

2000 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

SUMMARY

Introduction

The Plant Sciences Department conducted performance trials on over 400 annual bedding plants during the 2000 growing season at North Dakota State University. In Fargo, the main trials are located in the plots on the west side of campus along 18th Street North. The trial garden in Dickinson, ND is located at the Dickinson Research Extension Center on State Avenue. A site at the Williston Research Extension Center was also added in 2000. The Williston and Dickinson gardens have similar sandy soil while the Fargo site consists of a heavy clay soil. The weather in the western part of ND also tends to be warmer and drier than in the eastern half of the state. While some cultivars grow equally well in any of the locations, others show definite differences in quality and vigor.

Culture

Cultivars evaluated at both sites were seeded in the Horticulture and Forestry greenhouses on the NDSU campus January through April. When at the proper stage, seedlings were transplanted into cell packs containing Sunshine Mix® #1¹. Six to twelve plants of each cultivar were transplanted into the field at the Fargo site May 30-June 1, 2000. Plants were immediately watered in with Sterns Miracle-Gro® (15-30-15) water soluble fertilizer which was applied twice more during the growing season. In Dickinson, plants were set out May 23rd, 2000, and were also watered in with Miracle-Gro®. The Dickinson planting once again served as a hands-on workshop for area county extension agents. The Williston garden was planted May 24th, 2000 and watered in with Miracle-Gro® as well.

At all stations, overhead irrigation was applied as needed and weeding was done by hand. Surflan AS and Round-up were applied for weed control in Fargo and insecticides were applied on an as-needed basis. There were no serious insect problems at any of the stations.

Weather Data

The night of June 19th and early morning of June 20th brought over 8" of rain to the Fargo area, flooding not only the city but also the trial gardens. The impatiens were hit particularly hard as they were located in the lowest area of the trial gardens. As noted throughout the body of the report, many cultivars in Fargo were adversely affected by the heavy rain. The month of June ended with over 11" of rain in the Fargo area.

Dickinson and Williston had no unusual weather. In Dickinson, June was slightly cooler than normal which slowed a few cultivars down. August was quite a bit drier than normal but that didn't seem to adversely affect any cultivars. The Williston plants were not evaluated in 2000 so weather data from there is not included in this year's report. The 2001 plantings will be officially evaluated.

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

Tables 1 and 2 show specific weather data from 2000 for the Fargo and Dickinson stations.

Table 1. 2000 June-September Average Temperature and Precipitation for Fargo, ND.

	Temperature (°F)		Precipitation (inches)	
	Average 2000	Average 1960-1990	Totals 2000	Average 1960-1990
June	69	69	11.29	2.82
July	71	71.1	2.46	2.7
August	70	68.9	3.43	2.43
September	58.5	57.7	3.64	1.99

Temperature and precipitation data are from NDAWN and the National Weather Service.

Table 2. 2000 June-September Average Temperature and Precipitation for Dickinson, ND. ²

	Temperature (°F)		Precipitation (inches)	
	Average	Average	Totals	

	2000	1960-1990	2000	Average 1960-1990
June	61	62.5	2.18	3.63
July	71.5	68.7	3.13	2.11
August	72	67.2	.32	1.68
September	60	NA	1.00	NA

Temperature and precipitation data are from NDAWN and the National Weather Service

Evaluations

Plants were evaluated twice over the season for height, spread, vigor, bloom quality, uniformity, and overall appearance. In Fargo, the first evaluation took place July 24th and 25th while the second was August 30th and September 1st, 2000. The Dickinson trials were evaluated on July 12th during field days at the experiment station and August 26th 2000.

Following are cultivars that were performing the best at each station over the course of the entire season. Cultivars listed here had good bloom, uniformity, vigor and a nice overall appearance. They are in alphabetical order. Seed sources are listed in parenthesis behind cultivar names. The seed source list is on the last page of the report.

2000 Top Performers - Fargo

Ageratum houstonianum 'Blue Horizon' (Pk)
A. houstonianum 'Blue Hawaii' (Bod)
Begonia semperflorens 'All Round Mix' (Da)
B. semperflorens 'Inferno Mix' (Da)
B. semperflorens 'Party Red' (Ben)
B. semperflorens 'Party White' (Ben)
B. semperflorens 'Partyfun' (Ben)
B. semperflorens 'Super Olympia Pink' (Ben)
B. semperflorens 'Victory Bronze Leaf Pink' (GS)
B. semperflorens 'Victory Rose Bicolor Green Leaf'(GS)
B. semperflorens 'Vodka' (Ben)
Beta vulgaris 'Gourmet Burgundy' (Gri)
Catharanthus roseus 'Stardust Orchid' (AAS 00)
Celosia argentea 'Prestige Scarlet'(AAS 97)

