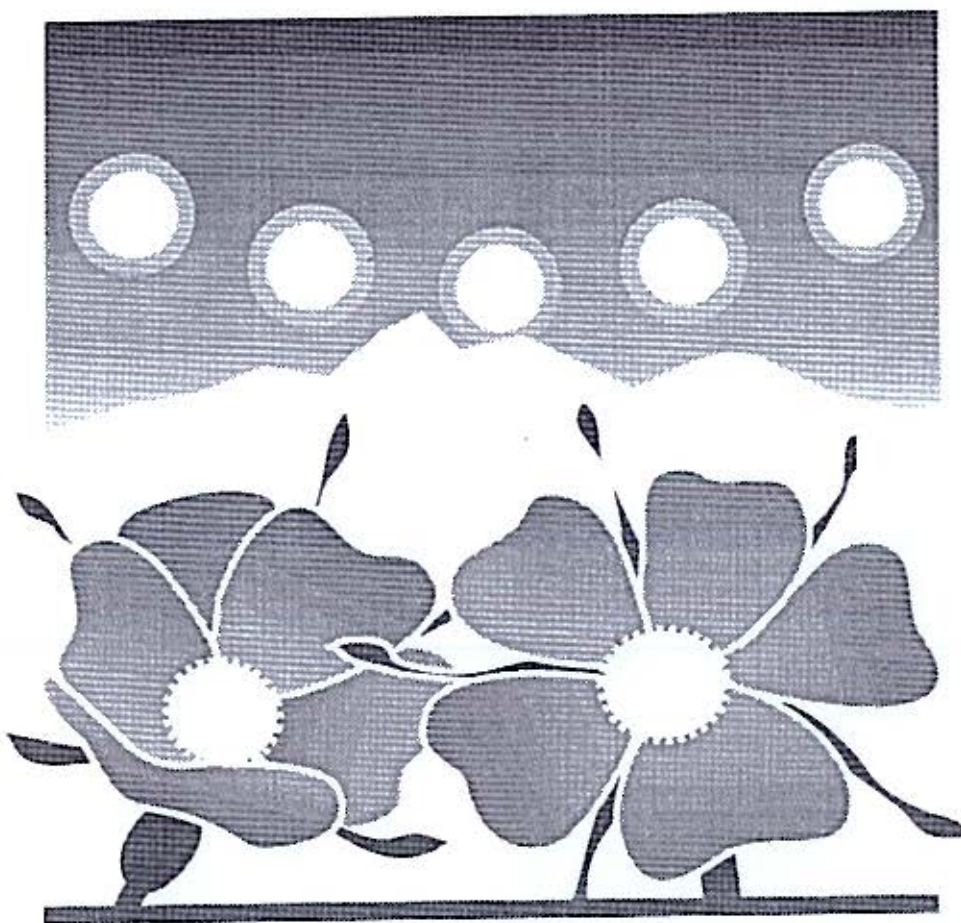


Annual Flower and Perennial Landscape Plant Evaluations 1992



GEORGESON BOTANICAL GARDEN

by

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UNIVERSITY OF ALASKA FAIRBANKS

Agricultural and Forestry Experiment Station

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Introduction

In 1989, a systematic evaluation of woody and herbaceous perennial landscape plants was begun at the University of Alaska Fairbanks Georgeson Botanical Garden (64° 51' N, 147° 52' W). These evaluations were expanded to include annual flowers in 1992. The purpose of this research is to identify hardy perennials capable of surviving in subarctic environments; to evaluate the ornamental potential of perennials and annuals; and to fulfill a growing demand for information on landscape plant materials by homeowners, commercial growers, and landscapers.

The collection includes both indigenous and non-indigenous species that were obtained as plants or propagules from wild stands, botanical gardens, plant materials centers, and commercial nurseries and seed companies in North America and the circumpolar North (Appendix 1). Plants are grown on a south-facing slope, elevation 475 to 487 feet. Soils are classified as Fairbanks silt-loam and have been cultivated since about 1910. All plants receive full sun (a shade house will be completed in 1993) and are watered with overhead irrigation as needed. Weed control is primarily by hand and rototiller. In May 1991, Surflan® herbicide (60 gal/A) was applied to established perennial plantings, but additional hand weeding was necessary.

The perennials are grown in the Herbaceous Perennial and Woody Ornamental Test Garden (see map on the last page). When available, 10 plants of each herbaceous

perennial ornamental are evaluated for a minimum of five years, and five plants of each woody landscape plant are evaluated for 10 years. Subsequently, hardy perennials will be propagated and tested at other locations throughout the Interior and released for commercial propagation. Soils in the perennial test garden were amended with 1 to 2 inches of Lemeta peat in 1988. The perennial beds were fertilized with 500 lb per acre 10-20-20S fertilizer on July 29, 1992. Unless otherwise noted, plants received no special winter protection such as mulching or screening.

The annual flowers were grown in the newly-established Perennial Landscape and All America Selections Display Garden. Plants were grown in unreplicated beds and varied in number according to bed size. Soils were fertilized with 1000 lb per acre 10-20-20S prior to tilling. Planting occurred between June 11 and June 16, 1992, much later than usual because of very late snowfall in May. Low temperatures on June 7 injured a few tender plants, such as *Ageratum*, prior to transplanting but all plants recovered.

Weather data is compiled annually from a U.S. Weather Service station (elevation 475 ft) located approximately 350 ft west of the test garden. A summary of pertinent weather statistics for 1989 through 1992 is shown in Table 1.

Plant Evaluation Tables

The information is summarized in four tables. Table 2 lists all the perennial plant materials currently being evaluated. Table 3 lists all perennials that have been evaluated but did not survive the minimum five-year evaluation period for herbaceous perennials and grasses or the minimum ten-year evaluation period for woody landscape plants. Table 4 lists current year's plantings of perennials that have not yet been evaluated for winter survival. Each of the three tables on perennials is further divided into three sections: herbaceous perennials, ornamental grasses and woody landscape plants. Table 5 lists all annual flowers that were evaluated in 1992.

Explanation of Tables 2 through 4 (Perennials)

NAME AND COMMON NAME: The following references, listed in order, were consulted for scientific and common names.

L.H. Bailey Hortorium. 1976. *Hortus III*. MacMillan Publishing Co., NY.

Fernald, M.L. 1970. *Gray's Manual of Botany*. 8th ed. D. Van Nostrand Company, NY.

Hulten, E. 1974. *Flora of Alaska and Neighboring Territories*. Stanford University Press, CA.

Harkness, M.G. and D. D'Angelo, eds. 1986. *Bernard E. Harkness Seedlist Handbook*. Timber Press, Portland.

Bluebird Nursery, Inc. 1990. Catalog. Clarkson, NE.

SOURCE: This column lists the private individual, botanical garden, agency, organization or commercial business that provided the plants or propagules. Complete names and addresses for the commercial sources and organizations are listed in Appendix 1.

NUMBER OF PLANTS: The total number of plants evaluated.

WINTER INJURY: A visual rating of winter injury was recorded each spring beginning in 1990. Data represent an average rating for the total number of plants evaluated using the scale listed below. Data are cumulative over all the years plants were evaluated.

0 = no visible injury

1 = slight winter injury

2 = moderate winter injury, recovery likely

3 = severe setback from winter injury, recovery questionable

4 = winterkilled

HEIGHT AND SPREAD: The maximum height and spread of herbaceous perennials and ornamental grasses and the average height and spread of woody landscape plants were recorded each summer. Some plants showed a significant difference in height between foliage and flowers/seed pods. For these plants, the first number listed is the foliage height, and the number in parentheses is the flower/seed pod height.

FLOWERING PERIOD: The flower symbol in each column denotes the weeks in each month when plants were flowering. For ornamental grasses, only the first observation of flowering is noted because the flowers are insignificant and the seed heads are usually present until snowfall. The fruit symbol in the woody landscape plants section indicates the weeks when ornamental fruits are present.

FROST TOLERANT: A plus sign in each column indicates that the foliage or flowers of a particular plant showed no obvious damage after the first frost (+29°F on Aug. 27 1991). A negative sign indicates frost damage.

PLOT LOCATION: The number in this column indicates the plot in the test garden where the specific test plants are located. Refer to the map on the back page of this publication for the physical location of each plot.

NUMBER OF YEARS SURVIVED: The total number of years that one or more of the plants being evaluated survived. Causes of plant death could be winterkill, improper site conditions, inadequate or improper field management practices, or mechanical injury. Suspected cause for a particular species or cultivar, if known, is listed in code in the comments section. Codes are defined in a footnote at the bottom of each page.

Explanation of Table 5 (Annuals)

HEIGHT: Data on plant height was recorded in late August 1992.

RECOMMENDED SPACING: The recommended spacing is the distance between plants which provides good coverage but does not promote disease.

BLOOM DATE: Data on flowering were collected weekly beginning June 17, 1992. The * symbol indicates first bloom, whereas the ☼ symbol indicates full bloom.

BLOOM SIZE: The maximum diameter of individual blossoms was recorded. When followed by an *, bloom size refers to maximum diameter of a flower cluster or spike.

FROST TOLERANT: Frost tolerance was evaluated on foliage and flowers after an overnight low of 13°F on Sept. 10, 1992.

CUTTING: A plus sign indicates this variety is suitable for cut flower arranging.

COMMENTS: The disease problems noted under comments refer to the fungal disease, *Sclerotinia* (cottony rot or white mold) unless otherwise noted. *Sclerotinia* infects many different types of flowers. Petunias and schizanthus are particularly susceptible. Plants eventually wilt due to blockage of the vascular tissue and small, hard, black fungal fruiting bodies appear. These fruiting bodies overwinter in the soil and re-infect plants in later years. The number of fruiting bodies present in the soil, as well as environmental conditions such as humidity and soil moisture, can affect the spread of the disease. Cultivars that showed no damage in 1992 are not necessarily resistant.

Acknowledgements

We gratefully acknowledge the assistance of the following employees and volunteers who helped plant and maintain the research test gardens:

Judy Binkley	Sterling Gustafson	<i>Girl Scout Troop #61:</i>
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Ann Guhman		Nicole Layral
		Samantha Noll

Special thanks to the following commercial businesses for donating seeds planted in the garden:

Alaska Plant Materials Center	Johnny's Selected Seeds
Ball Seed Company	New England Wildflower Society
Big Dipper Gardens	North Central Regional Plant
Carolyn Parker	Introduction Station
Clause Seeds	Park Seed Company, Inc.
Nauriaq Gardens	Joan Robson
Dinkel's Fairview Nursery	Joan Rockney
Marion Earp	Stokes Seeds, Inc.
Ginger Gauss	Thompson & Morgan
Jana Belle Gordon	Robert VanVeldhuizen
Jason Grant	Vaughan's Seed Co.

Table 1. Weather records for the test years.

	Season			
	1989	1990	1991	1992
Average temperature °F				
May	46.7	52.2	48.9	40.6
June	57.8	59.6	60.8	59.1
July	62.9	64.1	59.7	63.0
August	58.8	58.4	53.0	55.9
September	47.6	44.3	47.9	31.4
Maximum temperature °F				
	86	90	93	90
Growing season				
Last spring frost	May 24	May 23	May 16	June 7
First fall frost	Sept 15	Sept 8	Aug 27	Sept 5
Frost-free days	114	108	103	90
Thaw degree days ¹	—	—	3069.0	2568.0
Rainfall (inches) ²	6.70	13.20	6.28	8.78
Previous winter season				
Minimum temperature °F	-55	-45	-49	-35
snowfall (inches)	58.9	71.4	131.6	103.8
¹ May through September 32°F base temperature				
² May through September				

Table 2. Au plant materials evaluated in 1992.

