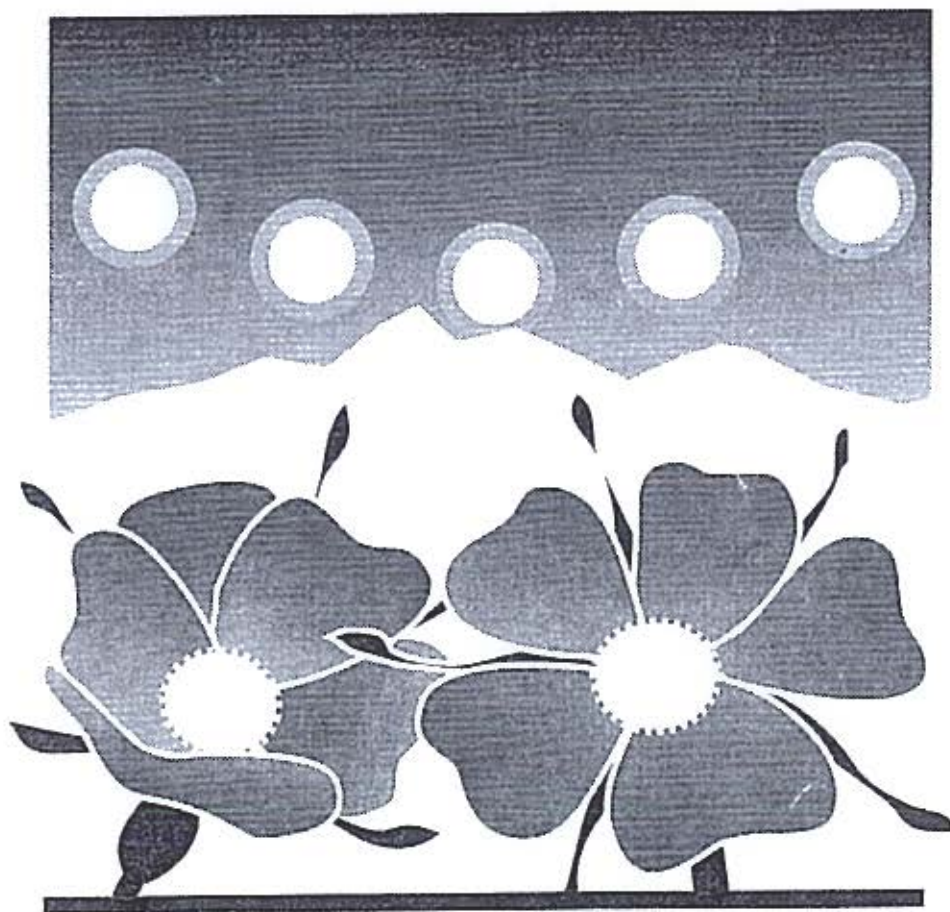


Annual Flower & Perennial Landscape Plant Evaluations 1995



GEORGESON BOTANICAL GARDEN

by

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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 and ferns in 1993. 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, commercial nurseries and seed companies in North America and the circumpolar North (Appendix 1). Plants are grown on a south-facing slope, elevation 475-487 feet. Soils are classified as Fairbanks silt-loam and have been cultivated since about 1910. All plants receive full sun except those located in the shade house (Plot No. 1). Plants are watered with overhead irrigation as needed. Weed control is primarily by hand and rototiller.

The perennials are grown in the Herbaceous Perennial and Woody Ornamental Test Garden (see map on page 65). When available, ten 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 ten 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 1-2 inches of Lemeta peat in 1988. The perennial beds, with the exception of the lily trials,

were fertilized with 500 lb per acre 10-20-20S fertilizer on July 7, 1995. Lilies received 1500 lb per acre 10-20-20S on July 11, 1995. Unless otherwise noted, plants received no special winter protection such as mulching or screening.

