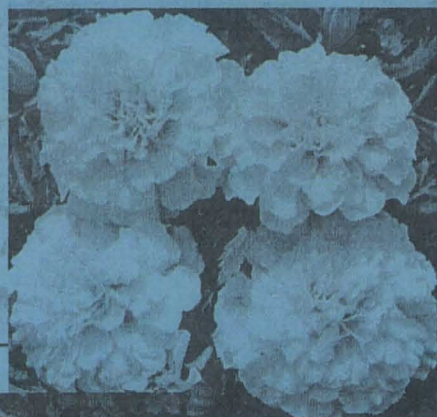
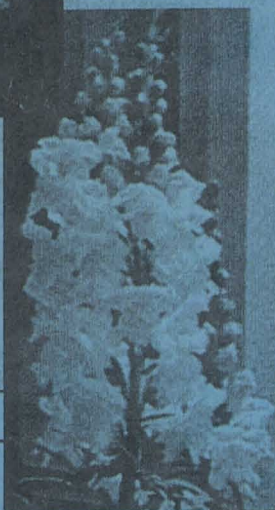
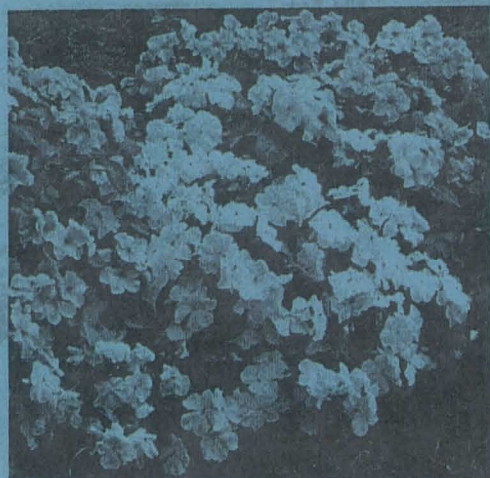


1993 Edition

CULTIVAR TRIALS

OF BEDDING PLANTS



Minnesota Report 227-1993
Minnesota Agricultural Experiment Station
(Distribution Center Item MR-5864-E)

UNIVERSITY OF MINNESOTA

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Source List. Sources of seeds for the 1991 bedding plant trials.

Code	Company Name	Address
AAS	All-America Selection Trials	1311 Butterfield Road, Suite 310, Downers Grove, IL 60515
AT	American Takii, Inc.	301 Natividad Road, Salinas, CA 93906
BA	George J. Ball, Inc.	PO Box 335, West Chicago, IL 60185
BS	Bodger Seed, Ltd.	1800 North Tyler Avenue, South El Monte, CA 91733
BU	W. Atlee Burpee Company	300 Park Avenue, Warminster, PA 18974
CL	Clause Semences Professionnelles	100 Breen Road, San Juan Bautista, CA 95045
DN	Denholm Seeds	P.O. Box 438, West Chicago, IL 60185
EB	Ernest Benary	P.O. Box 1127, Muenden, Germany
GO	Goldsmith Seeds, Inc.	2280 Hecker Pass Highway, P.O. Box 1349, Gilroy, CA 95020
GR	G.S. Grimes	201 West Main Street, Smethport, PA 16749
HM	Harris Seed Company	60 Saginaw Drive, P.O. Box 22960, Rochester, NY 14692-2960
JS	Johnny's Select Seed	Box 299, Foss Hill Road, Albion, ME 04910
JU	J.W. Jung Seed Company	335 South High Street, Randolph, WI 53957
MB	Malmborg's, Inc.	5120 North Lilac Drive, Brooklyn Center, MN 55429
NI	Nichols Garden Nursery	1190 North Pacific Highway, Albany, OR 97321-4598
NK	Northrup King Company	7500 Olson Memorial Highway, Golden Valley, MN 55427
PA	Park Seed Company	P.O. Box 31, Greenwood, SC 29646
PM	Pan American Seed Company	P.O. Box 438, West Chicago, IL 60185
RS	Royal Sluis	1293 Harkins Road, Salinas, CA 93901
SH	Shepard's Garden Seeds	6116 Highway 9, Felton, CA 95018
SG	Sluis & Groot	7337 West Jefferson, Suite 250, Fort Wayne, IN 46840
SK	Sakata Seed America, Inc.	P.O. Box 6007, Salinas, CA 93912-6007
ST	Stokes Seeds, Inc.	737 Main Street, Box 548, Buffalo, NY 14240
TM	Thompson & Morgan	P.O. Box 1308, Jackson, NJ 08527
TW	Twilley Seeds Company, Inc.	P.O. Box 65, Trevoise, PA 19047
VS	Vaughans Seed Company	5300 Katrine Avenue, Downers Grove, IL 60515

1993 EDITION

CULTIVAR TRIALS OF BEDDING PLANTS

Continued growth of over 15 percent per year has marked the bedding plant industry since 1978. On the wholesale level, producing annuals and perennials has become a billion-dollar business nationally. The University of Minnesota supports this growing industry in Minnesota in various ways, among which are the cultivar trials conducted on Minnesota Agricultural Experiment Stations at Morris, St. Paul, and Grand Rapids.

At these sites, new and old cultivars are grown from seed donated by seed companies, planted out, and rated periodically for field performance. The gardens are open to the public and industry for self-guided tours throughout the growing season, providing a unique opportunity to compare performance of bedding plant cultivars under regional conditions.

In this publication, results from all three sites are summarized. The data reflect the growing conditions at each site during 1992 only; cultivars may have performed quite differently in previous years. For results from earlier trials, contact the site supervisor directly, or obtain earlier editions of this publication from the MES Distribution Center. Not all years may be available.

All-America Selections

Each of the sites is also designated an official All-America Selections Display Garden, joining the Minnesota Landscape Arboretum at Chanhassen in that honor. The All-America Selections organization, founded in 1932, tests new cultivars and introduces those with superior performance to the horticultural public. Winners are selected on the basis of trials in official AAS Trial Gardens and are readily available from retail seed companies. As official AAS Display Gardens, each Minnesota site grows the current year's winners as well as past selections. Our trial grounds allow comparison between these national winners and local favorites.

Rating the Cultivars

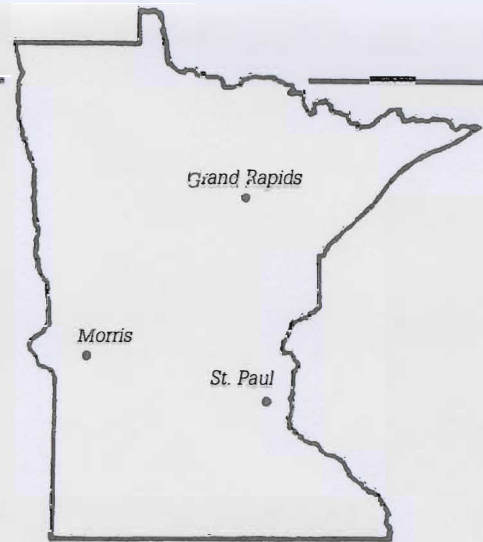
Bedding plants are grown for the ornamental value of their foliage and flowers. In rating cultivars entered in the trials conducted by the Minnesota Agricultural Experiment Station, the two aspects of foliage and flowers are each rated independently on a 1 to 5 scale where 1=poor and 5=very good. The values are added to create an overall quality rating of 1 to 10. An exception is made for plants such as kale and dusty miller which are grown for foliage only. In those, the vegetative rating is simply doubled.

Ratings are taken several times during the growing season, typically mid-July, mid-August, and mid-September. The objective is to assess quality over the growing season, so the actual dates vary per site to accommodate differences in climate. Care should be taken when studying the ratings for herbaceous perennial bedding plants. Most perennials do not normally bloom well the first year from seed, and their lower overall ratings reflect that fact.

Plant height and flower size are measured at field maturity. Height is often less than the maximum at Grand Rapids due to the shorter growing season. Flower size is relatively unaffected by location. "Flower size" usually refers to the width of a single blossom, but in certain cases, specified in a given table's footnotes, it may mean the length of a spike (i.e. snapdragon) or width of a head (i.e. geranium). In the case of foliage plants, flower size is not available (n/a).

Unlisted Cultivars

The selection of plants and cultivars to be emphasized in Minnesota's trials varies from year to year. Their selection is based on results of previous trials, on current trends and on industry recommendations. Relative performance data for many plants and cultivars not in this *Cultivar Trials of Bedding Plants* may be available in editions from other years.



Test locations for the cultivar trials reported in this publication.

Acknowledgements

Authors of this publication are Anne M. Hanchek, Robert Mullin, Steven R. Poppe, and David K. Wildung. Additional text is by Larry A. Etkin.

Cultivar trials in 1992 at St. Paul, Morris, and Grand Rapids were supervised by Robert Mullin, Steven R. Poppe, and David K. Wildung, respectively. Many thanks are due station staff and Minnesota Extension Service Master Gardeners for their assistance in conducting the trials.

Thanks also to All-America Selections for information, photos and artwork on AAS winners. Cover background photo by Dign Brenehan.

Disclaimer

Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Minnesota Agricultural Experiment Station or the University of Minnesota is implied.

Publication chairperson Anne M. Hanchek
Editor, production manager
and publication designer Larry A. Etkin

Produced in the Educational Development System, MES, University of Minnesota

TEST LOCATIONS

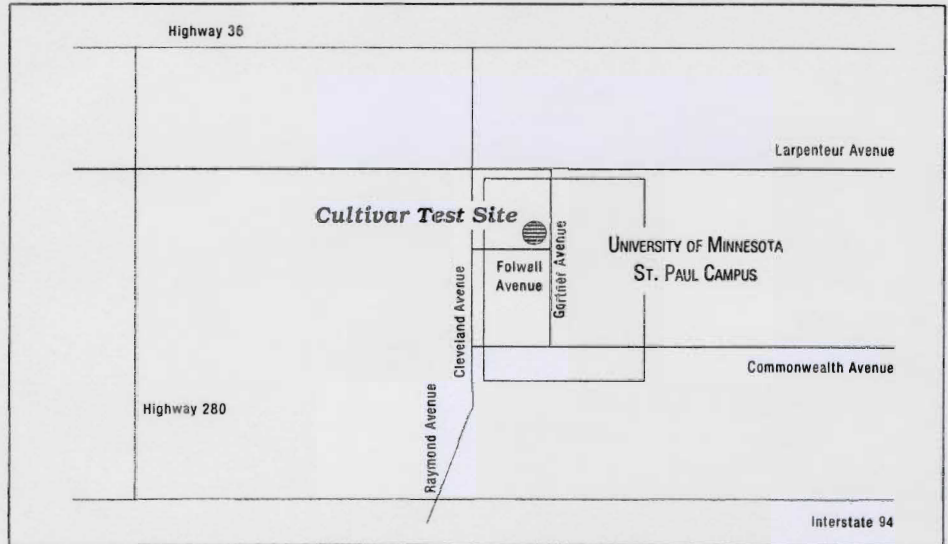
Department of Horticultural Science, St. Paul: The Garden

The horticulture teaching and display garden was established in 1977. As its primary function it serves as a learning laboratory for horticulture and landscape architecture students. But as the numbers of cultivars being displayed and tested has increased over the years, the site has become increasingly popular with the public.

The Garden is located at the north end of the St. Paul Campus, between the major cluster of campus buildings and the Minnesota Agricultural Experiment Station fields, at the intersection of Gortner and Folwell Avenues. Its approximately 1.5 acres were divided between a woodland garden, a prairie garden and an annual-perennial garden. In 1992 there were approximately 400 annuals, 100 perennials and 150 native grasses and wildflowers on display across the garden site.

Though the garden is open for inspection at all times, parking in the near vicinity is limited during times when classes are in session on the campus.

All of the cultivars were grown from seeds or cuttings in on-site greenhouses, the seeding dates varying with plant type. In 1992, seedlings were transplanted to the field between April 22 and May 22, into blocks six foot square, 35 plants per block on one foot centers. Once per season a 10-10-10 granular formulation fertilizer was applied. Composted animal manure was used as a mulch. No pinching was practiced, but pest control,



overhead irrigation and mechanical/hand/chemical weeding were applied as needed.

A major problem encountered at the site in 1992 was an epidemic of *Sclerotinia* (e.g. white mold). This soil borne fungal disease attacks many ornamental plants and vegetables. Spread of the disease was aggravated by the cool, wet weather which characterized much of the growing season. The fungus destroyed many of the annual plantings.

The 1992 St. Paul area growing season was 147 days, which was 13 days fewer than the annual average. The last spring frost was recorded on May 5 and the first fall frost on September 29. Rainfall between May 1 and September 30 was 21.04 inches, which was 2.37 inches above the annual average of 18.67 for that period. Temperatures were above average in May, but below average for June through September.

West Central Experiment Station, Morris

From 1910 through 1963, the experiment station at Morris shared facilities with the West Central School of Agriculture. When the school became the University of Minnesota, Morris, the West Central Experiment Station moved to a new adjacent site.

Under the direction of the station horticulturist, plant trials that were begun before 1955 were continued at the new site. These included small fruit trials, home garden vegetable variety trials, soil conservation plant materials trials, USDA single row field wind-break test planting and annual flower cultivar trials.

Over 400 cultivars are on view at the West Central Experiment Station in a typical year. Program objectives are to evaluate flower bloom, size, color, frost resistance and quality characteristics; to evaluate plant growth, habit and disease characteristics; and to identify cultivars most suited for western Minnesota conditions.

All the cultivars were grown in on-site greenhouses, the seeding date varying with plant type. In 1992, seedlings were transplanted to the field between May 26 and May 29, into rows three feet apart, ten plants per plot on one foot centers. Soil on the trial

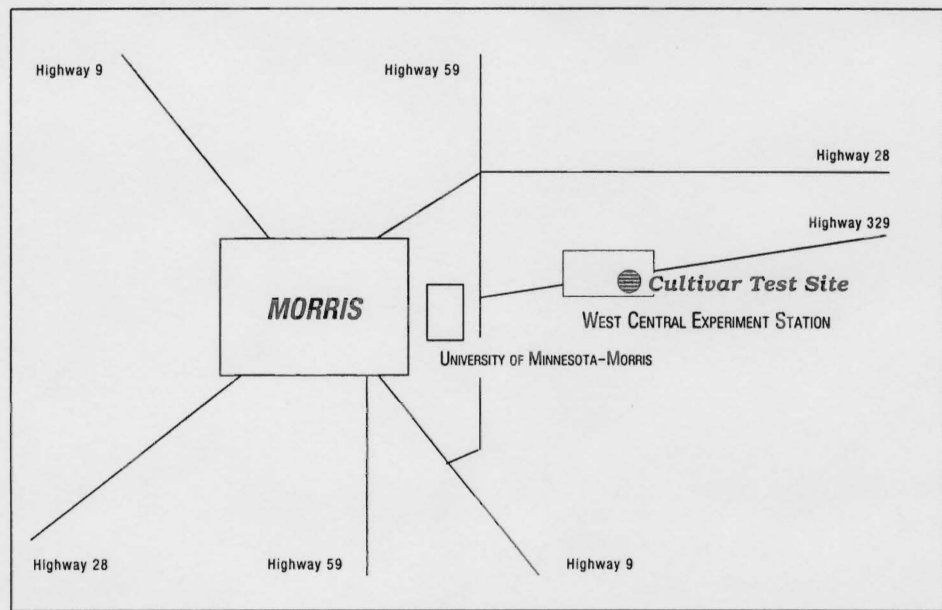
site is very fertile so little if any commercial fertilizer was used. Approximately every three years, animal manures are incorporated into the soil. No pinching was practiced, but pest control, overhead irrigation and mechanical/hand weeding were applied as needed.

Greenhouse growth and development were normal except among zinnias, where growth was stunted by a mildew. Field performance in 1992 was generally below average. Below average temperatures during the season reduced growth and development, leading to just average results on some cultivars. It caused poor plant performance in

most petunias, impatiens, verbena, celosia and vinca. Pansies and geraniums, however, provided very good color throughout the growing season. Mid-season ratings for all *Nicotiana* and *Salvia farinacea* 'Rhea Blue' and 'Argent White' were very good.

The 1992 growing season was 142 days (average is 156 days), with the last spring frost on May 3 and the first fall frost on September 22. Rainfall between May 1 and September 30 was 14.81 inches, which was 0.84 inches below the 15.65 inch season average. Temperatures were above average in May but below average in June, July, August and September.

Annual horticultural events at the West Central Experiment Station include Visitors Day and Horticulture Night, both in July. For more information call (612) 589-1711 or fax (612) 589-4870.



North Central Experiment Station, Grand Rapids

In 1895 the state legislature provided funds to establish several agricultural experiment stations across Minnesota. One of the first was established in 1896 at Grand Rapids. Its first horticulturist came to the station in 1926. Early work focused on small fruits, vegetables, and an arboretum.

In recent years work has expanded to include blueberries and commercial vegetable and fruit crops. Management studies evaluate cultural practices for optimum fruit and vegetable production in northern Minnesota. Annual flower trials began in 1965, and have become a focal point for public tours. Over 400 cultivars are reviewed in a typical year. Program objectives include evaluating flower

bloom, size, color, frost resistance and quality characteristics; evaluating plant growth, habit and disease characteristics; and identifying cultivars suited for northern Minnesota conditions.

