it finally did bloom in September in Fargo, the flowers were a very pretty yellow with a red-orange tinge on the edges.

	Fargo				Dickinson				
Tritoma	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Flamenco-AAS (99)	6-8"	4"	4-6"	2-4"	6"	2"	10-12"	6-8"	Fargo -Yellow, orange tinge; rabbits liked this; didn't bloom until September Dickinson- Wasn't blooming in Dickinson by September evaluation

***Lavandula angustifolia-Lavender.*** The lavender never did well in Fargo in 1998 but in Dickinson these were nice little plants by the end of the season. For people who like fragrant plants in their garden, this would be a good choice.

	Fargo				Dickinson				
Lavender	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Lady-AAS (94)	6"	6"	6-8"	6-8"	2"	4"	<u>6-10"</u>	<u>6-8"</u>	<b>Fargo</b> -Pale lavender; slow to bloom, wasn't too vigorous until September <b>Dickinson</b> -Slow to bloom but nice little plants in September

***Limonium sinuatum-Statice.*** The statice didn't do well in 1998. They were located in a low spot

that stayed fairly wet for a good two weeks in June. Also, it seemed as if the rabbits were also eating this early in the season which slowed the bloom down on some. None of the statics were grown at the Dickinson station.

	Fargo				
Stative	7-21-98		8-21-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	
Friendly Yellow-AT	4-6"	6-8"	2-6"	6-10"	Didn't bloom all summer-something (rabbit?) was eating it
Light Blue-Ben	1-4	6-10	2-6	8-12	Another one that didn't bloom all summer
Premium Carmine-GSG	6-10	8-10	<u>12-15</u>	<u>8-18</u>	Dusty rose-lavender; best of the statics; bloomed nicely in August and September
Sinuata Mix-McF	4-12	4-12	6-15	8-15	Mix; only a few of the twelve plants bloomed all season; those weren't very vigorous
Soiree Light Blue-Pk	1-2	6-10	2-8	10-12	Didn't bloom all season
Soiree Rose-Pk	4-6	8-12	8-15	10-18	Mauve; slow to bloom, not uniform
Soiree Yellow-Pk	2	4-6	4-6	6-12	Didn't bloom all season

***Linaria species-Linaria, Toadflax.*** After performing very well the last two years at Dickinson, these failed to do well at all this year. They were only tested at the Fargo site and had no vigor; many of the plants died by the second evaluation.

	Fargo	
--	-------	--

Linaria	7-21-98		8-21-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	
Fantasia Blue-AT	4-6"	4-6"	4-8"	4-6"	Lavender; best of the linaria but not uniform in size or bloom
Fantasia Magenta Rose-AT	4	2	6	4	Magenta; poor, no vigor
Fantasia Speckled Pink-AT	4	4	6	6	Pale pink; no vigor and not blooming much
Fantasia Yellow-AT	4	2	6	4	Yellow; no vigor, only two plants still alive in August

***Lobelia erinus* - Lobelia.** Lobelia should reach a height of six inches with a 12 inch spread but has never performed that well in our plots. As seen by the table below, the height and spread were well below normal. Although the bloom was good, the plants just weren't very vigorous.

	Fargo				
Lobelia	7-21-98		8-21-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	
Palace Blue with Eye-Bod	1-3"	1-4"	1-3"	1-4"	Blue with white eye; lots of blooms but small plants with no vigor

***Lobularia maritima* - Sweet Alyssum, Alyssum.** Another flower that was slowed by the cool, wet



June weather. By August, however, these had really perked up and remained nice well into October. We cleaned the annual beds on October 22<sup>nd</sup> and at that time the alyssum still looked very nice.

	Fargo				
Alyssum	7-21-98		8-21-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	
Cheers Mix-GSG	1-3"	3-4"	2-4"	6-8"	Lavender, white; no vigor early; by August plants were floriferous and full but not uniform
Easter Basket Mix-Pk	1-3	3	3-6	6-10	Lavender, white; poor early but by August and into September it was really full and nice
Golf-CI	1	3	3	6	Mix; only 2 of 6 plants survived all season, nice little plants in August and September
Snow Crystals-RS	1-3	3-6	<u>4-5</u>	<u>8-10</u>	White; not uniform but healthy, floriferous and full especially in August and September
Snowcloth Imp.-Pk	1	3	3	6-8	White; only 2 of 6 plants survived; didn't bloom as well as others

***Melampodium paludosum* - Melampodium.** It's been very pleasing to see the consistently good performance of this annual year after year. Although sometimes lacking in uniformity, the bloom and vigor of the plants more than makes up for that. Powdery mildew was a small problem last year but not this. Listed in some sources as a good xeric plant, greater utilization in the landscape is recommended.

	Fargo		Dickinson		
Melampodium	7-21-98	8-21-98	7-8-98	9-4-98	Comments

	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Derby-Ben	<u>6"</u>	<u>6"</u>	<u>6-8"</u>	<u>8-10"</u>	4"	3"	6-10"	4-10"	<b>Fargo</b> -Golden yellow; uniform, floriferous, healthy all season <b>Dickinson</b> -No vigor early; nice, full plants in September but not uniform
Experimental-AT	4-6	4-6	<u>6-10</u>	<u>8-10</u>	—	—	—	—	<b>F</b> -Golden yellow; floriferous and uniform, especially into August <b>D</b> -Not planted at Dickinson station
Million Gold-AT	6	6	6-10	6-10	—	—	—	—	<b>F</b> -Golden yellow; floriferous but not as uniform as others <b>D</b> -Not planted at Dickinson station

***Nicotiana affinis* - Nicotiana, Flowering Tobacco.** In Fargo, the nicotiana flooded out except for a few stray plants here and there. The Havana series was grown in Fargo, while Havana Mix was grown at both Fargo and Dickinson. Typically, flowering tobacco performs very well in our area with little maintenance. The few plants that did survive the saturated-flooded area were performing well at the end of the season.

Flowering Tobacco	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Havana Mix-					4-6"	4-6"	<u>12-</u>	<u>10-</u>	<b>Fargo</b> -Drowned <b>Dickinson</b> -Pink, white,

Da	—	—	—	—	4-0	4-0	<u>15"</u>	<u>14"</u>	maroon; not uniform but floriferous and healthy
----	---	---	---	---	-----	-----	------------	------------	---

**Nierembergia species - Cupflower.** This edging plant has done well in the trial gardens year after year. Although slow to bloom this year, by August it was uniform, full and very nice.

Nierembergia	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Mont Blanc-AAS (93)	1"	6-8"	<u>3"</u>	<u>8-10"</u>	White; Slow growth initially but by August was uniform, full and floriferous; nice plants

**Osteospermum hybrid - Cape Daisy, African Daisy.** This is the first year we've grown *Osteospermum* in the trial gardens. Unfortunately, it disappeared in Fargo after being transplanted. As with many other flowers from this summer, it could be attributed to the high soil moisture or the rabbit population. In Dickinson, however, it did quite well and looked nice by the September evaluation. The only drawback was the lack of uniformity in blooming; some plants were in full bloom while others had very few blossoms on them.