The annual flowers were grown in the Perennial Landscape and All America Selections Display Garden. Plants were grown in unreplicated beds and varied in numbers according to bed size. Soils were fertilized with 1500 lb per acre 10-20-20S prior to tilling. Planting occurred on June 1-12, 1995.

Weather data are 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 1991 through 1995 is shown in Table 1.

The 1995 season

Very warm temperatures during the second week of May prompted many gardeners in the Tanana Valley to begin planting annual flower and vegetable gardens by mid-May. The highest temperature for the entire 1995 season occurred on May 12. A severe killing frost on May 22 sent many gardeners back to the nurseries to replenish supplies of frost-killed transplants. Several gardeners reported losing flower buds on apples and other flowering trees because of the high early-season temperatures followed by frost. However, we saw no such damage at the botanical garden. Many locations, including the botanical garden and experiment farm, experienced exceptional yields on raspberries and a variety of agronomic crops, especially barley.

Following the first frost on Sept. 4, valley residents were treated to a long, warm Indian summer that prompted a spectacular display of late-season asters. Many native plants in a few locations were in full bloom by late September including bunchberry, highbush cranberry, and lingonberry. This late bloom may be a precursor to a poor berry year in 1996 depending on how widespread it was.

Overwhelming weed problems in both annual and perennial beds prompted us to explore the use of fresh grass clippings as a mulch and weed barrier on annual flowers. Conventional local wisdom has indicated that any kind of organic mulch will cool the soils sufficiently to interfere with plant growth and flowering. Our preliminary experiment revealed no differences in flowering and growth of mulched and unmulched 'Inca Yellow' marigolds. Soil temperature measurements at a 2.5-inch soil depth also showed that mulched soils were slightly warmer, not colder than unmulched soils. We speculate that the mulch prevents radiation heat loss from the soil surface, thus keeping them slightly warmer through the season. Timing of initial mulch application probably is critical. This experiment will be repeated in 1996 to look at seasonal timing and effects on both flower and vegetable crops.

The annual flower beds were treated with Treflan 5G® herbicide using a Whirlybird spreader. The herbicide was applied on June 21 after transplants were well established, at a rate of 80 pounds per acre. Weed control was good for the first half of the season. Cultivars of phlox, pansies and asters showed varying degrees of damage. This may have been due to problems with applying the herbicide evenly across the beds. Most pansy cultivars recovered by mid-season, but all phlox cultivars were stunted or killed.

The fungicide Topsin M® was used for control of stem rot, *Sclerotinia sclerotiorum*. Topsin M® was applied as a drench (1 pound per 100 gallons at a rate of 1 pint per square foot) on July 11 and 12 and again on July 26 and 27. Control was good until heavy rains in late August promoted growth of both *Sclerotinia* and gray mold (*Botrytis* sp.).

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 perennials. **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 four sections: herbaceous perennials, ornamental grasses, woody perennials, and ferns. **Table 5** lists all annual flowers that were evaluated in 1995.

Explanation of Tables 2 through 4 (Perennials)

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

Flora of North America Editorial Committee, (eds.) 1993 *Flora of North America* Vol. 2, *Pteridophytes and Gymnosperms*. Oxford University Press, NY.

- 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.
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: Some beds or areas of beds seemed more protected from frost than others. If frost damage was not noted for some marigold cultivars for instance, it should not be assumed that these cultivars are frost-resistant. A plus sign (+) in each column indicates that the foliage or flowers of a particular plant showed no obvious damage after several nights of below-freezing temperatures (to 30°F) in early September. A negative sign (-) means 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 evaluated plants 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 by code in the comments section. Codes are defined in a footnote at the bottom of each page.

Explanation of Table 5 (Annuals)

PLANT HEIGHT: The average (most common) height of plants, including flowers, to the nearest inch was recorded in mid-August, 1995. If height of individual plants or flowers differed by more than 2 inches, the range in heights from shortest to tallest was recorded.