Cultivars are grown in on-site greenhouses; seeding date varies with plant type. In 1992, all seedlings were transplanted to the field on June 22 or 23, into rows four feet apart, with ten plants per plot on one foot centers. Fertilizer was broadcast at planting (350 pounds per acre of 20-10-10) as well as applied in a liquid starter drench (9-45-15). On July 21 and August 11, plots were banded with 33-0-0 at 120 pounds per acre. Insecticide was applied to marigolds and petunias

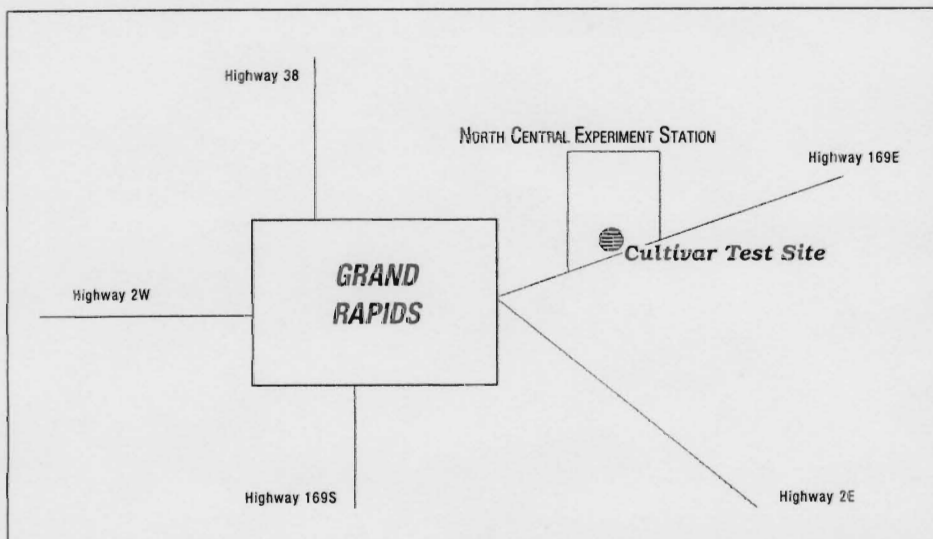
(6/26, 7/6, 7/24 and 8/13) to control aster leafhopper. Overhead irrigation and mechanical or hand weeding was applied as needed.

Greenhouse growth and development were normal except for poor seed germination of phlox and verbenas. Lisianthus seed was received very late (3/13) resulting in very small transplants which did poorly all season.

Overall field performance was poor. Temperatures were below average for ten consecutive weeks beginning in mid-June. As a result, plant growth and subsequent flowering were not up to standard. Overall plant growth was small, bloom delayed and floral display fair at best. Kale, snapdragons and pansies were among the better types late in the season. Pansies continued to bloom well until late October, after several hard freezes. Due to the poor season, several of the 1992 objectives are being repeated in the 1993 trials.

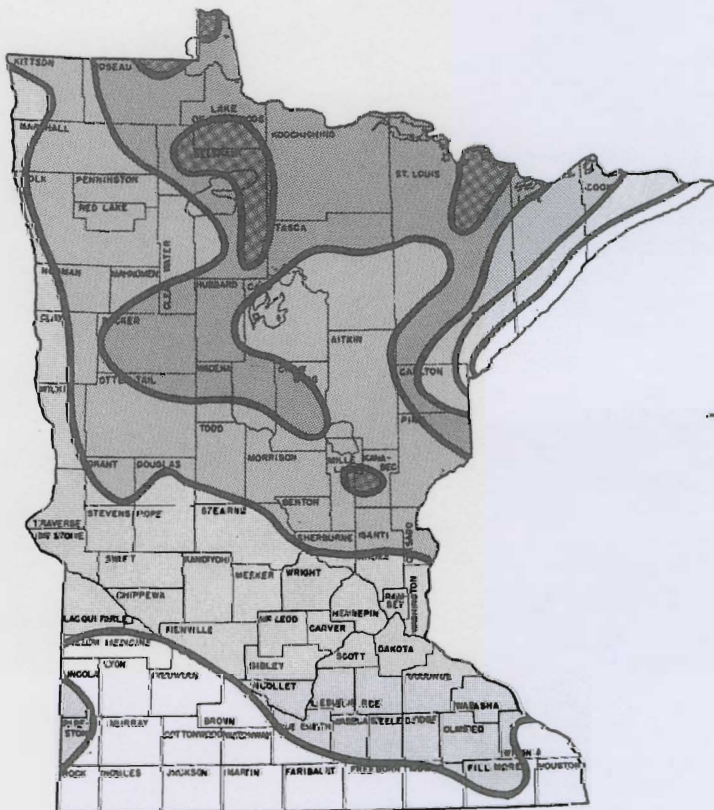
The 1992 growing season was 116 days long (average is 110 days) with the last spring frost on May 26 and the first fall frost on September 19. Rainfall between May 1 and September 30 was 18.7 inches, 0.8 inches above the average for the season. Temperatures were below average all four months, June through September, with July 1992 being the coldest July ever recorded at this station.

Events at North Central Experiment Station include Horticulture Night and Bedding Plant Grower Day in August. For more information on either of these call (218) 327-4490 or fax (218) 327-4126.



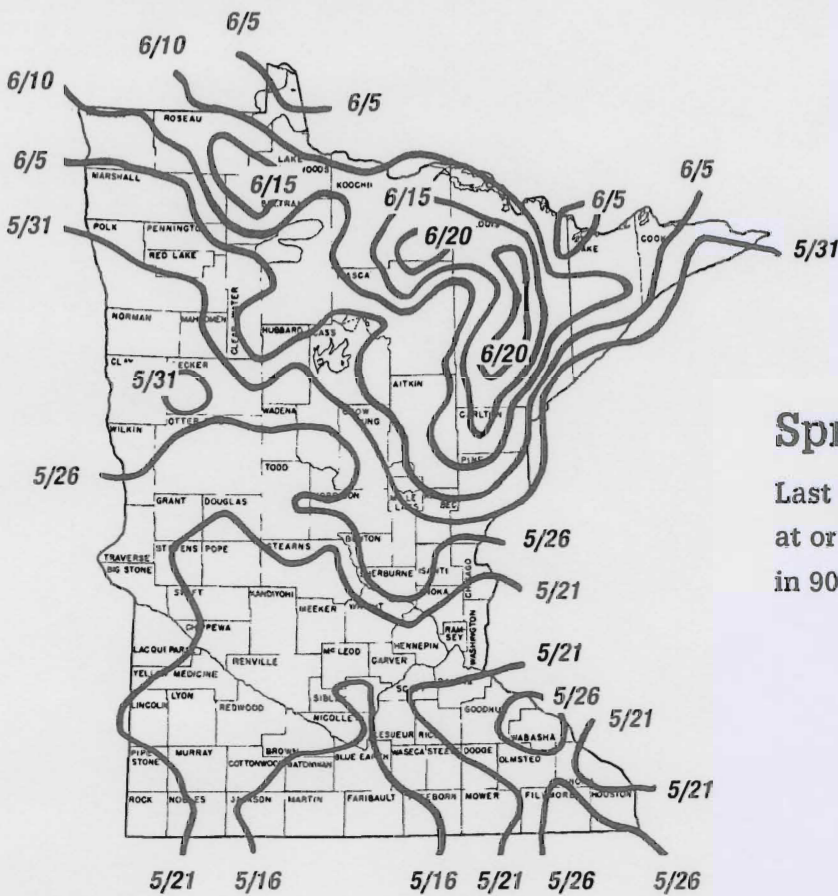
CLIMATOLOGICAL INFORMATION

United States Department of Agriculture Plant Hardiness Zones



Average Annual Minimum Air Temperature

Degrees Celsius	USDA Zone	Degrees Fahrenheit
- 40.0 to - 42.7	2b	- 40 to - 45
- 37.3 to - 40.0	3a	- 35 to - 40
- 34.5 to - 37.2	3b	- 30 to - 35
- 31.7 to - 34.4	4a	- 25 to - 30
- 28.9 to - 31.6	4b	- 20 to - 25

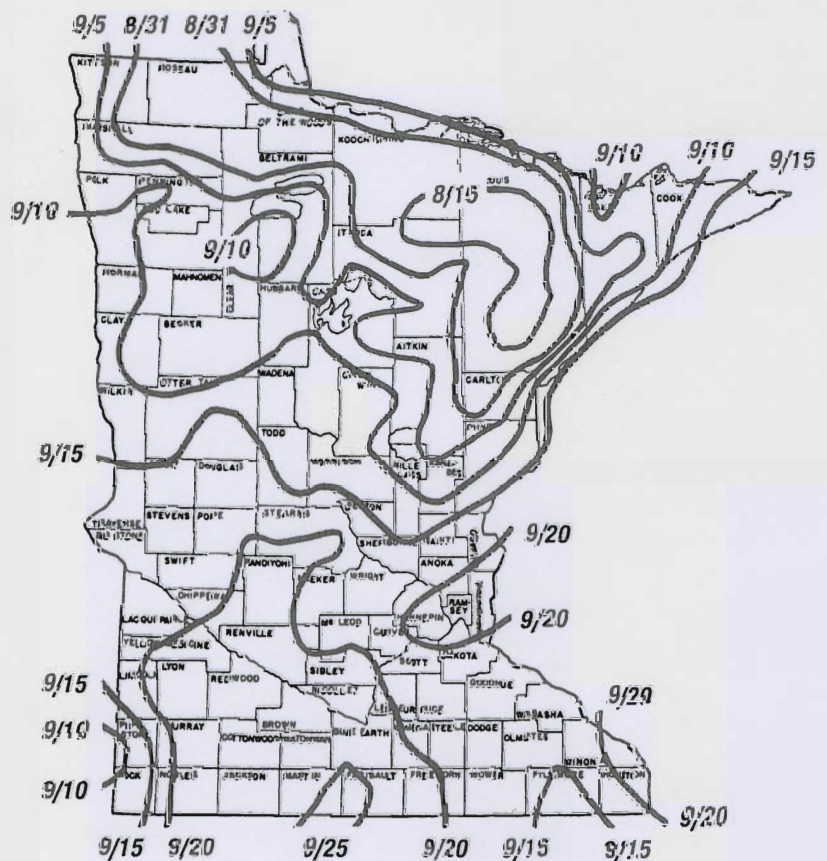


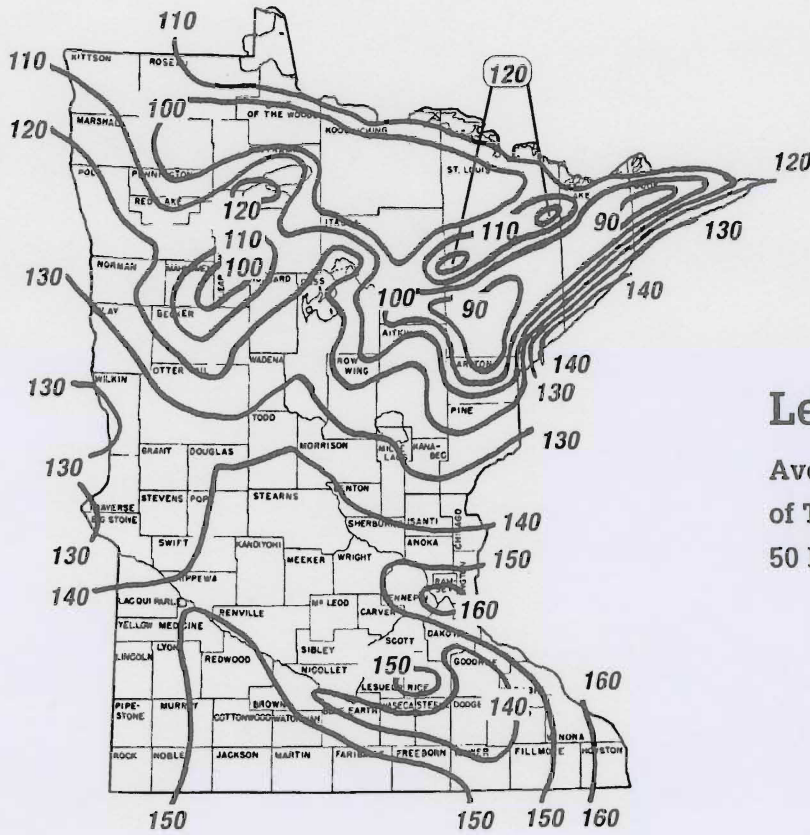
Spring Frost Date

Last Date of Minimum Temperature at or Below Freezing (Last Frost) in 90 Percent of Years

Fall Frost Date

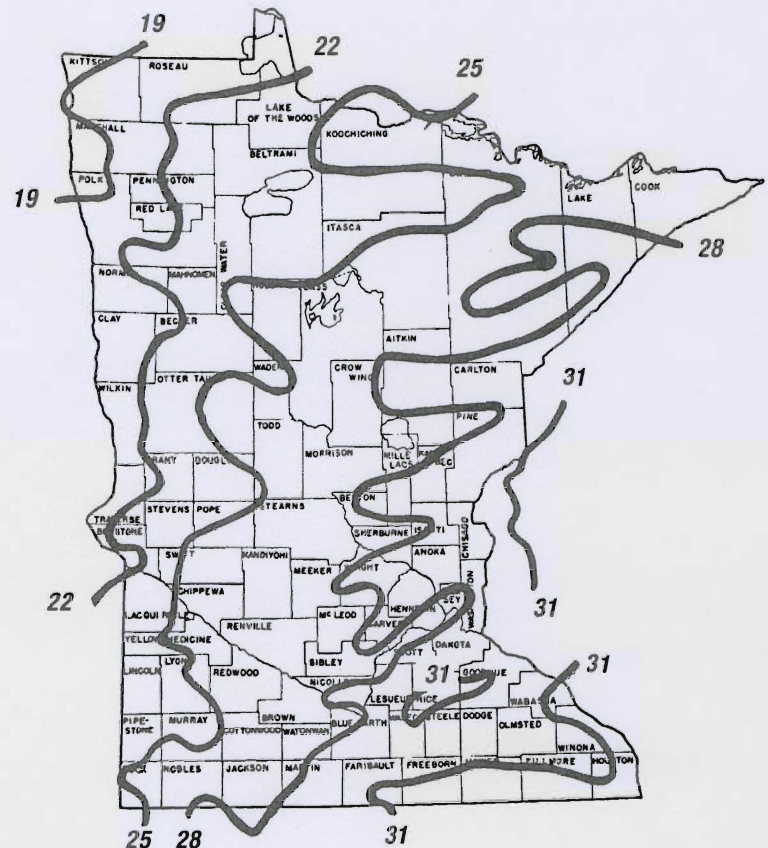
Average Date of First Occurrence in the Fall of a Temperature Below Freezing (First Frost) in 90 Percent of Years





Length of Growing Season
Average Duration in Days of the Period Free of Temperatures at or Below Freezing in 50 Percent of Years

Annual Precipitation
Average Annual Precipitation, in Inches, Over 30 Years



BEGONIA

While the stronghold of fibrous begonia (*Begonia semperflorens*) breeding is in Northern Europe, North American gardeners have adopted the plant as one of their favorites. The begonia is a compact plant that grows and flowers continuously from small plants through to the killing frost, and can even be brought indoors to provide flowering color through the winter.

Begonias can be grown from cuttings, but most commercial production is from seed. Seeds are very fine, like dust, and can rarely be sown successfully directly into a garden. Seeds should be started in greenhouses at least eight weeks before the weather is warm enough to transplant outdoors.

The trend in begonia breeding is toward

developing plants which flower earlier. Colors include white, red and pink in fibrous begonias, plus orange, yellow and some with second color edging in tuberous forms. No tuberous types (*Begonia tuberhybrida*) were grown in the 1992 trials.

In general, the older narrow-petaled types of begonias have been supplanted in the market by cultivars with broad petals and more abundant and larger flowers. Foliage may be green, red or bronze.

Begonias can be grown in sun or open shade, but they do not compete well when interplanted between other annuals or perennials, or in the root areas of woody plants such as trees. Plant heights can range from 6 to 10 inches. Spaced properly, begonias pro-

duce solid beds or groups for garden landscapes, or for filled planters and window boxes.

Tuberous and fibrous begonias together accounted for almost 6 percent of the total U.S. bedding plant crop in 1991. Among growers/marketers, 83 percent rated them to be good or excellent items. In 1992 they continued to be popular, and about 20 percent of growers planned increased begonia production for 1993.

Minnesota's begonia trials were only conducted at the St. Paul and Grand Rapids sites in 1992. 'Hot Tip Mix' and 'Stara Mix' were two highly rated cultivars in St. Paul.