Osteospermum	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Passion Mix-									<b>Fargo</b> -Disappeared-either rabbits ate it or saturated soil conditions killed it

AAS (99)	—	—	—	—	—	—	—	—	—	15"	12"	<i>Dickinson</i> -Slow to bloom but full, floriferous plants by September
----------	---	---	---	---	---	---	---	---	---	-----	-----	---

***Pelargonium x hortorum*-Geranium.** The wet, cool weather adversely affected the geraniums, particularly in Fargo. It wasn't until September that they looked really nice. In Dickinson, the same was true; by September, they looked quite nice.

Geranium	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Cardinal Orbit-GS	6"	6"	6-8"	6-8"	—	—	—	—	<b>F</b> -Red; no vigor, not much bloom, small plants <b>D</b> -Not grown at Dickinson station
Deep Salmon Orbit- GS	8	8	8	6-8	—	—	—	—	<b>F</b> -Salmon; no vigor and didn't bloom much <b>D</b> -Not planted at Dickinson station
Fireball-Ogl	6-8	6-8	6-8	6-8	6"	4-6"	6"	6-8"	<b>F</b> -Deep red; semi-double flowers; pretty flowers but didn't bloom much <b>D</b> -Not very vigorous
Hot Pink Orbit-GS	6-8	6	4-8	4-6	—	—	—	—	<b>F</b> -Hot pink; small plants, didn't bloom much <b>D</b> -Not planted in Dickinson plots

Jessica-Ogl	8	8	6	6-8	6	6	6-8	8-12	<b>F</b> -Hot pink; semi-double flowers; not too vigorous; not blooming much <b>D</b> -Not uniform but pretty blossoms; showed some vigor in Dickinson by September
Maverick Coral-GS	10	8	8-10	8-10	6-8	6-8	<u>10-12</u>	<u>10-14</u>	<b>F</b> -Deep red-coral; nice color; uniform early but not doing as well as others <b>D</b> -Most vigorous group all season but looked particularly nice in September
Maverick Light Salmon-GS	8	8	8-10	8-10	6-8	6	<u>10-12</u>	<u>10-14</u>	<b>F</b> -Pale pink; uniform but not too vigorous although it was doing better in August <b>D</b> -Vigorous and floriferous
Maverick Pink-GS	8	6	8	6-8	6-8	6	<u>8-12</u>	<u>10-14</u>	<b>F</b> -Dark pink; poor with no vigor all season <b>D</b> -Vigorous, full plants by early September
Maverick Red-GS	8-10	6-8	8-10	6-8	6	6	6-10	8-12	<b>F</b> -Red; poor bloom; not uniform <b>D</b> -No vigor in Dickinson; not uniform
Maverick Salmon-GS	8-10	8	8-10	8-10	4-6	4-6	8-10	8-14	<b>F</b> -Salmon; uniform but lacked vigor, particularly early in the season <b>D</b> -Lacked uniformity in Dickinson but plants were full and vigorous
Maverick Scarlet-GS	8	6	6-8	4-10	6	4-6	6-8	6-8	<b>F</b> -Orange-red; not uniform, especially later in the season <b>D</b> -Lacked vigor all season

Maverick Star-GS	8	8	10-12	8-10	8	6	<u>10-12</u>	<u>10-14</u>	<i>F</i> -Two-toned pink; usually does well in Fargo but lacked vigor this year <i>D</i> -Did better in Dickinson; vigorous, full, floriferous
Maverick Violet-GS	6-8	6-8	<u>6-8</u>	<u>6-10</u>	6	6	10-12	10-12	<i>F</i> -Bright violet pink; pretty color; showy compared to some others <i>D</i> -Blooming nicely in Dickinson
Maverick White-GS	10	8	10	10-12	8	8	<u>12</u>	<u>12-14</u>	<i>F</i> -White; one of the more vigorous groups; looked very nice in September <i>D</i> -One of the most vigorous groups in Dickinson; floriferous, nice
Melody Red-Ogl	6-8	6-8	6	4-6	4-6	4-6	6-8	8-10	<i>F</i> -Orange-red; lots of blooms on small plants; declined by August <i>D</i> -Slow to start but vigorous and lots of blooms in September
Multibloom Capri-GS	6-8	6-8	4-6	6-8	4-6	4-6	4-8	4-10	<i>F</i> -Bright coral; pretty color but plants lacked vigor <i>D</i> -Same in Dickinson; pretty color but no uniformity or vigor
Multibloom Light Salmon-GS	8	8	6-8	6-8	6	6	6-8	6-10	<i>F</i> -Pale pink; poor, even into August; no vigor, not blooming well <i>D</i> -Not uniform
Patriot Cherry Rose-	6-8	6-8	4-6	6	6-8	6-8	6-8	6-10	<i>F</i> -Bright, showy pink; lots of blooms on small plants; pretty color

Ogl									<b>D</b> -Bloomed better in July than in September
Patriot Violet-Ogl	6-10	6-10	<u>6-8</u>	<u>6-10</u>	6-10	6	6-8	8-10	<b>F</b> -Deep violet pink; lacked uniformity; nice blooms; individual plants healthy and full <b>D</b> -Pretty color; big flower heads on small plants
Sincerely Yours-Ogl	<u>8</u>	<u>8-10</u>	6-8	8-10	6	6-8	6-8	10-12	<b>F</b> -Deep orange-red; vigorous and healthy all season but a decline in bloom in August <b>D</b> -More vigor than some others; not bad
Sweet Temptation-Ogl	6-8	6-8	6	6-8	6-7	6-8	6-8	6-8	<b>F</b> -Dark pink; lots of blooms in July but a decline in bloom by August <b>D</b> -Not much vigor
White Truffle-Ogl	8	10	6-8	8-10	6	6-8	6-8	6-10	<b>F</b> -White; didn't bloom much all season <b>D</b> -Didn't bloom much in Dickinson, either

***Pennisetum rueppeli (P. setaceum) - Fountain Grass.*** The fountain grass was very showy in both Dickinson and Fargo this year, especially during August and September. It responded especially well to the warm dry weather we had at the end of the season and the somewhat late killing frost.

Fountain Grass	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	

<i>Pennisetum rueppeli</i> -Pk	24"	24"	<u>36"</u>	<u>24-30"</u>	24"	24"	<u>30-36"</u>	<u>24-30"</u>	<b>Fargo</b> -Did very well in Fargo; Showy, full, healthy <b>Dickinson</b> -Also did well in Dickinson
--------------------------------	-----	-----	------------	---------------	-----	-----	---------------	---------------	--

***Pentas lanceolata* - Pentas, Starcluster.** This is the third year we've had *Pentas* in the trial gardens and they have not performed very well. They lack vigor and don't bloom much. In Fargo, 'New Look Red' was more vigorous than 'New Look Pink' and by early September the appearance was acceptable.

Pentas	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
New Look Pink-Ben	2-4"	4"	2-4"	4-6"	3"	3"	3"	3"	<b>Fargo</b> -Pink; no vigor and didn't bloom much <b>Dickinson</b> -No vigor; not blooming
New Look Red-Ben	4-6	4-6	6-8	6-8	3	3	3	3	<b>F</b> -Red; more vigor than Pink and by September these were nice little plants <b>D</b> -No vigor; not blooming

***Petunia hybrida*-Petunia.** The petunias performed well this season. In Dickinson, they were slow to bloom. During the July 8th Field Days in Dickinson they were just on the verge of blooming; normally they are in full bloom in early July. By the second evaluation in Dickinson, they were vigorous, floriferous and healthy. In Fargo, they performed well all season. Top performers in both locations were '**Lavender Storm**', '**PrimeTime Lavender**', '**PrimeTime Rose**' and most of the **milliflora** group.