C. spicata 'Purple Flamingo' (Pk)
Cosmos sulphureus 'Cosmic Orange' (Ben, AAS 00)
Dianthus chinensis 'Melody Pink' (AAS 00)
Pennisetum setaceum (Pk)
Rudbeckia hirta 'Indian Summer' (AAS 95)
Stipa tenuissima 'Angel Hair' (Pk)
Tagetes erecta 'Perfection Orange' (GS)
T. erecta 'Perfection Yellow' (GS)
Zinnia angustifolia 'Crystal White' (AAS 97)

Top Performers-Dickinson

Ageratum houstonianum 'Azure Pearl' (WG)
A. houstonianum 'Blue Horizon' (Pk)
Antirrhinum majus 'Bells Mix' (GS)
Cuphea purpureum 'Firefly' (Pk)
Pelargonium x hortorum 'Maverick Pink'(GS)
P. x hortorum 'Maverick Scarlet' (GS)
Petunia x hybrida 'Pink Wave' (Bur)
P. x hybrida 'Fantasy Red'(GS)
Zinnia hybrida 'Blue Point Formula Mix' (Ben)

Field Days

The 4th annual flower, ornamental grasses, and turfgrass field day was held August 5th, 2000, at the Fargo plots. This annual event is open to the general public, growers, and industry people. The Dickinson Research Extension Center holds tours of the horticulture display gardens in conjunction with field days there which was July 12th, 2000.

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. In 1998, the daylily bed was designated as an official display garden of the American Hemerocallis Society. Over 800 cultivars of daylilies were added to the display area in 2000 with more planned for 2001. There are now close to 1000 daylilies on display in the horticulture plots.

Acknowledgments

We would like to thank official supporters of our 2000 trial gardens: Ernst Benary of America, Inc.; Grimes Seed; and the All-America

Selections. We hope the results from our trial gardens are beneficial in their research for new and improved flower cultivars.

Thanks also goes out to the following: the student help in Fargo including Jeanne Brandvold, Lisa Duppong and Deb Willard; Jerry Larson, county extension agent for Billings and Stark county; Kris Ringwall and the staff of the Dickinson Research Extension Center; and Lorna Bradbury of the Williston Research Extension Center. Without the help of these dedicated people the trial gardens would not be a reality.

Frost Tolerances

After a light frost (32^{9/11}F) in the early morning hours of September 24th, 2000, notes were taken on September 25th, in the Fargo trials on cultivar reactions to the temperature. The following table shows how each cultivar reacted to the low night temperature.

Frost Tolerances-Fargo Trial Garden			
Low tolerance (90-100% damage)	Low-medium tolerance (>50% damage)	Medium-high tolerance (<50% damage)	High tolerance (0% damage)
<i>Ageratum houstonianum</i> 'Hawaii Royal'	<i>Ageratum houstonianum</i> 'Azure Pearl'	<i>Celosia argentea</i> 'New Look'	<i>Agastache cana</i> 'Heather Queen'
<i>A. houstonianum</i> 'Silver Pearl'	<i>A. houstonianum</i> 'Blue Hawaii'	<i>Cerinthe major</i> 'Blue Kiwi'	<i>A. foeniculum</i> 'Blue Spike'
<i>Amaranthus tricolor</i> 'Aurora'	<i>A. houstonianum</i> 'Blue Horizon'	<i>Cuphea purpurea</i> 'Firefly'	<i>Ammi visagna</i> 'Green Mist'
<i>A. tricolor</i> 'Illumination'	<i>A. houstonianum</i> 'Capri'	<i>Gomphrena globosa</i> 'Mix'	<i>Anagallis monellii</i> 'Blue Light'
<i>Begonia semperflorens</i> 'Alfa Mix'	<i>Begonia semperflorens</i> 'All Round Mix'	<i>G. globosa</i> 'Strawberry Fields'	<i>Antirrhinum majus</i> -All cultivars
<i>B. semperflorens</i> 'Ambassador Mix'	<i>B. semperflorens</i> 'Inferno Mix'	<i>Leonotis leonarus</i> 'Staircase'	<i>Asarina</i> spp.
<i>B. semperflorens</i> 'Cocktail'	<i>B. semperflorens</i> 'Queen White'	<i>Pelargonium x hortorum</i> 'Maverick Coral'	<i>Asclepias curassavica</i> 'Red Butterfly'
<i>B. semperflorens</i> 'Espresso Mix'	<i>B. semperflorens</i> 'Super Olympia Pink'	<i>P. x hortorum</i> 'Maverick Light Salmon'	<i>A. curassavica</i> 'Silky Gold'
<i>B. semperflorens</i> 'Party Red'	<i>B. semperflorens</i> 'Super Olympia Red'	<i>P. x hortorum</i> 'Maverick Pink'	<i>Beta vulgaris</i> 'Gourmet Burgundy'
<i>B. semperflorens</i> 'Party White'	<i>B. semperflorens</i> 'Super Olympia Rose'	<i>P. x hortorum</i> 'Maverick Scarlet'	<i>Brassica oleracea</i> -All cultivars
<i>B. semperflorens</i> 'Partyfun'	<i>B. semperflorens</i> 'Super Olympia White'	<i>P. x hortorum</i> 'Maverick Violet'	<i>Calendula officinalis</i> -All Cultivars