Table 1. Begonia cultivars evaluated in the 1992 bedding plant trials at St. Paul and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²		Flower Size (inches) ³	Overall Quality Rating ⁴					
			St. Paul	Grand Rapids		St. Paul			Grand Rapids		
						7/1	8/5	9/17	8/9	8/18	9/17
Ambra	fibrous	ST	2.0	3.0	0.8	6	9	10	5	4	7
Athena Mix	fibrous	CL	13.0	—	1.0	4	8	10	—	—	—
Brandy	fibrous	EB	12.0	—	1.0	4	8	10	—	—	—
Chocolates Rose	fibrous	GR	8.0	8.0	1.2	6	10	10	6	6	4
Cocktail Party	fibrous	BU	12.0	7.0	0.7	3	10	10	6	6	5
Gin	fibrous	EB	12.0	—	0.8	3	8	10	—	—	—
Hot Tip Mix	fibrous	GR	15.0	—	1.0	8	9	10	—	—	—
Lock's Vision	fibrous	—	12.0	—	0.8	3	8	10	—	—	—
Party Dress	fibrous	EB	16.0	—	1.0	6	8	10	—	—	—
Party Flirt	fibrous	EB	18.0	—	1.1	6	10	10	—	—	—
Party Friend	fibrous	EB	16.0	—	1.1	5	10	10	—	—	—
Rio Pink	fibrous	SG	12.0	3.0	1.0	6	10	10	5	5	5
Rio Rose	fibrous	SG	13.0	—	1.0	6	9	10	—	—	—
Rio Scarlet	fibrous	SG	14.0	—	0.9	5	6	10	—	—	—
Rio White	fibrous	EB	12.0	—	0.8	4	7	9	—	—	—
Roxy Mix	fibrous	RS	12.0	—	0.9	6	10	10	—	—	—
Rum	fibrous	EB	12.0	—	0.7	3	7	10	—	—	—
Stara Mix	fibrous	—	18.0	—	1.0	8	10	10	—	—	—
Varsity Deep Rose	fibrous	—	15.0	—	1.0	7	9	10	—	—	—
Vision Bright Rose	fibrous	ST	16.0	5.0	0.9	6	10	10	4	4	2
Vision Red	fibrous	ST	15.0	6.0	1.0	6	9	10	8	7	5
Vision Rose	fibrous	EB	15.0	—	1.0	3	8	10	—	—	—
Wodka	fibrous	EB	14.0	—	1.0	3	7	10	—	—	—

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

CHRYSANTHEMUM

Trials of chrysanthemum (now renamed *Dendranthema grandiflora*) are conducted at several sites throughout the state, including Morris, St. Paul and Grand Rapids. The trials are used to compare performance of both named cultivars and selections from the long-standing University of Minnesota breeding program. The tests are to identify cultivars

most suited to northern Midwest growing conditions. Plant breeders are concerned with cold hardiness, early flowering, flower color and plant form.

Plants are largely propagated from cuttings. Early pinching encourages lateral branching which produces bushier plants

and more abundant flowers. Colors can be yellow, white, crimson, bronze, lavender, pink, rose or orange.

Field trial results for 1992 are presented for the Grand Rapids site only.

Table 2. Chrysanthemum cultivars evaluated in 1992 at Grand Rapids.

Cultivar	Plant Height (inches) ¹	Flower Size (inches) ²	Overall Quality Rating ³			Cultivar	Plant Height (inches) ¹	Flower Size (inches) ²	Overall Quality Rating ³		
			9/4	9/24	10/2				9/4	9/24	10/2
Aurora	12	3.0	6	9	8	Minnwhite	8	2.0	6	10	8
Autumn Beauty	15	3.3	8	7	9	Minnyellow	9	2.3	6	10	9
Autumn Fire	16	3.5	6	9	9	Pipestone	10	2.3	7	8	7
Bit-O-Sunshine	11	2.5	5	8	7	Poise	11	2.5	5	8	7
Burnt Copper	10	2.5	7	6	6	Prairie Moon	14	3.0	5	8	7
Centennial Sun	11	2.0	8	9	8	Princess	10	2.0	6	10	10
Centerpiece	16	4.0	7	8	10	Purple Star	13	2.0	5	8	8
Chippewa	14	3.3	7	9	10	Purple Waters	15	2.5	8	10	10
Cortis Rice	12	3.5	7	6	6	Rosy Glow	15	4.0	9	10	10
Cream Top	13	2.5	4	7	6	Royal Knight	12	3.0	6	8	8
Dee Dee Ahrens	13	2.0	4	6	4	Royal Pomp	13	2.0	7	9	9
Dr. Longley	10	2.0	7	9	5	Snowsota	10	1.5	8	10	9
Glacier	8	3.0	3	4	3	Sunnyglow	15	2.5	8	8	8
Gold Country	18	4.0	6	9	10	Superior	8	2.5	5	7	4
Golden Jubilee	10	2.5	5	6	6	Tenstrike	9	1.5	7	9	7
Golden Star	12	4.0	5	8	8	Torch Song	12	3.3	7	7	7
Goldstrike	8	2.3	7	8	5	Violet	12	2.5	6	7	5
Grape Glow	10	3.5	8	9	8	Vulcan	14	2.5	6	6	5
Harmony	13	2.0	6	6	7	Wanda	12	2.5	9	9	8
Harvest Bronze	8	3.0	6	7	5	Waterlily	14	2.5	6	10	6
Homecoming	20	3.5	6	8	7	Wayzata	17	3.0	6	9	9
Lemonsota	10	2.0	7	9	8	Welcome	9	1.5	6	5	5
Lindy	21	4.5	7	8	8	Wendy Ann	9	4.0	5	8	9
Maroon Pride	16	3.5	9	10	10	White Daisy Mum	12	3.8	5	6	6
Mellow Moon	13	4.5	5	6	6	Yellow Glow	14	3.0	7	9	9
Mesabi	10	2.0	3	6	4	Yellow Ruth Lehman	15	4.0	8	8	8
Minn Autumn	7	2.0	6	9	7	Zonta	9	2.3	6	10	8
Minnbronze	8	2.0	3	7	5						
Winnehaha	13	3.0	8	7	7						
Minniglow	7	1.5	3	4	3						
Minnigopher	10	2.5	7	8	7						
Minnpink	10	1.8	7	8	8						
Minnqueen	8	3.0	7	8	8						
Minnrose	10	2.0	7	9	10						
Minnruby	11	2.5	9	8	8						

¹ Mature height including flowers; site average. ² Width of single blossom; value given is average across sites. ³ Rating on 1 to 10 scale for floral display and foliage quality.

DIANTHUS

Dianthus (*Dianthus chinensis*) is a plant growing in both popularity and the availability of new cultivars. It has a fragrant flower with clear, vibrant colors.

Dianthus flowers can usually be found in solids and combinations of white, pink, or red. Recent breeding efforts have extended its color range toward violet and purple. One good example of this is the 1992 All-American Selections 'Ideal Violet.'

To get a head start on blooming, seeds can be sown indoors or in a cold frame, or

they can be directly seeded into the garden. Seedlings are hardy and can be transplanted easily. Although it is considered a low maintenance plant, it sets seed quickly after flowering, so stems should be snipped off as soon as the first blooms begin to fade. This will encourage new growth that will produce more flowers.

A compact plant that grows to only 6 to 10 inches, dianthus requires sun or partial shade. It tolerates a wide range of temperatures, and can be depended on to bloom all summer and well into the fall. It requires a

well drained soil and regular watering. It can withstand considerable frost, and can even occasionally survive a Minnesota winter.

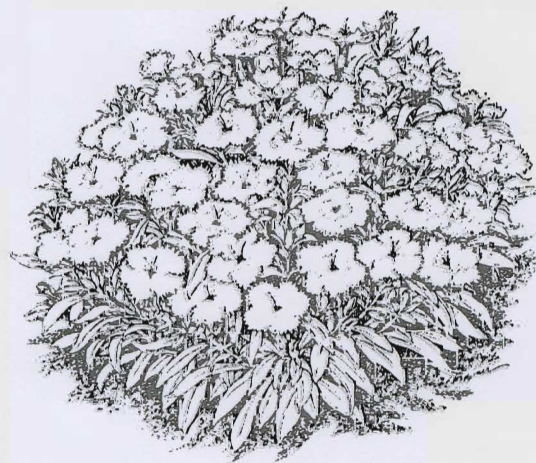
Dianthus held only about 1 percent of the 1991 U.S. market for bedding plants, but with its growing popularity this increased to 3 percent in 1992. Most bedding plant growers/marketers consider it to be an excellent or good item.

Table 3. Dianthus cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Ideal Violet	AAS	9.0	—	10.0	1.4	8	6	7	—	—	—	9	8	9
Parfait Raspberry	ST	—	—	6.0	1.6	—	—	—	6	4	0	6	5	7
Parfait Strawberry	ST	—	—	—	0.7	—	—	—	7	3	0	—	—	—
Princess Crimson	GO,VS	8.2	14.0	11.0	1.1	8	8	6	9	3	2	5	7	10
Princess Salmon	GO,VS	12.0	—	11.0	1.2	7	10	6	6	2	0	9	7	9
Princess Scarlet	VS	—	—	12.0	1.0	—	—	—	—	—	—	7	7	9
Princess Violet	—	—	12.0	—	1.2	—	—	—	8	5	2	—	—	—
Princess White	GO	9.5	—	—	1.5	8	8	6	—	—	—	—	—	—
Telstar Picotee	AAS	11.2	—	11.0	1.1	7	10	6	—	—	—	6	7	9
Telstar White	VS	—	—	13.0	1.0	—	—	—	—	—	—	6	7	10

Dianthus F, 'Ideal Violet'

This cross between a Sweet William and a Chinese pink has strong stems and good weather tolerance. Unique purple flowers appear 14 weeks after sowing. It does well in sunny, well-drained soil and needs little garden care. This was a 1992 All-America Selection.



¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

GERANIUM

Geraniums (*Pelargonium hortorum*) originated in South Africa, and were probably grown in Dutch settlers' gardens as early as 1652. By 1690, they arrived in England and became favorite garden plants. Geraniums came to the U.S. in 1786 when Thomas Jefferson sent some home from France. From these early times to the present, geraniums have grown in garden popularity and in diversity: about 280 species and 10,000 cultivars are known to exist.

For many years, bedding geraniums were primarily grown from cuttings taken from over-wintered stock. Now high quality seed grown hybrids are available in many colors and heights. There generally appears to be little overall difference in quality between seed and cutting types.

Geranium flowers come in white, pink, red, salmon, lavender, orange and fuchsia. The true orange is found with 'Orange Appeal,' a 1991 Fleuroselect Gold Medal Winner. New cultivars like 'Freckles' even offer bicolored flowers. Whether individual blossoms are single or double, they are borne in large clusters or heads.

Plant height ranges from ten to 30 inches. Recent breeding trends in bedding geraniums

have been toward shorter plants that hold their heads well above the foliage. Other popular types are bred for hanging baskets and feature long, trailing stems.

Geranium seed should be sown in warm, moist medium. Under these conditions, germination is as rapid as seven to ten days. Seed should be started in Minnesota in mid-January to produce stocky, budded transplants for spring. Optimum growth and earlier flowering require supplementary lighting equivalent to 16 hour days. Although day length per se does not affect flower initiation, total amount of light does. Cooler day temperatures will result in shorter, stockier plants with more flower heads. Stem elongation increases as day temperature increases.

Outdoors, geraniums require full sun and well drained soil for best growth and full flowering. Transplants should not be set out until frost danger has passed and soil has warmed. Over fertilizing will reduce flowering. Dead flower heads should be removed to avoid *Botrytis* fungus problems.

Geraniums, both cutting and seed combined, accounted for about 18 percent of the total bedding plant crop in 1991, and were third in overall popularity among consumers,

following impatiens and petunias. Bedding plant growers/marketers overwhelmingly (89 percent) rated cutting geraniums as an excellent or good item; 64 percent felt the same about seed geraniums. Almost 40 percent of growers planned increased geranium production for 1993.

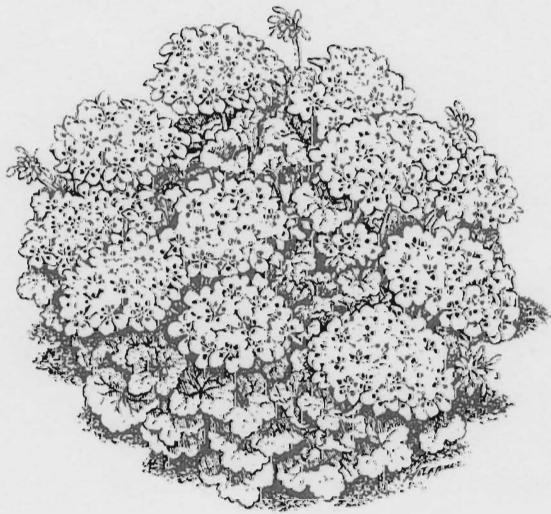
As usual, geraniums performed well at all trial sites in Minnesota this year. The 1992 trials focused on pink and orange cultivars, as well as several series. Top performers were 'Sundance Orange Scarlet' and 'Hot Pink Orbit' at Morris; 'Pinto Salmon Orange,' 'Avanti Light Salmon,' 'Elite Cherry,' 'Elite Red' and 'Freckles' at St. Paul.

Table 4. Geranium cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul			Morris			St. Paul			Grand Rapids		
				7/17	8/18		9/18	7/1	8/5	9/17	8/10	8/18	9/17		
Avanti	cutting	MB	15.0	16.0	7.0	3.3	7	10	7	7	7	6	6	4	6
Blues	cutting	MB	11.5	13.0	9.0	3.3	5	8	6	6	6	8	7	6	8
Discus	cutting	MB	12.5	18.0	10.0	4.0	5	8	6	6	7	8	8	6	7
Fidelity	cutting	MB	12.5	16.0	11.0	3.5	4	5	4	6	7	8	8	6	7
Gloria	cutting	MB	12.7	16.0	7.0	3.5	6	10	5	8	10	7	9	5	8
Helena	cutting	MB	17.7	13.0	9.0	3.6	7	10	8	7	9	9	6	5	7
Jazz	cutting	MB	14.0	19.0	12.0	4.0	6	10	7	8	8	9	10	6	8
Kim	cutting	MB	17.0	17.0	10.0	3.7	6	9	6	8	9	9	8	6	8
Pink Champagne	cutting	MB	14.7	18.0	11.0	3.7	6	8	7	8	7	7	8	5	7
Pink Expectations	cutting	MB	19.5	18.0	10.0	3.7	4	10	5	6	6	8	7	6	6
Rio	cutting	MB	14.2	12.0	9.0	3.9	6	7	7	8	8	9	5	4	4
Tango	cutting	MB	15.5	18.0	9.0	4.0	3	10	8	8	8	8	7	5	7
Avanti Light Salmon	seed	CL	17.0	18.0	12.0	3.5	5	7	8	11	8	8	8	5	8
Avanti Lilac Rose	seed	CL	18.2	17.0	-	4.4	6	10	8	8	9	7	-	-	-
Avanti Red	seed	CL	12.2	14.0	8.0	3.2	5	9	7	8	7	7	8	4	7
Avanti Salmon	seed	CL	16.7	15.0	11.0	3.5	4	7	6	6	6	8	7	5	7

Table 4 (continued). Geranium cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Avanti Scarlet	seed	CL	14.5	14.0	8.0	3.5	7	10	8	9	8	8	8	5	9
Elite Cherry	seed	ST	13.5	15.0	—	4.1	3	6	6	10	9	8	—	—	—
Elite Pink	seed	GO	13.0	15.0	11.0	3.6	4	8	7	8	9	8	7	5	7
Elite Red	seed	GO	17.5	15.0	13.0	4.1	5	9	8	10	9	8	9	7	9
Elite Salmon	seed	GO	14.0	18.0	10.0	3.5	5	8	6	8	10	8	8	6	7
Elite Scarlet	seed	GO	15.0	14.0	12.0	4.0	6	9	7	9	9	8	9	6	8
Elite White	seed	GO	14.0	15.0	11.0	3.3	4	9	7	6	7	6	8	6	7
Freckles	seed	AAS	15.0	18.0	9.0	3.9	6	9	8	9	10	8	9	6	7
Geronimo	seed	SG	16.7	20.0	12.0	3.5	8	6	5	9	8	8	10	6	8
Hollywood Star	seed	DN	—	17.0	—	4.0	—	—	—	10	7	7	—	—	—
Hollywood White	seed	DN	—	14.0	—	3.5	—	—	—	6	5	6	—	—	—
Multibloom Bright Rose	seed	ST	—	14.0	—	3.6	—	—	—	10	8	7	—	—	—
Multibloom Lavender	seed	GO	15.5	15.0	—	4.0	6	7	6	8	6	9	—	—	—
Multibloom Pink	seed	GO	—	—	8.0	3.7	—	—	—	—	—	—	7	6	8
Multibloom Red	seed	GO	—	14.0	11.0	3.2	—	—	—	9	7	8	8	8	7
Multibloom Salmon	seed	GO	16.5	14.0	8.0	3.2	3	7	7	7	6	7	9	6	8
Multibloom Scarlet	seed	GO	12.0	14.0	11.0	3.7	2	5	5	8	7	8	8	6	9
Multibloom Scarlet Eye	seed	GO	—	14.0	—	3.5	—	—	—	11	5	8	—	—	—
Multibloom White	seed	GO	16.0	15.0	11.0	3.7	4	10	5	7	7	8	8	6	8
Orange Appeal	seed	GO,ST	14.7	17.0	13.0	3.8	5	8	5	7	8	8	7	5	7



Geranium 'Freckles'

Rose freckles on pink petals give a unique look to this vigorous geranium. Flower heads are large and held above the foliage for good effect. Expect 12- to 15-inch plants with continuous flower color. This was a 1991 All-America Selection.