**Floribunda petunias.** The floribunda petunias did well in 1998; looking particularly nice into August



and September. '**Celebrity Just Pink Mix**' performed the best over the entire season while '**Celebrity Chiffon Morn**' looked better in August.

Petunia- Floribunda	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Celebrity Carmine- Bod	8"	6- 10"	8- 10"	12- 15"	—	—	—	—	<b>F</b> -Deep lavender pink; uniform and nice color but didn't bloom much <b>D</b> -Not planted at Dickinson station
Celebrity Chiffon Morn - Bod (AAS 95)	8	8- 10	<u>10- 12</u>	<u>12- 15</u>	4"	6"	<u>10- 12"</u>	<u>12- 14"</u>	<b>F</b> -Pale pink, white center; uniform, floriferous and full especially in August <b>D</b> -Slow to bloom but full, floriferous and nice in September
Celebrity Desert Sky- Bod	6- 10	8- 12	8- 10	8-15	—	—	—	—	<b>F</b> -Red, light blue, blue; not uniform <b>D</b> -Not planted at Dickinson station
Celebrity Just Pink Mix-Bod	<u>10</u>	<u>10</u>	<u>10- 12</u>	<u>12- 15</u>	—	—	—	—	<b>F</b> -Different shades of pink; uniform, floriferous, bright-nice show of color <b>D</b> -Not planted at Dickinson station
Celebrity Niagara Mix-Bod	8- 10	8- 10	10- 12	12- 15	—	—	—	—	<b>F</b> -Blue, lavender, deep blue, fuchsia; lacked uniformity and more leggy than others <b>D</b> -Not planted at Dickinson station

**Grandiflora petunias.** The grandiflora petunias also performed well at both Fargo and Dickinson this year. A few in Fargo were located in a low spot that stayed wet for a prolonged period and those showed less vigor than many which were growing in a more well-drained area. The **Storm** series continues to perform well; '**Lavender Storm**', in particular, looked good all season in Fargo while '**White Storm**' and '**Pink Morn Storm**' also did well.

Petunia-Grandiflora	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Lavender Storm-GS	<u>8"</u>	<u>10"</u>	<u>10-12"</u>	<u>12-15"</u>	6"	6"	<u>10-12"</u>	<u>14-16"</u>	<b>Fargo</b> -Lavender; nice all season; floriferous, uniform, healthy; not as nice as 1997 <b>Dickinson</b> -Slow to bloom but was very nice by the second evaluation
Pink Morn Storm-GS	<u>8-10</u>	<u>8-12</u>	10-12	12-15	6	6-10	<u>12-14</u>	<u>12-14</u>	<b>F</b> -Dark pink-white center; blooming nicely early, not as full later in the season <b>D</b> -Showy and full for the September evaluation
Pink Storm-GS	6-8	4-10	8-10	10-12	6	8	10-12	12-14	<b>F</b> -Dark pink; not as uniform or vigorous as others <b>D</b> -Being overrun by 'Pink Morn Storm'
Prism Sunshine-AAS(98)	6-10	6-10	<u>10-12</u>	<u>12-15</u>	4-6	4-6	12-15	12-14	<b>F</b> -Pale yellow; leggy early but filled in nicely by August and was blooming well <b>D</b> -Pretty flower but plants got leggy

Salmon Storm-GS	6-8	4-10	6-8	6-10	6	4-6	10-12	12-14	<b>F</b> -Coral; not blooming as much or as vigorous as some other grandifloras <b>D</b> -Less uniform than other Storms
Storm Mix-GS	4-10	4-10	6-12	6-15	—	—	—	—	<b>F</b> -Lavender, pink; not uniform in size or bloom <b>D</b> -Not planted at Dickinson station
White Storm-GS	6-8	6-8	<u>10-12</u>	<u>12-15</u>	6	4-8	12-16	12-16	<b>F</b> -White; floriferous, full and healthy in August <b>D</b> -Looked good in Dickinson
Ultra Blue-GS	4-6	4-6	8-12	6-10	6	4-8	10-14	12-14	<b>F</b> -Deep lavender purple; leggy, smaller than others and not blooming as much <b>D</b> -Leggy
Ultra Crimson Star-GS	4-6	4-6	8-10	6-12	—	—	—	—	<b>F</b> -White and maroon; small and not uniform but flower is pretty <b>D</b> -Not planted at Dickinson station
Ultra Lilac-GS	8	8-10	10-12	12-15	6	6	10-12	12-14	<b>F</b> -Light and dark lilac; floriferous, nice color <b>D</b> -Nice color but a little leggy
Ultra Limited Edition Mix-GS	4-8	4-10	8-12	6-15	6	8	12-16	12-14	<b>F</b> -Mix of colors; not uniform; leggy <b>D</b> -Became leggy in Dickinson
Ultra Peppermint-GS	6	6-8	8-10	6-12	6-8	6	10-12	12-14	<b>F</b> -Pink; uniform early but not later; leggy, small with no vigor <b>D</b> -Looked alright in Dickinson

Ultra Pink-GS	6-8	4-8	6-8	6-10	—	—	—	—	<i>F</i> -Dark pink; small plants compared to others; didn't bloom much <i>D</i> -Not planted at Dickinson
Ultra Plum-GS	4-6	2-6	8-12	6-8	2-6	6-8	10-12	12-14	<i>F</i> -Deep plum-dark veins; leggy and not blooming much <i>D</i> -Did alright
Ultra Red-GS	2-6	2-6	4-6	4-8	4-6	4-8	10-12	12-14	<i>F</i> -Red; poor, no vigor, not uniform, not blooming much <i>D</i> -Not uniform early, better later
Ultra Salmon-GS	4-8	4-10	8-10	10-12	2-6	2-8	12-14	12-14	<i>F</i> -Coral; not as uniform as others; nice bloom in August <i>D</i> -Did alright
Ultra Scarlet-GS	2-4	4	4-8	4-6	2-6	2-8	10-12	12-14	<i>F</i> -Red; poor, not blooming much; no vigor <i>D</i> -Did alright
Ultra Sky Blue-GS	4	2-4	8-12	6-10	4-8	6	10-12	10-14	<i>F</i> -Dark and light blue; poor, leggy, no vigor <i>D</i> -Did alright
Ultra White-GS	3-6	4-6	6-8	6-8	6	6-8	12-16	12-16	<i>F</i> -White; small, not blooming much <i>D</i> -Petals had more bruising than 'White Storm'

**Milliflora petunias.** The milliflora petunias continue to perform well in both Fargo and Dickinson. As a group they are showy, bright and full. A few (as noted) became leggy towards the end of the season but most stayed compact. **'Fantasy Pink'** and **'Fantasy Pink Morn'** performed well all season in Fargo, while **'Fantasy Carmine'** was the most consistently nice one in Dickinson.