<i>B. semperflorens</i> 'Queen Pink'	<i>B. semperflorens</i> 'Victory Green Leaf Pink'	<i>P. x hortorum</i> 'Maverick White'	<i>Celosia spicata</i> 'Flamingo Feather'
<i>B. semperflorens</i> 'Queen Red'	<i>B. semperflorens</i> 'V. G. L. Rose Bicolor'	<i>P. x hortorum</i> 'Multibloom Capri'	<i>C. spicata</i> 'Purple Flamingo'
<i>B. semperflorens</i> 'Senator Mix'	<i>Canna x generalis</i> 'Tropical Red'	<i>Petunia x hybrida</i> 'Lavender Storm'	<i>Centaurea cyanus</i> 'Garnet'
<i>B. semperflorens</i> 'Victory B. L. Pink'	<i>C. x generalis</i> 'Tropical Rose'	<i>P. x hybrida</i> 'Pink Storm'	<i>Dianthus chinensis</i> -All cultivars
<i>B. semperflorens</i> 'Victory B. L. Scarlet'	<i>Celosia argentea</i> 'Amigo Mahogany Red'	<i>P. x hybrida</i> 'Pink Morn Storm'	<i>Eucalyptus cinerea</i>
<i>B. semperflorens</i> 'Victory B. L. White'	<i>C. argentea</i> 'Amigo Mix'	<i>P. x hybrida</i> 'Prism Sunshine'	<i>Eustoma russellianus</i> -All cultivars
<i>B. semperflorens</i> 'Victory G. L. Rose'	<i>C. argentea</i> 'Prestige Scarlet'	<i>P. x hybrida</i> 'Salmon Storm'	<i>Gaillardia pulchella</i> -All cultivars
<i>B. semperflorens</i> 'Victory G. L. Scarlet'	<i>Dahlia</i> hybrids	<i>P. x hybrida</i> 'Ultra Crimson Star'	<i>Gazania splendens</i> 'Talent Yellow'
<i>B. semperflorens</i> 'Victory G. L. White'	<i>Hypoestes phyllostachya</i> 'Confetti Mix'	<i>P. x hybrida</i> 'Ultra Lilac'	<i>Gomphrena globosa</i> 'Gnome'
<i>B. semperflorens</i> 'Victory G. L. Rose'	<i>Melampodium paludosum</i> 'Derby'	<i>P. x hybrida</i> 'Ultra Limited Edition Mix'	<i>Limonium sinuatum</i> -All cultivars
<i>B. semperflorens</i> 'Vodka'	<i>M. paludosum</i> 'Showstar'	<i>P. x hybrida</i> 'Ultra Peppermint'	<i>Lobularia maritima</i> -All cultivars
<i>B. tuberhybrida</i> -All cultivars	<i>Mirabilis jalapa</i> 'Broken Colors Mix'	<i>P. x hybrida</i> 'Ultra Pink'	<i>Nicotiana affinis</i> 'Havana True Lime'
<i>Catharanthus roseus</i> -All cultivars	<i>Salvia splendens</i> - All cultivars	<i>P. x hybrida</i> 'Ultra Plum'	<i>N. affinis</i> 'Saratoga' series
<i>Celosia argentea</i> 'Castle Mix'	<i>Tagetes erecta</i> -All cultivars	<i>Zinnia angustifolia</i> 'Golden Orange'	<i>Pelargonium</i> 'Maverick Red'
<i>C. argentea</i> 'Castle Orange'	<i>T. patula</i> -All cultivars		<i>Pelargonium</i> 'Maverick Salmon'
<i>C. argentea</i> 'Gloria Mix'	<i>Tithonia rotundifolia</i> -All cultivars		<i>Pelargonium</i> 'Maverick Star'
<i>Cosmos sulphureus</i> 'Cosmic Orange'	<i>Zinnia angustifolia</i> 'Crystal White'		<i>Pennisetum setaceum</i>
<i>C. sulphureus</i> 'Cosmic Yellow'	<i>Z. elegans</i> -All cultivars		<i>Petunia x hybrida</i> 'Fantasy' series