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 8, 1995. The * symbol indicates first bloom, whereas the ☼ symbol indicates full bloom.

BLOOM SIZE: The maximum diameter to the nearest ¼ inch of individual blossoms was recorded for flowers with single blossoms such as daisies, asters and pansies. Spike-type flowers such as snapdragons, lupine and salvia were recorded as length x width (i.e. 12 x 3*) of the entire spike. The maximum diameter to the nearest ¼ inch was recorded for all clustered flowers such as sweet alyssum and verbena. The measurements of spike and clustered flowers are identified by an "*" notation following the measurement (i.e. 3*)

FROST TOLERANT: Frost tolerance was evaluated September 4 on foliage and flowers after an overnight low of 30.2°F. Some beds or areas of beds seemed more protected from frost than others. If frost damage was not noted for some marigold cultivars for instance, it should not be assumed that these cultivars are frost-resistant. A plus sign (+) in each column indicates that the foliage or flowers of a particular plant showed no obvious damage after several nights of below-freezing temperatures (to 30°F) in early September. A negative sign (-) means frost damage.

CUTTING: A plus sign indicates this variety is suitable as a cut flower.

DRIED: A plus sign indicates this variety is suitable as a dried flower.

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 by small, hard, black fungal fruiting bodies. 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 1995 are not necessarily resistant.

Table 1. Weather records for the test years.

	Season				
	1991	1992	1993	1994	1995
Average temperature °F					
May	48.9	40.6	51.9	52.0	52.3
June	60.8	59.1	60.5	57.0	58.5
July	59.7	63.0	64.5	62.0	61.9
August	53.0	55.9	55.5	51.0	55.6
September	47.9	31.4	42.5	43.0	50.6
Maximum temperature °F					
	93	90	91	89	85
Growing season					
Last spring frost	May 16	June 7	May 1	May 6	May 22
First fall frost	Aug 27	Sept 5	Sept 1	Aug 23	Sept 4
Frost-free days	103	90	123	109	105
Thaw degree days ¹	3069.0	2568.0	3547.5	3476.3	3676.5
Rainfall (inches) ²	6.28	8.78	6.67	7.21	10.15
Previous winter season					
Minimum temperature °F	-49	-35	-52	-37	-48
snowfall (inches)	131.6	103.8	131.7	36.3	69
¹ May through September 32°F base temperature					
² May through September					

Table 2. All plant materials evaluated in 1995.

Table
2

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
HERBACEOUS PERENNIALS							
<i>Achillea borealis</i>	Yarrow	Nauriaq	Jul-92	10	0.3	12(29)	28
<i>Achillea millefolium</i> 'Summer Pastels'	Common yarrow	AAS	Aug-90	10	1.5	29	40
<i>Achillea Ptarmica</i>	Sneezewort	Fairbanks, AK	Oct-91	3	0.1	33	28
<i>Achillea Ptarmica</i> 'The Pearl'	Sneezewort	Vaughan's	Jul-93	10	0.5	30	40
<i>Achillea taygetea</i> 'Dobutante'		Park	Jul-92	10	2.6	34	48
<i>Actaea rubra</i> subsp. <i>rubra</i>	Baneberry	Fairbanks, AK	Aug-94	9	1.0	17	21
<i>Allium cernuum</i>	Nodding onion	NEWFS	Aug-91	10	2.1	14(24)	15
<i>Allium Schoenoprasum</i>	Chives	Novosibirsk, Russia	Aug-91	10	0.1	24	20
<i>Amsonia tabernaemontana</i>	Willow amsonia	NEWFS	Aug-93	2	2.5	21	15
<i>Amsonia tabernaemontana</i> var. <i>salicifolia</i>	Willow amsonia	NEWFS	Jul-93	10	3.1	24	18
<i>Anemone alpina</i> subsp. <i>sulfurea</i>	Sulfur alpine anemone	ANPS	Jun-91	3	3.1	8	12
<i>Anemone Halleri</i>	Haller anemone	ANPS	Jun-91	7	3.5	13(18)	16
<i>Anemone Nuttalliana</i>	Pasque-flower	NEWFS	Jul-94	9	0.7	8(13)	18
<i>Anemone</i> sp.		Seeds of AK	Jul-94	9	3.2	4(13)	5
<i>Anemone virginiana</i>	Thimbleweed	NEWFS	Jun-91	10	0.9	20(32)	18
<i>Aquilegia atrata</i>		ARGS	Aug-91	7	2.9	22(36)	15
<i>Aquilegia Buegeriana</i>		ARGS	Aug-91	10	3.3	15(19)	17
<i>Aquilegia canadensis</i>	Wild columbine	NEWFS	Aug-93	10	2.5	14(28)	20
<i>Aquilegia formosa</i>	Sitka columbine	ANPS	Aug-91	10	1.4	25(36)	24