Petunia-Milliflora	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Fantasy Blue-GS	6-8"	6-8"	6-8"	8-12"	4"	6"	10"	12-14"	<b>F</b> -Dark, velvet blue; leggy, not as floriferous as others <b>D</b> -A little more leggy than others
Fantasy Carmine-GS	4-6	4-6	<u>6-8</u>	<u>10-12</u>	<u>6</u>	<u>6</u>	<u>10-12</u>	<u>12-14</u>	<b>F</b> -Deep lavender pink; bright, showy, full <b>D</b> -Uniform, floriferous all season despite the cool weather which slowed others
Fantasy Crystal Light Salmon-GS	4-6	4-8	4-6	8-10	4	6	10-14	12-14	<b>F</b> -Pale red-dark veins; similar in color to 'Fantasy Crystal Red' but not as vigorous <b>D</b> -Not quite as uniform as some others
Fantasy Crystal Red-GS	4-8	4-8	<u>6-8</u>	<u>10-12</u>	4	6	10	12-14	<b>F</b> -Pale red-dark veins; not uniform early; nice in August-uniform, healthy <b>D</b> -Looked good in Dickinson
Fantasy Ivory-GS	4-6	6-8	6	8-12	4	4-6	<u>10</u>	<u>12-14</u>	<b>F</b> -Greenish white; not as uniform or floriferous as others <b>D</b> -By September this was full, healthy, floriferous
Fantasy Pink-GS	<u>4-6</u>	<u>6-8</u>	<u>6</u>	<u>10-12</u>	4	6	<u>10</u>	<u>12-14</u>	<b>F</b> -Hot pink; bright, full uniform all season in Fargo <b>D</b> -Showy and full in September in Dickinson

Fantasy Pink Morn-GS	<u>4-6</u>	<u>6-8</u>	<u>6</u>	<u>10-12</u>	2-6	2-6	<u>10</u>	<u>10-12</u>	<i>F</i> -Pink-white center; uniform, showy, full all season <i>D</i> -Floriferous, full, showy in September
Fantasy Red-GS	4-6	4-8	6-8	8-10	1-4	2-4	8-10	10-12	<i>F</i> -Red; not as floriferous or uniform as others <i>D</i> -No vigor early, not much better later
Fantasy Salmon-GS	4-6	4-8	<u>6-8</u>	<u>10-12</u>	4	4	10	12-14	<i>F</i> -Deep reddish coral; nice in August although not as floriferous as some others <i>D</i> -Did alright in Dickinson, nice color

**Multiflora petunias.** The multiflora petunias did alright this season. In both Fargo and Dickinson the wet, cool weather slowed them but by the end of the season they were doing well. **'PrimeTime Lavender'** and **'PrimeTime Rose'** both performed well all season in Fargo. Also doing well at the end of the season in Dickinson were **'PrimeTime Limited Edition Mix'**, **'PrimeTime Mid-Blue'**, and **'PrimeTime White'**.

Petunia-Multiflora	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Heavenly Lavender-AAS(96)	6-8"	6-8"	10-12"	12-15"	—	—	—	—	<i>Fargo</i> -Double lavender; uniform early but became leggy, dead blossoms detracted <i>Dickinson</i> -Not grown at Dickinson station

PrimeTime Blue-GS	6-8	4-8	10-15	8-15	6"	6"	12-14"	12-14"	<b>F</b> -Deep, velvet purple; leggy; not uniform <b>D</b> -A little leggier than other multifloras but still rather full
PrimeTime Crystal Mix-GS	6-8	6-10	10-12	12-15	6	6	12-14	12-14	<b>F</b> -Pinks, maroon-dark veins; uniform but not as full as others <b>D</b> -Looked alright in Dickinson; colors nice
PrimeTime Fiesta Mix-GS	6-8	6-8	<u>10-12</u>	<u>12-15</u>	—	—	—	—	<b>F</b> -White, blue, carmine, pink; nice mix of colors, uniform and floriferous <b>D</b> -Not grown at Dickinson station
PrimeTime Lavender GS	<u>6-8</u>	<u>8-10</u>	<u>10-15</u>	<u>12-15</u>	6	6-8	<u>12-14</u>	<u>14-16</u>	<b>F</b> -Lavender; lots of blooms, healthy, vigorous all season <b>D</b> -By September it was full, healthy, vigorous, floriferous
PrimeTime Limited Edition Mix-GS	4-8	4-10	10-12	12-15	6	6	<u>10-12</u>	<u>12-14</u>	<b>F</b> -Nice mix of colors; lacked uniformity between colors in Fargo <b>D</b> -Nice in September; full, vigorous, floriferous, nice mix of colors
PrimeTime Mid Blue GS	6-8	8-10	10-12	12-15	6	6	<u>10-12</u>	<u>12-14</u>	<b>F</b> -Pale to dark blue; plants were slightly leggy, not very full <b>D</b> -Nice in September; good color, full, floriferous
PrimeTime Pink-GS	6-8	6-10	10-12	12-15	—	—	—	—	<b>F</b> -Dark pink; not as uniform as some but did alright <b>D</b> -Not planted at Dickinson station

PrimeTime Pink Morn-GS	8	8	10- 12	12- 15	—	—	—	—	<b>F</b> -Dark pink-white center; did alright but not as floriferous as some other petunias <b>D</b> -Not planted at Dickinson station
PrimeTime Red-GS	6- 10	4-8	8- 12	6-10	4-6	4-6	8- 10	10- 12	<b>F</b> -Red; poor, no vigor, not blooming much, not uniform <b>D</b> -Not as vigorous or uniform as other multifloras
PrimeTime Rose-GS	<u>8</u>	<u>10</u>	<u>12</u>	<u>15</u>	6	6	<u>10- 12</u>	<u>12- 14</u>	<b>F</b> -Bright, dark pink; beautiful, showy, nicest of all the petunias in Fargo <b>D</b> -Nice mass of pink by September-showy and bright
PrimeTime Scarlet-GS	6- 10	6- 10	10- 12	10- 15	4-6	6	10- 12	12- 14	<b>F</b> -Red with white throat; similar to 'PrimeTime Red' but slightly more vigor <b>D</b> -Not as vigorous or floriferous as other multiflora petunias
PrimeTime Twilight Mix-GS	6-8	2-8	<u>12</u>	<u>12- 15</u>	6	6-8	12- 14	12- 14	<b>F</b> -Coral, white, blue; not uniform early but nice and full by August <b>D</b> -Slow to bloom but was doing alright by September
PrimeTime White-GS	6-8	6- 10	<u>12- 15</u>	<u>12- 15</u>	4-8	6-8	<u>12- 14</u>	<u>14- 16</u>	<b>F</b> -White; full, showy and nice in August <b>D</b> -Also nice in Dickinson in September



**Prostrate petunias.** The prostrate petunias did well in Fargo this year. Only 'Purple Wave' was grown in both locations. In September all of the Waves in Fargo were floriferous, healthy and vigorous.