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
HERBACEOUS PERENNIALS							
<i>Achillea borealis</i>	Yarrow	Fairbanks, AK	Oct-91	3	0.3	29	24
<i>Achillea millefolium</i> 'Summer Pastels'	Common yarrow	AAS	Aug-90	10	0.9	28	34
<i>Allium cernuum</i>	Nodding onion	NEWFS	Aug-91	10	2.0	8 (15)	9
<i>Allium</i> sp.		Novosibirsk, Russia	Aug-91	10	0.5	14 (18)	12
<i>Anemone alpina</i> subsp. <i>sulfurea</i>	Sulfur alpine anemone	ANPS	Jun-91	3	3.0	2	4
<i>Anemone Halleri</i>	Haller anemone	ANPS	Jun-91	7	3.6	5	9
<i>Anemone multifida</i>	Argentine anemone	ANPS	Aug-89	8	1.4	14 (23)	18
<i>Anemone virginiana</i>	Thimbleweed	NEWFS	Jun-91	10	0.9	12 (20)	16
<i>Aquilegia atrata</i>		ARGS	Aug-91	7	1.5	9 (29)	12
<i>Aquilegia brevistylis</i>	Yukon columbine	ANPS	Jun-91	10	2.8	16 (29)	27
<i>Aquilegia buergeriana</i>		ARGS	Aug-91	10	3.5	7	15
<i>Aquilegia formosa</i>	Sitka columbine	ANPS	Aug-91	10	1.9	10 (24)	14
<i>Aquilegia pyrenaica</i>	Pyrenees columbine	ARGS	Aug-91	7	1.0	10 (16)	14
<i>Aquilegia sibirica</i>	Siberian columbine	ARGS	Aug-91	10	1.0	8 (22)	17
<i>Aquilegia vulgaris</i>	Garden columbine	T&M	Aug-91	2	0.0	10 (17)	15
<i>Aquilegia</i> sp. 'Dynasty'		South Slope	Jun-91	10	2.8	13 (24)	22
<i>Aquilegia</i> sp. 'McKana Giant Hybrids'		T&M	Aug-91	10	3.0	8	12
<i>Aquilegia</i> sp. 'Nora Barlow'		Park	Aug-91	10	3.1	10	16
<i>Aquilegia</i> sp. 'Star McKana Mix'		Park	Aug-91	6	2.8	8 (19)	14

* Winter Injury Rating: 0 = no visible injury, 1 = slight winter injury, 2 = moderate winter injury, recovery likely, 3 = severe setback from winter injury, recovery questionable, 4 = winterkilled

MAY	WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP	flowers		foliage				
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white	+	+	one plant may be a different species	4	<i>Achillea borealis</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		pastels				12	<i>A. millefolium</i>
				☼☼☼☼☼☼☼☼☼☼		pink to purple	+	+	nodding flower head	13	<i>Allium cernuum</i>
		☼☼☼☼☼				purple		+	appears to be chives	13	<i>A. sp. montanum</i>
										15	<i>Anemone alpina</i>
										15	<i>A. hepatica</i>
	☼☼		☼			purple		+	flowers seem short-lived	4	<i>A. multifida</i>
		☼				white			not all plants bloomed, flowers seem short-lived	15	<i>A. virginiana</i>
		☼☼		☼		deep purple				13	<i>Aquilegia atrata</i>
		☼☼☼☼☼☼☼☼				lavender/ white				15	<i>A. brevistyla</i>
		☼		☼		pink/white				13	<i>A. buergeriana</i>
		☼☼☼☼☼☼☼☼☼☼				red/yellow				13	<i>A. formosa</i>
			☼☼☼			deep purple				13	<i>A. pyrenaica</i>
	☼☼☼☼☼☼☼☼☼☼					deep purple				13	<i>A. sibirica</i>
			☼☼			purple				13	<i>A. vulgaris</i>
		☼☼☼☼☼☼☼☼☼☼				mix/white			large flowers	16	<i>Aquilegia</i> 'Dynasty'
				☼☼☼☼☼		yellow/rose				13	<i>Aquilegia</i> 'McKana Giant Hybrids'
		☼☼☼☼☼		☼		pink/white				13	<i>Aquilegia</i> 'Nora Barlow'
			☼☼☼			yellow/rose			large flowers	13	<i>Aquilegia</i> 'Star McKana Mix'

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Arnica Lessingii</i>		ARGS	Jun-90	10	0.2	24	58
<i>Arnica</i> sp.		WNS	Sep-91	10	0.2	18	33
<i>Artemisia Absinthium</i>	Common wormwood	Johnny's	Jun-91	10	3.1	63	74
<i>Artemisia campestris</i> subsp. <i>borealis</i>		ARGS	Oct-90	10	2.0	4 (24)	19
<i>Artemisia</i> <i>Artemisia Schmidlana</i> 'Silver Mound'		Lamb	Jun-91	10	2.7	13	40
<i>Bergenia cordifolia</i> 'Redstart'	Heartleaf bergenia	Park	Sep-89	10	2.3	13	22
<i>Bergenia cordifolia</i> 'Rose'	Heartleaf bergenia	Park	Sep-89	10	2.4	11	24
<i>Cerastium Beeringianum</i>		C. Parker	Aug-89	10	0.5	5 (9)	24
<i>Cerastium tomentosum</i>	Snow-in-Summer	T&M	Jun-90	10	1.1	8	39
<i>Chrysanthemum arcticum</i> 'Roseum'	Arctic chrysanthemum	NCRPIS	Aug-90	10	2.9	18	21
<i>Chrysanthemum Leucanthemum</i>	Oxeye daisy	WNS	Jun-91	10	1.8	12 (26)	22
<i>Clematis integrifolia</i>	Solitary clematis	Northern Lights	Oct-91	1	2.0	7	22
<i>Delphinium glaucum</i>	Sierra larkspur	C. Parker	Oct-91	2	3.0	9	14
<i>Delphinium grandiflorum</i>	Siberian larkspur	NCRPIS	Jul-91	10	1.2	32 (61)	27
<i>Delphinium laxiflorum</i>		NCRPIS	Jul-91	10	2.3	23 (34)	24
<i>Delphinium</i> sp. 'Stand Up'		Park	Jul-91	10	3.7	5	8
<i>Dianthus arenarius</i>	Sand pink	ARGS	Jun-90	10	1.4	6 (11)	34
<i>Dianthus arenarius</i> (pink)	Sand pink	ARGS	Jun-90	10	1.0	6 (11)	23
<i>Dianthus arenarius</i> subsp. <i>borussicus</i>	Sand pink	ARGS	Jun-90	10	0.7	7 (13)	31

* Winter Injury Rating: 0 = no visible injury, 1 = slight winter injury, 2 = moderate winter injury, recovery likely, 3 = severe setback from winter injury, recovery questionable, 4 = winterkilled

MAY	WEEKLY BLOOM PERIOD				BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP		flowers	foliage			
		☼☼☼☼☼☼☼☼			yellow	+	+	spreads from roots, may be invasive	11	<i>A. Lessingii</i>
		☼☼☼☼☼☼☼☼			yellow	+	+	probably <i>A. Lessingii</i>	6	<i>Arnica</i> sp.
							+		16	<i>Artemisia Absinthium</i>
		☼☼☼☼☼☼			yellow		+	rangy form, unattractive	15	<i>A. campestris</i>
							-	silver finely cut foliage, mounding habit	16	<i>Artemisia</i> <i>Artemisia</i> <i>'Silver Mound'</i>
	☼			☼	bright rose	-	+		1	<i>Bergenia 'Redstart'</i>
	☼☼				bright rose		+		1	<i>Bergenia 'Rose'</i>
	☼☼☼☼☼☼☼☼				white		+	numerous seed heads give brown appearance by end of season	4	<i>Corastium</i> <i>Beeringianum</i>
		☼☼☼☼☼☼			white		+	silvery foliage	7	<i>C. tomentosum</i>
							+		12	<i>Chrysanthemum</i> <i>'Roseum'</i>
		☼☼☼☼☼☼☼☼			white	+	-		15	<i>C. Leucanthemum</i>
		☼☼☼☼☼☼☼☼			blue	-	+		16	<i>Clomatis integrifolia</i>
									4	<i>Delphinium glaucum</i>
		☼☼☼☼☼☼☼☼☼☼			blue	+	-		4	<i>D. grandiflorum</i>
		☼☼☼☼☼☼☼☼☼☼			blue	+	-		4	<i>D. laxiflorum</i>
			☼☼☼☼		blue				4	<i>Delphinium 'Stand Up'</i>
		☼☼☼☼☼☼☼☼☼☼			white	+	+	evergreen foliage, fragrant flowers	7	<i>Dianthus arenarius</i>
		☼☼☼☼☼☼☼☼☼☼			pink	+	+	evergreen foliage	7	<i>D. arenarius</i> (pink)
		☼☼☼☼☼☼☼☼☼☼			white	+	+	evergreen foliage	7	<i>D. arenarius</i> subsp. <i>borussicus</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Dianthus californicus</i>	Zoned pink	ARGS	Jun-90	6	3.0	8	11
<i>Dianthus carthusianorum</i>	Carthusian pink	T&M	Jun-90	10	1.2	7 (20)	35
<i>Dianthus chinensis</i>	Chinese pink	NCRPS	Jun-90	10	1.4	19	33
<i>Dianthus deltoides</i>	Malden pink	South Slope	Jun-91	10	2.6	4 (8)	22
<i>Dianthus Freynii</i>		ARGS	Jun-90	6	2.0	7 (10)	20
<i>Dianthus gratianopolitanus</i> T&M Hybrid Mix	Cheddar pink	T&M	Jun-90	9	3.0	7 (9)	39
<i>Dianthus gratianopolitanus</i> 'Elfin's Hat'	Cheddar pink	T&M	Jun-90	9	2.9	5	15
<i>Dianthus pavonius</i>		ARGS	Jun-90	10	2.0	3 (5)	12
<i>Dianthus plumarius</i> 'Smokey'	Cottage pink	NCRPS	Jun-90	9	1.2	9 (21)	24
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	31	2.4	21	30
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	19	2.2	24	26
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	19	1.9	8 (17)	19
<i>Dianthus</i> 'Orchid Lace'	Cottage pink	T&M	Jun-90	10	1.8	17	22
<i>Dianthus repens</i>	Bering pink	ARGS	Jun-90	4	1.6	19	36
<i>Dianthus superbus</i> 'Fantasy Mix'	Lilac pink	T&M	Jun-90	10	0.6	10 (31)	35
<i>Draba densifolia</i>		ARGS	Aug-91	3	0	1.5	1.5
<i>Draba kamschatica</i>		ANPS	Jul-91	10	3.8		
<i>Erigeron glabellus</i>	Smooth fleabane	ANPS	Jun-90	10	1.6	10 (22)	16
<i>Erigeron humilis</i>	Fleabane	ANPS	Aug-91	5	0.8	3 (8)	4

* Winter Injury Rating: 0 = no visible injury, 1 = slight winter injury, 2 = moderate winter injury, recovery likely, 3 = severe setback from winter injury, recovery questionable, 4 = winterkilled

MAY	WEEKLY BLOOM PERIOD				BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP		flowers	foliage			
		☼☼☼☼☼☼☼☼☼☼			pink	+	+	evergreen foliage	7	<i>D. californicus</i>
		☼☼☼☼☼☼☼☼☼☼			magenta	+	+	evergreen foliage, somewhat sprawling habit	7	<i>D. carthusianorum</i>
			☼☼☼☼☼☼☼☼☼☼		orchid pink	+	+		11	<i>D. chinensis</i>
			☼☼☼☼☼☼☼		magenta		+		16	<i>D. deltoides</i>
				☼☼☼☼☼☼☼☼☼☼	pink	+	+	evergreen foliage, habit variable	7	<i>D. Freynii</i>
				☼	red, rose mix		+	remaining plants are self-seeded	7	<i>Dianthus</i> 'T&M Hybrid Mix'
							+	remaining plants are self-seeded	7	<i>Dianthus</i> 'Elfin's Hat'
				☼☼☼☼☼☼☼☼☼☼	pink	+	+	evergreen foliage	7	<i>D. pavonius</i>
				☼☼☼☼☼☼☼☼☼☼	pale pink, lavender	+	+	evergreen foliage	11	<i>Dianthus</i> 'Smokey'
				☼☼☼☼☼☼☼☼☼☼	pink, white, lavender	+	+	evergreen foliage	7	<i>D. plumarius</i>
				☼☼☼☼☼☼☼☼☼☼	lavender to white	+	+	evergreen foliage, spicy fragrance	7	<i>D. plumarius</i>
				☼☼☼☼☼☼☼☼☼☼	pink, white	+	+	evergreen foliage, most with dark eye	7	<i>D. plumarius</i>
				☼☼☼☼☼☼☼☼☼☼	orchid	+	+	very attractive in bloom	7	<i>Dianthus</i> 'Orchid Lace'
				☼☼☼☼☼☼☼☼☼☼	orchid	+	+		7	<i>D. repens</i>
				☼☼☼☼☼☼☼☼☼☼	pink	+	+	evergreen foliage	7	<i>Dianthus</i> 'Fantasy Mix'
			☼	☼	yellow	+	+	evergreen foliage	11	<i>Draba danstfolia</i>
	☼☼				white			seemed to die off after bloom	11	<i>D. kamtschatica</i>
			☼☼☼☼☼☼☼☼☼☼		lavender	+	+	blooms fade to white, some self-seeding	11	<i>Erigeron glabellus</i>
	☼☼	☼			white				13	<i>E. humilis</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Erigeron</i> sp. 'Pink Jewel' (?)		South Slope	Jun-91	10	3.2	23	32
<i>Filipendula vulgaris</i>	Dropwort	Park	Aug-89	7	2.4	16 (30)	24
<i>Gentiana Freyniana</i>		ARGS	Aug-91	10	1.7	5	10
<i>Gentiana septemfida</i>		ARGS	Aug-91	10	2.4	3	10
<i>Geranium Regalis</i>		VB&S	Jun-90	10	0.8	10	17
<i>Geranium sanguineum</i>	Blood-red geranium	ARGS	Jun-90	10	3.4	5	15
<i>Hemerocallis minor</i>	Grass-leaf daylily	NCRPIS	Aug-90	9	1.9	20	20
<i>Heracleum Sphondylium</i> subsp. <i>montanum</i>	Cow parsnip	NEWFS	Oct-90	5	0.7	20 (39)	60
<i>Hieracium umbellatum</i>	Yellow hawkweed	ANPS	Aug-89	10	0.3	22 (40)	47
<i>Iris Kaempferi</i> (?)	Japanese iris	ANPS	Jun-91	10	0.9	24	30
<i>Iris sibirica</i>	Siberian iris	AHS	Aug-91	10	2.6	11	6
<i>Iris</i> (?) sp.		CSBG	Aug-91	10	1.0	19	14
<i>Levisticum officinale</i>	Lovage	Vermont Bean	Jun-91	10	3.8	24	11
<i>Lilium 'Corsica'</i>	Asiatic hybrid lily	South Slope	Jun-91	10	0.3	33	18
<i>Lilium 'Corino'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.4	42	29
<i>Lilium 'Dreamland'</i>	Asiatic hybrid lily	South Slope	Jun-91	10	0.6	31	19
<i>Lilium 'Fireball'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.8	28	17
<i>Lilium 'Freckles'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.8	26	13
<i>Lilium 'French Vanilla'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.9	29	29