*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			
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white		+	good for wildflower meadows, not showy	4	<i>Achillea borealis</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	mix/pastels	+	+	attractive color mix	12	<i>Achillea millefolium</i> 'Summer Pastels'
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white			susceptible to powdery mildew	4	<i>Achillea Ptarmica</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	white	+	+		7	<i>Achillea Ptarmica</i> 'The Pearl'
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	mix/rose, pink, white	+	+	self seeds	15	<i>Achillea taygetea</i> 'Debutante'
		☼☼			white			dark red poisonous berries in August	23	<i>Actaea rubra</i> subsp. <i>rubra</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	lavender	+	+	delicate, nodding flower heads	13	<i>Allium cernuum</i>
		☼☼☼☼☼☼☼☼☼☼			purple		+	reseeds readily	13	<i>Allium Schoenoprasum</i>
							+		18	<i>Amsonia tabernaemontana</i>
							+		11	<i>Amsonia Tabernaemontana</i> var. <i>salicifolia</i>
					greenish yellow			one plant remaining	15	<i>Anemone alpina</i> subsp. <i>sulfurea</i>
	☼☼☼☼☼☼☼☼☼☼				purple		+	striking, early-season flower display, one plant remaining	15	<i>Anemone Halleri</i>
☼☼☼☼☼☼☼☼☼☼					wine red		+		20	<i>Anemone Nuttallia</i>
			☼		white, pink		+		23	<i>Anemone sp.</i>
		☼☼			greenish white		+	short-lived flowers, thimble-shaped, showy seed heads, persist in winter; interesting cottony seeds	15	<i>Anemone virginiana</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	deep purple		+	one plant remaining	13	<i>Aquilegia atrata</i>
		☼☼☼☼☼☼☼☼☼☼			mix/pink, purple		+	many small blooms	13	<i>Aquilegia Buogerana</i>
	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼		red/yellow		+	small flowers, short-spurred	16	<i>Aquilegia canadensis</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		scarlet/yellow		+	small but abundant flowers	13	<i>Aquilegia formosa</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Aquilegia glandulosa</i>		ARGS	Aug-94	2	2.5	12	13
<i>Aquilegia pyrenaica</i>	Pyrenees columbine	ARGS	Aug-91	7	0.7	20(36)	26
<i>Aquilegia sibirica</i>	Siberian columbine	ARGS	Aug-91	10	0.7	20 (35)	22
<i>Aquilegia sp.</i>	Columbine	Novosibirsk, Russia	Aug-92	10	1.3	19(42)	24
<i>Aquilegia sp.</i>	Columbine	Berdsk, Russia	Aug-92	10	0.8	18(46)	34
<i>Aquilegia sp.</i> 'Dynasty'		South Slope	Jun-91	10	3.0	18(33)	24
<i>Aquilegia sp.</i> 'McKana Giant Hybrids'		T&M	Aug-91	10	2.7	24(40)	26
<i>Aquilegia sp.</i> 'Nora Barlow'		Park	Aug-91	10	2.7	20(34)	20
<i>Aquilegia sp.</i> 'Star McKana Mix'		Park	Aug-91	6	3.1	19(36)	24
<i>Aquilegia viridiflora</i>		T&M	Jul-94	10	2.7	12	21
<i>Aquilegia vulgaris</i>	Garden columbine	T&M	Aug-91	2	0.0	24(40)	24
<i>Aquilegia vulgaris</i> 'Michael Stromminger'	Garden columbine	T&M	Aug-93	10	1.8	18(35)	22
<i>Arabis caucasica</i>	Wall rock cress	I. Berger	Aug-93	10	2.1	6	17
<i>Arnica alpina</i>		ARGS	Jul-92	10	2.3	24	30
<i>Arnica alpina</i>		Nauriaq	Jul-92	8	3.5		
<i>Arnica cordifolia</i>		ARGS	Jul-92	3	0.8	15	20
<i>Arnica latifolia</i>		Seeds of AK	Jul-94	10	0.9	21	22
<i>Arnica Lessingii</i>		ARGS	Jun-90	10	0.1	26	
<i>Arnica montana</i>		I. Berger	Aug-93	10	1.2	10(27)	11
<i>Artemisia Dracunculus</i> var. <i>sativa</i>	French tarragon	Richters	Jul-93	3	0.7	36	30