Petunia-Prostrate	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Misty Lilac Wave-Bur	4-6"	18"	4-6"	18-24"	—	—	—	—	<b>F</b> -Large, pale lavender flowers; more upright than the other prostrate petunias <b>D</b> -Not grown at the Dickinson station
Pink Wave-Bur	4	12	<u>4</u>	<u>18</u>	—	—	—	—	<b>F</b> -Dark pink; didn't spread as much as Purple Wave; floriferous and healthy <b>D</b> -Not planted at Dickinson station
Purple Wave-AAS(95)	<u>4</u>	<u>18</u>	<u>4</u>	<u>24-30</u>	4"	10-12"	<u>4"</u>	<u>36-40"</u>	<b>F</b> -Deep lavender pink; most floriferous and vigorous of the prostrate petunias <b>D</b> -Vigorous and floriferous
Rose Wave-Bur	6	12	6-10	18	—	—	—	—	<b>F</b> -Deep rose; more leggy than other three, also more upright <b>D</b> -Not planted at the Dickinson station

**Phlox cuspidata-Annual Phlox.** For the third year in a row, these phlox have not done well in either the Fargo or Dickinson trial gardens. This year, many of them didn't even survive the whole season.

Annual Phlox	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Crystal Purple with White-Da	—	—	—	—	4"	4"	—	—	<b>Fargo</b> -Didn't survive after heavy June rains <b>Dickinson</b> -Poor early; disappeared
Crystal Red with White-Da	4"	2"	2"	1"	4-6	4	—	—	<b>F</b> -Poor, no vigor <b>D</b> -Poor early; died

**Platycodon hybrid-Balloon Flower.** This is typically used as a perennial in our area and usually it does well. Although it did bloom, something (rabbits) ate the blooms and some of the foliage so the plants stayed small and had little bloom. The Dickinson plants should overwinter so we can see how well they do in 1999.

Balloon Flower	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Astra Blue-Da	4"	4"	2-4"	2"	—	—	—	—	<b>Fargo</b> -Pale, lavender blue; not too vigorous and something(rabbit?) kept eating flowers <b>Dickinson</b> -Missed being evaluated; hoping it will overwinter

**Portulaca grandiflora-Moss Rose.** In Fargo, the moss roses were not only a favorite of the rabbits but they were also victims of the saturated soil conditions in the Fargo beds. The one cultivar grown at Dickinson, 'Sundial Peach' didn't perform well there, either.

Moss Roses	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Sundial Fuchsia-Bod	4"	6-8"	2"	6-8"	—	—	—	—	<b>Fargo</b> -Bright fuchsia; no vigor due to rabbits and moisture <b>Dickinson</b> - Not planted at the Dickinson station
Sundial Gold-Bod	2	6	2	6-8	—	—	—	—	F-Gold; no vigor due to rabbits and saturated soil D -Not planted in Dickinson
Sundial Mix-Bod	1	2-3	1	6	—	—	—	—	F-Never bloomed; rabbits and saturated soil kept the plants small and without blooms D - Not planted at Dickinson station
Sundial Peach-Bod, AAS(99)	2	4-8	2	6-8	3"	6-8"	3"	12-15"	F-Coral; pretty color but the rabbits were eating the flowers D-Never bloomed much although the plant was healthy in September
Sunnyside Mix-Cl	2	4-6	1	6-8	—	—	—	—	F -Pink, orange; not blooming in August due to rabbits D -Not planted at Dickinson station

**Rudbeckia hirta-Rudbeckia, Black-eyed Susan.** 'Indian Summer' did well in Fargo this year, particularly at the end of the season. It also looked nice in Dickinson, although not as good as in Fargo. It appears, in this case, our heavy clay soil could be an asset and not a liability. The rabbits really liked 'Becky Mix' and 'Sonora'; they even found those when we were hardening them off between the greenhouse ranges in May.

Black-eyed Susan	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Becky Mix-AT	4-6"	4-6"	4-6"	4-6"	—	—	—	—	Fargo -Gold; rabbit favorite; poor in August with no vigor Dickinson-Not planted at Dickinson station
Indian Summer-AAS(95)	12-15	6-8	<u>12-18</u>	<u>6-12</u>	10-12"	6-8"	20-30"	10-12"	F-Gold; just starting to bloom in July; showy and floriferous but lacked uniformity D -Looked good in Dickinson
Sonora-Ben	8-12	6-8	8-12	6-8	6-8	6-8	8-12	10-14	F- Gold with brown/rust markings; a favorite of the rabbits so didn't bloom well D -Slow to bloom but looked nice in September

**Salvia farinacea-Blue Salvia, Mealy Cup Sage.** When high soil moisture doesn't kill these, they do very well in Fargo and Dickinson. Those that survived the wet June were performing quite well in August and September.

Blue Salvia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Argent-Cl	2-6"	2-6"	4-12"	4-12"	—	—	—	—	Fargo -White; slow to bloom and not uniform; bloom nice in September Dickinson- Not planted at Dickinson station
Reference-Ben	4-8	2-4	4-12	2-10	4-8"	6"	<b>15"</b>	<b>12"</b>	F-Blue/white; 2 of 12 plants survived June's rain; one nice plant in August D -Slow to bloom but full, floriferous, nice in September
Strata-AAS (96)	<b>6-8</b>	<b>4-6</b>	<b>8-12</b>	<b>6-12</b>	2-8	6	12-14	12	F-Blue/white; best salvia in Fargo plots; healthy and blooming nicely D- Slow to bloom and not as vigorous or floriferous as 'Reference'
Victoria-Cl	6-8	4	10-12	10-12	—	—	—	—	F-Blue; slow to bloom but nice plants in August D -Not planted at Dickinson station

**Salvia splendens-Salvia.** The salvia were severely affected by the excess moisture we had in Fargo early in the season; the majority of the plants died. In Dickinson, they didn't thrive at all and many didn't survive the summer. It isn't known why they did so poorly in Dickinson other than being set back by the cool weather they had in June. Usually these do very well at both locations. By Septem-

ber, the plants that survived were performing very well.

Salvia	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Salsa Burgundy-GS	2-6"	2-6"	4-6"	4-6"	2-4"	4"	_____	_____	<b>Fargo</b> -Rosy-mauve; poor, too much water, yellowing <b>Dickinson</b> -Poor early, not there during the September evaluation
Salsa Light Purple-GS	6	6	6-8	6	2	4	_____	_____	<b>F</b> -Light purple; one of the nicer groups of salvia but still slowed by too much water <b>D</b> -No vigor early and then gone for the September evaluation
Salsa Mix-GS	6	6	4-8	4-6	2-4	2-4	_____	_____	<b>F</b> -Coral, rose, purple; uniform plants but no vigor <b>D</b> -Not blooming, no vigor and gone by the September evaluation
Salsa Purple-GS	8	6	4-8	6	4	4	4-6"	2-4"	<b>F</b> -Purple; no vigor, lost 8 of 12 plants due to the saturated soil <b>D</b> -No vigor all season
Salsa Rose-GS	6-8	4-6	6-8	4-8	2-6	2-6	2-6	4-8	<b>F</b> -Rose; no vigor early, although by August had recovered somewhat <b>D</b> -One nice plant in Dickinson in September