* Winter Injury Rating: 0 = no visible injury, 1 = slight winter injury, 2 = moderate winter injury, recovery likely, 3 = severe setback from winter injury, recovery questionable, 4 = winterkilled

WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
MAY	JUN	JUL	AUG	SEP		flowers	foliage			
		☼☼☼☼☼☼☼☼			pink				16	<i>Erigeron</i> 'Pink Jewel' (?)
		☼☼☼☼☼☼			white		+	plants flowered at different times	4	<i>Filipendula</i>
			☼☼☼☼☼☼		deep blue	+	+		13	<i>Gentiana Fryxelliana</i>
				☼☼	deep blue				13	<i>G. septemfida</i>
								some disease and die out during summer	11	<i>Geranium Rogellii</i>
								remaining plants may be self-seeded	11	<i>G. sanguineum</i>
			☼☼☼☼☼☼		yellow		+	only one plant bloomed	12	<i>Hemerocallis</i>
		☼☼☼☼☼☼			white		+	some chlorosis on leaves and grasshopper damage	15	<i>Heracleum</i>
		☼☼☼☼☼☼☼☼☼☼			yellow	+	+	reseeds readily, may be invasive	4	<i>Hieracium</i>
	☼☼☼☼☼☼☼☼				deep purple			only one plant bloomed	15	<i>Iris Kaempferi</i> (?)
									13	<i>I. sibirica</i>
									12	<i>Iris</i> (?) sp.
								high mortality from crown rot, possibly due to late snowfall, damage from leaf-feeding worms	16	<i>Lavisticum officinale</i>
			☼☼☼☼☼☼		pink		-		16	<i>Lilium</i> 'Corsica'
			☼☼☼☼☼☼☼☼		bright orange	-	-		12	<i>Lilium</i> 'Corina'
			☼☼☼☼☼☼		bright yellow/ gold throat	-	-		16	<i>Lilium</i> 'Dreamland'
			☼☼☼☼☼☼☼☼		burgundy	-	-		12	<i>Lilium</i> 'Fireball'
			☼☼☼☼☼☼☼☼		scarlet red	-	-		12	<i>Lilium</i> 'Freckles'
			☼☼☼☼☼☼☼☼		light yellow	-	-		12	<i>Lilium</i> 'French Vanilla'

Table 2. (Continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Lilium 'Juliana'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.2	29	24
<i>Lilium 'Pink Chiffon'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	1.4	25	23
<i>Lilium 'Poet's Dream'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.4	32	23
<i>Lilium 'Prince Carnival'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.9	23	16
<i>Lilium 'Rainbow'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	1.4	29	18
<i>Lilium 'Rose Fire'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.6	20	17
<i>Lilium 'Sterling Star'</i>	Asiatic hybrid lily	South Slope	Jun-91	10	0.5	37	12
<i>Lilium 'Tribute'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.5	31	26
<i>Lilium 'Vanessa'</i>	Asiatic hybrid lily	VB&S	Aug-90	10	0.7	36	26
<i>Lilium 'Yolanda'</i>	Asiatic hybrid lily	South Slope	Jun-91	10	0.3	50	16
<i>Lupinus nootkatensis</i>		Valdez, AK	Aug-89	7	1.0	20	66
<i>Lysimachia punctata</i>	Garden loosestrife	T&M	Aug-90	10	3.5	12	22
<i>Mentha sp.</i>	Mint	South Slope	Jun-91	1	0.0	21	48+
<i>Penstemon procerus</i>	Littleflower penstemon	ANPS	Aug-91	2	0.0	5 (11)	9
<i>Potomonium reptans</i>	Creeping potomonium	NEWFS	Oct-91	4	3.0		
<i>Potentilla mandshurica</i>		SAAS	Sep-91	10	3.2	20	17
<i>Potentilla tridentata</i>	Three-toothed cinquefoil	Northern Lights	Jun-91	10	1.3	10 (8)	20
<i>Primula incana</i>		Fairbanks, AK	Aug-89	10	2.2		
<i>Rubus parvifolius</i>	Japanese raspberry	NCRPIS	Sep-89	5	2.0	21	43

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WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
MAY	JUN	JUL	AUG	SEP		flowers	foliage			
			☼☼☼☼		cream	-	-		12	<i>Lilium 'Juliana'</i>
			☼☼☼☼		pink	-	-		12	<i>Lilium</i> 'Pink Chiffon'
			☼☼☼☼☼☼		pink, white and burgundy	-	-		12	<i>Lilium</i> 'Poof's Dream'
			☼☼☼☼☼☼		pink, spotted throat	-	-		12	<i>Lilium</i> 'Prince Carnival'
			☼☼☼☼☼		scarlet	-	-		12	<i>Lilium</i> 'Rainbow'
			☼☼☼☼		orange/gold	-	-		12	<i>Lilium</i> 'Rose Fire'
			☼☼☼☼		white/spotted throat	-	-		16	<i>Lilium</i> 'Sterling Star'
			☼☼☼☼		coral	-	-		12	<i>Lilium</i> 'Tribute'
			☼☼☼☼☼☼		bright yellow	-	-		12	<i>Lilium</i> 'Vanessa'
			☼☼☼☼☼☼		bright orange	-	-		16	<i>Lilium</i> 'Yolanda'
	☼☼☼☼			☼	blue	+	-		4	<i>Lupinus</i>
			☼☼☼☼		yellow	-	-		12	<i>Lysimachia</i>
			☼☼☼☼☼☼☼☼		blue	+	?	invasive	16	<i>Mentha</i> sp.
			☼☼☼☼☼☼☼☼		blue	-	-	evergreen foliage	13	<i>Penstemon procerus</i>
									13	<i>Polemonium reptans</i>
				☼☼☼	yellow	+	+		10	<i>Potentilla mandshurica</i>
			☼☼☼☼☼☼☼☼		white	+	+	mounding habit	15	<i>P. tridentata</i>
					pink	-	-	high summer mortality	4	<i>Primula</i>
								groundcover, may be invasive flowers are unobtrusive, has thorns	7	<i>Rubus</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Salvia officinalis</i>	Common salvia	Gorno-Altai, Russia	Jun-91	10	0.0	54	20
<i>Steno sp.</i>		Novosibirsk, Russia	Sep-91	10	0.2	22 (36)	35
<i>Solidago decumbens</i>	Decumbent goldenrod	ANPS	Aug-89	10	1.9	12 (17)	28
<i>Stellaria monantha</i>		D.Dinkel	Aug-89	10	1.7	5	39
<i>Tanacetum vulgare</i>	Common tansy	South Slope	Jun-91	10	0.0	49	70
<i>Thalictrum sparsiflorum</i>		ANPS	Sep-91	4	1.0	8	5
<i>Veronica incana</i>	Wooly speedwell	T&M	Jun-91	10	0.7	7 (19)	30
ORNAMENTAL GRASSES							
<i>Andropogon Gerardii</i> 'Pawnee'	Big bluestem	Bluebird	Aug-90	3	2.9	44	24
<i>Calamagrostis acutiflora</i> var. <i>stricta</i>	Feather reed grass	Bluebird	Aug-90	1	1.0	34 (73)	48
<i>Calamagrostis arundinacea</i> 'Karl Foerster'		Bluebird	Aug-90	2	0.8	34 (69)	54
<i>Deschampsia caespitosa</i> 'Bronzeschleier'	Tufted hair grass	Bluebird	Aug-90	2	1.8	12	
<i>Deschampsia caespitosa</i> 'Goldhaenge'	Tufted hair grass	Bluebird	Aug-90	4	1.6	22	26
<i>Deschampsia flexuosa</i>	Crinkled hair grass	Bluebird	Aug-89	12	3.0	7	10
<i>Festuca amethystina</i>	Large blue fescue	Bluebird	Aug-89	10	2.2	10 (24)	22
<i>Festuca valesiaca</i> 'Glaucor'	Swiss fescue	Bluebird	Aug-90	3	1.8	10	16
<i>Helictotrichon sempervirens</i>	Blue oat grass	Bluebird	Aug-90	1	1.5	11	17
<i>Koeleria glauca</i>	Blue hair grass	Bluebird	Aug-89	10	2.0	9 (18)	10

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MAY	WEEKLY BLOOM PERIOD				BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP		flowers	foliage			
		☼☼☼☼☼☼☼☼			light purple			grasshopper damage	16	<i>Salvia officinalis</i>
		☼☼☼☼☼☼☼☼☼☼			white	-			6	<i>Stene</i> sp.
			☼☼☼☼☼		yellow		+	leaves infected with rust	4	<i>Solidago</i>
	☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				white	+	+	mounds of grey-green foliage, some die out in center	4	<i>Stellaria</i>
			☼☼☼☼☼☼☼☼☼☼		yellow	+	+	invasive	16	<i>Tanacetum vulgare</i>
		☼☼☼☼☼☼☼☼			lavender				11	<i>Thalictrum sparsiflorum</i>
			☼☼☼☼☼☼☼☼		blue	+	+	silver foliage	15	<i>Veronica incana</i>
							+		8	<i>Andropogon</i>
			☼				+		8	<i>Calamagrostis acutiflora</i>
			☼				+		8	<i>Calamagrostis</i> 'Karl Foerster'
							+		8	<i>Deschampsia</i> 'Bronzeschleier'
			☼				+		8	<i>Deschampsia</i> 'Goldhaenge'
							+		8	<i>D. flexuosa</i>
			☼				+		8	<i>Festuca amethystina</i>
							+		8	<i>F. valisclara</i>
							+		8	<i>Hellotritichon</i>
			☼				+	blue-green color	8	<i>Koeleria glauca</i>

Table 2. (Continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Koeleria glauca</i>	Blue hair grass	T&M	Jul-90	10	3.2	6 (16)	8
<i>Malva ciliata</i>	Silky-spike mallow	Bluebird	Aug-89	10	2.7	22	16
<i>Phalaris arundinacea</i> var. <i>picta</i>	Ribbon grass	Bluebird	Aug-89	11	0.6	42 (68)	82
WOODY PERENNIALS							
<i>Actinidia kolomikta</i>	Kolomikta kiwi	BCN	Sep-89	5	2.3	17	25
<i>Betula occidentalis</i>	Water birch	NCRPIS	Jun-90	3	1.0	68	67
<i>Betula michauxii</i>		ARGS	Sep-90	5	0.7	15	61
<i>Betula</i> sp.		NCRPIS	Jun-90	3	1.3	86	88
<i>Caragana arborescens</i>	Siberian pea	Chamal R., Gorno-Altaysk, Russia	Sep-91	5	3.2	18	13
<i>Caragana</i> sp.		PMC	Sep-91	1	0.0	62	16
<i>Caragana</i> sp. <i>a.p.</i>		PMC	Sep-91	2	0.5	60	21
<i>Cotoneaster horizontalis</i>	Rock cotoneaster	Schumacher	Sep-91	5	2.4	8	13
<i>Cotoneaster nitens</i>	Pinkblush cotoneaster	NCRPIS	Sep-91	5	2.4	17	30
<i>Crataegus monogyna</i>	Single-seed hawthorn	NCRPIS	Jun-90	3	2.5	3	23
<i>Forsythia ovata</i> 'Nakai'	Early forsythia	NCRPIS	Sep-90	5	2.3	17	13
<i>Larix decidua</i>	European larch	PMC	Sep-90	5	3.6	22	24
<i>Larix Gmelinii</i> var. <i>Gmelinii</i>	Dahurian larch	PMC	Sep-90	4	2.6	26	19
<i>Larix Gmelinii</i> var. <i>olgensis</i>	Dahurian larch	PMC	Sep-90	5	3.6	23	23