*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.

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Artemisia campestris</i> subsp. <i>borealis</i>		ARGS	Oct-90	10	2.8	6(14)	12
<i>Artemisia Tiflesii</i> 'Caiggluk'	Tiflesy sage	PMC	Jul-92	10	1.1	47	58
<i>Aruncus dioicus</i>	Goatsbeard	Park	Jul-94	10	3.0	16	21
<i>Asparagus</i> 'Greenwich'	Asparagus	Nourse	Aug-91	10	1.9		
<i>Asparagus</i> 'Jersey Giant'	Asparagus	Nourse	Aug-91	10	1.0		
<i>Asparagus</i> 'Jersey King'	Asparagus	Nourse	May-93	10	0.7		
<i>Asparagus</i> 'Jersey Knight'	Asparagus	Nourse	May-93	10	0.6		
<i>Asparagus</i> 'Jersey Prince'	Asparagus	Nourse	Aug-91	10	0.5		
<i>Asparagus officinalis</i> var. <i>pseudoscaber</i>	Lace-veil asparagus fern	Ball seed	Jul-93	10	0.7	28	22
<i>Asparagus</i> 'SYN 4-56'	Asparagus	Nourse	Aug-91	10	0.8		
<i>Asparagus</i> 'Viking KB3'	Asparagus	Nourse	May-93	10	0.5		
<i>Aster acuminatus</i>	Whorled aster	NEWFS	Jul-94	10	0.2	40	20
<i>Aster linearifolius</i>	Savoryleaf aster	NEWFS	Jul-94	10	2.8	12	15
<i>Aster ptarmicoides</i>	White upland aster	NEWFS	Jul-94	1	0.0	13	22
<i>Aster sibiricus</i>	Siberian aster	Big Dipper	Jul-92	10	0.8	12	27
<i>Campanula alliarifolia</i>	Spurred bellflower	ARGS	Jul-94	10	2.0	15	13
<i>Campanula glomerata</i> <i>superba</i>		T&M	Aug-92	10	2.3	12(20)	21
<i>Campanula rotundifolia</i> var. <i>Marchesettii</i>	Harebell	T&M	Jul-94	10	1.2	20	20
<i>Campanula takisimana</i>		T&M	Jul-93	10	1.4	23	25
<i>Centaurea montana</i>	Mountain bluet	I. Berger	Aug-93	5	0.6	26	28