Orbit Appleblossom	seed	GO	18.0	17.0	11.0	3.7	5	10	7	8	8	9	9	5	8
Orbit Cardinal	seed	GO	18.0	17.0	—	4.5	4	8	8	6	10	7	—	—	—
Orbit Cherry	seed	GO	15.5	—	—	4.0	4	9	9	—	—	—	—	—	—
Orbit Coral	seed	GO	14.7	17.0	11.0	3.4	5	8	7	8	9	7	7	5	7
Orbit Deep Salmon	seed	GO	16.5	17.0	13.0	3.5	6	7	7	7	9	8	8	7	6
Orbit Glow	seed	GO	13.0	—	—	3.5	4	5	5	—	—	—	—	—	—
Orbit Hot Pink	seed	ST	14.5	—	11.0	3.6	8	10	8	—	—	—	9	7	9
Orbit Light Salmon	seed	GO	16.2	16.0	14.0	3.3	6	7	6	7	7	6	9	5	8
Orbit Orchid	seed	GO	14.2	15.0	—	3.8	6	8	8	8	8	7	—	—	—
Orbit Pink	seed	GO	17.2	—	—	4.5	8	10	8	—	—	—	—	—	—

Table 4 (continued). Geranium cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Orbit Red	seed	GO	16.0	21.0	14.0	4.2	8	8	9	6	10	9	7	5	7
Orbit Rose	seed	GO	15.0	15.0	—	4.4	7	10	8	8	10	8	—	—	—
Orbit Salmon	seed	GO	16.0	16.0	15.0	3.2	6	7	6	8	9	8	9	6	8
Orbit Scarlet	seed	GO	15.2	—	—	4.0	5	8	6	—	—	—	—	—	—
Orbit Scarlet Eye	seed	GO	20.0	17.0	—	4.0	6	9	8	7	8	8	—	—	—
Orbit Violet	seed	GO	18.2	17.0	—	4.0	5	7	6	10	9	7	—	—	—
Orbit White	seed	GO	19.2	18.0	13.0	3.3	7	10	6	6	7	8	9	5	7
Pinto Bicolor	seed	SG	—	17.0	—	3.6	—	—	—	7	8	8	—	—	—
Pinto Quicksilver	seed	SG	17.0	16.0	15.0	3.8	9	9	7	9	9	8	9	6	7
Pinto Salmon Orange	seed	SG	—	18.0	16.0	3.8	—	—	—	9	10	8	10	8	8
Pinto Scarlet	seed	SG	14.7	20.0	12.0	3.8	4	8	8	9	9	7	9	6	8
Pinto Violet	seed	SG	—	17.0	—	3.8	—	—	—	9	9	8	—	—	—
Pinto White	seed	SG	—	17.0	16.0	3.9	—	—	—	7	7	8	9	7	7
Ringo Rose	seed	SG	—	19.0	—	4.0	—	—	—	9	9	8	—	—	—
Sundance Orange Scarlet	seed	ST	16.2	—	15.0	3.9	7	10	9	—	—	—	9	7	8
Tetra Scarlet	seed	PM	—	—	14.0	4.7	—	—	—	—	—	—	7	6	8

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of head; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

GOMPHRENA

A new trend among gardeners is the desire for dual-purpose plants. Gomphrena, also called globe amaranth, is one such plant. Gomphrena has the advantage of being an excellent dried flower as well as a good bedding plant. The dense, chaffy, clover-like heads of Gomphrena retain their color well

for months in dried flower arrangements.

Gomphrena germinates in two weeks at 70°F and requires darkness to get started. In the garden, gomphrena is an erect hardy annual that tolerates drought and light frost, but requires full sun.

Recently, new introductions have added warm colors from North American species and produced an extremely dwarf habit in the 'Gnome' series. Colors now range from white to pink to purple, plus orange and red.

Table 5. Gomphrena cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Gnome Rose	SK	5.0	8.0	4.0	0.5	6	6	4	5	8	7	5	6	5
Gnome White	SK	6.2	—	4.0	0.5	6	5	3	—	—	—	5	6	5
Lavender Lady	PA	—	—	10.0	1.0	—	—	—	—	—	—	5	5	5
Rainbow Mac	VS	—	—	9.0	0.5	—	—	—	—	—	—	4	5	4
Rainbow White	VS	—	—	11.0	1.0	—	—	—	—	—	—	5	6	7

Table 5 (continued). *Gomphrena* cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Strawberry Fields	PA	—	—	11.0	1.0	—	—	—	—	—	—	3	5	6
Woodcreek Lavender	BA	16.0	—	10.0	1.0	6	8	7	—	—	—	6	6	4
Woodcreek Lilac	ST	12.0	12.0	11.0	0.9	5	8	6	3	5	4	6	6	6
Woodcreek Red	BA	15.0	—	12.0	1.0	4	7	7	—	—	—	3	5	5
Woodcreek White	ST	12.5	11.0	9.0	0.6	6	7	5	3	2	2	7	7	8

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of head; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

IMPATIENS

Impatiens, first found in East Africa in 1896, have gained widespread popularity as low maintenance bedding plants that bloom profusely in shady areas throughout the summer. Different cultivars grow to heights from 8 to 14 inches. Smaller dwarf plants that have more numerous flowers, and which do not need pinching, are growing in popularity.

Outstanding cultivars identified at the Morris trial sites in 1992 were 'Accent Rose' and 'Blitz Orange.' White and violet shades from many series were compared in that year's trials. The color range of impatiens blooms also includes salmon, orange and many shades of red and pink.

While impatiens are easy to root from cuttings, they are primarily grown from seed. There are about 45,000 seeds per ounce. It takes about three months for standard impatiens to grow from seed to good-sized flowering plants, although breeders are releasing new earlier flowering series.

Impatiens seeds need to be thinly sown into a thoroughly moist light medium, with a minimal covering of very fine vermiculite just sufficient to maintain moisture. Light must be able to reach the seed for maximum, uniform germination. Constant red light hastens germination — to between three and five days — but seeds germinate in 14 to 21 days under greenhouse conditions. Light sources need to be either removed or switched to cool white immediately after germination to avoid seedling blanching and stretching. Seedlings must be kept moist.

Seedlings 1 inch tall can be transplanted into trays, flats or small pots about a month after sowing, but damage easily and must be handled carefully. Plug production is an excellent alternative. Impatiens are susceptible to frost, but not sensitive to daylength.

Outdoors, impatiens tolerate partial shade, and require deeply dug and improved soil. They do not compete well with tree

roots. They produce bushier plants if branch tips are pinched. They also make excellent container and window box plants.

Impatiens continue to annually edge out petunias as the most popular bedding plant among consumers. They accounted for about 13 percent of the total bedding plant crop in 1991. Among growers/marketers, 94 percent rated them to be good or excellent items.

No other plant is consistently rated as well as impatiens by as many growers. It was, in fact, the best selling plant for 77 percent of growers in 1992, and more than half of all commercial growers planned increased production for 1993.

Table 6. Impatiens cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Accent Bright Eye	GO	—	16.0	—	2.0	—	—	—	6	8	7	—	—	—
Accent Carmine	GO	4.0	—	—	1.7	7	6	6	—	—	—	—	—	—
Accent Deep Pink	GO	6.5	—	—	1.5	7	6	7	—	—	—	—	—	—
Accent Lavender Blue	GO	3.0	—	3.0	2.0	6	6	6	—	—	—	6	6	8
Accent Lilac	GO	3.2	—	—	2.0	6	7	7	—	—	—	—	—	—

Table 6 (continued). Impatiens cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Accent Mix	GO	—	12.0	—	1.7	—	—	—	5	8	9	—	—	—
Accent Orange	GO	5.0	—	—	2.2	7	7	7	—	—	—	—	—	—
Accent Pastel Mix	GO	—	8.0	—	1.5	—	—	—	6	6	8	—	—	—
Accent Pink	GO	5.5	—	—	1.5	7	6	6	—	—	—	—	—	—
Accent Red	GO	3.2	—	5.0	2.4	7	6	7	—	—	—	6	6	6
Accent Red Star	GO	4.2	—	—	1.7	6	6	6	—	—	—	—	—	—
Accent Rose	GO	5.0	—	—	1.7	8	7	7	—	—	—	—	—	—
Accent Rose Star	GO	4.5	—	—	2.0	7	6	6	—	—	—	—	—	—
Accent Scarlet	GO	5.5	—	—	1.5	6	7	7	—	—	—	—	—	—
Accent Violet	GO	6.0	—	5.0	1.8	7	6	7	—	—	—	6	6	5
Accent Violet Star	ST	5.5	12.0	5.0	1.7	6	6	6	4	6	7	6	5	5
Accent White	GO,ST	5.5	15.0	6.0	2.0	6	6	6	6	8	8	5	5	5
Blitz Lt. Pink	SG	4.0	10.0	—	2.0	6	5	6	6	8	8	—	—	—
Blitz Orange	SG	7.0	22.0	11.0	2.0	8	8	10	8	8	7	5	6	8
Blitz Red	SG	7.0	—	—	1.5	8	8	7	—	—	—	—	—	—
Blitz Rose	SG	5.5	12.0	—	2.2	8	7	7	8	5	7	—	—	—
Blitz Salmon	SG	5.5	—	9.0	2.3	8	7	7	—	—	—	6	6	7
Blitz Violet	SG	4.5	—	7.0	2.6	6	6	7	—	—	—	4	7	5
Blitz White	SG	4.0	—	6.0	2.4	6	6	6	—	—	—	8	7	5
Bride Pure White	PA	—	—	5.0	2.5	—	—	—	—	—	—	7	6	5

Impatiens 'Tango'

The first impatiens hybrid to combine both wallerana and New Guinea germplasm, 'Tango' bears large bright orange blossoms on well branched, 18- to 24-inch plants. 'Tango' thrives outdoors in full morning sunlight. This was a 1989 All-America Selection.



Confection	—	—	17.0	—	1.4	—	—	—	4	5	8	—	—	—
Dazzler Apricot	BA	—	7.0	—	1.5	—	—	—	7	6	6	—	—	—
Dazzler Mixed	BA	—	10.0	—	1.5	—	—	—	6	6	7	—	—	—
Dazzler Orange	BA	—	14.0	—	2.0	—	—	—	8	8	7	—	—	—
Dazzler Punch	BA	—	10.0	—	1.5	—	—	—	6	7	8	—	—	—
Dazzler Rose	BA	—	12.0	—	1.7	—	—	—	8	9	9	—	—	—
Dazzler Salmon	BA	—	11.0	—	1.8	—	—	—	6	6	6	—	—	—
Dazzler Scarlet	BA	—	14.0	—	1.6	—	—	—	6	7	8	—	—	—
Dazzler Sky Blue	BA	—	7.0	—	1.8	—	—	—	6	5	6	—	—	—
Dazzler Violet	BA	—	—	4.0	1.5	—	—	—	—	—	—	4	4	4

Table 6 (continued). *Impatiens* cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Dazzler White	BA	—	6.0	4.0	1.7	—	—	—	5	5	6	7	4	4
Dazzler White Improved	BA	—	—	4.0	2.0	—	—	—	—	—	—	7	5	4
Impact Lavender	SK	—	9.0	6.0	1.8	—	—	—	5	6	7	8	7	7
Impact Purple	SK	—	10.0	5.0	1.8	—	—	—	5	6	8	6	5	5
Impact White	SK	—	8.0	3.0	1.8	—	—	—	5	5	7	4	4	4
Impulse Appleblossom	SG	5.0	12.0	—	2.0	6	6	7	5	6	7	—	—	—
Impulse Bright Eye	SG	5.0	—	—	2.0	6	6	6	—	—	—	—	—	—
Impulse Lilac-Blue	SG	5.0	—	4.0	1.6	6	6	7	—	—	—	6	6	7
Impulse Orange	SG	5.5	—	—	2.0	7	7	7	—	—	—	—	—	—
Impulse Orange Bicolor	SG	4.5	13.0	—	1.7	6	6	6	5	6	10	—	—	—
Impulse Pink	SG	4.7	—	—	2.0	7	5	7	—	—	—	—	—	—
Impulse Red	SG	4.2	—	—	2.0	6	6	7	—	—	—	—	—	—
Impulse Rose	SG	4.5	14.0	—	1.6	7	7	7	6	7	7	—	—	—
Impulse Salmon Rose	SG	4.8	—	—	2.0	6	6	6	—	—	—	—	—	—
Impulse Scarlet	SG	3.0	—	7.0	2.1	7	7	7	—	—	—	6	6	6
Impulse Violet	SG	4.0	—	5.0	1.9	7	5	7	—	—	—	6	7	5
Impulse White	SG,ST	3.0	—	7.0	2.0	6	6	6	—	—	—	5	5	5
Mega Orange Star	GD	5.7	16.0	—	1.9	6	6	6	6	8	7	—	—	—
Showstopper Deep Orange	BA	—	15.0	—	1.6	—	—	—	6	6	9	—	—	—
Showstopper Pink & White	BA	—	14.0	10.0	1.9	—	—	—	5	7	7	5	4	4
Soda Pops Orchid	GR	4.0	9.0	4.0	1.8	4	4	3	4	6	7	4	4	5
Soda Pops Violet	GR	3.2	7.0	3.0	2.1	6	6	6	5	4	6	6	7	6
Sun & Shade Lavender	GR	—	13.0	4.0	1.5	—	—	—	6	6	6	6	7	5
Sun & Shade Orchid	GR	5.0	—	—	1.5	6	6	7	—	—	—	—	—	—
Sun & Shade Violet	GR	3.0	11.0	3.0	1.9	6	6	7	6	8	8	6	8	7
Super Elfin Lipstick	PM	—	11.0	—	1.5	—	—	—	5	5	10	—	—	—
Super Elfin Violet	PM	—	—	7.0	2.0	—	—	—	—	—	—	6	6	4
Super Elfin White	PM	—	—	5.0	1.5	—	—	—	—	—	—	6	5	4
Tango	AAS	10.0	27.0	10.0	2.4	4	5	4	5	9	5	5	5	5
Tiara Carmine	—	—	12.0	—	1.5	—	—	—	5	6	8	—	—	—
Tiara Rose	—	—	17.0	—	1.7	—	—	—	6	8	7	—	—	—
Tiara Violet	CL	—	12.0	4.0	1.8	—	—	—	2	4	7	5	6	5
Tiara White Improved	CL	4.0	—	4.0	2.0	6	6	5	—	—	—	4	4	5

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

KALE, ORNAMENTAL

Flowering cabbage and kale (*Brassica oleracea* Acephala Group) actually are edible members of the cabbage family, but have been grown in the Orient for hundreds of

years for their beautiful colored foliage.

The "flower" of ornamental kale is simply its central leaf cluster. These leaves turn a

contrasting color as the days and nights become cooler in late summer and fall. Colors range from white to pink to red. Leaf shape also varies between cultivars, from the

smooth, wavy, "round-leaved" plants to the frilly "fringed-leaved" to the deeply notched "feather-leaved" type.

This bedding plant is growing in popularity with consumers in colder regions because it is quite frost-tolerant. Color intensifies with frost, and plants can hold a good appearance right up to the first snowfall.

Ornamental kale can be sold in spring, summer, or fall, but it takes about 11 weeks to produce a marketable transplant in a 6-inch pot. Germination occurs in ten days at 70°F and requires light. Excessive stem elongation may be a problem if plants experience high temperatures.

A number of kales were among the better

performers at all three test locations in 1992. These especially included 'Red Feather' at all three sites. Grand Rapids also had good performers in 'Chidori Red,' 'Friszy Red,' 'Nagoya Red Improved' and 'Peacock Red.' Other good performers at Morris were 'Chidori Red,' 'Nagoya Red,' 'Nagoya Red Improved,' 'Nagoya White' and 'Nagoya White Improved.'

Table 7. Ornamental kale cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Chidori Red	fringed	BA	15.0	—	12.0	n/a	8	10	8	—	—	—	10	10	10
Friszy Red	fringed	PA	—	—	10.0	n/a	—	—	—	—	—	—	10	10	10
Friszy White	fringed	PA	—	—	10.0	n/a	—	—	—	—	—	—	6	6	8
Nagoya	fringed	BU	—	—	11.0	n/a	—	—	—	—	—	—	8	8	8
Nagoya Red	fringed	HM,SK,VS	21.0	—	14.0	n/a	8	10	8	—	—	—	8	8	8
Nagoya Red Improved	fringed	SK	18.0	—	9.0	n/a	8	10	8	—	—	—	10	8	10
Nagoya White	fringed	SK	16.2	—	—	n/a	8	10	8	—	—	—	—	—	—
Nagoya White Improved	fringed	SK	18.5	—	12.0	n/a	8	10	8	—	—	—	8	4	8
Peacock Red	feather	PA	—	—	18.0	n/a	—	—	—	—	—	—	10	10	10
Red Feather	feather	HM	33.5	36.0	27.0	n/a	8	10	8	10	10	10	8	10	10

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Rating on 1 to 10 scale for floral display and foliage quality.

LOBELIA

Lobelia (*Lobelia erinus*) offers the gardener intensely blue flowers on short, fine-leaved plants. It also offers colors such as sky blue, deep blue, violet blue, rose, lilac, and white. An exciting combination is the blue and white bicolor 'Mrs. Clibran.'

Despite its origin in South Africa, lobelia

grows best in cool conditions. Start seeds at 65°F, and allow extra time for germination. Lobelia's very fine seeds should not be covered. They require about 20 days to germinate, and flower about 100 days after sowing.