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WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
MAY	JUN	JUL	AUG	SEP		flowers	foliage			
		95				+			8	<i>K. glauca</i>
		95				+			8	<i>Malica</i>
		95				+		striking variegated foliage, spreads by rhizomes	8	<i>Phalaris</i>
							-		3	<i>Actinidia</i>
									3	<i>Betula occidentalis</i>
									14	<i>B. michauxii</i>
									3	<i>Betula sp.</i>
									5	<i>Caragana arborescens</i>
									5	<i>Caragana sp.</i>
									5	<i>Caragana sp. o.p.</i>
									5	<i>Cotoneaster horizontalis</i>
									5	<i>Cotoneaster nitens</i>
									3	<i>Crataegus</i>
								one plant leafed out, then died	14	<i>Forsythia 'Nakai'</i>
									9	<i>Larix declara</i>
									9	<i>L. Gmelini</i> var. <i>Gmelini</i>
									9	<i>L. Gmelini</i> var. <i>olgensis</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Larix Gmelini</i> var. <i>principis</i>	Dahurian larch	PMC	Sep-90	5	3.6	14	10
<i>Larix sibirica</i>	Siberian larch	CSBG	Aug-91	5	2.0	14	16
<i>Lonicera Maackii</i>	Amur honeysuckle	NCRPIS	Jun-90	5	3.3	23	43
<i>Lonicera tatarica</i> 'Beavermor'	Tatarian honeysuckle	Beaverlodge	Sep-89	5	0.7	57	73
<i>Lonicera tatarica</i> 'Siberica'	Tatarian honeysuckle	NCRPIS	Jun-90	3	1.0	47	81
<i>Malus baccata</i> var. <i>mandshurica</i>	Siberian crab	PMC	Sep-91	5	0.6	43	34
<i>Physocarpus opulifolius</i> 'Nugget'	Ninebark	NCRPIS	Sep-89	5	2.3	18	25
<i>Physocarpus</i> sp. 'Nugget'	Ninebark	NCRPIS?	Sep-89	5	0.9	55	75
<i>Picea Engelmannii</i>	Engelmann spruce	Schumacher	Sep-89	5	0.6	16	14
<i>Picea glauca</i> var. <i>albertiana</i>	Alberta spruce	GBG	Sep-89	5	0.0	22	14
<i>Picea pungens</i> X <i>glauca</i>	Spartan spruce	BTI	Aug-91	5	1.0	10	6
<i>Pinus cembra</i>	Swiss stone pine	Schumacher	Sep-89	5	0.6	6	6
<i>Pinus pumila</i>	Dwarf stone pine	Schumacher	Sep-89	5	2.5	4	4
<i>Populus deltoides</i> X <i>Patrowskiana</i> 'Brooks #6'		NCRPIS	Jun-90	5	0.7	138	112
<i>Populus 'Tower'</i>		PMC	Jun-90	2	1.5	116	70
<i>Populus tremula</i> 'Erecta'	Upright European ash	KHN	Jun-90	5	0.9	98	52
<i>Prunus fruticosa</i>	European dwarf cherry	BCN	Sep-89	5	2.5	23	27
<i>Prunus fruticosa</i> 'Scarlet'	European dwarf cherry	NCRPIS	Sep-89	5	2.0	30	49
<i>Prunus tenella</i>	Dwarf Russian almond	Lawyer	Sep-91	1	1.0	21	30

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MAY	WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP	flowers		foliage				
									surviving trees back from roots each year	9	<i>L. Gmelini</i> var. <i>principis</i>
										9	<i>L. sibirica</i>
										3	<i>Lonicera Maackii</i>
	☼☼☼☼☼		☼☼☼☼☼☼			white red fruits				2	<i>Lonicera</i> 'Beavermor'
	☼☼☼☼		☼☼☼☼☼☼			white red fruits				3	<i>Lonicera</i> 'Siberica'
			☼☼			white			light yellow green foliage	2	<i>Physocarpus</i> 'Nugget'
			☼☼☼☼			white			a few blooms into September	2	<i>Physocarpus</i> sp.
										9	<i>Picea Engelmanni</i>
										9	<i>P. glauca</i> var. <i>albertiana</i>
										9	<i>Picea pungens</i> X <i>glauca</i>
										9	<i>Pinus cembra</i>
										9	<i>P. pumila</i>
										3	<i>Populus</i> 'Brooks #6'
										3	<i>Populus</i> 'Tower'
										3	<i>Populus</i> 'Erecta'
										2	<i>Prunus fruticosa</i>
										2	<i>Prunus</i> 'Scarlet'
										5	<i>P. tanaka</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	WINTER INJURY*	HEIGHT (in)	SPREAD (in)
<i>Prunus salsicina</i> var. <i>mandshurica</i>	Manchurian plum	BCN	Sep-89	5	2.8	47	48
<i>Rosa rugosa</i> PI 277 432 <i>Schizura x FRU</i>	Turkestan rose	PMC	Aug-91	5	2.2	8	15
<i>Rosa</i> Woodsii	Wood's rose	NCRPIS	Aug-91	5	1.6	14	17
<i>Rosa</i> sp. 'Lac Majada'		PMC	Aug-91	5	0.6	23	27
<i>Rosa</i> sp. 'à Parfum de l'Hay'		PMC	Aug-91	4	1.3	12	28
<i>Rosa</i> sp. 'Prairie Wren'		PMC	Aug-91	2	1.0	14	17
<i>Rosa</i> sp. 12B		PMC	Aug-91	1	2.0	9	12
<i>Salix alba</i> 'Vitellina'	Golden willow	BCN	Sep-89	5	3.1	31	35
<i>Salix</i> sp.		GBG	Aug-91	5	2.4	22	22
<i>Sorbaria sorbifolia</i>	False spiraea	NCRPIS	Jun-90	3	0.7	54	87
<i>Syringa pekinensis</i>	Pekin lilac	NCRPIS	Sep-91	3	2.3	9	11
<i>Viburnum Lentago</i>	Sheepberry	NCRPIS	Jun-90	5	1.7	41	25
<i>Viburnum trilobum</i>	Cranberry bush	Schumacher	Sep-91	5	1.6	8	6

* Winter Injury Rating: 0 = no visible injury, 1 = slight winter injury, 2 = moderate winter injury, recovery likely, 3 = severe setback from winter injury, recovery questionable, 4 = winterkilled

MAY	WEEKLY BLOOM PERIOD				BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP		flowers	foliage			
									2	<i>P. salicina mandshurica</i>
		☼☼☼☼☼☼☼☼			deep rose	+	+	single flowers, large rose hips	14	<i>Rosa rugosa</i>
									14	<i>R. Woodhill</i>
		☼☼☼☼☼☼☼☼			white/pink center	+	+	fragrant	14	<i>Rosa 'Lac Majean'</i>
		☼☼☼☼☼☼					+	double flowers	14	<i>Rosa 'à Parfum de l'Hay'</i>
				☼					14	<i>Rosa 'Prairie Wren'</i>
								winter killed to ground, some plants grew back from roots	14	<i>Rosa 12B</i>
									2	<i>Salix 'Vitellina'</i>
									2	<i>Salix sp.</i>
		☼☼☼☼☼☼☼☼			white				2	<i>Sorbaria</i>
									5	<i>Syringa pekinensis</i>
							+		3	<i>Viburnum lentago</i>
									2	<i>V. trilobum</i>

Table 3. *Al.* plants that have been evaluated but did not survive the minimum number of test years.*

SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER OF YEARS SURVIVED	COMMENTS
HERBACEOUS PERENNIALS						
<i>Aconitum volubile</i>	Monkshood	T&M	Sep-91	2	0	A
<i>Achillea alpina</i>	Mountain lady's mantle	Park	Sep-91	10	0	A
<i>Androsace septentrionalis</i>	Pygmy flower	WNS	Jun-91	10	0	A
<i>Anemone (Pulsatilla) patens</i>	Pasque flower	M.Earp	Aug-89	10	2	G
<i>Arnica sp.</i>		South Slope	Jun-91	3	0	A
<i>Arnica frigida</i>		C.Parker	Aug-89	18	2	
<i>Arnica latifolia</i>	Broadleaf anemone	ANPS	Jun-90	10	1	F
<i>Arnica louiseana</i>		NEWFS	Jun-90	10	1	
<i>Artemisia arifolia</i>		ARGS	Oct-90	3	1	
<i>Artemisia frigida</i>	Fringed sagebrush	Fl. Yukon, AK	Jun-91	10	0	A
<i>Aster alpinus</i> var. <i>vierhapperi</i>		NEWFS	Sep-91	4	0	A
<i>Campanula rotundifolia</i>	Harebell	ANPS	Aug-89	9	2	G
<i>Chrysanthemum arcticum</i> 'Schwefelglanz'	Arctic chrysanthemum	NCRPIS	Aug-90	9	1	F
<i>Cimicifuga racemosa</i>	Black snakeroot	T&M	Sep-91	4	0	A
<i>Clematis columbiana</i>	Columbian rock clematis	ANPS	Oct-91	1	0	A
<i>Cornus X unalaschensis</i>		ARGS	Oct-91	2	0	B
<i>Delphinium grandiflorum</i> 'Blue Elf'		Harris Moran	Jul-91	10	0	A
<i>Dianthus arenarius</i>	Sand pink	T&M	Jun-90	2	1	
<i>Dianthus armeria</i>	Depford pink	NCRPIS	Jun-90	10	1	
<i>Dianthus capitatus</i>		NCRPIS	Jun-90	10	0	A
<i>Dianthus glacialis</i>	Ice pink	T&M	Jun-90	1	0	A
<i>Dianthus plumarius</i> 'Ballad Blend'	Cottage pink	Stokas	Jul-91	10	0	A
<i>Dianthus plumarius</i> 'Sonata Double Mix'	Cottage pink	Park	Jul-91	10	0	A
<i>Dianthus superbus</i>	Lilac pink	NCRPIS	Jun-90	10	0	A
<i>Dryas Drummondii</i>	Drummond dryad	ANPS	Aug-89	10	1	C
<i>Erigeron compositus</i>	Fernleaf fleabane	ANPS	Jun-90	10	1	
<i>Erigeron erioccephalus</i>	Fleabane	ANPS	Jun-90	10	0	A
<i>Erigeron purpuratus</i>	Fleabane	ANPS	Aug-89	10	1	B,C
<i>Eupatorium rugosum</i>	White snakeroot	NEWFS	Sep-91	2	0	A
<i>Geranium Endressii</i> 'Wargrave'	Endres cranesbill	VB&S	Jun-90	10	1	
<i>Geranium maculatum</i>	Wild geranium	NEWFS	Aug-91	10	0	A
<i>Geranium Renardii</i>		ARGS	Sep-91	4	0	A
<i>Geranium sanguineum</i>	Blood-red geranium	VB&S	Jun-90	6	1	
<i>Geranium sanguineum</i> 'Album'		ARGS	Sep-91	2	0	A
<i>Gypsophila cerastifolia</i>	Mous ear gypsophila	ARGS	Jun-90	8	0	A
<i>Gypsophila globulosa</i>		NCRPIS	Jun-90	10	0	A
<i>Hedysarum Mackenzii</i>	Wild sweet pea	ANPS	Aug-89	3	1	B,G
<i>Heuchera americana</i> 'Palace Purple'	Rock geranium	T&M	Jun-91	10	0	A

Key to Comments: A = did not survive first winter, B = mechanical injury caused loss, C = spring drought may have caused mortality, D = weak going into fall, E = very weak after winter,

F = late spring snow may have increased disease &/or mortality, G = may require better (faster?) drainage, H = high summer mortality

* Minimum number of test years = 5 years for herbaceous perennials, = 10 years for woody landscape plants.

Table 3. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER OF YEARS SURVIVED	COMMENTS
<i>Houchera glabra</i>	Alumroot	ANPS	Jun-91	10	0	A
<i>Houchera sanguinea</i> 'Bressingham Hybrids'	Coral bells	T&M	Jun-91	10	0	A
<i>Hypericum perforatum</i>	Common St. Johnswort	SBG	Sep-91	1	0	A
<i>Iris Bulbifera</i>	Hollowstem Iris	ARGS	Sep-91	1	0	A
<i>Iris scariosa</i>		Russia	Sep-89	7	2	
<i>Iris sibirica</i> 'Snow Queen'	Siberian Iris	ARGS	Aug-91	8	0	A
<i>Kitabala vitifolia</i>		NCRPIS	Jun-90	10	0	A
<i>Liatis borealis</i>		NEWFS	Jun-91	10	0	A
<i>Liatis punctata</i>	Dotted gayfeather	NEWFS	Jun-91	10	0	A
<i>Malva moschata</i>	Musk mallow	T&M	Jun-90	9	1	
<i>Malva sylvestris</i>	High mallow	T&M	Jun-90	10	0	A
<i>Myosotis alpestris</i>	Alpine forget-me-not	ANPS	Jun-90	10	1	
<i>Papaver alaskanum</i>	Alaska poppy	ANPS	Jun-90	10	1	
<i>Papaver kernerii</i>	Poppy	ARGS	Jun-90	7	0	A,D
<i>Patrinia scabrisifolia</i> 'Nagoya'	Dahurian patrinia	Park	Jul-91	10	0	A
<i>Physostegia virginiana</i>	Obedience	NEWFS	Sep-91	6	0	A
<i>Polemonium caeruleum</i> subsp. <i>villosum</i>	Jacob's-ladder	Eagle Summit, AK	Aug-89	4	2	H
<i>Potentilla pensylvanica</i>	Pennsylvania cinquefoil	J. Grant	Sep-89	3	0	A
<i>Potentilla</i> sp.		ANPS	Aug-89	10	1	
<i>Potentilla villosa</i>	Hairy cinquefoil	NEWFS	Jun-91	10	0	A
<i>Primula scotia</i>	Scotch primrose	ANPS	Jun-91	10	0	A
<i>Primula vulgaris</i> 'Dania Mix'	English primrose	Daahnfeldt	Sep-89	10	0	A
<i>Prunella vulgaris</i>	Common selfheal	ANPS	Aug-89	10	0	A
<i>Silene caroliniana</i>	Wild pink	NEWFS	Jun-91	6	0	A
<i>Silene(?)</i> sp.		ANPS	Sep-91	6	0	A
<i>Siphium forebinthinaceum</i>	Prairie dock	NEWFS	Jul-91	10	0	A
<i>Sisyrinchium littorale</i>	Blue-eyed grass	ANPS	Jun-91	4	0	A
<i>Smelowskia pyriformis</i>		Alaska Range, AK	Aug-89	3	0	A,D,G
<i>Solidago puberula</i>	Downy goldenrod	NEWFS	Sep-91	10	0	A
<i>Taraxacum carneocoloratum</i>		Alaska Range, AK	Aug-89	9	1	
<i>Telekia speciosa</i>		T&M	Jun-91	10	0	A
<i>Tellima grandiflora</i>	Alaska fringecup	NEWFS	Sep-89	10	0	A
<i>Thymus X citriodorus</i> 'Lemon'	Lemon thyme	DBG	Jun-91	2	0	A
<i>Thymus X citriodorus</i>	Silver thyme	DBG	Jun-91	3	0	A
<i>Thymus X citriodorus</i>	White thyme	DBG	Jun-91	4	0	A
<i>Thymus Serpyllium</i>	Lemon variegated thyme	DBG	Jun-91	4	0	A
<i>Thymus Serpyllium</i> 'Pink Chintz'		DBG	Jun-91	4	0	A
<i>Thymus</i> sp.	Lemon thyme	DBG	Jun-91	8	0	A