*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		+	rangy form, unattractive	15	<i>Artemisia campestris</i> subsp. <i>borealis</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼			yellow	+	+	fragrant, attracts aphids and honey bees script flowers	16	<i>Artemisia Tilesii</i> 'Caiggluk'
			☼☼☼☼☼☼☼☼☼☼	☼		cream	+	+		23	<i>Arunco dioicus</i>
			☼					+	started from seed; four-week yield average 11.6 spears per plant	13	<i>Asparagus</i> 'Greenwich'
			☼					+	started from seed, four-week yield average 15.4 spears per plant	13	<i>Asparagus</i> 'Jersey Giant'
			☼					+	planted as crowns; four-week yield average 5.8 spears per plant	13	<i>Asparagus</i> 'Jersey King'
			☼					+	planted as crowns; four-week yield average 5.2 spears per plant	13	<i>Asparagus</i> 'Jersey Knight'
			☼					+	started from seed; four-week yield average 12 spears per plant	13	<i>Asparagus</i> 'Jersey Prince'
		☼☼			☼☼	yellow		+	feathery foliage suitable for flower arrangements	7	<i>Asparagus officinalis</i> var. <i>pseudoscaberr</i>
			☼					+	started from seed, four-week yield average 26.2 spears per plant	13	<i>Asparagus</i> 'SYN 4-56'
			☼					+	planted as crowns; four-week yield average 6.9 spears per plant	13	<i>Asparagus</i> 'Viking KB3'
				☼☼☼☼☼☼		purple	+	+	needs staking	20	<i>Aster acuminatus</i>
				☼☼☼☼☼☼		pale	+	+		23	<i>Aster linearifolius</i>
				☼☼☼☼☼☼☼☼☼☼		white	+	+	very showy, dainty flowers	23	<i>Aster ptarmicoides</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		lavender	+	+	some browning of foliage by end of season	4	<i>Aster sibiricus</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white	+	+	attractive white flowers	11	<i>Campanula alliariifolia</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		purple	+	+	attractive to voles	6	<i>Campanula glomerata</i> <i>superba</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		blue	+	+	long bloom period	12	<i>Campanula rotundifolia</i> var. <i>Marchesettii</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼	white/purple spots	+	+	large bell-shaped flowers, speckled inside, reseeds readily, spreads from roots	11	<i>Campanula takisimana</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		bright blue		+	interesting spidery flowers, attracts bees	16	<i>Centaurea montana</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Cerastium tomentosum</i>	Snow-in-Summer	T&M	Jun-90	10	1.1	10	48
<i>Chelone lyonii</i>	Pink turtle-head	NEWFS	Jul-94	3	0.7	24	14
<i>Chrysanthemum coccineum</i> 'Robinson's Dark Crimson'		Vaughan's	Jul-92	10	3.5	16(34)	12
<i>Chrysanthemum Leucanthemum</i>	Oxeye daisy	WNS	Jun-91	10	1.2	18(33)	24
<i>Cimicifuga racemosa</i>	Black cohosh	NEWFS	Jul-94	10	0.3	18(31)	13
<i>Clematis integrifolia</i>	Solitary clematis	Northern Lights	Oct-91	1	0.8	15	42
<i>Codonopsis mollis</i>	Asia-bell	ARGS	Jul-94	6	2.5	7	9
<i>Crocus chrysanthus</i> 'Princess Beatrix'	Crocus	de Jager	Aug-93	10	3.8	2	3
<i>Crocus chrysanthus</i> 'Snow Bunting'	Crocus	de Jager	Aug-93	10	2.0	6	8
<i>Crocus Tomasinianus</i> 'Ruby Giant'	Crocus	de Jager	Aug-93	4	1.4	5	4
<i>Crocus versicolor</i> 'Picturatus'	Crocus	de Jager	Aug-93	10	2.3	2	4
<i>Delphinium glaucum</i>	Sierra larkspur	C. Parker	Oct-91	2	2.7	23(41)	22
<i>Delphinium grandiflorum</i>	Siberian larkspur	NCRPIS	Jul-91	10	1.1	58(113)	60
<i>Delphinium latiflorum</i>		NCRPIS	Jul-91	10	2.4	41(94)	36
<i>Delphinium J Belladonna (Bellamosum)</i> 'Improved'		Park	Aug-93	10	2.2		
<i>Dianthus arenarius</i>	Sand pink	ARGS	Jun-90	10	2.6	8(12)	28
<i>Dianthus arenarius</i> (pink)	Sand pink	ARGS	Jun-90	10	2.0	10(15)	22
<i>Dianthus arenarius</i> subsp. <i>borussicus</i>	Sand pink	ARGS	Jun-90	10	1.6	8(11)	18
<i>Dianthus carthusianorum</i>	Carthusian pink	T&M	Jun-90	10	0.8	8(20)	22
<i>Dianthus chinensis</i>	Chinese pink	NCRPIS	Jun-90	10	1.6	21	32