Salsa Rose Bicolor-GS	6	4	6-8	4-6	3	3	—	—	<b>F</b> -Rose, white; washed out color, no vigor early but better by August <b>D</b> -Not blooming, no vigor, gone by September evaluation
Salsa Salmon-GS	6-8	4	4-8	4-6	2-4	4	—	—	<b>F</b> -Coral; no vigor, even by August; lost 7 of 12 plants <b>D</b> -Poor
Salsa Salmon Bicolor GS	1	2	6	6	4	4-6	—	—	<b>F</b> -Coral, white; lost 11 of 12 plants; but that one looked pretty good in August <b>D</b> -Poor, blooms were brown and bruised, gone by September
Salsa Scarlet-GS	—	—	—	—	2-4	4	—	—	<b>F</b> -Lost all 12 plants in Fargo <b>D</b> -Poor early, gone by September
Salsa Scarlet Bicolor- GS	4	2	6	6	4	4	—	—	<b>F</b> -Red, white; lost 11 of 12 plants but that one looked nice in August <b>D</b> -Poor, gone by September evaluation
Salsa White-GS	6	2-4	6	4	2-4	4	6-12	6-10	<b>F</b> -Creamy white; only 1 plant of 12 survived the wet conditions in Fargo <b>D</b> -Nicest of all the salvia in the Dickinson garden but dead blossoms detracted

**Scabiosa species-Pincushion Flower, Scabiosa.** This was one of the flowers that we were testing as a potential cut flower crop in North Dakota. It did very well in Dickinson; the plants were healthy and full of blooms. In Fargo, however, the rabbits either got to them or they perished due to flooded field conditions.

	Fargo				Dickinson				
Scabiosa	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Park's Giant Imperial Mix-Pk	12- 24"	6"	18- 24"	6-8"	18- 24"	6- 10"	24- 30"	10- 12"	Fargo -Mix of colors; rabbits eating Dickinson- Nicer in Dickinson than Fargo; long stems-blooming well

**Stipa species-Needlegrass, Feathergrass.** This is the first year we've grown *Stipa* in the plots. It was pleasing to see how it performed and we're anxious to grow it again next year. The individual clumps didn't spread too much and they all displayed the unique dried, curly ends which blew nicely in the wind giving it a "feathery" appearance.

	Fargo				Dickinson				
Stipa	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Angel Hair-Pk	15- 18"	10- 12"	18- 20"	15"	10"	10"	15- 20"	10- 15"	Fargo -Looked nice in Fargo Dickinson- Also did well in Dickinson



**Tagetes erecta-African, American Marigold.** The marigolds performed well all season at both locations this year. Dead heads were more evident during the second evaluation in Dickinson, however, and that may have contributed to lower evaluations at that time.

	Fargo				Dickinson				
African Marigold	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
American Indian Gold-GSG	<u>12"</u>	<u>10"</u>	<u>15"</u>	<u>12"</u>	—	—	—	—	<b>F</b> -Golden yellow; floriferous, uniform, healthy all season <b>D</b> -Not planted at Dickinson station
American Indian Orange-GSG	<u>12</u>	<u>12</u>	15	12-15	—	—	—	—	<b>F</b> -Orange; floriferous, healthy, uniform early; still looked nice in August <b>D</b> -Not planted at Dickinson station
Antigua Gold-GS	6-8	6-10	8-12	10-12	6-8"	6-8"	8-10"	8-14"	<b>F</b> -Gold; something has been eating the blossoms (rabbits?), looked better in August <b>D</b> -Looked better early, lost some of its uniformity later in the season
Antigua Orange-GS	8-10	6-8	8-10	8-12	8	8	<u>10</u>	<u>10</u>	<b>F</b> -Golden orange; something eating this one, too, even into August <b>D</b> -Uniform and floriferous into September although one plant may have Aster Yellows
									<b>F</b> -Pale yellow; not blooming as

Antigua Primrose-GS	8-10	8-10	10-12	10-12	8	8	8-10	10	much or as uniformly as some others <b>D</b> -Uniform, nice early. In September, dead heads detracted from overall appearance
Antigua Yellow-GS	8	10	8	10-12	8	8	8	8-10	<b>F</b> -Yellow; something eating this in July, better in August but still not blooming much <b>D</b> -Uniform and full early; dead heads detracted in September
Discovery Orange-Bod	8	8	10	10	—	—	—	—	<b>F</b> -Orange; uniform but not blooming as much as the others <b>D</b> -Not planted at Dickinson station
Discovery Yellow-Bod	8-12	8-12	8-18	10-15	—	—	—	—	<b>F</b> -Yellow; not as uniform as the others <b>D</b> -Not planted at Dickinson station
Excel Mix-GS	<u>10</u>	<u>10</u>	12-15	10-12	—	—	—	—	<b>F</b> -Nice mix of colors; uniform, healthy, floriferous early; some dead heads in August <b>D</b> -Not planted at Dickinson station
French Vanilla Hybrid-Bur	12	10	15	12	—	—	—	—	<b>F</b> -Creamy white; uniform but not as floriferous as the others <b>D</b> -Not planted at Dickinson station
Inca Gold-GS	<u>12</u>	<u>12</u>	15	12	10	10	12-14	12-14	<b>F</b> -Gold; floriferous, uniform and healthy in July; not blooming as well in August <b>D</b> -Slow to bloom but uniform and healthy; blooming nicely in

									September
Inca Orange-GS	<u>12</u>	<u>10</u>	15	12-15	10	10	<u>14-15</u>	<u>12-14</u>	<i>F</i> -Orange; floriferous, uniform and healthy in July; not blooming as well in August <i>D</i> -Nice, healthy and uniform in September
Inca Yellow-GS	<u>12</u>	<u>10</u>	18-20	12-15	10	10	12-14	12-14	<i>F</i> -Yellow; full and uniform in July; not blooming as well in August <i>D</i> -Just starting to bloom July 8; dead heads detracted in September
Perfection Mix-GS	10-12	10-12	12-15	12	—	—	—	—	<i>F</i> -Orange, yellow; didn't bloom as much as some others <i>D</i> -Not planted at Dickinson station

**Tagetes patula-French Marigold.** Typical for French marigolds in our plots, they did well early in the season and then declined somewhat in August and September. Aster yellows and dead heads that should have been removed are the main culprits of lower evaluations in August than in July. **'Aurora Mix'** and **'Bonanza Bolero'** did well at both locations all season, while **'Safari Tangerine'** did well all season in Fargo.