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SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER OF YEARS SURVIVED	COMMENTS
<i>Tripleurospermum phaeocephalum</i>		ANPS	Jun-90	10	1	
<i>Valeriana sitchensis</i>	Stika valerian	ANPS	Jun-91	2	0	A
<i>Viola pedata</i>	Bird-foot viola	NEWFS	Sep-91	10	0	A
<i>Xerophytum tenax</i>	Bear grass	Lawyer	Aug-90	10	1	E
ORNAMENTAL GRASSES						
<i>Ariethatherum elatius</i> 'Variegatum'	Tall oat grass	Bluebird	Aug-90	2	1	
<i>Bouteloua curtipendula</i> 'Trailway'	Sideoats grama	Bluebird	Aug-90	4	0	A
<i>Bouteloua gracilis</i>	Blue grama	Bluebird	Aug-89	7	1	
<i>Carex Morrowii</i> var. <i>aureo-variegata</i> 'Old Gold'	Variegated Japanese sedge	Bluebird	Aug-89	11	0	A
<i>Carex muskingumensis</i>	Palm sedge	NEWFS	Jul-90	8	1	F
<i>Carex nigra</i>	Black sedge	Bluebird	Jul-90	9	1	F
<i>Carex ornithopoda</i> 'Variegata'		Bluebird	Aug-89	10	1	
<i>Carex pendula</i>	Sedge grass	Bluebird	Aug-89	11	0	A
<i>Chasmanthium latifolium</i>	Sea oats	Bluebird	Aug-90	1	0	A
<i>Deschampsia caespitosa</i> 'Goldschleier'	Tufted hair grass	Bluebird	Aug-90	1	1	
<i>Eragrostis trichodes</i>	Sand love grass	Bluebird	Aug-89	10	0	A
<i>Festuca scoparia</i>	Bearskin grass	Bluebird	Aug-90	1	1	
<i>Hystrix patula</i>	Bottle brush grass	Bluebird	Aug-89	12	1	F
<i>Imperata cylindrica</i> var. <i>rubra</i> 'Red Baron'	Japanese blood grass	Bluebird	Aug-90	4	0	A
<i>Panicum virgatum</i> 'Pathfinder'	Switch-grass	Bluebird	Aug-89	12	0	A
<i>Pennisetum alopecuroides</i>	Chinese pennisetum	Bluebird	Aug-89	11	0	A
<i>Pennisetum flaccidum</i>		Bluebird	Aug-89	10	0	A
<i>Schizachyrium scoparium</i> 'Blaze'	Little bluestem	Bluebird	Aug-89	11	1	
<i>Sesleria autumnalis</i>	Autumn moor grass	Bluebird	Aug-90	2	1	
<i>Sorghastrum avenaceum</i>	Indian grass	Bluebird	Aug-89	11	0	A
<i>Sporobolus airoides</i>	Greater dropseed	Bluebird	Aug-90	2	0	A

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SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER OF YEARS SURVIVED	COMMENTS
WOODY PERENNIALS						
<i>Betula occidentalis</i>	Water birch	ANPS	Sep-89	4	0	A
<i>Betula populifolia</i>	Gray birch	Barnaul, Russia	Aug-91	5	0	A
<i>Ceanothus integerrimus</i>	Deerbush	Schumacher	Sep-89	5	0	A
<i>Cercocarpus montanus</i>	Mountain mahogany	NCRPIS	Sep-89	1	0	A
<i>Cotoneaster horizontalis</i>	Rock cotoneaster	Schumacher	Sep-89	5	1	
<i>Cotoneaster integerrimus</i> 'Centennial'	European cotoneaster	NCRPIS	Sep-89	5	1	
<i>Sorbus reducta</i>		NCRPIS	Jun-90	2	0	A,D
<i>Caragana manshurica</i>		NCRPIS	Sep-90	5	1	
<i>Forsythia ovata</i>	Early forsythia	NCRPIS	Sep-90	5	1	
<i>Prunus sargentii</i>	Sargent cherry	PMC	Jun-90	5	1	
<i>Ribes nigrum</i>	Jostaberry	BCN	Sep-89	4	2	
<i>Rhododendron canadense</i>	Rhodora	NEWFS	Aug-91	5	0	A
<i>Rosa Eglantheria</i>	Eglantine rose	NCRPIS	Aug-91	5	0	A
<i>Rosa multiflora</i>	Baby rose	Seiberling	Aug-91	5	0	A
<i>Rosa multiflora</i>	Baby rose	Hermitage, PA	Aug-91	5	0	A

Key to Comments: A = did not survive first winter, B = mechanical injury caused loss, C = spring drought may have caused mortality, D = weak going into fall, E = very weak after winter, F = late spring snow may have increased disease &/or mortality, G = may require better (faster?) drainage, H = high summer mortality

Table 4. Plantings from 1992 that have not yet been evaluated for winter survival.

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS
HERBACEOUS PERENNIALS				
<i>Achillea Ptarmica</i> (?)	Snowezwort	Nauriaq	Jul-92	10
<i>Achillea taygetea</i> 'Debutante'		Park	Jul-92	10
<i>Adenophora Buteyana</i>	Ladybolls	T&M	Jul-92	10
<i>Aquilegia</i> sp.	Columbine	Novosibirsk, Russia	Aug-92	10
<i>Aquilegia</i> sp.	Columbine	Berdsk, Russia	Aug-92	10
<i>Arnica alpina</i>		ARGS	Jul-92	10
<i>Arnica alpina</i>		Nauriaq	Jul-92	8
<i>Arnica cordifolia</i>		ARGS	Jul-92	10
<i>Artemesia Tilesii</i> 'Colggiuk'	Tilesy Sage	PMC	Jul-92	10
<i>Aster sibiricus</i>	Siberian aster	Big Dipper	Jul-92	10
<i>Calamintha Nepeta</i>		T&M	Jul-92	10
<i>Campanula glomerata</i> var. <i>dahurica</i>	Clustered bellflower	ARGS	Aug-92	1
<i>Campanula glomerata superba</i>		T&M	Aug-92	10
<i>Centranthus ruber</i> 'Roseus'	Keys of Heaven	Park	Jul-92	10
<i>Chrysanthemum coccineum</i> 'Robinson's Dark Crimson'		Vaughan's	Jul-92	10
<i>Clematis</i> sp.	Clematis	Montana	Jul-92	3
<i>Dodecatheon Cusickii</i>		ARGS	Jul-92	1
<i>Dodecatheon Jeffreyi</i>		ARGS	Jul-92	5
<i>Dodecatheon Meadia</i>	Shooting-star	ARGS	Jul-92	9
<i>Dodecatheon Meadia</i> 'Album'	White shooting-star	ARGS	Jul-92	1
<i>Gallium boreale</i>	Northern bedstraw	Big Dipper	Jul-92	10
<i>Hedysarum Mackenzii</i>	Wild sweet pea	PMC	Jul-92	10
<i>Iris missouriensis</i> (?)	Western blue flag	Estes Park, CO	Jul-92	10
<i>Iris palustris</i>		SAAS	Aug-92	6
<i>Iris setosa arctica</i>		ARGS	Jul-92	2
<i>Iris setosa</i> var. <i>canadensis</i>	Beachhead iris	ARGS	Jul-92	2
<i>Iris setosa nana</i>		ARGS	Jul-92	10
<i>Iris setosa</i>	Wild iris	Kodiak, AK	Aug-92	2
<i>Iris setosa</i>		ARGS (Germany)	Jul-92	6
<i>Ullium canadense</i>	Canada lily	AHS	Jul-92	3
<i>Ullium canadense</i>	Canada lily	NEWFS	Jul-92	3
<i>Ullium Martagon</i> 'Mix'	Martagon lily	T&M	Jul-92	6
<i>Ullium superbum</i>	Turk's-cap lily	NEWFS	Jul-92	10
<i>Ullium perenne</i> subsp. <i>Lewisii</i>	Blue flax	Nauriaq	Jul-92	10
<i>Lupinus</i> sp.		Fairbanks Ck., AK	Aug-92	10
<i>Lychnis Coronaria</i>	Mullein pink	Tack's	Aug-92	10
<i>Lychnis Viscaria</i>	German catchfly	Tack's	Aug-92	10
<i>Monarda didyma</i> 'Panorama Mix'	Bee balm	Johnny's	Jul-92	8

Table 4. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS
<i>Muscari armeniacum</i>	Grape hyacinth	J&P	Aug-92	10
<i>Paeonia</i> sp.	Peony	J. Gordon	Jul-92	10
<i>Penstemon heterophyllus</i> 'Blue of Zurich'		Park	Jul-92	10
<i>Physalis Alkekengi</i>	Chinese-lantern plant	Burpee	Jul-92	10
<i>Polemonium caeruleum</i> var. <i>lacteum</i>		T&M	Jul-92	10
<i>Polemonium caeruleum</i> 'Cathmerianum'		T&M	Jul-92	10
<i>Polemonium reptans</i> var. <i>villosum</i>		NEWFS	Jul-92	1
<i>Polemonium</i> sp. 'Apricot Delight'		T&M	Jul-92	5
<i>Polemonium reptans</i> 'Blue Pearl'		Vaughan's	Jul-92	10
<i>Sidalcea</i> sp. 'Party Girl'		Burpee	Aug-92	10
<i>Siphium perfoliatum</i>	Cup plant	NEWFS	Aug-92	8
<i>Solidago odora</i>	Sweet goldenrod	NEWFS	Jul-92	10
<i>Thalictrum dioicum</i>	Early meadowrue	NEWFS	Aug-92	3
<i>Thermopsis lupinoides</i>		ARGS	Jul-92	9
<i>Trollius laxus</i>	Spreading globeflower	NEWFS	Jul-92	10
<i>Veronica fruticulosa</i>		ARGS	Aug-92	10
<i>Veronica saturojoides</i>		ARGS	Aug-92	2
<i>Viola labradorica</i>	Labrador violet	NEWFS	Jul-92	4
<i>Zigadenus glaucus</i>	White camas	NEWFS	Aug-92	3
ORNAMENTAL GRASSES				
<i>Arctagrostis latifolia</i> 'Koral'	Polar grass	PMC	Jul-92	10
<i>Beckmannia syzigachne</i> 'Egan'	American soughgrass	PMC	Jul-92	10
<i>Daschampsia beringensis</i> 'Norcoast'	Bering hairgrass	PMC	Jul-92	10
<i>Poa alpina</i> 'Gruening'	Alpine bluegrass	PMC	Jul-92	10
<i>Poa ampla</i> 'Service'	Big bluegrass	PMC	Jul-92	10
<i>Poa glauca</i> 'Tundra'	Greenland bluegrass	PMC	Jul-92	10
WOODY PERENNIALS				
<i>Acer saccharum</i>	Sugar maple	NCRPS	Jul-92	3
<i>Amelanchier alnifolia</i>		NCRPS	Jul-92	2
<i>Aronia arbutifolia</i>	Chokeberry	NCRPS	Jul-92	3
<i>Aronia melanocarpa</i>		NCRPS	Jul-92	2

Table 5. Annual flowers evaluated in 1992.