Lobelia requires moist garden soil, but tolerates partial shade, making it an excellent

companion for impatiens. Trailing lobelias are available that show well in hanging baskets.

Lobelia represented about 2 percent of the commercial bedding plant crop in 1992, and was rated a good product by most growers. About 8 percent of growers planned to increase production of lobelia for 1993.

Table 8. Lobelia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Blue Crystal	compacta	ST	7.2	10.0	8.0	1.1	3	7	6	10	10	6	8	8	5
Blue Moon	compacta	SG	6.7	10.0	7.0	0.6	5	9	6	10	10	4	4	6	5
Cambridge Blue	compacta	VS	—	—	5.0	0.5	—	—	—	—	—	—	4	5	6
Crystal Palace	compacta	BU, HM, VS	9.7	7.0	8.3	1.0	7	10	8	10	10	5	6	5	4
Mrs. Clibran	compacta	HM	7.7	9.0	6.0	1.1	8	10	7	10	10	4	6	7	5

Table 8 (continued). Lobelia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Paper Moon	compacta	SG	5.7	8.0	6.0	1.0	4	7	6	7	9	6	5	5	2
Rosamond	compacta	VS	—	—	4.0	0.5	—	—	—	—	—	—	5	6	5
Royal Blue	compacta	GR	10.0	9.0	8.0	1.0	7	10	6	10	10	3	6	6	5
White Lady	compacta	VS	—	—	4.0	0.2	—	—	—	—	—	—	5	6	4
Color Cascade Mix	trailing	ST	—	—	7.0	0.7	—	—	—	8	10	0	5	6	6
Fountain Mix	trailing	HM	—	13.0	6.0	0.6	—	—	—	8	10	6	5	6	5
Sapphire	trailing	HM	13.5	—	10.0	1.3	4	6	4	6	10	0	7	7	6

¹See Source List for seed source key. ²Mature height including flowers; site average. ³Width of single blossom; value given is average across sites. ⁴Rating on 1 to 10 scale for floral display and foliage quality.

MARIGOLD

The marigold (*Tagetes*) is one of the most widely grown annuals. Hundreds of cultivars are available in the trade.

The species originated in Mexico and was grown in Spain more than 400 years ago. Different types spread through France, Africa and England, and later returned to North America with "French" and "African" attached to their names to distinguish them from the European native *Calendula* which was then called the "pot marigold." The tall African types are now known as 'American' marigolds.

Most breeding of these plants is now done in the U.S., and many products of those efforts have been All-America Selections. A recent development is the triploid type which is a naturally sterile hybrid. These triploids

do not set seed, and they continue to flower heavily through the growing season.

For early flowers, seeds should be sown indoors into thoroughly moist media about six weeks ahead of outdoor planting. The seeds have a high germination rate and should be scattered thinly. Seedlings can be transplanted into a variety of soil mixes. Planted directly in the garden, seeds should be covered thinly with moist earth. Seedlings grow rapidly in warm weather.

Marigold flower colors span the range of yellows, oranges, creams and reds, and can be found both in solid colors and in combinations. Most marigolds flower sooner under short days.

Aster leafhoppers, spider mites and aphids

can be problems for growers on seedlings and small plants. In the garden, diseases and insects are rarely a problem for marigolds, though aster yellows can be severe in some seasons, as was the case in 1992. However, even in that year there were some outstanding cultivars. These included 'Voyager Gold' and 'Perfection Yellow' at Morris, 'Marvel Gold Delite' at Grand Rapids, and 'Safari Tangerine,' 'Laguna Gold' and 'Zenith Rouge' in St. Paul.

Together, the dwarf French and tall American marigold types accounted for about 8 percent of the total U.S. bedding plant crop in 1992. A majority of growers and marketers rated them to be good or excellent items.

Table 9. Marigold cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

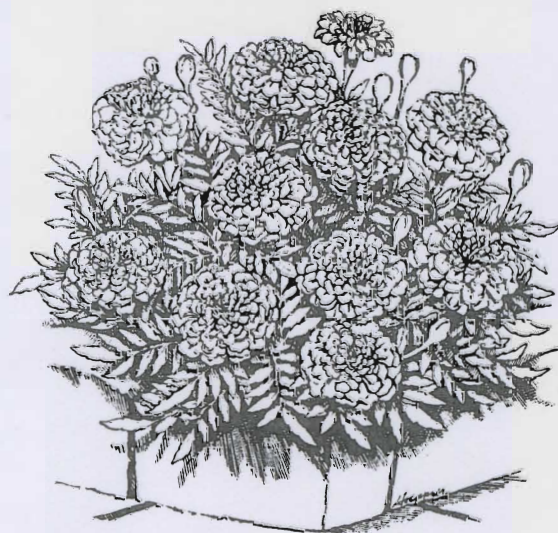
Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Discovery Yellow	American	BS	10.0	—	—	3.2	5	7	4	—	—	—	—	—	—
Excel Primrose	American	GO	15.0	—	—	3.7	8	6	3	—	—	—	—	—	—
Excel Yellow	American	GO	17.2	—	—	3.5	6	7	4	—	—	—	—	—	—
Inca Gold	American	GO	16.5	—	—	4.0	6	7	4	9	8	0	—	—	—
Inca Orange	American	GO	20.2	—	—	4.2	6	7	6	—	—	—	—	—	—

Table 9 (continued). Marigold cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Inca Yellow	American	GO	16.5	—	—	4.0	8	6	4	—	—	—	—	—	—
Marvel Gold	American	PM	19.5	—	15.0	2.4	6	10	4	5	10	0	7	7	7
Marvel Mix	American	PM	—	—	—	3.4	—	—	—	6	9	0	—	—	—
Marvel Orange	American	PM	18.7	—	12.0	3.6	8	7	5	7	9	0	8	8	7
Marvel Yellow	American	PM	22.7	—	14.0	3.5	6	9	4	6	10	0	7	7	8
Marvel Yellow Chiffon	American	PM	15.5	—	15.0	3.2	7	9	4	5	8	0	9	8	9
Perfection Gold	American	GO	22.5	—	—	3.7	5	8	5	—	—	—	—	—	—
Perfection Orange	American	GO	20.2	—	—	3.7	5	8	7	—	—	—	—	—	—
Perfection Yellow	American	GO	20.0	—	—	3.5	7	10	5	—	—	—	—	—	—
Voyager Orange	American	BS	14.7	—	—	3.5	8	8	4	—	—	—	—	—	—

Marigold 'Golden Gate'

A very different flower distinguishes 'Golden Gate' from traditional French marigolds. Flowers are large, very double and not crested. Expect to see these golden mahogany blooms about 65 days after sowing. This was a 1989 All-America Selection.



Aurora Fire	French	GO	—	—	—	2.0	—	—	—	10	5	0	—	—	—
Aurora Light Yellow	French	GO	—	—	—	2.3	—	—	—	10	5	0	—	—	—
Aurora Mixture	French	GO	—	—	11.0	2.4	—	—	—	10	5	0	8	6	7
Disco Yellow	French	BS	6.0	—	—	2.0	6	6	5	—	—	—	—	—	—
Favorite Gold/Red	French	RS	—	—	—	1.8	—	—	—	9	6	0	—	—	—
Golden Gate	French	AAS	10.7	—	10.0	2.4	8	8	5	10	5	0	9	8	9
Hero Red	French	BS	10.2	—	—	2.0	8	6	5	—	—	—	—	—	—
Hero Yellow	French	BS	13.5	—	—	2.2	4	6	3	—	—	—	—	—	—
Janie	French	GO	8.5	—	—	1.5	4	8	6	—	—	—	—	—	—
Janie Bright Yellow	French	GO	6.0	—	6.0	1.6	3	4	2	—	—	—	7	5	7
Janie Deep Orange	French	GO	13.7	—	—	2.0	6	6	2	—	—	—	—	—	—
Janie Flame	French	GO	8.2	—	9.0	1.9	5	8	4	—	—	—	6	5	7
Janie Harmony	French	GO	9.2	—	9.0	2.3	6	8	6	—	—	—	9	7	3
Janie Mixture	French	GO	—	—	7.0	2.0	—	—	—	10	6	0	8	6	7
Janie Primrose	French	GO	8.2	—	—	1.7	7	7	4	10	5	0	—	—	—
Janie Tangerine	French	GO	9.7	—	—	1.7	2	5	2	—	—	—	—	—	—
Little Hero Gold	French	BS	15.5	—	—	2.0	4	6	5	—	—	—	—	—	—
Little Hero Orange	French	BS	6.2	—	—	2.0	4	7	3	—	—	—	—	—	—
Little Hero Yellow	French	BS	—	—	—	1.7	—	—	—	8	5	0	—	—	—
Orange Winner	French	RS	—	—	—	2.0	—	—	—	7	6	0	—	—	—

Table 9 (continued). Marigold cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width (inches)	Overall Quality ³								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Safari Tangerine	French	BS	14.0	--	--	2.5	8	7	4	--	--	--	--	--	--
Safari Yellow	French	BS	10.0	--	--	3.0	7	7	7	--	--	--	--	--	--
Nugget Supreme	triploid	BU	--	--	--	1.9	--	--	--	9	2	0	--	--	--
Zenith Golden Yellow	triploid	--	--	--	--	2.4	--	--	--	10	5	0	--	--	--
Zenith Lemon	triploid	--	--	--	--	2.7	--	--	--	9	2	0	--	--	--
Zenith Orange	triploid	--	--	--	--	2.7	--	--	--	9	4	0	--	--	--
Zenith Orange Red	triploid	--	--	--	--	2.4	--	--	--	9	3	0	--	--	--
Zenith Red Gold	triploid	--	--	--	--	2.5	--	--	--	10	3	0	--	--	--

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

NICOTIANA

A lavishly free-blooming plant, *Nicotiana glauca*, also known as flowering tobacco, is closely related to the petunia. It shares the petunia's tolerance for many different site conditions. *Nicotiana* does well in full sun and part shade, and seems to handle severe weather without damage.

For best germination, start the tiny seeds at 70° F and don't cover. Light will encourage germination in about 12 days. Plan on six to

eight weeks from seed to flower. *Nicotiana* requires long days to produce flower buds, so don't sow seed before March 1.

This South American native has received a good deal of attention from plant breeders in recent years. Their efforts have been rewarded, with the tall, fragrant pastel-flowered forms natural to this plant being replaced by several series of stocky, vivid plants. Flower colors include white, pink, red, rose, green,

and yellow. The newer series tend to be less fragrant, however.

Nicotiana was a superb performer at Grand Rapids in 1992, with ten cultivars rating among the overall best at that location. 'Nicki Rose' received a high rating at Morris.

Table 10. *Nicotiana* cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Domino Crimson	VS	--	--	19.0	1.5	--	--	--	--	--	--	10	8	10
Domino Lime Green	VS	--	--	19.0	2.0	--	--	--	--	--	--	10	9	10
Domino Mix	PA	--	17.0	--	1.7	--	--	--	5	8	4	--	--	--
Domino Picotee	VS	--	--	19.0	3.0	--	--	--	--	--	--	10	8	9
Domino Pink w/Eye	VS	--	--	13.0	2.5	--	--	--	--	--	--	8	7	9
Domino Purple	VS	--	--	16.0	2.0	--	--	--	--	--	--	7	7	9
Domino Purple w/Eye	VS	--	--	18.0	2.5	--	--	--	--	--	--	7	6	9
Domino Red	VS	--	--	13.0	2.0	--	--	--	--	--	--	9	7	9
Domino White	VS	--	--	17.0	2.0	--	--	--	--	--	--	9	9	10
Metro Lilac	PM	--	19.0	14.0	1.8	--	--	--	6	8	5	8	7	9

Table 10 (continued). *Nicotiana* cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Metro Lime	PM	20.5	21.0	18.0	1.8	7	9	6	8	8	6	9	9	10
Metro Mix	PM	—	17.0	—	1.7	—	—	—	8	8	6	—	—	—
Metro Red	PM	20.7	—	16.0	1.9	6	7	4	—	—	—	9	8	9
Metro Rose	PM	—	21.0	16.0	2.1	—	—	—	10	10	5	10	9	10
Metro White	PM	16.0	20.0	14.0	1.8	6	7	5	10	8	5	9	8	10
Nicki Lime	PM	34.0	28.0	21.0	1.7	6	7	4	8	7	5	8	7	10
Nicki Mix	BU	—	21.0	—	2.0	—	—	—	8	7	7	—	—	—
Nicki Pink	PM	29.0	—	24.0	1.5	7	10	7	—	—	—	8	8	10
Nicki Red	PM	31.5	—	20.0	2.4	7	8	5	—	—	—	8	9	10
Nicki Rose	PM	32.0	—	25.0	1.6	8	10	6	—	—	—	10	9	10
Nicki White	PM	25.2	—	16.0	1.4	7	7	5	—	—	—	9	7	10
Starship	BA	20.5	—	—	1.7	6	10	6	—	—	—	—	—	—
Starship Lemon	BA	—	—	17.0	2.0	—	—	—	—	—	—	9	8	10
Starship Red	BA	—	—	13.0	1.8	—	—	—	—	—	—	8	8	9
Starship Rose Pink	BA	16.0	—	13.0	1.5	6	8	4	—	—	—	7	5	9

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

PANSY

Pansies (*Viola*) are botanically considered biennials or perennials, but are thought of as annuals because in most places their flowering lives last only one gardening year. Occasionally they will survive a Minnesota winter to bloom again. Fall planting cultivars are the newest trends. The 1992 Minnesota cultivar trials examined white, purple and black pansies, as well as several series.

Pansies can be found with flowers in nearly every color imaginable, as single colors, mixes and blends, and with smooth flowers or ruffles. Larger flowers, more vigorous plants and the increased ability to bloom in hot weather are characteristic of modern cultivars. They do, however, prefer cooler

temperatures, and tolerate partial shade.

Seeds are sown in mid-January to flower between May and June. They need good, well drained soil and cooler temperatures to germinate, and cool 50° F temperatures for growing. They should be set out in the garden as soon as possible in the spring.

Pansies are considered to be a medium maintenance plant that flowers best when old blossoms are picked off before going to seed. Sprawling branches can be cut back close to the base to allow for new growth and blooms.

'Melody White' was a highly rated 1992 cultivar in Grand Rapids. A good performer

in Morris was 'Medallion White Blotch.'

The pansy market has been relatively stable for the past couple of years. In 1992 pansies accounted for about 2 percent of the total U.S. bedding plant crop. Bedding plant growers/marketers generally rate them as an excellent or good item.

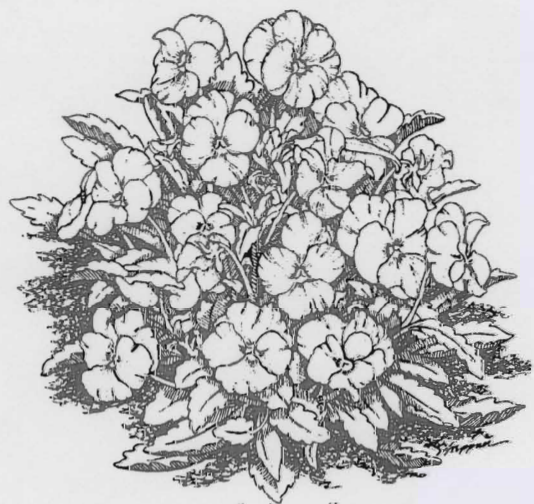
Pansy 'Jolly Joker'

This unique orange/purple bicolor is an attention getter. It has above average heat and weather tolerance, dwarf habit and large flowers. Normal pansy culture produces a flowering pack in about four months. This was a 1990 All-America Selection.



Table 11. Pansy cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Accord Blue Blotch	GO	7.5	—	—	1.9	9	7	4	6	6	0	—	—	—
Accord Clear Blue	GO	9.0	—	—	2.2	8	6	6	7	7	0	—	—	—
Accord Clear White	GO	8.5	—	6.0	2.1	8	8	6	6	4	0	8	8	8
Accord Clear Yellow	GO	7.5	—	6.0	1.9	8	7	6	7	6	0	7	7	8
Accord Mix	GO	—	—	—	2.0	—	—	—	6	5	0	—	—	—
Accord Red Blotch	GO	7.0	—	—	2.0	7	7	5	6	6	0	—	—	—
Accord Rose Blotch	GO	6.0	—	—	1.9	7	7	5	7	4	0	—	—	—
Accord White Blotch	GO	9.5	—	6.0	2.1	8	8	6	7	6	0	8	8	7
Accord Yellow Blotch	GO	6.5	—	—	2.3	9	8	6	8	8	0	—	—	—
Armado Mix	—	—	—	—	2.2	—	—	—	5	4	0	—	—	—



Pansy 'Padparadja'

This deep, pure orange colored pansy is a floral gem. A small 8-inch plant, it retains its rich color even in hot summer weather. It performs well in sun or semishade and is easily grown from seed. This was a 1991 All-America Selection.