	Fargo				Dickinson				
French Marigold	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Aurora Mix-WES	<u>8"</u>	<u>8-10"</u>	<u>8-10"</u>	<u>10-12"</u>	<u>6"</u>	<u>8"</u>	<u>8"</u>	<u>10-12"</u>	Fargo -Nice mix; uniform, floriferous, healthy; dead heads detracted later

WFS		<u>10</u>	<u>10</u>	<u>12</u>				<u>12</u>	Dickinson- Uniform, healthy, nice all season
Bonanza Bolero-AAS (99)	<u>8</u>	<u>10</u>	<u>8</u>	<u>10-12</u>	<u>8</u>	<u>8</u>	<u>8-10</u>	<u>10-12</u>	F-Orange with bronze edges; floriferous, full, healthy all season D -Same as Fargo-nice all season
Hero Bee-Bod	<u>6</u>	<u>8</u>	6	8-10	—	—	—	—	F-Golden yellow-rust edges; uniform and healthy early; Aster Yellows later D - Not planted at Dickinson station
Hero Flame Imp.-Bod	<u>8</u>	<u>8-10</u>	10-12	10-12	—	—	—	—	F-Orange with red (rust); floriferous, uniform healthy early; Aster Yellows later D -Not planted at Dickinson station
Hero Orange Improved-Bod	<u>8</u>	<u>8</u>	8-10	8-12	—	—	—	—	F-Orange; nice and showy early; Aster Yellows later in season D -Not planted at Dickinson station
Janie-WFS	<u>6</u>	<u>8</u>	6-8	8-10	<u>4-6</u>	<u>6-8</u>	4-6	4-12	F-All yellow; floriferous, healthy, uniform early; Aster Yellows later D -All yellow here also; nice early but Aster Yellows later and lost uniformity
Little Hero Fire-Bod	6-8	6-8	8	10-12	—	—	—	—	F-Golden yellow with rust; not as floriferous as others D -Not planted at Dickinson station

Little Hero Harmony-Bod	6	6	6-10	6-10	—	—	—	—	F-Orange with rust; not uniform in size or bloom D -Not planted at Dickinson station
Little Hero Yellow-Bod	6	6	6-8	6-8	—	—	—	—	F-Yellow; did alright but declined in bloom by August and dead heads detracted D -Not planted at Dickinson station
Safari Mix-Bod	<u>8</u>	<u>8-10</u>	<u>12</u>	<u>10-12</u>	—	—	—	—	F-Nice mix; showy, floriferous, uniform, healthy D -Not planted at Dickinson station
Safari Tangerine Improved-Bod	<u>8</u>	<u>8</u>	<u>10</u>	<u>10-12</u>	—	—	—	—	F-Orange; showy, floriferous, nice, healthy D -Not planted at Dickinson station
Safari Yellow-Bod	8	8	8	10-12	—	—	—	—	F-Yellow; similar to Troubadour Yellow D -Not planted in Dickinson
Troubadour Yellow-WFS	8	10	8	10-12	<u>8</u>	<u>8</u>	<u>8-10</u>	<u>10-12</u>	F-Yellow; not as floriferous as some but healthy; decline in bloom by August D -Did better in Dickinson; floriferous, healthy, showy, nice

**Tagetes tenuifolia-Signet Marigold.** The signet marigolds also perform well early and then often succumb to Aster Yellows by the end of the season. '**Gem Mixed**' however, did well all season in Fargo and stayed vigorous and healthy. In Dickinson, Aster Yellows was a problem.

Signet Marigold	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Gem Mixed-Bur	<u>8"</u>	<u>8"</u>	<u>8"</u>	<u>10-12"</u>	6-8"	8-10"	8"	10"	Fargo -Gold, yellow; showy, full, uniform Dickinson- Aster Yellows showing in July, worse in September
Starfire Mix-Pk	6-8	8	8-12	8-10	6-10	6-10	10-12	10-12	F-Gold, rust, orange; not as floriferous as 'Gem Mix'; decline in bloom later D -Not uniform and Aster Yellows in July

***Tithonia rotundifolia*-Mexican Sunflower.** The plants are typically healthy but don't bloom much. This season all the plants started out healthy but then died by the end of August. The symptoms resembled *Verticillium* wilt but no lab tests were conducted to confirm that.

Mexican sunflower	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Fiesta del Sol-Ben	8"	10"	15"	15"	Orange; uniform early but not blooming much; all plants died by August except one

**Trachelium caeruleum-Umbrella Flower.** Two years ago this did so well in Dickinson it was rated as one of the top ten flowers there. The past two years, however, it has gone steadily down hill.

Umbrella Flower	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Passion in Violet-Da	—	—	—	—	4"	4"	4"	6"	<b>Fargo</b> -Disappeared due to either rabbits or saturated soil <b>Dickinson</b> -No vigor and slow to bloom

**Tropaeolum majus-Nasturtium.** Only one cultivar was grown in Fargo this year and it didn't do very well. That was probably due to early saturated soil conditions.

Nasturtium	Fargo				Comments
	7-21-98		8-21-98		
	Hgt.	Spr.	Hgt.	Spr.	
Moonlight-Pk	6"	8"	8"	15"	Yellow; Not very healthy all season; no vigor

**Verbena species-Verbena.** One of the definite favorites of the rabbits; they kept these trimmed down to nothing but stubs all season. Fortunately, '**Quartz Burgundy**' (one of the '99 All-America Selections) was also grown in Dickinson where it bloomed nicely by September.

Fargo	Dickinson
-------	-----------

Verbena	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
<i>Verbena x hybrida</i> 'Amour Mix'-GS	2"	2"	2"	2"	—	—	—	—	Fargo -Only 5 of 12 plants survived the rain and rabbits; no vigor and no bloom Dickinson- Not planted at Dickinson station
<i>V. x hybrida</i> 'Amour Purple'-Ball	2	2	2	2	—	—	—	—	F-Never bloomed; rabbits ate D -Not planted in Dickinson
<i>V. x hybrida</i> 'Novalis Deep Blue'-AAS(89)	2-4	2-4	2-4	2-4	—	—	—	—	F-Didn't bloom due to rabbit damage D-Not planted at Dickinson station
<i>V. x hybrida</i> 'Quartz Burgundy'-AAS (99)	4	2-4	4	2	6"	6"	6"	12"	F -Never bloomed-rabbit damage D -Deep maroon; no vigor early but nice in September and much nicer than in Fargo
<i>V. x hybrida</i> 'Violet Eyes'-Bur	4	4	2	4	—	—	—	—	F-Never bloomed-rabbit damage D-Not planted in Dickinson
<i>V. x hybrida</i> 'Vivacious Mix'-Bur	2	4	2	2	—	—	—	—	F-Didn't bloom-rabbit damage D-Not planted in Dickinson
<i>V. x hybrida</i> 'Waterfall Mix'-Bur	2	2-4	2	2	—	—	—	—	F-Never bloomed-rabbit damage D-Not planted at Dickinson station



V. tenuisecta 'Imagination'- AAS (93)	10-12	6-8	8	10-12	—	—	—	—	F-Purple-lavender; didn't bloom as well as in previous years D -Not planted at Dickinson station
---	-------	-----	---	-------	---	---	---	---	---

**Viola species-Viola.** Unfortunately, the violas and pansies were another favorite of the rabbits. They kept them trimmed back to an inch or two of stem much of the season. By early October, though, the plants were blooming and although small, looked alright. In Dickinson, the plants weren't very vigorous and the color was a bit washed out.

Viola	Fargo				Dickinson				Comments
	7-21-98		8-21-98		7-8-98		9-4-98		
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
Penny Orchid Frost-GS	2-3"	3"	2"	2"	2-4"	4"	2-4"	6"	<b>Fargo</b> -Rabbit food although looked alright late September into early October <b>Dickinson</b> -Plants didn't thrive; color was washed out

**Zinnia species.** With few exceptions, the Zinnias all did very well this year, despite the high moisture and rabbits present in the area. It was also interesting to note that despite being submerged in water for over a week, '**Border Beauty**' and '**Oklahoma**' managed to survive and bloom all summer. They weren't as vigorous as their counterparts which were in a drier location but looked good considering the conditions they were growing in. Although they all looked nice this season, '**Border Beauty**', '**Oklahoma**', '**Peter Pan Mix**', '**Short Stuff Deep Red**', '**Short Stuff Scarlet**', '**Profusion Cherry**' and '**Profusion Orange**' looked particularly nice all season.