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
African Daisy	Mix	Stokes	**	**	**	**	17-20	8
Ageratum	Blue Horizon	Ball Seed	**	**	**	**	22	10
Ageratum	Blue Lagoon	Stokes	**	**	**	**	4-8	6
Ageratum	Capri	Park	**	**	**	**	9-14	6-7
Ageratum	Hawaii Royal	Ball Seed	**	**	**	**	3-4	6
Alyssum	Carpet of Snow	Burpee	**	**	**	**	8	6-8
Alyssum	Golf Pastel Mix	Clause Seed	**	**	**	**	4-6	6-8
Alyssum	Snow Cloth Select	Stokes	**	**	**	**	3-6	6
Asperula azurea		GBG	**	**	**	**	15-16	7
Aster	Burpee's Totem Pole Mix	Burpee	**	**	**	**	21-25	10
Aster	Comet Mix	Stokes	**	**	**	**	9-12	6-8
Aster	Milady Mix	T & M	**	**	**	**	12-18	8
Aster	Mini-Lady Mix	Stokes	**	**	**	**	10-15	8
Bellis	Carpet White	Clause Seed	**	**	**	**	10	8
Bellis	Radar White	Clause Seed	**	**	**	**	10-12	8
Bupleurum	Green Gold	Park	**	**	**	**	24-34	8-10
Calendula	Anagor	Agway	**	**	**	**	22	10
Calendula	Bon Bon Orange	Vaughan's	**	**	**	**	10	8
Calendula	Bon Bon Yellow	Vaughan's	**	**	**	**	14	8
Calendula	Fiesta Gitana	Ball Seed	**	**	**	**	12-15	8-10
Calendula	Prince Mix	Park	**	**	**	**	22-26	8-10
Carnation	Knight Mix	Vaughan's	**	**	**	**	10-14	8
Carnation	Scarlet Lumnette	T & M	**	**	**	**	16-20	8
Celosia	Apricot Brandy	Park	**	**	**	**	12-14	6
Celosia	Century Mix	Stokes	**	**	**	**	14-22	6-8
Celosia	Kewpie Mix	Northrup King	**	**	**	**	6-10	6
Celosia	Klmono Mix	Ball Seed	**	**	**	**	4-7	6
Celosia	New Look	Burpee	**	**	**	**	9-16	6-8
Chrysanthemum paludosum		Northrup King	**	**	**	**	20	10
Chrysanthemum	Primrose Gem	T & M	**	**	**	**	26-34	10-12
Chrysanthemum multifida		Stokes	**	**	**	**	14	8
Cloome	Queen Mix	Burpee	**	**	**	**	48-56	10-12
Cosmos	Daydream	Stokes	**	**	**	**	36-40	10
Cosmos	Imperial Pink	Ball Seed	**	**	**	**	40-44	10-12
Cosmos	Ladybird Scarlet	AAS	**	**	**	**		
Cosmos	Picotee	Stokes	**	**	**	**	36-48	10-12
Cosmos	Sonata White	Ball Seed	**	**	**	**	28-32	10
Cosmos	Sunny Red	Ball Seed	**	**	**	**	20-30	10

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
mix-yellow,orange,white	1 1/2-2 1/2	-	-			disease problems early in season
blue-violet	2"	-	-		+	
blue	1-1 1/2"	-	-			
blue/white	2-3"	-	-			very nice
deep lavender	1/2	-	-			
white	1"	-	-			
mix-white,purple,rose	1"	+	+			very nice, compact, good colors
white	1"	+	+			
blue	3/4"	-	-			
mix-blue,white,pink,rose	4-5	-	-		+	very nice, showy flowers
mix	3-4	-	-		+	compact, good colors, needs dead-heading
mix	3 1/4-4	-	-		+	
mix	3 1/2-4	-	-		+	
white	1 1/8	-	-			
white	1 1/2	-	-			
green/yellow	1 1/4"	-	-		+	good filler for arrangements
orange	3	-	-		+	
orange	1 3/4-2 3/4	-	-			
yellow	2	-	-			excellent
mix-orange,yellow,cream	2 1/4	-	-			
mix-orange,yellow	2-2 1/2	-	-		+	nice mix, needs dead-heading
mix	2-2 1/2	+	+	+		
red	2 1/2	+	+		+	
orange	4"	-	-			striking flower and foliage color
mix	9"	-	-			
mix-red,orange	3"	-	-			excellent performer
mix-red,yellow,orange	3"	-	-			very good, nice color mix
red	4-5"	-	-			dark foliage
white	1	-	-			mounding habit, lots of blooms
yellow	2	-	-			
yellow	3/4-1	-	-			reliable performer
mix-rose,purple,white	6-7"	-	-			good background plant, nice blooms
		-	-			did not bloom
rose	4-4 1/2	-	-			very good
red-orange		-	-			died out by the time measurements were taken
white/rose	2 1/2	-	-			very good performer
white	3-4	-	-			very nice
red-orange	1 1/2	-	-			

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Dahlia	Calico Mix	Clause Seed	*	*	*	*	10-15	10
Dahlia	Diablo	Ball Seed	*	*	*	*	20	10
Dahlia	Mignon Mix	Vaughan's	*	*	*	*	12-18	10
Dahlia	Rigoletto	Vaughan's	*	*	*	*	11-15	10
Dianthus	Ideal Rose	Vaughan's	*	*	*	*	12-16	8
Dianthus	Ideal Violet	Burpee	*	*	*	*	14	8
Dianthus	Pink Charm	Vaughan's	*	*	*	*	8	6
Dianthus	Princess Crimson	Vaughan's	*	*	*	*	9-10	8
Dianthus	Princess Mix	Vaughan's	*	*	*	*	9-10	8
Dianthus	Raspberry Parfait	Ball Seed	*	*	*	*	8	8
Dianthus	Snow Fire	Vaughan's	*	*	*	*	12-14	8
Dianthus	Telstar Mix	Northrup King	*	*	*	*	9-12	8
Dianthus	Telstar Picotee	Ball Seed	*	*	*	*	10-12	8
Dianthus	White Charm	Ball Seed		*	*	*	8-9	8
Dusty Miller	Cirrus	Northrup King					9	8
Dusty Miller	Silver Dust	Vaughan's					8-10	8
Flowering Kale	Chidori Red	Ball Seed					12-14	18
Flowering Kale	Komome White	Ball Seed					12-14	18
Flowering Kale	Red Sparrow	Stokes					10-12	18
Flowering Kale	White Peacock	Park					20-24	18
Foxglove	Foxy	Burpee		*	*	*	28-33	10
Gaillardia	Red Plume	Stokes		*	*	*	14-20	8-10
Gazania	Chansonette	Park		*	*	*	10-12	8
Gazania	Daybreak Bronze	Vaughan's		*	*	*	12-15	8
Gazania	Dynastar Mix	Clause Seed		*	*	*	9-12	8
Gazania	Mini-Star Tangerine	Ball Seed		*	*	*	9-15	8
Geranium	Avanti Lilac Rose	Clause Seed	*	*	*	*	13-14	12
Geranium	Avanti Red	Clause Seed	*	*	*	*	13	12
Geranium	Elite Cherry	Ball Seed	*	*	*	*	10-13	12
Geranium	Elite White	Ball Seed	*	*	*	*	12-14	12
Geranium	Freckles	Vaughan's	*	*	*	*	10-12	12
Geranium	Rose Diamond	AAS	*	*	*	*	14-17	12
Geranium	Signal Orange	Clause Seed	*	*	*	*	16	12
Gloriosa Daisy	Monarch Mix	Northrup King		*	*	*	28-30	10
Godetia	Grace Mix	Johnny's	*	*	*	*	16-22	8
Godetia	T&M Improved Dwarf Mix	T & M		*	*	*	13	8
Helichrysum	Bright Bikini Mix	Park		*	*	*	14-24	10
Helichrysum	Salmon	Stokes		*	*	*	48	10-12

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
mix	1 3/4-3 1/2	-	-		+	uneven performance
mix	2-3	-	-		+	dark foliage, very nice
mix	3-4	-	-		+	single flowers, lots of blooms
mix	2 1/2-3	-	-		+	very nice, lots of blooms
rose	1 1/4-1 1/2	-	-	+		
red-violet	1 1/2	+	+			excellent performer
pink	1 1/2-1 3/4	+	+			nice, with large flowers
red	1 1/4-1 1/2	-	+			
mix-red, pink, white, rose	1-1 1/2	+	+			excellent performer
pink/ dark eye	1 1/2-2	-	+			very good performer
white/red	1 1/2-2	-	-			
mix-red, white, rose	1-1 1/2	-	-			excellent performer
red/white	1 1/4-1 1/2	+	+			very good performer
white	1 1/2-1 3/4	+	+			good
silver foliage			+			
silver foliage			+			
rose/green leaves			+			
green/white leaves			+			compact
rose/green leaves			+			
white/green leaves			+			finely cut foliage
mix-white, purple, pink	2 1/2	-	-		+	good performer
dark red	1 1/2-2	-	-			very nice, unusual
mix	2 1/2	-	-			not as good as some
bronze	2 1/2-3	-	-			excellent performer, good color
mix	3-3 1/2	-	-			
orange	2 1/2-3 1/2	-	-			blooms stay open in cloudy weather better than other varieties
purple	4"	-	-			sparse foliage
bright coral	4 1/2"	-	-			
cherry pink/orange throat	4"	-	-			
white	3"	-	-			
pink/rose spots	3-4"	-	-			attractive flowers
rose	4"	-	-			very good performer, could use dead-heading
coral	4"	-	-			good performer
gold/rust	4	-	-		+	
mix-rose, pink, salmon	2 1/2-3	-	-		+	
mix-rose, pink, white	2 1/4	-	-			
mix	1 1/2-1 3/4	-	-		+	
salmon	2 1/4	-	-		+	

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Helichrysum	Swiss Giant Mix	Harris Moran		***	***		40-58	10-12
Heliopsis	Bright Stars	Johnny's	***	***	***		14	8
Hollyhock	Althea Rosea Zebrina	Park	**	***	***		37-40	10
Lavatera	Mont Blanc	Park		**	***		20	10
Lavatera	Silver Cup	Park		**	***		20-24	10
Linaria	Fairy Bouquet	Park	***	***	***		22-24	8-10
Lobelia	Blue Crystal	Stokes	**	***	***		6-7	6-7
Lobelia	Crystal Palace	Vaughan's	**	***	***		6	6-7
Lobelia	Fountain Ullac	Vaughan's	**	***	***		9-11	4-6
Lupine	Gallery Mix	Vaughan's	**	***	***		17-29	12
Lupine	Russell Mix	Stokes			***		41-48	12
Marigold	Aurora Mix	Ball Seed	***	***	***		8	8
Marigold	Bonanza Yellow	Northrup King	***	***	***		5-8	8
Marigold	Disco Orange	Park	***	***	***		7-9	7-8
Marigold	Espana Viva	Stokes	***	***	***		8-9	8
Marigold	Fireworks Golden	Ball Seed	***	***	***		10-12	8
Marigold	Gold Coin Mix	Twilley		**	***		32-38	10
Marigold	Golden Gate	Stokes	***	***	***		6-10	8
Marigold	Hero Flame	Ball Seed	***	***	***		4-7	8
Marigold	Hero Yellow	Bodger	***	***	***		6-9	6-8
Marigold	Inca Mix	Park		**	***		12-14	8
Marigold	Jante Flame	Northrup King	***	***	***		6-8	6
Marigold	Jante Gold	Stokes	***	***	***		4-6	6
Marigold	Jubilee Mix	Ball Seed		**	***		24-26	10-12
Marigold	Nugget Yellow Supreme	Burpee	***	***	***		9-12	8
Marigold	Orange Boy	Northrup King	***	***	***		5-9	6
Marigold	Primrose Lady	Park		**	***		12-14	8-10
Marigold	Red Marietta	Stokes	***	***	***		8-10	8
Marigold	Safari Scarlet	Park	***	***	***		8-10	8
Marigold	Safari Yellow	Park	***	***	***		8-11	8
Marigold	Snowdrift	Burpee		**	***		20-23	10
Marigold	Zenith Orange	Park	***	***	***		14-16	8
Marigold, Signet	Lemon Gem	Burpee	**	***	***		12-18	10
Marigold, Signet	Tangerine Gem	Johnny's	**	***	***		12-14	10
Matricaria	Santana	Ball Seed		**	***		8	8
Nasturtium	Alaska	Burpee		**	***		13-15	10
Nasturtium	Dwarf Jewel Mahogany	Burpee	**	***	***		15	10
Nasturtium	Empress of India	Stokes	**	***	***		18	10-12