Armado Orange	—	—	—	—	2.1	—	—	—	4	3	0	—	—	—
Armado Pure Yellow	—	—	—	—	2.4	—	—	—	6	6	0	—	—	—
Armado Red Wing	—	—	—	—	2.2	—	—	—	5	6	0	—	—	—
Black Devil	PA	—	—	5.0	1.0	—	—	—	—	—	—	5	5	7
Black Prince	ST	—	—	5.0	2.0	—	—	—	3	0	0	3	4	2
Chalon Mix	CL	—	—	—	2.0	—	—	—	6	4	0	—	—	—
Characters Clear White	GR	8.7	—	6.0	2.0	7	8	6	7	6	0	6	6	5
Characters White/Face	—	—	—	—	2.3	—	—	—	9	7	0	—	—	—
Clear Crystals Jet Black	ST	—	—	6.0	2.0	—	—	—	4	6	0	3	4	5
Corso Orange	—	—	—	—	1.8	—	—	—	3	0	0	—	—	—
Corso Red/Eye	—	—	—	—	1.7	—	—	—	6	6	0	—	—	—
Crystal Bowl Purple	SK	—	—	5.0	2.0	—	—	—	—	—	—	5	4	4
Crystal Bowl White	SK	—	—	5.0	2.0	—	—	—	—	—	—	5	7	6
Faces Purple	GR	10.0	—	6.0	1.7	8	8	8	6	6	0	7	8	10
Faces White	GR	8.0	—	5.0	2.0	7	7	5	6	3	0	7	6	7
Farma	ES	—	—	4.0	3.0	—	—	—	—	—	—	6	6	7
Favorite Blue	—	—	—	—	1.8	—	—	—	7	7	0	—	—	—
Happy Face Purple	BS	—	—	—	1.3	—	—	—	8	6	0	—	—	—
Happy Face White	BS	—	—	5.0	2.5	—	—	—	—	—	—	7	8	6
Happyflower Pure White	BT	—	—	4.0	2.0	—	—	—	6	6	0	8	8	5

Table 11 (continued). Pansy cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Imperial Pink Shades	—	—	—	—	2.2	—	—	—	5	4	0	—	—	—
Jolly Joker	AAS	9.7	—	5.0	1.8	7	6	6	6	6	0	5	4	4
Lyric Mix	GO	—	—	—	2.3	—	—	—	7	5	0	—	—	—
Maxim Deep Blue	SK	—	—	3.0	2.0	—	—	—	—	—	—	5	5	5
Maxim Marina	AAS	9.5	—	6.0	2.3	9	8	7	7	6	0	7	8	6
Maxim Sunset	SK	—	—	5.0	3.0	—	—	—	—	—	—	6	6	8
Maxim White	SK	—	—	6.0	1.5	—	—	—	—	—	—	4	5	5
Medallion Blue Blotch	—	—	—	—	2.5	—	—	—	7	7	0	—	—	—
Medallion Mix	—	—	—	—	1.7	—	—	—	6	6	0	—	—	—
Medallion Purple w/Blotch	CL	8.0	—	8.0	2.3	9	8	6	6	6	0	7	7	5
Medallion White w/Blotch	CL	8.2	—	7.0	2.5	9	8	5	—	—	—	6	6	7
Melody Purple/White	BA	—	—	—	0.0	—	—	—	—	—	—	—	—	—
Melody White	BA	—	—	8.0	1.5	—	—	—	—	—	—	10	9	9
Padparadja	AAS	10.0	—	5.0	1.6	8	8	7	4	6	0	5	5	6
Presto Purple	BS	—	—	6.0	1.6	—	—	—	8	6	0	7	6	6
Presto White	BS	—	—	3.0	2.5	—	—	—	—	—	—	6	6	5
Regal White w/Blotch	SK	—	—	5.0	2.0	—	—	—	—	—	—	5	7	6
Roc Blue	SG	8.0	—	—	1.7	8	6	6	—	—	—	—	—	—
Roc Light Blue	SG	—	—	—	2.3	—	—	—	7	7	0	—	—	—
Roc White	SG	11.0	—	6.0	2.4	8	8	7	6	6	0	5	5	8

Pansy 'Maxim Marina'

A tough and enduring pansy with delicate blue and white flowers. With enough moisture, even sun, heat and drought will not stop its flowering. It grows easily in beds and containers. This was a 1991 All-America Selection.



Roc White/Purple Blotch	ST	—	—	6.0	2.2	—	—	—	8	6	0	9	9	7
Springtime Black	HM	8.5	—	—	1.6	6	6	5	7	6	0	—	—	—
Springtime Deep Blue Blotch	—	—	—	—	1.6	—	—	—	8	6	0	—	—	—
Springtime Lemon Splash	—	—	—	—	1.7	—	—	—	6	6	0	—	—	—
Springtime Orange	—	—	—	—	1.6	—	—	—	4	4	0	—	—	—
Springtime Porcelain Blue	—	—	—	—	2.3	—	—	—	7	7	0	—	—	—
Springtime Primrose Yellow	—	—	—	—	1.7	—	—	—	5	5	0	—	—	—
Springtime Pure White	CL	12.5	—	6.0	1.8	8	9	8	6	5	0	8	8	6
Springtime Violet	CL	6.0	—	—	1.6	9	8	6	7	6	0	—	—	—
Springtime White w/Blotch	CL	11.0	—	—	1.1	8	9	7	6	6	0	—	—	—

Table 11 (continued). Pansy cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Super Majestic Snow Improved	SR	7.2	—	—	2.7	9	8	6	—	—	—	—	—	—
Universal Light Blue	GO	6.0	—	—	2.2	8	6	6	—	—	—	—	—	—
Universal Orange	GO	—	—	—	1.9	—	—	—	5	4	0	—	—	—
Universal Purple	GO,VS	9.0	—	7.0	2.4	8	8	6	—	—	—	9	7	9
Universal True Blue	GO	6.2	—	—	1.7	8	8	6	—	—	—	—	—	—
Universal Violet	GO	9.0	—	—	1.5	9	8	6	—	—	—	—	—	—
Universal White	VS	—	—	7.0	1.5	—	—	—	—	—	—	5	5	5
Universal White w/Blotch	VS	—	—	6.0	2.0	—	—	—	—	—	—	8	8	7
Water Color Mix	CL	—	—	—	1.9	—	—	—	7	7	0	—	—	—
White Crown	SK	—	—	8.0	3.0	—	—	—	—	—	—	10	9	7

¹See Source List for seed source key. ²Mature height including flowers; site average. ³Width of single blossom; value given is average across sites. ⁴Rating on 1 to 10 scale for floral display and foliage quality.

PETUNIA

The ancestors of modern petunias probably originated in South America. Breeding among open pollinated cultivars was pioneered by a French botanist in the 1800s. Modern hybrids were introduced in the 1950s and now essentially form the entire market. There are hundreds of named varieties, categorized according to flower size and growth habit as multifloras or grandifloras, single or double types, or as the new floribundas.

Large flowered grandifloras have been the most popular type, although they have fewer flowers than the smaller free flowering multifloras. Recently, however, floribunda petunias that combine many of the best qualities of both have been gaining in popularity. All cultivars bloom throughout the summer. Flowers can be found in almost every color: white, pink, red, blue, lavender,

purple, yellow and combinations. Many petunias have been designated All-America Selections over the years.

Petunia seeds are very small (there are about 200,000 per ounce) and must be sown carefully on the surface of a moist, light soil mix. They require light and uniform moisture. Germination takes about one week.

To keep petunias in bloom in the garden, faded flowers should be removed, along with the portion of the plant immediately below the flower, where the seeds form. Petunias require full sun and a warm soil. Plant heights range between 10 and 15 inches.

Insects are not usually a problem in production, but diseases can be, specifically damping-off caused by *Rhizoctonia*, *Pythium*

or *Phytophthora*. The multiflora and floribunda types generally provide more colorful displays and hold up better under wet weather than do grandifloras. White mold was a major problem at the St. Paul site in 1992, wiping out entire plantings.

Despite the white mold disaster, varieties that did do well in St. Paul were the multifloras 'Merlin Blue' and 'Merlin Pink.' Outstanding 1992 cultivars grown at Morris were the floribunda 'Madness Orchid' and the multifloras 'Polo Pink' and 'Primeval Blue.'

Petunias are the second most popular annuals, trailing only impatiens. Petunias accounted for about 11 percent of the 1992 U.S. market for bedding plants. Bedding plant growers/marketers strongly rated them as an excellent or good group of items.

Table 12. Petunia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Celebrity Blue	floribunda	BS	14.0	13.0	10.0	2.5	5	7	8	7	9	8	6	7	8
Celebrity Blue Ice	floribunda	BS	14.0	12.0	13.0	2.8	4	6	5	7	5	5	7	7	10
Celebrity Burgundy	floribunda	BS	16.5	—	—	2.5	6	6	4	—	—	—	—	—	—
Celebrity Burgundy Ice	floribunda	BS	—	13.0	—	2.8	—	—	—	7	6	6	—	—	—
Celebrity Burgundy Imp.	floribunda	BS	12.0	—	—	3.7	5	9	6	—	—	—	—	—	—

Table 12. Petunia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Celebrity Hot Pink	floribunda	BS	15.0	—	—	3.2	8	9	6	10	0	0	—	—	—
Celebrity Ice Mix	floribunda	BS	—	—	—	2.9	—	—	—	8	0	0	—	—	—
Celebrity Lilac	floribunda	BS	9.0	11.0	—	3.1	6	7	7	8	8	6	—	—	—
Celebrity Mix	floribunda	BS	—	—	—	2.4	—	—	—	8	6	3	—	—	—
Celebrity Orchid Ice	floribunda	BS	17.5	—	19.0	2.7	7	9	8	10	0	0	7	8	9
Celebrity Pastel Mix	floribunda	BS	—	—	—	2.5	—	—	—	8	0	0	—	—	—
Celebrity Pink Morn	floribunda	BS	14.7	16.0	16.0	2.5	7	10	8	8	8	6	8	8	9
Celebrity Raspberry Ice	floribunda	BS	11.2	—	14.0	2.9	5	4	2	8	6	0	5	6	8
Celebrity Red	floribunda	BS	8.5	—	10.0	2.7	6	7	4	8	0	0	7	6	8
Celebrity Red Morn	floribunda	BS	16.0	15.0	17.0	2.5	7	7	7	10	7	6	8	7	9

Petunia 'Polo Burgundy Star'

This improved single multiflora petunia shows a vivid white star pattern. Its compact spreading habit encourages exceptionally free bloom without shearing or deadheading. Two-inch flowers are produced about ten weeks after greenhouse sowing. This was a 1990 All-America Selection.



Celebrity Salmon	floribunda	BS	2.2	—	16.0	3.0	5	4	3	—	—	—	8	8	8
Celebrity Sky Blue	floribunda	BS	12.0	12.0	14.0	2.6	8	6	6	6	6	6	9	8	9
Celebrity Strawberry Ice	floribunda	BS	12.7	—	14.0	2.5	4	4	4	8	0	0	7	5	7
Celebrity Summer Ice	floribunda	BS	15.0	—	13.0	2.3	6	6	4	8	6	0	8	6	7
Celebrity White	floribunda	BS	12.0	—	13.0	2.6	5	7	5	7	6	0	7	6	9
Madness Just	floribunda	BA	13.2	—	—	2.7	4	5	6	8	0	0	—	—	—
Madness Lilac	floribunda	BU	16.7	—	—	2.7	4	7	6	9	6	1	—	—	—
Madness Midnight	floribunda	BA	15.7	—	11.0	2.4	4	7	7	7	6	0	7	6	7
Madness Orchid	floribunda	BA	16.0	—	16.0	2.8	8	10	8	10	6	0	8	9	9
Madness Pink	floribunda	BA	10.0	15.0	—	2.9	8	9	7	8	6	8	—	—	—
Madness Plum	floribunda	BA	15.7	14.0	—	2.8	8	9	7	10	8	8	—	—	—
Madness Red	floribunda	BU	11.0	—	11.0	2.6	6	6	6	8	0	0	5	5	8
Madness Rose/White	floribunda	BA	—	—	—	2.9	—	—	—	6	7	0	—	—	—
Madness Sheer	floribunda	BA	14.0	—	—	2.3	4	8	6	6	8	0	—	—	—
Madness Spring	floribunda	BA	14.0	—	15.0	2.5	7	6	4	—	—	—	5	6	8
Madness Sugar	floribunda	BA	16.0	—	—	2.7	4	10	6	8	0	0	—	—	—
Candypops White	grandiflora	GR	12.0	15.0	16.0	3.4	5	4	3	8	4	5	6	7	7
Cascade Red	grandiflora	VS	—	—	10.0	3.5	—	—	—	—	—	—	5	6	7
Challenger Red	grandiflora	VS	—	—	12.0	3.2	—	—	—	—	—	—	4	4	8
CountDown Red	grandiflora	PA	—	—	10.0	3.2	—	—	—	—	—	—	4	5	6

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Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Daddy Orchid	grandiflora	AAS	14.0	—	10.0	3.1	6	6	6	8	6	3	9	7	7
Dreams Pink	grandiflora	PM	—	12.0	—	3.3	—	—	—	8	6	7	—	—	—
Dreams Red	grandiflora	PM	—	—	11.0	3.2	—	—	—	8	5	0	5	4	6
Falcon Red	grandiflora	SK,VS	—	—	11.0	3.0	—	—	—	6	0	0	4	4	6
Flash Blue & White	grandiflora	SG	12.7	—	—	3.0	3	5	6	6	3	0	—	—	—
Flash Pink Centre	grandiflora	SG	—	—	14.0	2.2	—	—	—	—	—	—	7	6	8
Flash Purple & White	grandiflora	SG	13.0	12.0	—	3.0	8	9	8	6	0	5	—	—	—
Happiness	grandiflora	ST	13.0	—	—	4.0	5	7	7	—	—	—	—	—	—
Hula hoop Red	grandiflora	SK	—	—	15.0	2.9	—	—	—	7	0	0	8	4	7
Prism Bright Rose	grandiflora	—	—	—	—	3.3	—	—	—	10	7	0	—	—	—
Prism Coral	grandiflora	CL	—	—	—	3.2	—	—	—	8	7	0	—	—	—
Prism Coral Halo	grandiflora	CL	12.0	—	11.0	2.8	4	7	4	8	0	0	8	4	6
Prism Mix	grandiflora	CL	—	11.0	—	3.3	—	—	—	8	8	6	—	—	—
Prism Rose Halo	grandiflora	CL	14.2	—	—	2.8	4	6	5	9	0	0	—	—	—
Prism Ruby	grandiflora	CL	—	—	17.0	3.2	—	—	—	—	—	—	8	8	9
Prism Scarlet	grandiflora	CL	9.0	12.0	7.0	3.6	3	4	3	8	5	5	7	4	5
Supermagic Red	grandiflora	VS	—	—	12.0	3.0	—	—	—	—	—	—	4	6	6
Supermagic Rose	grandiflora	PM	—	—	—	3.4	—	—	—	8	7	0	—	—	—
Supermagic Sky	grandiflora	VS	—	—	12.0	2.7	—	—	—	—	—	—	6	8	9
Supermagic Sky Imp.	grandiflora	BA	—	—	11.0	2.5	—	—	—	—	—	—	4	6	8



Petunia 'Polo Salmon'

This improved multiflora flowers earlier and covers itself with a flat canopy of blooms. It shows heat, drought and weather tolerance. A bedding plant crop can be produced in about 11 weeks. This was a 1990 All-America Selection.