<i>C. sulphureus</i> 'Lemon Twist'	<i>Zinnia</i> hybrid 'Profusion' series		<i>P. x hybrida</i> 'PrimeTime' series
<i>Impatiens wallerana</i> -All cultivars			<i>P. x hybrida</i> 'Ultra Blue'
<i>Ipomoea batatas</i> 'Blackie'			<i>P. x hybrida</i> 'Ultra Red'
<i>Pentas lanceolata</i> -All cultivars			<i>P. x hybrida</i> 'Ultra Rose'
<i>Portulaca grandiflora</i> -All cultivars			<i>P. x hybrida</i> 'Ultra Salmon'
			<i>P. x hybrida</i> 'Ultra Scarlet' (Cont.)
			<i>P. x hybrida</i> 'Ultra Sky Blue'
			<i>P. x hybrida</i> 'Ultra White'
			<i>P. x hybrida</i> 'Wave' Series
			<i>P. x hybrida</i> 'White Storm'
			<i>Phlox drummondii</i> '21 st Century' Series
			<i>Rudbeckia hirta</i> 'Indian Summer'
			<i>R. hirta</i> 'Toto'
			<i>Salvia farinacea</i> -All cultivars
			<i>Senecio cineraria</i> -All cultivars
			<i>Stipa tenuissima</i>
			<i>Tagetes tenuifolia</i> -All cultivars
			<i>Verbena canadensis</i> 'Perfecta'
			<i>V. x hybrida</i> -All cultivars
			<i>V. tenuisecta</i> 'Imagination'
			<i>Viola cornuta</i> -All cultivars
			<i>V. wittrockiana</i> -All cultivars

After 23 F occurred during the night of October 8, 2000 in Fargo, the following cultivars still looked good: *Agastache cana* 'Heather Queen', *Agastache foeniculum* 'Blue Spike', *Anagallis monellii* 'Blue Light', *Antirrhinum majus*-All cultivars, *Asarina* spp., *Brassica oleracea*-All cultivars, *Calendula officinalis*-All Cultivars, *Dianthus chinensis*-All cultivars, *Eucalyptus cinerea*, *Gaillardia pulchella*-All cultivars, *Gazania*

splendens 'Talent Yellow', *Limonium sinuatum*-All cultivars, *Phlox drummondii* '21st Century' Series, *Salvia farinacea*-All cultivars, *Senecio cineraria*-All cultivars, *Stipa tenuissima*, *Viola cornuta*-All cultivars, *Viola wittrockiana*-All cultivars.

2000 BEDDING PLANT TRIALS RESULT

DEPARTMENT OF PLANT SCIENCES
NORTH DAKOTA STATE UNIVERSITY
FARGO, ND

Note- Cultivar measurements that have a † next to them indicate varieties that were performing particularly well during that evaluation period. Parenthesis () indicate missing data. Seed sources are indicated by abbreviations at the end of cultivar names. The seed source list can be found on the last page of the report.

[Agastache spp.-Hyssop](#). The hyssops are known for their brightly colored flowers and aromatic foliage. *Agastache cana*, hummingbird mint, has a distinctive bubblegum scent and *A. foeniculum*, anise hyssop, has a definite licorice aroma. These are known to attract butterflies, hummingbirds and hawkmoths to gardens. *A. cana* 'Heather Queen' did not perform as well this year as last. Hyssops generally dislike waterlogged soils so the 11+ inches of rain that Fargo got in June probably didn't do it any good. *A. foeniculum* 'Blue Spike' had more vigor than 'Heather Queen'. Both tolerated the fall frosts well.

[Ageratum houstonianum-Ageratum, Flossflower](#). Ageratum typically do well at both the Fargo and Dickinson locations. '**Blue Horizon**' was again a top performer in both places while '**Azure Pearl**' seemed to do better in Dickinson. '**Blue Hawaii**' did well all season in Fargo.

[Amaranthus tricolor-Summer Poinsettia](#). This colorful annual did better this year than last when it lacked vigor and never grew well. This summer they didn't reach the 4-5' height the seed catalog said they should, but they did color up nicely and were an interesting addition to the gardens. The rabbits seemed to prefer 'Illumination' over 'Aurora' which slowed it down early in the season.