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
mix	2 1/2	-	-			
yellow	1*	-	-			overlasting
purple	2	-	-			may require staking
white	3	-	-			disease problems late in season
pink	4	-	-			rice flowers
mix	1/4-1/2	+	+			
blue	1/2-3/4	-	-			
blue	1/2-3/4	-	-			
pale lilac	3/4	-	-			nice early in the season
mix	10-14*	+	+			compact, good blooms
mix	20*	+	+			tall, very nice
mix	1 3/4-2 1/2	-	-			
yellow	1 1/2-2	-	-			
orange	2-2 1/2	-	-			single French type, good color
yellow	1 3/4-2 1/2	-	-			single French type
gold	2 1/4-3	-	-			
mix-gold,yellow	3-4	-	-			
gold	2 1/2-3	-	-			
gold/red	1 1/2	-	-			excellent
yellow	2	-	-			excellent
mix - yellow,gold,orange	4	-	-			very good performer
red/orange	1 1/2-1 3/4	-	-			
gold	1 1/2	-	-			
mix-yellow,orange	3-4	-	-		+	very good, may need staking
yellow	1 1/2-2	-	-			
orange	1 1/4-2	-	-			
yellow	3	-	-			
red/gold	2	-	-			
red/gold	2 1/2	-	-			
yellow	2 1/2	-	-			
cream	2 1/2-4	-	-		+	
orange	2-3	-	-			
yellow	1	-	-			
orange	1	-	-			
white	3/4	-	-			
mix	2-2 1/2	-	-			variegated foliage
mahogany red	2-2 1/4	-	-			
red	2-2 1/2	-	-			

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Nasturtium	Fordhood Favorites Mix	Burpee	**	**	**	**	climber	10-12
Nasturtium	Golden Gleam	Park	**	**	**	**	22-24	10
Nasturtium	Jewel Mix	Northrup King	**	**	**	**	18	10
Nasturtium	Park's Fragrant Giants	Park	**	**	**	**	18-22	10-12
Nasturtium	Whirlybird Mix	Burpee	**	**	**	**	13-18	10
Nasturtium	Whirlybird Tangerine	Stokes	**	**	**	**	18-22	10
Nemesia	Carnival Mix	T & M	*	*	**	**	12-15	8
Nicotiana	Domino Mix	Ball Seed	**	**	**	**	20-22	10
Nicotiana	Domino Purple	Ball Seed	**	**	**	**	18-20	10
Nicotiana	Domino White	Park Seed	**	**	**	**	20-22	10
Nicotiana	Nicki Pink	Burpee	**	**	**	**	20-27	10
Nicotiana	Nicki Rose	Burpee	**	**	**	**	25	10
Nicotiana	Starship Red	Ball Seed	**	**	**	**	15	10-12
Nierembergia	Mont Blanc	AAS	**	**	**	**	4-5	6
Nolana	Sky Blue	Stokes	*	**	**	**	7-9	7-8
Pansy	Chalon Mix	Clause Seed	**	**	**	**	8-12	8
Pansy	Crown Cream	Vaughan's	**	**	**	**	9-11	8
Pansy	Crown Mix	Vaughan's	**	**	**	**	9-10	8
Pansy	Crown Rose	Vaughan's	**	**	**	**	8-12	8
Pansy	Crown Yellow Splash	Ball Seed	**	**	**	**	14-16	10
Pansy	Imperial Silver Princess	Vaughan's	**	**	**	**	8-10	8
Pansy	Joker Mix	Vaughan's	**	**	**	**	12-14	8
Pansy	Jolly Joker	Ball Seed	**	**	**	**	12	8
Pansy	Maxim Marina	Burpee	**	**	**	**	10	8
Pansy	Medallion Mix	Clause Seed	**	**	**	**	12	8
Pansy	Padparadja	Park	**	**	**	**	10-12	8
Pansy	Springtime Azure Blue	Clause Seed	**	**	**	**	10-12	8
Pansy	Springtime Yellow Marble	Harris Moran	**	**	**	**	10-13	8
Pansy	Universal True Blue	Ball Seed	**	**	**	**	10	8
Pansy	Watercolor Mix	Clause Seed	**	**	**	**	7-9	8
Petunia	Celebrity Pink Morn	Park	**	**	**	**	16	8-10
Petunia	Highlight Mix	Ball Seed	**	**	**	**	15	8-10
Petunia	Horizon Blue	Clause Seed	**	**	**	**	18	8-10
Petunia	Midnight Madness	Ball Seed	**	**	**	**	12-14	8-10
Petunia	Orchid Daddy	Ball Seed	**	**	**	**	10-14	8-10
Petunia	Pearls Mix	Clause Seed	**	**	**	**	18-20	8-10
Petunia	Polo Burgundy Star	Vaughan's	**	**	**	**		
Petunia	Polo Salmon	Stokes	**	**	**	**	14-18	8-10

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
mix-orange,gold	2 1/2	-	-			
gold	2 1/4	-	-			quite invasive
mix	2-2 1/2	-	-			good colors
mix-orange,yellow	2 1/4-2 3/4	-	-			
mix	2 1/2-3	-	-			not as aggressive as some nasturtiums
orange	2 1/2	-	-			nice color, aggressive plants
mix	1-1 1/2	-	-			bright colors, disease problems early in season
mix	2	-	-			
purple	2 1/4	-	-			
white	1 1/2-2	-	-			
pale pink	1 1/2-2	-	-			good color mass
rose	2	-	-			excellent performer
deep red	2	+	+			
white	1	-	?			new, very nice
blue	2	-	-			
mix-mahogany,violet,yellow	1 3/4-2 1/2	-	-			ruffled blooms, unusual colors
yellow	2-2 1/2	+	+			
mix	2-2 1/2	+	+			clear faces, excellent performer
rose/burgundy	2-2 1/2	+	+			
yellow or white/yellow	2-3	-	-			good flower size, similar to Springtime Yellow Marble
white/burgundy face	2	+	?			
mix	2-2 1/2	-	-			whiskered faces
purple/apricot	2-2 1/2	-	-			
blue & white/purple face	1 3/4-2	+	?			nice faces
mix	2 1/4-2 3/4	-	-			
orange	2	-	-			clear face, outstanding color
light & dark blue	2-2 3/4	+	+			
yellow/cream	2 1/4-2 1/2	-	-			
blue	2-2 1/2	-	-			
mix	2	+	+			soft colors, nice mix, no faces
pink/yellow throat	3	-	+			attractive color
mix	2 1/2-3 1/2	-	-			
blue	2 1/2-3	-	-			
purple	3	-	-			good performer
orchid	3-3 1/2	-	-			
mix-rose,pink,purple,white	2	-	-			
burgundy, white edging		-	-			diseased, unable to make measurements
light salmon pink	2 1/4-3	-	+			nice color, disease problems

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Petunia	Primetime Burgundy	Vaughan's	* * * * *	* * * * *	* * * * *	14-18	8-10	
Petunia	Primetime Rose	Vaughan's	* * * * *	* * * * *	* * * * *	14	8-10	
Petunia	Primetime White	Vaughan's	* * * * *	* * * * *	* * * * *	15-16	8-10	
Petunia	Prism Coral	Clause Seed	* * * * *	* * * * *	* * * * *	16	8-10	
Petunia	Purple Prouette	Park	* * * * *	* * * * *	* * * * *	14	8-10	
Petunia	Red Picotee	Ball Seed	* * * * *	* * * * *	* * * * *	15	8-10	
Petunia	Rose Madness	Ball Seed	* * * * *	* * * * *	* * * * *	14	10	
Petunia	Ultra Crimson Star	Ball Seed	* * * * *	* * * * *	* * * * *	14	8-10	
Phlox	Dwarf Varieties Finest Mix	Stokes	* * * * *	* * * * *	* * * * *	13-16	8	
Phlox	Grandiflora Choice Finest Mix	Stokes	* * * * *	* * * * *	* * * * *	16-20	8	
Phlox	Paloma Deep Rose	Ball Seed	* * * * *	* * * * *	* * * * *	9-11	6	
Phlox	Promise Pink	Park	* * * * *	* * * * *	* * * * *	10-11	6-8	
Rudbeckia	Goldlocks	Ball Seed	* * * * *	* * * * *	* * * * *	22	10	
Rudbeckia	Marmalade	Stokes	* * * * *	* * * * *	* * * * *	20-26	8-10	
Rudbeckia	Nutmeg	T & M	* * * * *	* * * * *	* * * * *	22-24	10	
Salvia	Hotline Red	Park	* * * * *	* * * * *	* * * * *	12-14	8	
Salvia	Lady in Red	Burpee	* * * * *	* * * * *	* * * * *	32	8-10	
Salvia	Maestro	Clause Seed	* * * * *	* * * * *	* * * * *	12-14	8	
Salvia	Primco	Clause Seed	* * * * *	* * * * *	* * * * *	6-8	6	
Salvia	Sizzler Burgundy	Clause Seed	* * * * *	* * * * *	* * * * *	12-14	6	
Salvia	Sizzler Lavender	Clause Seed	* * * * *	* * * * *	* * * * *	10-12	6	
Salvia	Sizzler White	Clause Seed	* * * * *	* * * * *	* * * * *	10-12	6	
Salvia	Sky and Ice	Stokes	* * * * *	* * * * *	* * * * *	11	7	
Salvia farinacea	Silver Sunshine	Northrup King	* * * * *	* * * * *	* * * * *	24-27	8-10	
Salvia farinacea	Victoria	Northrup King	* * * * *	* * * * *	* * * * *	20-22	8	
Sanvitalia	Mandarin Orange	Park	* * * * *	* * * * *	* * * * *	16	8	
Schizanthus	Hit Parade	Park	* * * * *	* * * * *	* * * * *	14-16	6-8	
Schizanthus	Star Parade	Ball Seed	* * * * *	* * * * *	* * * * *	7-12	6-8	
Shasta Daisy	Alaska	Northrup King	* * * * *	* * * * *	* * * * *	26-42	12	
Shasta Daisy	Snow Lady	Park	* * * * *	* * * * *	* * * * *	10	8-10	
Shasta Daisy	White Knight	Burpee	* * * * *	* * * * *	* * * * *	14	10	
Shoo-Fly Plant	Black Pod	Big Dipper	* * * * *	* * * * *	* * * * *	48-50	12	
Snapdragon	Cinderella Mix	Burpee	* * * * *	* * * * *	* * * * *	15-20	10	
Snapdragon	Frosty Rose Pink	Park	* * * * *	* * * * *	* * * * *	30-33	10	
Snapdragon	Kim Mixture	Clause Seed	* * * * *	* * * * *	* * * * *	7-12	8	
Snapdragon	Princess White/Purple Eye	Ball Seed	* * * * *	* * * * *	* * * * *	11-14	8	
Snapdragon	Rocket Bronze	Ball Seed	* * * * *	* * * * *	* * * * *	36-46	10	
Snapdragon	Rocket Cherry	Vaughan's	* * * * *	* * * * *	* * * * *	40-44	10	

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
burgundy	2 1/2-3	-	+			
rose	2-3	-	-			
white	2 1/4-3	-	-			
dark coral	3 1/4-4	-	+			disease problems
purple/white	3-3 1/2	-	-			
red/white edging	3-3 1/2	-	-			
rose	2 1/2-3	-	+			
burgundy/white	3-3 1/2	-	-			
mix	1	+	+			very nice
mix-red,pink,yellow	1	-	+	+		excellent
rose	1	-	+			nice mass of color
pink	3/4	+	+			
gold	3 1/2-4	-	-		+	
orange/dark center	4	-	-		+	excellent performer
bronze,gold,red	3-3 3/4	-	+		+	
red	8"	-	-			
red	10-12"	-	-			open flower spike, more foliage than other red salvias
red	5-8"	-	-			excellent
red	4"	-	-			
dark red	6-8"	-	-			best Sizzler
purple	6-8"	-	-			
white	3-6"	-	-			poor
purple & white	5"	-	-			
silver	5"	-	+		+	
blue	1 1/2x5"	+	+		+	
orange	3/4	-	-			nice, spreading habit
mix	1	-	-			best Schizanthus, but disease problems
mix	1/2-1	-	-			disease problems
white	4-4 1/2	-	-		+	
white	2 1/2-3 1/4	+	+			good performer, lots of blooms
white	3-4 1/4	-	-		+	
lavender	1 1/2-1 3/4	-	-		+	interesting seed pods, nice for arrangements
mix	1-1 1/2	+	+		+	
pink/white	1 1/4-1 1/2	+	+		+	may require staking
mix	1-1 1/4	+	+			
white/purple	1	-	-			
pink/gold	1 1/4-1 1/2	-	-		+	
red/pink	1 1/4-1 1/2	+	+		+	