Ultra Blue	grandiflora	GO	11.7	13.0	—	3.1	7	8	6	8	7	8	—	—	—
Ultra Blue Star	grandiflora	GO	16.5	—	—	3.0	4	6	6	8	0	0	—	—	—
Ultra Burgundy	grandiflora	GO	12.0	15.0	—	3.0	3	6	5	8	5	3	—	—	—
Ultra Crimson Star	grandiflora	AAS,GO	11.0	12.0	17.0	2.8	4	6	6	7	5	6	7	6	7
Ultra Mix	grandiflora	GO	—	—	—	3.5	—	—	—	8	5	0	—	—	—
Ultra Peppermint	grandiflora	GO	13.7	—	—	3.2	4	6	4	8	0	0	—	—	—
Ultra Pink	grandiflora	GO	11.0	14.0	—	3.3	6	6	7	8	7	8	—	—	—
Ultra Plum	grandiflora	GO	10.0	15.0	—	3.3	4	6	5	9	6	6	—	—	—
Ultra Red	grandiflora	GO	10.7	—	11.0	3.3	6	8	6	8	4	0	6	6	7
Ultra Red Star	grandiflora	GO	12.0	—	12.0	3.1	6	6	6	7	4	0	7	7	6

Table 12. Petunia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/15	9/17
Ultra Rose	grandiflora	GO	11.2	—	—	3.2	5	7	6	7	0	0	—	—	—
Ultra Rose Star	grandiflora	GO	14.0	—	—	3.0	5	7	6	10	6	1	—	—	—
Ultra Salmon	grandiflora	GO	12.0	—	—	3.3	7	5	4	10	0	0	—	—	—
Ultra White	grandiflora	GO	14.2	—	15.0	3.0	5	6	5	7	0	0	5	8	8
Carpet Red	multiflora	PM	—	11.0	9.0	2.6	—	—	—	8	7	6	2	4	5
Freedom Red	multiflora	GR	—	—	10.0	2.5	—	—	—	7	6	0	5	6	6
Highlight Blue	multiflora	BA	—	10.0	—	3.0	—	—	—	7	8	5	—	—	—
Highlight Carmine	multiflora	BA	—	—	12.0	3.0	—	—	—	—	—	—	4	4	8
Highlight Coral	multiflora	BA	—	—	—	3.2	—	—	—	10	0	0	—	—	—
Highlight Scarlet	multiflora	BA	—	—	11.0	3.0	—	—	—	7	5	0	6	6	7
Horizon Blue	multiflora	CL	—	—	—	2.5	—	—	—	6	9	0	—	—	—
Horizon Coral Halo	multiflora	CL	10.0	10.0	11.0	2.1	3	6	4	6	8	5	7	5	7
Horizon Deep Rose	multiflora	CL	—	12.0	—	2.5	—	—	—	8	10	6	—	—	—
Horizon Mix	multiflora	CL	—	—	—	2.6	—	—	—	6	9	0	—	—	—
Horizon Red	multiflora	CL	8.5	12.0	11.0	2.5	2	6	4	7	8	5	8	5	6
Horizon Rose Halo	multiflora	CL	11.3	12.0	—	3.0	4	8	8	8	8	3	—	—	—
Horizon Ruby	multiflora	CL	—	12.0	18.0	3.0	—	—	—	8	8	7	8	8	10
Horizon Salmon	multiflora	CL	—	14.0	13.0	2.5	—	—	—	6	9	5	6	6	6
Horizon White	multiflora	CL	—	—	13.0	3.0	—	—	—	8	0	0	7	6	9
Merlin Blue	multiflora	SK	12.5	13.0	11.0	2.5	5	6	6	10	9	8	7	6	6
Merlin Cherry Rose	multiflora	SK	11.0	—	—	2.5	4	5	3	9	5	1	—	—	—
Merlin Mix	multiflora	SK	—	14.0	—	3.0	—	—	—	9	6	8	—	—	—
Merlin Pink	multiflora	SK	11.0	12.0	—	3.3	6	9	7	10	9	8	—	—	—
Merlin Red	multiflora	SK	8.0	12.0	9.0	2.3	4	6	5	7	8	5	4	5	7
Merlin Rose	multiflora	SK	—	—	—	3.5	—	—	—	9	9	8	—	—	—
Merlin Salmon	multiflora	SK	9.7	13.0	12.0	2.6	6	6	4	8	9	6	7	6	8
Merlin White	multiflora	SK	12.2	15.0	10.0	2.5	5	6	6	8	6	5	6	6	8
Pearls Mix	multiflora	—	—	—	—	2.5	—	—	—	9	0	0	—	—	—
Polo Blue	multiflora	SG	13.0	14.0	—	2.4	4	7	8	7	7	8	—	—	—
Polo Blue Star	multiflora	SG	11.7	—	—	2.3	4	6	6	7	6	1	—	—	—
Polo Burgundy Star	multiflora	AAS	13.7	—	15.0	2.1	4	8	4	10	0	0	6	6	9
Polo Pink	multiflora	SG	17.0	—	—	2.5	8	9	8	10	0	0	—	—	—
Polo Red	multiflora	SG	10.5	—	12.0	2.6	7	6	6	10	0	0	6	6	8
Polo Red Target	multiflora	SG	9.0	—	11.0	2.3	5	9	4	8	0	0	5	6	8
Polo Rose	multiflora	SG	10.7	—	—	2.5	5	9	6	10	0	0	—	—	—
Polo Rose Flare	multiflora	SG	13.5	—	—	2.5	8	9	7	10	8	0	—	—	—
Polo Salmon	multiflora	AAS	14.0	—	12.0	2.4	7	8	5	10	0	0	9	8	9
Polo Salmon Veined	multiflora	SG	—	—	—	2.8	—	—	—	10	0	0	—	—	—
Polo Velvet	multiflora	SG	15.2	—	—	3.0	6	8	6	10	0	0	—	—	—
Polo White	multiflora	SG	13.5	16.0	15.0	2.8	7	8	5	8	6	5	7	7	9
Prime Time Blue	multiflora	ST	15.0	18.0	16.0	2.4	8	10	8	5	10	6	9	8	8
Prime Time Blue Star	multiflora	GO	10.2	15.0	—	2.4	4	6	6	5	7	5	—	—	—
Prime Time Burgundy	multiflora	GO	—	8.0	—	2.5	—	—	—	8	9	5	—	—	—
Prime Time Light Blue	multiflora	VS	—	12.0	16.0	2.3	—	—	—	4	10	6	7	8	9
Prime Time Mixed	multiflora	GO	—	14.0	—	2.9	—	—	—	8	8	7	—	—	—

Table 12. Petunia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
PrimeTime Pinkveined	multiflora	GO	14.0	—	—	2.8	8	7	6	8	8	0	—	—	—
PrimeTime Plum	multiflora	GO	—	14.0	—	2.6	—	—	—	10	8	5	—	—	—
PrimeTime Red	multiflora	GO	7.0	12.0	7.0	2.7	6	5	4	6	7	4	4	6	6
PrimeTime Red Star	multiflora	GO	11.0	—	9.0	2.3	4	7	5	—	—	—	6	6	8
PrimeTime Red Veined	multiflora	GO	12.5	—	10.0	2.4	8	6	6	—	—	—	8	4	6
PrimeTime Rose	multiflora	GO	11.0	10.0	—	2.7	6	8	8	9	5	7	—	—	—
PrimeTime Rosestar	multiflora	—	—	—	—	2.6	—	—	—	8	8	0	—	—	—
PrimeTime Salmon	multiflora	GO	12.7	—	16.0	2.7	5	8	6	7	6	0	8	8	8
PrimeTime White	multiflora	GO,ST	14.0	—	14.0	2.3	5	10	6	8	0	0	7	8	9

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

PHLOX

Dwarf annual phlox (*Phlox drummondii*) was first collected from wild populations growing in Texas in 1835. From a few plants, we have today a large number of beautiful flower colors and forms to enjoy. This short, hardy annual tolerates heat and frost but prefers full sun. It is extremely free-flowering.

Phlox seed germinates in about ten days at 60° F. It requires darkness for best results,

but is erratic. Sowing directly into packs is best since phlox seedlings resent transplanting. Save all the seedlings, since the weakest appearing ones are usually the best colors. Flowers develop in six to eight weeks from seed.

Flower colors include almost every shade, including bicolors and eyes, from white to red to blue to yellow.

Phlox commanded only about 1 percent of the grower market in 1992, and it was considered only a fair item by producers. Even that represented a substantial increase in production over 1991, and 3 percent of growers were considering additional increases in production for 1993.

Table 13. Phlox cultivars evaluated in the 1992 bedding plant trials at St. Paul and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²		Flower Size (inches) ³	Overall Quality Rating ⁴					
		St. Paul	Grand Rapids		St. Paul			Grand Rapids		
					7/1	8/5	9/17	8/9	8/18	9/17
Palona Crimson	SG	—	—	1.0	9	7	0	—	—	—
Palona Deep Salmon	SG	—	5.0	0.9	9	5	0	2	4	4
Palona Deep Rose	SG	—	—	0.5	9	8	0	—	—	—
Palona Light Salmon	SG	—	—	0.5	8	7	0	—	—	—
Palona Rose/Eye	SG	—	5.0	0.9	9	8	0	3	4	5
Palona White	SG	—	—	0.8	7	6	0	—	—	—
Palona White/Eye	SG	—	—	1.8	9	8	0	—	—	—
Petticoat Mix	VS	—	—	0.0	—	—	—	—	—	—
Promise Pink	RS	—	7.0	2.3	6	6	0	3	6	7

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

PORTULACA

Portulaca is a small, trailing plant with vivid flowers that will normally grow in the poorest of soils, provided it has excellent drainage and full sun. Its double flowered cultivars, looking like miniature roses, give rise to its common name "moss rose."

Portulaca flowers are phototropic. They open fully only in bright sunlight and close at night. However, a few new cultivars (such as

the 'Sundial' series) both flower two weeks earlier and open fully under much lower light levels. Portulaca flowers can be pink, red, yellow, cream, white or orange.

The 'Sundial Fuschia' cultivar was a good performer at Morris in 1992.

Portulaca seed is very fine and will not germinate in cool temperatures.

Portulaca held slightly more than 1 percent of the 1991 U.S. market for bedding plants. Most bedding plant growers and marketers (72 percent) considered it to be an excellent or good item in that year.

Four percent of commercial growers planned to increase their production of portulaca for 1993.

Table 14. Portulaca cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Afternoon Delight	PA	—	—	3.0	2.0	—	—	—	—	—	—	3	4	4
Extra Double Mixture	GR	—	—	8.0	1.0	—	—	—	—	—	—	4	4	3
Magic Carpet Mixed	BU	—	—	8.0	1.9	—	—	—	8	3	0	4	6	4
Sundial Cream	BS	9.2	—	—	2.0	6	4	4	8	3	0	—	—	—
Sundial Fuschia	BS	7.2	—	—	2.1	8	8	6	10	5	0	—	—	—
Sundial Orange	BS	8.0	—	—	2.1	6	5	4	9	4	0	—	—	—
Sundial Pink	BS	6.7	—	—	2.2	6	6	5	10	3	0	—	—	—
Sundial Scarlet	BS	8.5	—	5.0	1.8	6	5	3	10	3	0	3	5	6
Sundial White	BS	5.0	—	—	2.0	6	5	2	—	—	—	—	—	—
Sundial Yellow	BS	6.5	—	5.0	1.7	6	4	3	8	3	0	5	5	4
Sunnyside Coral	—	—	—	—	2.0	—	—	—	8	5	0	—	—	—
Sunnyside Flame	CL	—	—	2.0	2.0	—	—	—	—	—	—	4	5	7
Sunnyside Lt. Yellow	—	—	—	—	2.0	—	—	—	8	4	0	—	—	—
Sunnyside Orange	—	—	—	—	1.9	—	—	—	8	6	0	—	—	—
Sunnyside Rose	—	—	—	—	2.0	—	—	—	8	3	0	—	—	—
Sunnyside White	—	—	—	—	2.1	—	—	—	6	3	0	—	—	—
Sunnyside Yellow	CL	—	—	3.0	2.0	—	—	—	—	—	—	2	4	3

¹ See Source List for seed source key. ² Mature height including flowers; maximum of site averages. ³ Width of single blossom; value given is maximum of site averages. ⁴ Rating on 1 to 10 scale for floral and foliage quality.

SALVIA

The two major types of annual salvia are *splendens*, which is actually a compact Brazilian shrub that is not winter hardy, and *farinacea*, with narrow leaves and clusters of small flowers along slender, upright stems.

Most *splendens* flowers are red, although newer cultivars offer white, pink and purple

shades. The 1992 Minnesota trials included many bicolors of this type.

The *farinacea* type typically has white, blue or purple flowers. Flowers are borne in showy terminal clusters, and the flower stalks produce new buds continuously at their tips as they grow taller.

An entirely new and different type of salvia (*coccinea*) was introduced in 1992 as 'Lady in Red.' It was one of that year's All-America Selections.

Salvia is a low maintenance plant which flowers continuously from the opening of its first buds around July, until the frost comes

in late September. Cultivars of salvia can vary in height from 10 to 30 inches.

All salvia need full sun, and have some heat and drought tolerance. Their seeds, in fact, need considerable heat to germinate. Seed trays need to be kept at 70° F until germination, and at a minimum of 60° F thereafter. Plants should not be set into the garden until the weather is reliably warm.

Cool weather in 1992 resulted in poor growth for most standard salvia at all three

test sites. *Farinacea* types, however, did fairly well overall.

Three salvias were among the best performers in St. Paul in 1992. These were the *farinacea* 'Renaissance' and 'Rhea,' and the *splendens* 'Flare.' The *farinacea* 'Argent White' was among Morris' better performers.

Salvia represented about 12 percent of the 1991 U.S. market for bedding plants. Bedding plant growers/marketers generally (77 percent) considered

them to be an excellent or good item. About 9 percent of growers were planning increased production for 1993.



Salvia 'Lady in Red'

Derived from a western wildflower, this plant takes heat and drought while continuing to open its scarlet flowers. The flower spike is airier and more open than standard salvias, and is produced in about 13 weeks from sowing. The seed needs light to germinate. This was a 1992 All-America Selection.

Table 15. Salvia cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Lady in Red	coccinea	AAS	26.0	32.0	18.0	7.5	2	4	2	8	5	4	7	7	8
Argent	farinacea	CL	23.2	31.0	9.0	5.2	6	10	6	6	9	9	4	4	7
Mini Victoria	farinacea	ST	16.7	—	16.0	6.1	7	10	7	—	—	—	4	5	7
Renaissance	farinacea	SG	27.0	28.0	16.0	6.3	3	8	7	8	10	10	6	7	9
Rhea	farinacea	CL	18.0	26.0	14.0	5.1	5	10	7	9	10	10	6	6	7
Victoria	farinacea	BU,VS	36.0	29.5	16.5	7.3	4	8	7	8	10	8	5	5	6
Cleopatra Mix	splendens	RS	—	16.0	—	5.5	—	—	—	7	8	7	—	—	—
Fire & Ice	splendens	ST	—	10.0	6.0	2.5	—	—	—	5	4	4	7	5	5
Firecracker Orange Stripes	splendens	GR	12.0	16.0	11.0	3.7	3	4	4	4	3	5	6	6	5
Firecracker Red Stripes	splendens	GR	8.2	15.0	10.0	3.3	3	3	4	3	3	5	5	6	7
Firecracker Wow! Mix	splendens	GR	—	16.0	8.0	3.5	—	—	—	4	5	7	6	6	6
Flare	splendens	PM	15.5	24.0	—	7.3	6	6	4	7	10	10	—	—	—
Hotline Red	splendens	PA	—	—	10.0	4.0	—	—	—	—	—	—	7	7	7
Little Tango	splendens	SK	10.0	18.0	—	5.3	7	4	4	6	8	10	—	—	—
Maestro	splendens	CL	12.0	28.0	7.0	5.1	8	2	2	6	7	7	7	5	6
Rambo	splendens	CL	19.5	12.0	—	3.1	8	7	4	8	5	7	—	—	—
Red Hot Sally	splendens	BA	7.8	—	9.0	5.6	5	3	4	—	—	—	7	4	7
Scarlet King	splendens	RS	—	16.0	8.0	5.5	—	—	—	9	7	8	7	6	8
Scarlet Queen	splendens	RS	—	12.0	—	5.0	—	—	—	8	6	8	—	—	—
Sky & Ice	splendens	ST	19.5	14.0	9.0	4.2	5	4	3	3	3	5	5	5	5
St John's Fire	splendens	VS	—	—	11.0	1.0	—	—	—	—	—	—	8	7	7

¹ See Source List for seed source key. ² Mature height including flowers; maximum of site averages. ³ Width of single blossom; value given is maximum of site averages. ⁴ Rating on 1 to 10 scale for floral and foliage quality.

SNAPDRAGON

More than 200 hybrid snapdragon (*Antirrhinum*) cultivars are currently available. They have strong lengthy stems topped by long flower heads containing closely spaced blooms which give the appearance of a spike. Flowers can be red, pink, yellow, orange, bronze, white or bicolor.

Snapdragons are exceptionally vigorous. They grow quite uniformly, and are largely resistant to disease. Some snapdragons can stand up well to strong winds, but taller cultivars need to be staked. Snapdragons require sun, like cool temperatures and can survive severe frosts.

In order for snapdragons to flower through the heat of the summer, seeds must be started early, about 11 weeks before the last frost, so that plants are well established before hot weather arrives. A fine soil or starting mix should be used and the seeds barely covered. Seedlings should be transplanted once into small pots for additional growth before going into the garden.

Plants can range from 6-inch dwarves to 30-inch giants. Tall upright cultivars will grow bushier if the main shoot is nipped off when the plants are about six inches high. To continue its blooms, a flower head should be

cut back to the branch below as soon as the last flower of a stalk drops.

Snapdragon held about 2 percent of the U.S. market for bedding plants in both 1991 and 1992. Bedding plant growers/marketers generally considered it to be an excellent or good item.

Table 16. Snapdragon cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Axiom Yellow	CL	40.2	—	15.0	10.0	4	8	5	—	—	—	4	4	4
Carpet Yellow	BA	—	—	5.0	3.0	—	—	—	—	—	—	5	5	6
Cygnus Orange Yellow	CL	43.5	—	24.0	17.1	4	6	6	—	—	—	6	6	6
Floral Carpet Yellow	BA	9.0	—	—	2.7	5	7	6	—	—	—	—	—	—
Kim Mix	—	—	12.0	—	4.0	—	—	—	7	6	5	—	—	—
Liberty Mix	GO	—	24.0	—	6.0	—	—	—	8	7	7	—	—	—
Longshot Yellow	GR	—	24.0	15.0	5.8	—	—	—	8	6	6	4	4	5
Rocket Gold	VS	—	—	21.0	12.5	—	—	—	—	—	—	5	5	10
Rocket Golden	PM	44.5	35.0	23.0	12.8	5	10	4	9	8	4	5	5	9
Rocket Lemon	PM	46.7	24.0	24.0	12.6	4	8	4	9	5	5	5	5	7
Rocket Yellow	ST	36.7	36.0	24.0	11.9	4	10	6	9	8	5	4	5	8
Sonnet Yellow	SK	26.5	24.0	15.0	10.7	8	8	7	9	5	9	5	7	7
Tahiti Yellow	SG	11.7	13.0	6.0	3.5	6	7	6	9	6	5	5	7	7

¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Length of spike; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

VERBENA

Clumped masses of clear, bright colors characterize verbena. These plants are noted for tolerating heat and drought. They are also noted for usually solid colored flowers, sometimes contrasted with a second colored eye in the center of each bloom.