[Ammi visagna-Queen Anne's Lace](#). This has done very well the last two years we've tested it in the gardens. Although bloom and vigor are good, deadheading should be done regularly as the heavy seed set will cause a weed problem if left unchecked.

[Anagallis monellii-Blue Pimpernel](#). This was the first year in the trial for blue pimpernel. The plant itself had good vigor but not a lot of blooms. We will probably test this in Dickinson in 2001 as it prefers light, well-drained soils; our heavy clay in Fargo may have hindered its

growth in some way. Its creeping habit should work well in rock gardens, baskets or pots.

[**Antirrhinum majus-Snapdragon**](#). Snapdragons are a staple in many gardens around the area. They usually do well but this year the heavy June rain in Fargo drowned out some of the cultivars. Despite that, **'Crimson Ribbon'** and **'Liberty Mix'** did well in Fargo while **'Bells Mix'** was the top performer in Dickinson.

[**Arctotis venusta-African Daisy**](#). This was new to the trials this year and was doing very well up until the end of July. It received many good comments from people touring the plots. By the end of August, however, it had declined in bloom and vigor and was dead by early September.

[**Asarina**](#). This vining plant grew very well in both Fargo and Dickinson although the wet June conditions in Fargo slowed it down. Asarina produces small, snapdragon-like flowers (one of the common names is purple twining snapdragon) but not many flowers were produced in either location. By the end of the season in Fargo, the plants were vigorous and took frost very well.

[**Asclepias curassavica-Bloodflower, Butterfly Flower**](#). As with many other cultivars in Fargo this year, this didn't do as well this year as in the past. Both cultivars recovered nicely from the heavy rains in June, though, and received high marks by the end of August. In Dickinson, **'Red Butterfly'** did well.

[**Begonia semperflorens-Wax Begonia**](#). Despite the heavy June rains which slowed most everything else down, the begonias did well for the entire summer. As noted, a few cultivars did not perform as well as some others but overall, as a group, they were showy and nice. In Dickinson, as usual, they performed very poorly. They had no vigor and poor bloom. Top performers in Fargo were **'All Round Mix'**, **'Inferno Mix'**, **'Party Red'**, **'Party White'**, **'Partyfun'**, **'Super Olympia Pink'**, **'Victory Pink (bronze leaf)'**, **'Victory Rose Bicolor (green leaf)'** and **'Vodka'**.

[**Begonia tuberhybrida-Tuberous Begonia**](#). These have never done well in either the Fargo or Dickinson locations and 2000 was no exception. They did a bit better in Fargo but still weren't vigorous.

[**Beta vulgaris-Swiss Chard**](#). Although grown as an edible plant, Swiss chard is decorative as well. **'Gourmet Burgundy'** did well in the trial gardens in Fargo. It was vigorous, showy, and healthy with no obvious insect or disease problems.

[**Brassica oleracea-Ornamental Kale, Ornamental Cabbage**](#). This is a good choice for getting fall color into the garden. Once the nights become consistently cool, the purple, pink and white coloration will start to really show. These are very tolerant to cold temperatures as well and showed no damage even after a night temperature of 20F.

[**Briza maxima-Big Quaking Grass**](#). This grass gets its name from the pendulous seed heads which dangle and quake in the wind. This didn't seem to transplant well; most of the plants in Dickinson had died by the first evaluation and all the plants at both locations had died by the second. Despite this, the seed heads stayed on all season which kept them fairly ornamental.

[**Calendula officinalis -Pot Marigold.**](#)

[**Canna x generalis-Canna.**](#) This is a good choice for people that want a tropical look to their gardens. Cannas typically have large leaves and can grow to 5 or 6 feet in one season. The dwarf cannas, however, will only reach 2-3 feet but still have the large, tropical foliage.

[**Catharanthus roseus-Vinca.**](#) Vinca usually do well in areas that are sunny and dry. The heavy June rain in Fargo slowed these down somewhat but by the second evaluation most were doing well. **'Stardust Orchid'** got good marks all season while **'Pacifica Coral'** and **'Pacifica Polka Dot'** had high marks in September.

[**Celosia spp.-Celosia.**](#) Although most of the celosia were unimpressive this year, **'Prestige Scarlet'** and **'Purple Flamingo'** did well all season in Fargo. **'New Look'** and **'Prestige Scarlet'** did well in Dickinson by August despite a slow start in June.