*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	+	+	evergreen, mounds of silvery foliage covered with white blooms, attractive	7	<i>Cerastium tomentosum</i>
				☼☼☼☼☼☼		rose	+	+		23	<i>Chelone Lyonii</i>
		☼☼☼☼☼☼				bright rose			one plant remaining	16	<i>Chrysanthemum coccineum</i> 'Robinson's Dark Crimson'
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				white	+	+	reseeds readily, good for wildflower meadows	15	<i>Chrysanthemum Leucanthemum</i>
				☼☼☼☼☼☼		white	+	+		23	<i>Cimicifuga racemosa</i>
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				violet blue	-	+	nodding flower heads, twisted petals, non-climbing	16	<i>Clematis integrifolia</i>
		☼☼☼☼☼☼		☼☼☼☼☼☼		pale blue	+	+	interesting flower	23	<i>Codonopsis mollis</i>
				☼☼☼☼☼☼		pale lavender		+	1 plant remained, April bloom, dormant mid-season	19	<i>Crocus chrysanthus</i> 'Princess Beatrix'
	☼					white		+	bloomed April 21, dormant, back by mid-season	19	<i>Crocus chrysanthus</i> 'Snow Bunting'
									dormant by mid-season	19	<i>Crocus Tomasinianus</i> 'Ruby Giant'
									dormant by mid-season	19	<i>Crocus versicolor</i> 'Picturatus'
		☼☼☼☼				purple				4	<i>Delphinium glaucum</i>
		☼☼☼☼☼☼				deep blue		+	attractive to aphids, reseeds readily, needs staking	4	<i>Delphinium grandiflorum</i>
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				deep blue	+	+	needs staking, self seeds	4	<i>Delphinium ajacis</i>
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼		☼☼		royal blue		+	needs staking, brittle stems	18	<i>Delphinium J Belladonna</i> (Bellamosum) 'Improved'
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				white		+	fragrant flowers, one plant remaining	7	<i>Dianthus arenarius</i>
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				light pink	+	+		7	<i>Dianthus arenarius</i> (pink)
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				white	+	+	lacy flowers, fragrant	7	<i>Dianthus arenarius</i> subsp. <i>borussicus</i>
		☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼☼				bright pink	+	+		7	<i>Dianthus carthusianorum</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Dianthus deltooides</i>	Maiden pink	South Slope	Jun-91	10	2.0	4	28
<i>Dianthus deltooides</i>	Maiden pink	ARGS	Aug-93	10	2.4	13	20
<i>Dianthus</i> 'Orchid Lace'	Cottage pink	T&M	Jun-90	10	2.8	16	14
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	19	3.1	30	24
<i>Dianthus plumarius</i> 'Smokey'	Cottage pink	NCRPIS	Jul-90	9	1.6	20	30
<i>Dianthus repens</i>	Bering pink	ARGS	Jun-90	4	2.3	12	14
<i>Dianthus sp.</i> 'Ipswich Pinks Mixed'		T&M	Aug-93	10	1.5	13	30
<i>Dianthus superbis</i> 'Fantasy Mix'	Lilac pink	T&M	Jun-90	10	1.0	10(26)	24
<i>Digitalis X sibirica</i>	Siberian foxglove	ARGS	Jul-94	10	1.6	36	16
<i>Dodecatheon Jeffreyi</i>	Shooting star	ARGS	Jul-92	5	2.7	2(7)	3
<i>Dodecatheon Meadia</i>	Shooting star	ARGS	Jul-92	8	1.8	4(15)	9
<i>Draba densifolia</i>		ARGS	Aug-91	3	0.0	3	6
<i>Dryas Drummondii</i>	Drummond dryas	Seeds of AK	Jul-94	8	2.6	4	14
<i>Erigeron glabellus</i>	Smooth fleabane	ANPS	Jun-90	10	1.0	24	22
<i>Erigeron humilis</i>	Fleabane	ANPS	Aug-91	5	2.2	3(24)	4
<i>Erigeron sp.</i> 'Pink Jewel' (?)		South Slope	Jun-91	10	3.1	26	15
<i>Filipendula vulgaris</i>	Dropwort	I. Berger	Aug-93	10	0.4	16(36)	14
<i>Gallium boreale</i>	Northern bedstraw	Big Dipper	Jul-92	10	0.8	12(24)	28
<i>Galium odoratum</i>	Sweet Woodruff	Richters	Jul-93	4	2.0	11	20
<i>Galium verum</i>	Yellow bedstraw	Richters	Jul-94	10	0.6	15	48