Verbena grows to a height of between 8 and 16 inches, with trailing stems. The stems spread laterally and can root at the joints. It makes a very good flowering ground cover.

Verbena colors are typically blue, pink,

red, white or purple. A new type entirely is the 'Imagination' cultivar which is among this year's All-American Selections.

Verbena cultivars generally fell victim to the cool weather of 1992, and quality was

lower than usual overall at all three Minnesota test sites.

Propagation of verbena can be by either cuttings or seeds. The seeds take about two weeks to germinate in 65° F temperature. They should be started indoors in March for a mid-May outdoor planting. Pinching the main

stem as it grows forces branching. Flowers too should be pinched as they begin to fade, to prevent the plant from setting seeds.

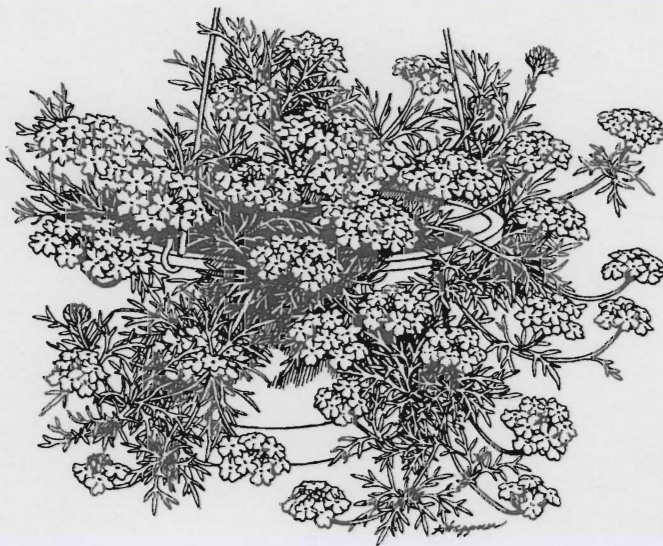
Verbena requires full sun, and is drought and heat tolerant. It needs well drained soil.

Verbena represented only about 2 percent

of the 1992 U.S. market for bedding plants. Most bedding plant growers/marketers considered them to be an excellent or good item, and 3 percent were planning increased production for 1993.

Table 17. Verbena cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Amour Deep Rose	—	—	10.0	—	2.0	—	—	—	9	8	7	—	—	—
Amour Light Pink	—	—	10.0	—	2.3	—	—	—	10	9	7	—	—	—
Amour Mix	—	—	—	—	2.2	—	—	—	10	7	0	—	—	—
Amour Pink	—	—	—	—	2.0	—	—	—	9	9	0	—	—	—
Amour Purple	ST	9.7	—	—	2.2	5	10	4	—	—	—	—	—	—
Amour Rose	ST	8.0	—	6.0	1.8	5	9	5	10	6	0	5	6	3
Amour Scarlet/Eye	ST,GO	9.2	11.0	—	2.4	5	6	6	10	7	7	—	—	—
Amour White	GO	9.0	—	7.0	2.1	5	9	6	8	6	0	4	5	5
Ideal Florist Mix	DN	—	—	7.0	2.2	—	—	—	—	—	—	3	4	5
Imagination	AAS	8.7	—	11.0	0.6	6	9	7	—	—	—	5	5	6



Verbena 'Imagination'

'Imagination' is a new hybrid between species. It has finely-cut, grayish-green, lacy leaves that provide an excellent contrast to the brilliant violet flowers. Like most verbenas, it thrives on heat and sun, covering the ground with a rapid spreading habit. This is a 1993 All-America Selection.

Love Mix	GR	—	—	11.0	2.1	—	—	—	10	8	0	5	5	5
Novalis Bright Scarlet	EB	8.2	—	8.0	2.3	5	8	7	9	7	0	4	4	5
Novalis Brilliant Rose	EB,VS	7.0	—	10.0	1.8	6	6	6	10	8	0	5	6	5
Novalis Deep Blue/Eye	AAS	8.5	—	—	2.0	6	6	6	10	9	0	—	—	—
Novalis Mix	EB	—	—	10.0	2.1	—	—	—	10	8	0	5	5	7
Novalis Rose Red/Eye	EB	9.0	—	—	2.0	5	5	4	10	7	0	—	—	—
Novalis White	EB	11.0	—	9.0	2.3	5	8	7	8	7	0	4	7	5
Peaches & Cream	AAS	9.5	—	9.0	2.1	6	8	6	10	5	0	4	5	5
Romance Burgundy/Eye	SG	7.2	—	—	2.3	5	6	6	10	5	0	—	—	—
Romance Carmine/Eye	SG	8.0	—	—	2.2	6	8	6	8	6	0	—	—	—

Table 17 (continued). Verbena cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
		Morris	St. Paul			Morris			St. Paul			Grand Rapids		
			Paul	Grand Rapids		7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
Romance Deep Rose	SG	9.0	—	8.0	2.2	5	8	6	10	7	0	4	6	6
Romance Violet/Eye	SG	10.0	—	—	2.3	6	10	6	10	7	0	—	—	—
Royal Valentine	BA	—	—	8.0	2.0	—	—	—	—	—	—	4	6	6
Sandy White	AAS	9.0	—	7.0	2.0	5	7	5	9	5	0	3	4	3
Showtime Blaze	DN	—	—	5.0	1.5	—	—	—	—	—	—	2	2	2
Showtime Mix	DN	—	—	9.0	2.2	—	—	—	—	—	—	3	6	6

Verbena 'Peaches & Cream'

A new combination of colors for the verbena is this pastel blend of apricot and salmon. Despite a delicate appearance, the plants are heat and drought tolerant. Seed can be difficult to start since germination requires darkness. It produces flowers in about 60 days. It was a 1992 All-America Selection.



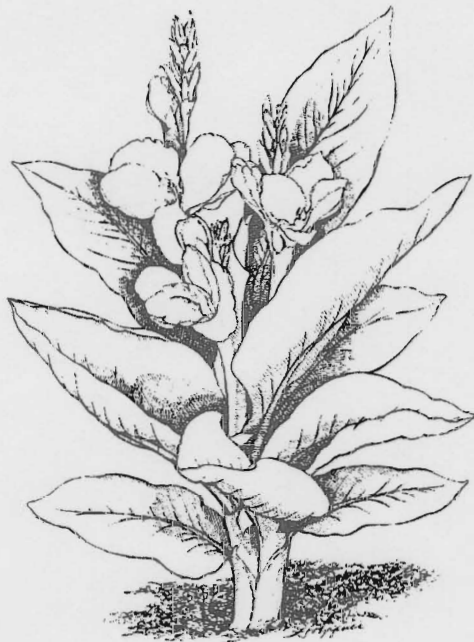
¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of head; value given is average across sites. ⁴ Rating on 1 to 10 scale for floral display and foliage quality.

OTHER MISCELLANEOUS BEDDING PLANTS

Although the U.S. bedding plant market is dominated by sales of a few plants such as impatiens, petunias, and geraniums, a signifi-

cant demand exists for annuals that are unusual; that are not so common in gardens or that offer a new look in the landscape. Perennials that flower the first year from seed are also of interest. Many of these are not new to the trade, but seem new to many gardeners.

The Minnesota trials incorporate a number of these different species each year, taking a look at both old and new cultivars. This year's trials included one of the newest, *Nierembergia* 'Mont Blanc,' the first white *nierembergia* from seed.



Canna 'Tropical Rose'

This canna produces large flowers of soft rose above wide, lush foliage in about 100 days from sowing. Its large seeds germinate easily under warm conditions. As with all cannas, this cultivar performs best in warm weather under full sun. The tubers can be saved for the next year if brought in before the frost. This was a 1992 All-America Selection.

Table 18. Other miscellaneous bedding plant cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
						7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17	
<i>Achillea</i>															
Debutante	n/a	PA	23.0	—	—	3.2	3	3	6	—	—	—	—	—	—
Summer Pastels	n/a	WAS	22.7	—	14.0	3.8	4	8	6	10	9	0	4	5	6
<i>Ageratum</i>															
Blue Blanket	n/a	SG	13.0	5.0	5.0	1.2	5	10	8	8	8	8	8	8	9
Blue Lagoon	n/a	RS	—	7.0	7.0	1.3	—	—	—	3	10	3	8	8	7
Hawaii Blue	n/a	BS,ST	4.0	7.0	4.0	1.4	4	6	4	7	8	7	7	8	8
Hawaii Royal	n/a	BS,PA,VS	4.7	6.0	3.0	1.1	2	10	4	6	6	8	4	5	5
Hawaii White	n/a	ST,VS	4.5	8.0	3.5	1.1	3	8	5	7	7	3	9	7	7
Royal Delft	n/a	SG	5.2	6.0	5.0	1.3	4	10	6	8	8	9	6	7	7
True Blue	n/a	GR	6.2	8.0	6.0	1.4	5	6	6	7	10	7	7	7	7
<i>Canna</i>															
Tropical Rose	n/a	WAS	26.3	32.0	14.0	4.2	13	5	6	4	3	5	2	3	2

Table 18 (continued). Other miscellaneous bedding plant cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
<i>Celosia</i>															
Red Velvet	cristata	BU	—	—	13.0	4.0	—	—	—	—	—	—	5	5	4
New Look	plumosa	AAS	4.7	14.0	11.0	3.2	4	5	4	7	10	10	7	5	6
Pink Castle	plumosa	AAS	6.0	10.0	10.0	3.4	7	4	2	6	7	5	5	4	5
<i>Coreopsis</i>															
Early Sunrise	n/a	AAS	17.0	—	12.0	2.5	4	8	7	6	6	0	7	6	7

Celosia 'Castle Pink'

This was the first pink plumosa type celosia bred for uniform color and habit. The 8-inch plumes retain color even in poor weather, on compact 14-inch plants. This was a 1990 All-America Selection.



<i>Cosmos</i>															
Sonata Mixed	bipinnatus	RS	—	—	21.0	3.0	—	—	—	8	6	0	10	10	7
Sonata White	bipinnatus	RS	—	—	16.0	3.0	—	—	—	5	6	0	6	8	3
Ladybird Mixed	sulphureus	SK	—	—	15.0	1.4	—	—	—	10	6	0	7	5	3
Ladybird Orange	sulphureus	ST	18.2	—	—	1.1	6	7	4	6	6	0	4	0	0
Ladybird Yellow	sulphureus	ST	15.5	—	—	0.9	5	6	4	7	4	0	—	—	—
Sunny Red	sulphureus	BU,ST	27.7	—	—	1.3	4	10	7	10	8	0	4	0	0
<i>Dahlia</i>															
Figaro Improved	n/a	RS	—	18.0	—	3.0	—	—	—	5	4	4	—	—	—
Figaro White	n/a	RS	18.0	—	3.1	—	—	—	5	3	4	—	—	—	—
<i>Dill</i>															
Fernleaf	n/a	AAS	27.2	—	—	3.7	7	6	5	—	—	—	—	—	—
<i>Dusty Miller</i>															
Silverdust	n/a	RS	—	—	6.0	0.0	—	—	—	—	—	—	2	6	4
<i>Galliardia</i>															
Burgundy	aristata	VS	—	—	8.0	1.5	—	—	—	—	—	—	4	5	4
Goblin	grandiflora	VS	—	—	9.0	0.0	—	—	—	—	—	—	0	4	0
Mixture	grandiflora	VS	—	—	16.0	2.7	—	—	—	—	—	—	3	4	5
Double Lorenziana	pulchella	ST	31.2	—	13.0	2.3	4	6	5	—	—	—	4	6	4
Gaiety Mixed Colors	pulchella	BU	28.0	—	19.0	2.5	3	6	6	—	—	—	4	6	4
Red Plume	pulchella	AAS,SG	15.5	18.0	7.0	2.1	4	8	6	5	7	3	4	5	4
Yellow Sun	pulchella	PA	—	—	10.0	2.0	—	—	—	—	—	—	2	5	3

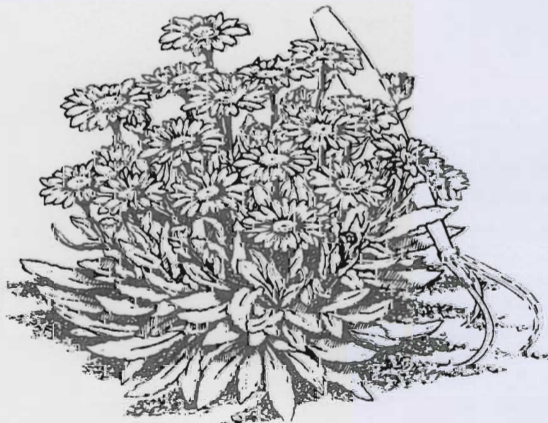
Table 18 (continued). Other miscellaneous bedding plant cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
<i>Gazania</i>															
Chansonette	n/a	RS	—	12.0	—	2.5	—	—	—	6	7	3	—	—	—
<i>Lisianthus</i>															
Echo Blue Picotee	n/a	SK	16.5	—	—	2.5	2	5	6	—	—	—	—	—	—
Echo Lilac Rose	n/a	SK	16.2	—	—	3.0	4	8	6	—	—	—	—	—	—
Echo Pink Picotee	n/a	SK	17.0	—	—	3.5	3	7	7	—	—	—	—	—	—
Heidi Deep Blue	n/a	SK	14.0	—	—	2.2	3	7	6	—	—	—	—	—	—
Heidi Lilac Rose	n/a	SK	18.7	—	—	2.7	4	9	7	—	—	—	—	—	—
Heidi Orchid	n/a	SK	13.2	—	—	1.2	2	2	3	—	—	—	—	—	—
Heidi Sky Blue	n/a	SK	10.2	—	—	3.0	2	4	4	—	—	—	—	—	—



Nierembergia 'Mont Blanc'

The first white nierembergia from seed, 'Mont Blanc' combines heat, drought, and severe weather tolerance with delicate, gemure good looks. The plant is low, only nine inches at most, and spreading. Plan on ten to 17 weeks from seed to flower. This is a 1993 All-America Selection.



Shasta Daisy 'Snow Lady'

Actually a perennial, this dwarf daisy flowers well as an annual. The 10-inch plants produce 3-inch white daisies all summer long. 'Snow Lady' is an excellent item for pot production. This was a 1988 All-America Selection.

<i>Nierembergia</i>															
Mont Blanc	n/a	AAS	4.0	3.9	5.0	1.8	5	8	5	3	8	6	4	6	7
<i>Shasta Daisy</i>															
Snow Lady	n/a	AAS	13.7	16.0	10.0	3.1	4	7	7	4	7	5	5	5	7
<i>Torenia</i>															
Clown Mixture	n/a	AAS	—	—	6.0	0.5	—	—	—	—	—	—	4	3	3

Table 18 (continued). Other miscellaneous bedding plant cultivars evaluated in the 1992 bedding plant trials at Morris, St. Paul, and Grand Rapids.

Cultivar	Type	Source ¹	Plant Height (inches) ²			Flower Width ³ (inches)	Overall Quality ⁴								
			Morris	St. Paul	Grand Rapids		Morris			St. Paul			Grand Rapids		
							7/17	8/18	9/15	7/1	8/5	9/17	8/9	8/18	9/17
<i>Vinca</i>															
Grape Cooler	n/a	BU	9.5	12.0	6.0	1.2	3	8	6	4	7	9	4	5	4
Parasol	n/a	AAS	13.0	14.0	10.0	1.3	5	7	7	4	7	9	4	5	4
Pretty in Pink	n/a	AAS	10.0	—	—	1.7	4	6	5	—	—	—	—	—	—
Pretty in Rose	n/a	AAS	9.5	12.0	7.0	1.4	3	8	7	4	7	7	4	5	4
Pretty in White	n/a	AAS	8.7	4.0	9.0	1.2	3	5	6	3	6	5	3	5	3
<i>Zinnia</i>															
Cut and Come Again	n/a	BU	17.7	27.0	—	2.4	4	7	6	6	8	3	—	—	—
Peter Pan Mix	n/a	GO	13.7	15.0	—	3.8	6	8	6	7	8	6	—	—	—
Scarlet Splendor	n/a	AAS	19.5	23.0	14.0	4.7	4	7	6	7	9	5	4	6	7
ShortStuff Mix	n/a	GO	9.0	—	—	3.0	6	8	5	—	—	—	—	—	—
Yellow Marvel	n/a	TW	14.0	—	—	3.5	4	7	6	—	—	—	—	—	—
Yellow Ruffles	n/a	TN	21.7	—	—	2.7	4	10	6	—	—	—	—	—	—

Zinnia 'Scarlet Splendor'

Large 4- to 5-inch semiruffled rich red blooms are produced by these 24-inch high plants. The flowers have good stems for cutting, yet the plants are compact enough to form an annual hedge. Easy to grow and quick to flower, this was a 1990 All-America Selection.



¹ See Source List for seed source key. ² Mature height including flowers; site average. ³ Width of single blossom except for Achillea, Alyssum, Dill and Statice (width of head); Tomato (width of fruit). ⁴ Rating on 1 to 10 scale for floral display and foliage quality. n/a under 'type' indicates not applicable. ⁵ Herbaceous perennial. ⁶ Tender tuberous-rooted perennial