[**Centaurea cyanus-Bachelor's Buttons, Cornflower.**](#) These multipurpose flowers can be eaten, dried, or used as fresh cut flowers. Their seeds are often found in wildflower mixes and they can sometimes become a weed from self-sowing. Some references say they don't do well in clay soils and that may be why they declined by the end of the summer in Fargo.

[**Cerinthe major purpurescens-Cerinthe, Honeywort.**](#) A unique plant with blue-purple flowers over purple bracts and blue-green foliage; the color gets more intense as the nights become cooler.

[**Cosmos sulphureus-Cosmos.**](#) **'Cosmic Orange'** performed better overall than **'Cosmic Yellow'** in Fargo, although both got high marks at the beginning of the season.

[**Cuphea purpurea-Cuphea, Rabbit Ears.**](#) This is the second year for this plant in the gardens in Fargo but the first year for it in Dickinson. Although it did well at both locations it performed better over the course of the season in Dickinson. In Fargo, aphids were on it early but didn't seem to bother the plant; the aphids were gone by August.

[**Dahlia Hybrids-Bedding Dahlia.**](#) These were all started from seed in the greenhouse. The plants were all healthy and vigorous but the bloom wasn't that good.

[**Dianthus chinensis-Pinks, Dianthus.**](#) Looked really nice as a group in July with good bloom and vigor. By August, though, bloom had slowed and they needed deadheading. As usual, they took frost very well and although treated as annuals in the trial gardens, they are perennial and overwinter well in North Dakota.

[**Eucalyptus cinerea-Eucalyptus.**](#) This aromatic plant is grown for its blue green foliage and is often used by floral designers as both a fresh green and preserved foliage. It has done well in the trial gardens in both Fargo and Dickinson. It had a tendency to fall over so it may benefit from staking. It also responds well to pruning.

[*Eustoma grandiflorum*-Lisianthus](#). The lisianthus did better this year than they have in the past; they looked especially good in July. By September, most varieties were declining; they needed deadheading and were falling over. **'Forever Blue'** looked really good in Dickinson in August, while **'Echo Blue'**, **'Echo Pink'**, and **'Heidi Hybrid'** did the best in Fargo early in the season.

[*Gaillardia pulchella* -Gaillardia](#). This gaillardia does perennially well in our test gardens in Fargo. **'Yellow Sun'** looked particularly nice by the second evaluation.

[*Gazania splendens \(rigens\)*-Gazania](#). Unfortunately, the blossoms on these were a favorite of the rabbits this year. The plants were always healthy but few blooms escaped the bunnies.

[*Gomphrena* spp.-Globe Amaranth](#). This usually does well in the gardens in Fargo. This year, however, the heavy June rains adversely affected them and the rabbits were eating the blossoms. By the second evaluation in September, however, all were blooming well and looked good.

[*Gypsophila muralis*-Annual Baby's Breath](#).

[*Helianthus annuus*-Sunflower](#). Ornamental sunflowers have not done well in the plots in Fargo. This year the rabbits devoured the plants; if left to grow and bloom bugs usually deform either the leaves, the flowers or both. In Dickinson, the plants were generally healthy but slow to bloom and a few bug problems surfaced in August.

[*Hypoestes phyllostachya*-Polka Dot Plant](#). This plant is grown for its foliage rather than its flowers which are not very showy. The waterlogged soil early in the season caused some loss of vigor early but by the end of the season they were doing alright.

[*Impatiens wallerana*-Impatiens](#). Unfortunately, the impatiens in Fargo were located in the lowest area of the beds and the ground was saturated for an extended period of time. This resulted in loss of vigor and delayed bloom for most of the Fargo cultivars. Despite this, **'Carnival Lilac'**, **'Carnival Pink'**, **'Carnival Red'**, and **'Mosaic Rose'** managed to do well by the second evaluation. The cultivars in Dickinson did poorly, as usual.

[*Ipomoea batatas*-Sweet Potato Vine](#). This has been growing in the greenhouse plant collection for about a year; we decided to try it outside as a ground cover and it did very well in both locations. Although it was slow to get going, by the second evaluation it was very vigorous in both Fargo and Dickinson. The biggest problem it had was slugs eating the foliage in Fargo.

[*Ipomoea quamoclit*-Cypress Vine](#). An increased interest in vines led us to grow this and some other vines in 2000. It did well in Dickinson but drowned out in Fargo. By August in Dickinson it was very vigorous and healthy with white and red flowers. It will be tested again in 2001.

[**Lagarus ovatus-Hare's Tail Grass**](#). This is the first time in the trials for this grass. It didn't seem to transplant well in either location. All the plants in Fargo were dead by July although the seed heads remained attractive on the plants. In Dickinson, the plants did well early but were dead by the August evaluation; the seed heads remained.