	Fargo				Dickinson				
Zinnia	7-21-98		8-21-98		7-8-98		9-4-98		Comments
	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	Hgt.	Spr.	
<i>Zinnia angustifolia</i> 'Crystal White'- AAS(97)	<u>6-8"</u>	<u>6-8"</u>	6-8"	6-10"	4-6"	4-6"	<u>10"</u>	<u>12"</u>	Fargo-White; floriferous and uniform early; lost some uniformity later in the season Dickinson-No vigor early but very nice in September
Z. <i>angustifolia</i> 'Golden Orange'-Pk	<u>10</u>	<u>8</u>	12-15	10-15	—	—	—	—	F-Golden orange; full and floriferous in July but declined in bloom and vigor later D-Not planted at Dickinson station
Z. <i>angustifolia</i> 'Star Gold'-Pk	<u>8</u>	<u>8</u>	8-10	8-12	—	—	—	—	<b>F</b> -Gold; uniform and floriferous in July but declined and dying back by August <b>D</b> -Not planted at Dickinson station
Z. <i>elegans</i> 'Border Beauty'-Bur	<u>12</u>	<u>10</u>	<u>15-18</u>	<u>12-18</u>	4-8	4-6	15-20	12-18	<b>F</b> -Nice color mix; floriferous, healthy, showy all season D- Slow to bloom but nice in September
Z. <i>elegans</i> 'Candy Stripe'-Pk	12-18	10	24	12-15	—	—	—	—	F-White and cream with red, pink stripes; dull colors and not blooming much D -Not planted at Dickinson station
Z. <i>elegans</i> 'Dahlia Flowered	18	12	24	24	—	—	—	—	F-Mix of colors; not as floriferous as the other zinnias D-Not planted at Dickinson

Mix'-Pk									station
<i>Z. elegans</i> 'Dream-land Mix'-AT	6-8	6-10	8-10	8-10	—	—	—	—	F -Pink, cream, light pink; did alright but not as vigorous or floriferous as others D -Not planted at Dickinson station
<i>Z. elegans</i> 'Okla-homa'-Bur	<u>12-15</u>	<u>8-10</u>	<u>24</u>	<u>18</u>	6-12	6-10	10-12	18-24	<b>F</b> -Nice color mix; uniform, healthy, floriferous, full all season <b>D</b> -Slow to bloom but nice in September
<i>Z. elegans</i> 'Peter Pan Mix'-GS	<u>8</u>	<u>8</u>	<u>8-10</u>	<u>10-12</u>	—	—	—	—	F-Nice mix of colors; floriferous, uniform, full, showy all season D-Not planted at Dickinson
<i>Z. elegans</i> 'Short Stuff Deep Red'-GS	<u>4</u>	<u>6</u>	<u>4-6</u>	<u>6-8</u>	—	—	—	—	F-Red; 3-4" flowers on small, uniform plants; healthy, uniform, and floriferous <b>D</b> -Not planted at Dickinson station
<i>Z. elegans</i> 'Short Stuff Mix'-GS	<u>4-6</u>	<u>4-6</u>	4-6	6-12	—	—	—	—	<b>F</b> -Mix of colors; floriferous, healthy early; lost uniformity and dead heads bad later <b>D</b> -Not planted at Dickinson station
<i>Z. elegans</i> 'Short Stuff Scarlet'-GS	<u>6</u>	<u>6</u>	<u>6</u>	<u>8-10</u>	—	—	—	—	<b>F</b> -Orange-red; uniform, floriferous, healthy, nice all season <b>D</b> -Not planted at Dickinson station
<i>Z. elegans</i>									F-Bicolor gold and burgundy;

Z. <i>naageana</i> 'Persian Carpet'-AHS	12	12	12- 18	12- 20	—	—	—	—	not as floriferous as others D-Not planted at Dickinson station
Z. hybrid 'Pinwheel Mix'-Pk	6-8	6- 10	8- 10	8- 12	—	—	—	—	F-Mix of colors; not as uniform or floriferous as others and dying back in August D-Not planted at Dickinson station
Z. hybrid 'Profusion Cherry'- AAS(99)	<u>4-6</u>	<u>6- 10</u>	<u>6</u>	<u>12</u>	8	6- 10	<u>14</u>	<u>14</u>	F -Deep red pink; not as floriferous as 'Profusion Orange' but still full, healthy, showy D-Slow to bloom but really nice in September
Z. hybrid 'Profusion Orange'-AAS (99)	<u>6</u>	<u>10</u>	<u>6</u>	<u>12</u>	6-8	6- 10	<u>12</u>	<u>12</u>	F-Orange; floriferous, healthy, nice, full all season D-Slow to bloom but very nice in September

## 1998 SEED SOURCE LIST

AAS All-America Selections  
311 Butterfield Road Suite 311  
Downers Grove, IL 60515

AHS American Horticulture Society  
7931 East Boulevard Drive  
Alexandria, VA 22308

AT American Takii  
301 Natividad Road  
Salinas, CA 93906

Ball Ball Seed Co.  
622 Town Road  
West Chicago, IL 60185-3500

Ben Ernst Benary of America, Inc.  
1444 Larson Street  
Sycamore, IL 60178

Bod Bodger Seeds, LTD  
1800 North Tyler Avenue  
South El Monte, CA 91733-3618

Bur W. Atlee Burpee  
300 Park Avenue  
Warminster, PA 18974

Cl Clause Seed  
100 Breen Road  
San Juan Bautista, CA 95045

Da Daehnfeldt, Inc.  
P.O. Box 38  
North Manchester, IN 46962

Exp Express Seed, Co.  
300 Artino Drive  
Oberlin, OH 44074

GS Goldsmith Seeds, Inc.  
P.O. Box 1349

Gilroy, CA 95021

GSG G. S. Grimes Seeds  
11335 Concord-Hambden Road  
Concord, OH 44077

JSS Johnny's Selected Seed  
Foss Hill Road  
Albion, ME 04910

McF McFayden Seed Co., Ltd.  
Minot, ND 58701

Ogl Oglevee Ltd  
152 Oglevee Lane  
Connellsville, PA 15425

Pk Park Seed Co.  
P.O. Box 31  
Greenwood, SC 29646

RS Royal Sluis  
910 Duncan Avenue  
San Juan Bautista, CA 95045

Unk Unknown seed source

WFS Waller Flowerseed Co.  
P.O. Box 70  
Guadalupe, CA 93434

*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.*

---

**[Back to 1999 Research Reports Table of Contents](#)**

**[Back to Research Reports](#)**

**[Back to Dickinson Research Extension Center \(http://www.ag.ndsu.nodak.edu/dickinso/\)](http://www.ag.ndsu.nodak.edu/dickinso/)**

**[Email: drec@ndsuent.nodak.edu](mailto:drec@ndsuent.nodak.edu)**

---