Table 5. (Continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Snapdragon	Rocket Lemon	Ball Seed		* * * * *	* * * * *	34	10	
Snapdragon	Rocket Orchid	Vaughan's		* * * * *	* * * * *	38-44	10	
Snapdragon	Rocket Redstone	Park		* * * * *	* * * * *	36	10	
Snapdragon	Sonnet Burgundy	Vaughan's		* * * * *	* * * * *	20	8	
Snapdragon	Sonnet Orange	Ball Seed	* * * * *	* * * * *	* * * * *			
Snapdragon	Sonnet Rose	Vaughan's		* * * * *	* * * * *	22-26	8	
Snapdragon	Sonnet White	Ball Seed	* * * * *	* * * * *	* * * * *	18-22	8	
Snapdragon	Tahiti Appleblossom	Vaughan's		* * * * *	* * * * *	7-8	8	
Snapdragon	Tahiti Mix	Vaughan's		* * * * *	* * * * *	6-10	8	
Staffee	Easy Grow Mix	Park Seed		* * * * *	* * * * *	31-40	10	
Stock	Cinderella Dark Blue	Ball Seed	* * * * *	* * * * *	* * * * *	12-20	6	
Stock	Apple Blossom	T & M		* * * * *	* * * * *	22-26	6-8	
Sunflower	Halo	Stokes			* * * * *	68-82	12	
Sunflower	Large Flowered Mix	Park		* * * * *	* * * * *	72-78	12	
Sunflower	Music Box	Park		* * * * *	* * * * *	28-33	12	
Sunflower	Sunbird	Burpee		* * * * *	* * * * *	52-54	12	
Sunflower	Teddy Bear	Stokes		* * * * *	* * * * *	23-30	12	
Twinspur	Pink Queen	Park	* * * * *	* * * * *	* * * * *	13-15	6-8	
Veridium		T & M		* * * * *	* * * * *	24	10	
Veridium	Zulu	Stokes		* * * * *	* * * * *	26-32	10	
Verbena	Amour Mix	Ball Seed		* * * * *	* * * * *	9-10	8	
Verbena	Blue Lagoon	Clause Seed		* * * * *	* * * * *	10-11	8	
Verbena	Imagination	AAS	* * * * *	* * * * *	* * * * *	15-17	8	
Verbena	Navalis Deep Blue/White Eye	Stokes		* * * * *	* * * * *	9-10	8	
Verbena	Navalis Mix	Ball Seed		* * * * *	* * * * *	8-11	8	
Verbena	Peaches & Cream	Stokes		* * * * *	* * * * *	11-12	8	
Verbena	Sandy Magenta	Clause Seed		* * * * *	* * * * *	10-11	8	
Verbena	Sandy White	Vaughan's		* * * * *	* * * * *	6-9	8	
Verbena	Showtime Blaze	Northrup King	* * * * *	* * * * *	* * * * *	10-12	8	
Verbena	Trinidad	Vaughan's		* * * * *	* * * * *	7-9	8	
Vinca	Pretty in Pink	Park		* * * * *	* * * * *	8	6	
Vinca	Pretty in Rose	Vaughan's		* * * * *	* * * * *	6-7	6	
Vinca	Pretty in White	Ball Seed		* * * * *	* * * * *	6-8	6	
Zinnia	Border Beauty Rose	Burpee		* * * * *	* * * * *	24-28	10	
Zinnia	Border Beauty Scarlet	Burpee		* * * * *	* * * * *	23-27	10	
Zinnia	Classic White	Ball Seed		* * * * *	* * * * *	12-16	8	
Zinnia	Dasher Orange	Park	* * * * *	* * * * *	* * * * *	12-14	8	
Zinnia	Fantastic Pink	Park		* * * * *	* * * * *	15-18	8	

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			
pale yellow	1 1/4	+	+		+	
dusty rose	1 1/2	+	+		+	nice, may require staking
cherry red/yellow	1 1/2	+	+		+	
burgundy	1 1/2	+	+		+	excellent color, disease problems
orange					+	succumbed to disease, gone by the time measurements were taken
rose	1 1/2	-	-		+	
white	1 1/4	-	-		+	
pink	1-1 1/4	-	+			bloomed early and again in late Aug.
mix	1-1 1/2	+	+			very nice
mix	3"	-	-		+	
purple	16"	+	+			
lavender	9"	-	-			
yellow	6	-	-			
mix	4-6 1/2	-	-			
mix-yellow,red,cream	5	-	-			
yellow	6	-	-			edible seeds
gold	3-5	-	-			
pink	1/2-3/4	-	-			
orange	2	-	-			early, severe disease problems
white/black centers	2 1/2-3 1/2	-	-		+	
mix-white,reds,blues	2 1/2"	-	+			excellent
blue	2 1/2"	+	+			very nice
violet blue	1 1/4	-	-			spreading habit, finely cut leaves
deep blue	2"	-	-			
mix	2-2 1/4	+	+			
apricot, pink	2-2 1/2"	-	-			unusual color
magenta	2 1/2"	-	-			
white	2 1/4"	-	-			
red	2 1/4"	-	-			
rose	1/2	-	-			excellent performer, good color
pink	1 1/4-1 1/2	-	-			
violet-red	1 1/2-1 3/4	-	?			
white	1 1/4	-	+			
pink	3-4	-	-		+	
red	2 1/2-4	-	-		+	
white	1-1 1/2	-	-			single blooms, combines well with other flowers
orange	2-3	-	-		+	
pink	4	-	-		+	very nice

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Zinnia	King of Hearts	Stokes	* * *	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	26-33	10
Zinnia	Small World Cherry	Vaughan's	* ☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	15-18	10
Zinnia	Small World Pink	Park	* ☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	24	10
Zinnia	Snowman	Burpee	* * *	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	20-22	10
Zinnia	Splendor Mix	Burpee	* ☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	22-25	10
Zinnia	Splendor Orange	Burpee	☼ ☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	28-30	10
Zinnia	Splendor Scarlet	Burpee	* ☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	22-30	10
Zinnia	Yellow Marvel	Stokes	* * *	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	16-18	8-10

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	COMMENTS
		FLOWERS	FOLIAGE			

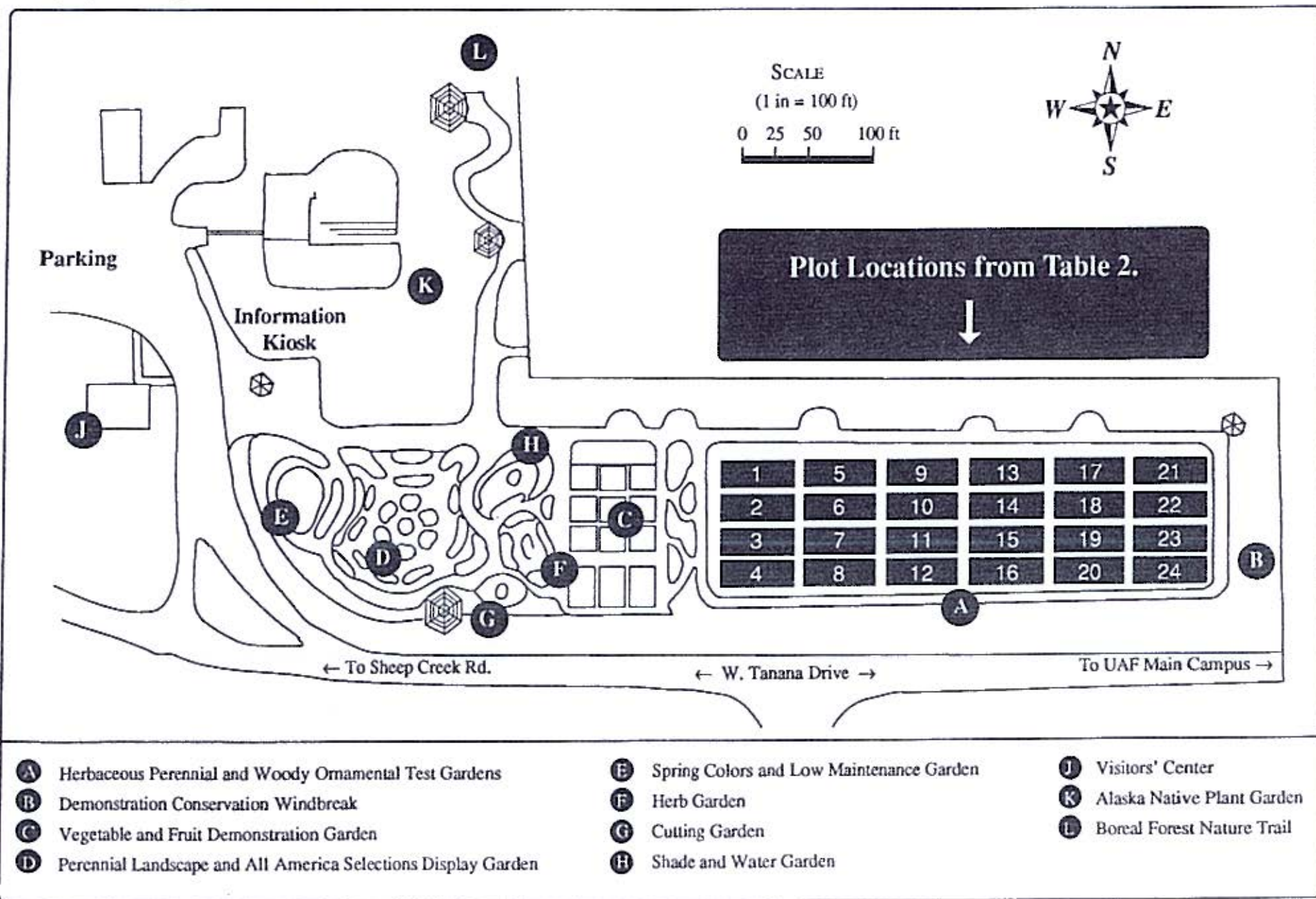
red	3 1/2-5	-	-		+	
cherry red	2-2 1/2	-	-		+	
pink	2-2 1/4	-	-		+	
white	4 1/2-5	-	-		+	
mix	2-5	-	-		+	
orange	3-5	-	-		+	excellent
red	4-5	-	-		+	
yellow	2-3	-	-		+	

Appendix 1. Commercial sources and organizations

AAS	All-America Selections	Lawyer	Lawyer Nursery Inc., 950 Highway 200 West, Plains, MT 59859
AHS	The American Horticultural Society, P.O. Box 6118, 7931 E. Boulevard Dr., Alexandria, VA 22308	Nauriaq	Nauriaq Gardens, P.O. Box 82692, Fairbanks, AK 99708
ANPS*	Alaska Native Plant Society, P.O. Box 141613, Anchorage, AK 99514	NCRPIS	North Central Regional Plant Introduction Station, Ames, IA
ARGS*	American Rock Garden Society, P.O. Box 67, Millwood, NY 10546	NEWFS*	New England Wild Flower Society, Garden in the Woods, Hemenway Rd., Framingham, MA 01701
Barnaul	The Lisavenko Research Institute of Horticulture, Barnaul, Altai Region, Russia	Northern Lights	Northern Lights Nursery (Holmtown Nursery) 1301 30th Ave., Fairbanks, AK 99701
BCN	Bear Creek Nursery, P.O. Box 411, Northport, WA 99157	CSBG	Central Siberian Botanical Garden, Novosibirsk, Russia
Beaverlodge	Beaverlodge Nursery, Ltd., Box 127, Beaverlodge, Alberta T0H 0C0, Canada	Park	Park Seed Co., Cokesbury Rd., Greenwood, SC 29647-0001
Big Dipper	Big Dipper Gardens, P.O. Box 82234, Fairbanks, AK 99708	PMC	Plant Materials Center, HC02 Box 7440, Palmer AK 99645
Bluebird	Bluebird Nursery, Inc., P.O. Box 460, Clarkson, NE 68629	SBG	Siberian Botanical Garden, Novosibirsk, Russia
BTI	Better Trees, Inc., 7894 W. Maple Rapids Rd., St. Johns, MI 48879	Schumacher	F.W. Schumacher Co., Inc., 36 Spring Hill Rd., Sandwich MA 02563-1023
Chamal	Mountain Experiment Station, Gorno-Altaiisk Region, Russia	Seiberling	Seiberling Naturcalm, Akron, Ohio
Dachnfeldt	Daehnfeldt, Box 947, Albany, OR 97321	South Slope	South Slope Greenhouses, Fairbanks, AK
DBG	Denver Botanic Gardens, 909 York St., Denver, CO 80206	Tack's	Tack's General Store, P.O. Box 16004, Two Rivers, AK 99716
GBG	Georgeson Botanical Garden, 309 O'Neill Building, University of Alaska Fairbanks, Fairbanks, AK 99775	T&M	Thompson & Morgan Inc., P.O. Box 1308, Jackson, NJ 08527
Harris Moran	Harris Moran Seed Company, 1155 Harkins Rd. Salinas, CA 93901	SAAS	Dendrological Garden - Siberian Academy of Agricultural Sciences, Novosibirsk Region, Russia
Hudson	J.L. Hudson, P.O. Box 1058H, Redwood City, CA 94064	Vaughan's	Vaughan's Seed Co., 5300 Katrine Ave., Downers Grove, IL 60515-4095
J & P	Jackson & Perkins, P.O. Box 1028, Medford, OR 97501	VB&S	K. Van Bourgondien & Sons, Inc., 245 Farmingdale Rd., Babylon NY 11702
KHN	Knight Hollow Nursery, Inc., 236 E. Sunset Ct., Madison, WI 53705	Vermont Bean	Vermont Bean Seed Co., Garden Lane, Fair Haven, VT 05743
Johnny's	Johnny's Selected Seeds, Foss Hill Rd., Albion, ME 04910	WNS	Wildwood Northern Seeds, Whitehorse, Yukon Territory, Canada
Lamb	Lamb Nurseries, 101 E. Sharp Ave., Spokane, WA 99202		

*seeds available to members

Map of the Georgeson Botanical Garden.



University of Alaska Fairbanks
Agricultural and Forestry Experiment Station
School of Agriculture and Land Resources Management

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