[**Leonotis leonurus-Lion's Ear**](#). This was not as vigorous as last year when it reached a height of 6'. The heavy rains in June and saturated soil probably slowed it down. It also took longer to bloom and was barely starting by the second evaluation in September.

[**Limonium sinuatum-Statice**](#).

[**Lobularia maritima-Alyssum, Sweet Alyssum**](#). The saturated soil was very detrimental to these. Three of six cultivars were completely lost; of the remaining three, only 1-2 plants of each survived.

[**Malope trifida-Malope**](#). Last year these were only tested in Fargo. They didn't transplant well; only one of six plants survived. This year, they all died in Fargo while the Dickinson ones did alright up through the first evaluation-by August most had died. They'll be tested again in 2001-hopefully with better results.

[**Melampodium paludosum-Melampodium**](#). These didn't do as well in Fargo as they have in the past-again probably due to the heavy June rains. In Dickinson, they lacked vigor and by the August evaluation only two of six plants of each cultivar were still alive.

[**Mirabilis jalapa-Four O'clock**](#). These get their name from the fact that the flowers typically open up late afternoon. The plants in Dickinson did much better than the ones in Fargo-by August they were twice the size of the ones in Fargo and had much better bloom. It will be interesting to see if they perform the same way next year.

[**Nicotiana alata \(N. affinis\)-Flowering Tobacco**](#). These were victims of the heavy June rains in Fargo. The saturated soil caused a loss of vigor and then the potato beetles moved in. **'Avalon Bright Pink'**, an All-America Selections winner for 2001, was unable to survive but will be grown again in 2001. The others that survived never regained vigor and were still poor by September.

[**Osteospermum-Cape Marigold, African Daisy**](#). This All-America Selection from 1999 did much better in Dickinson than in Fargo. The saturated soil in Fargo caused 11 of 12 plants to die by July. The one surviving plant was dead by the September evaluation. In Dickinson, however, this was one of the top performers in July with good bloom and vigor.

[**Pelargonium x hortorum-Geranium**](#). In Fargo, these did very poorly this summer. In July they were pale and lacking vigor and by August they weren't much better. In Dickinson, however, they did very well; most got top ratings in July and all did in August.

[**Pennisetum setaceum-Annual Fountain Grass**](#). This is a consistently good performer in both locations, putting on a nice show especially by mid- to late August.

[*Pentas lanceolata* -Egyptian Star Cluster, Pentas](#). As in years past, these did poorly in both Fargo and Dickinson. **'New Look Red'** was the top performer in Fargo and Dickinson.

[*Petunia x hybrida*-Petunia](#). The petunias were not as vigorous as normal at either location, especially for the first evaluation in July. Weather at both locations had been cooler and wetter up until that point, which, as mentioned earlier, slowed many cultivars down. By August and September, most had rebounded and the multifloras, especially, did well later in the season in Fargo. The prostrate petunias got high marks at both locations by August and September.

- **Petunia-grandiflora**. Only a few grandiflora cultivars got high marks and those came at the end of the season. **'Lavender Storm'** was the only one in Fargo while **'Pink Morn Storm'** was the only one in Dickinson.
- **Petunia-Milliflora**. The milliflora petunias did not perform as well in 2000 as they have in the past. In Fargo they lacked uniformity and were never as vigorous as they have been in past years but in Dickinson they did better. **'Fantasy Red'**, in particular, performed well all season there.
- **Petunia-Multiflora**. The multiflora petunias in Fargo got slowed down by the heavy June rain but most rebounded nicely and were doing well by the end of the season. In Dickinson, they were also slowed by cooler than normal June temperatures but did well overall.
- **Petunia-Prostrate**. Despite the slow start, these did well most of the season. **'Pink Wave'** and **'Purple Wave'** got high marks at both locations.

[*Phlox drummondii*-Phlox](#). These plants were doing very well with good bloom in the greenhouse but once transplanted they declined and had little vigor.

[*Portulaca grandiflora*-Moss Rose](#). These performed poorly all season at both locations. By the second evaluation, both plantings had lost 25-30% of the plants.

[*Rudbeckia hirta*-Black-eyed Susan](#). These usually perform well in Fargo and 2000 was no exception. **'Indian Summer'** looked good all season while **'Toto'** got high marks in Dickinson.

[*Salvia farinacea*-Blue Salvia, Mealy Cup Sage](#). These performed well at both locations this year. They are a very reliable annual in Fargo with few disease or insect problems and good bloom right through light to moderate frosts. **'Reference'** did well all season in Dickinson while **'Signum'** looked especially good in Fargo by September.

[*Salvia splendens*-Scarlet Sage, *Salvia*](#). These did not do well in Fargo this year. Early in the season they lacked vigor (too much water?) and didn't bloom much. By the end of the season they had recovered some and were doing alright. **'Garden Leader Rose'** was the top performer during the second evaluation in both Fargo and Dickinson, while **'Salsa Mix'** also got high marks in Dickinson.

[*Senecio cineraria*-Dusty Miller](#). The silvery gray foliage on dusty miller makes these a good accent plant in the border. They also take frost well and can be dried and used in floral arrangements. Although both were slowed a bit by the heavy June rain, they were looking good by the end of the summer.

[*Stipa tenuissima*-Feathergrass](#). This grass did very well in both Fargo and Dickinson this year. Its tips are finely divided and move in the wind which makes it look like hair moving. It also took frost very well; in Fargo it still looked good after temperatures in the low 20's.

[*Tagetes erecta*-African, American Marigold](#). As usual these did well in Fargo despite the heavy rain in June. **'Perfection Orange'** and **'Perfection Yellow'** received high marks during both evaluation times in Fargo. The Dickinson cultivars looked better in July; by August dead heads were detracting from their overall appearance and spider mites were present, causing some yellowing and loss of vigor.

[*Tagetes patula*-French Marigold](#). These did not perform as well this year as they have in the past. Aster yellows was also a big problem by September.

[*Tagetes tenuifolia*-Signet Marigold](#). These didn't perform well this summer. Aster yellows was showing up in July.

[*Tithonia rotundifolia*-Mexican Sunflower](#). In Fargo and Dickinson these have typically taken until mid-July to start blooming. They are nice, bushy plants though, and once they start flowering are quite attractive.

[*Verbena canadensis*-Rose Vervain](#).

[*Verbena x hybrida*-Garden Verbena](#). Despite the heavy June rains in Fargo, these looked good as a group in July. **'Quartz Burgundy'** and **'Vivacious Mix'** got high marks for appearance by September while **'Quartz Burgundy'** looked good in Dickinson in July.

[*Verbena tenuisecta* \(*V. speciosa*\)-Moss Verbena](#). This verbena has more finely dissected foliage than garden verbena. It also has a creeping habit which would work not only as a ground cover in the flower bed but in window boxes, baskets or pots. The only problem observed is that it tends to bloom on the outside edges only while the interior parts stop blooming.

[*Viola cornuta*-Viola](#). Once again these were a favorite of the rabbits early in the season. By September, they had recovered somewhat; **'Babyface Ruby Gold'** was loaded with flowers and very showy.

[*Viola x wittrockiana*-Pansy](#).

[Zinnia angustifolia \(linearis\)-Longleaf Zinnia, Mexican Zinnia](#). 'Crystal White' did really good in Fargo. 'Golden Orange' was nice early but declined by the end of the season.

[Zinnia elegans-Garden Zinnia](#). A staple in many gardens, zinnia are bright, cheery and easy to grow. They did better in Dickinson this year; both 'Benary's Giant Mix' and 'Blue Point Formula Mix' got high marks during both evaluation times.

[Zinnia hybrids](#). These hybrids are bred for their disease resistance and prolific bloom. 'Profusion White' is the newest addition to the series. It didn't do well in Fargo but got high marks in Dickinson in August.

2000 Seed Source List

(An 'R' after the seed source abbreviation indicates retail, while a 'W' indicates wholesale or breeding company)

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

AT (W) American Takii
301 Natividad Road
Salinas, CA 93906

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

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

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

CI (W) Clause Seed

100 Breen Road
San Juan Bautista, CA 95045

CK (R) The Cook's Garden
P. O. Box 535
Londonderry, VT 05148
1-800-457-9703

Da (W) Daehnfeltd, Inc.
P.O. Box 38
North Manchester, IN 46962

Exp (W) Express Seed Co.
300 Artino Street
Oberlin, OH 44074-1263

Gri (W) G. S. Grimes Seeds
11335 Concord-Hambden Road
Concord, OH 44077

GS (W) Goldsmith Seeds, Inc.
P.O. Box 1349
Gilroy, CA 95021

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

McF (R) McFayden Seed Co., Ltd.
Minot, ND 58701

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

RS (W) Royal Sluis

910 Duncan Avenue
San Juan Bautista, CA 95045

Unk Unknown seed source

WG (W) Waller Genetics
P.O. Box 70
Guadalupe, CA 93434