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Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Galium verum</i>	Yellow bedstraw	Richters	Jul-94	10	0.6	15	48
<i>Gentiana Freyniana</i>		ARGS	Aug-91	10	1.7	9	24
<i>Gentiana septemfida</i>		ARGS	Aug-91	15	1.9	9	28
<i>Geranium Regellii (grandiflorum var. alpinum)</i>		VB&S	Jun-90	10	2.0	23	34
<i>Geranium sanguineum</i>	Blood-red geranium	ARGS	Jun-90	10	3.0	21	26
<i>Gypsophila paniculata 'Snow White'</i>	Baby's-breath	Johnny's	Jul-93	10	2.3	24	46
<i>Helium autumnale 'Red and Gold Hybrids'</i>	Autumn sunspray	Ball Seed	Jul-93	10	1.6	39	19
<i>Heemerocallis minor</i>	Grass-leaf daylily	NCRPIS	Aug-90	9	2.3	24	22
<i>Heemerocallis sp.</i>	Day lily	CSBG	Aug-91	10	0.9	26	17
<i>Heemerocallis 'Stella d'Oro'</i>	Day lily	Park	Sep-93	6	0.5	20	18
<i>Heuchera 'Firefly'</i>	Coral bells	Park	Jul-94	10	0.7	8(22)	14
<i>Heuchera micrantha 'Purple Palace'</i>		Park	Jul-94	9	2.9	14(21)	16
<i>Inula hirta</i>		I. Berger	Aug-93	10	0.7	15	12
<i>Iris Kaempferi (?)</i>	Japanese iris	ANPS	Jun-91	10	0.5	36	48
<i>Iris missouriensis (?)</i>	Western blue flag	Estes Park, CO	Jul-92	10	0.4	28	30
<i>Iris palustris</i>		SAAS	Aug-92	6	1.6	38	22
<i>Iris Pseudacorus</i>	Yellow flag	White Flower	Aug-93	10	3.5	21	12
<i>Iris setosa</i>		ARGS (Germany)	Jul-92	6	3.1	11	10
<i>Iris setosa arctica</i>		ARGS	Jul-92	2	2.2	12	8
<i>Iris setosa nana</i>		ARGS	Jul-92	10	2.1	36	30

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MAY	WEEKLY BLOOM PERIOD				SEP	BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP			flowers	foliage			
		☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		yellow		+	fragrant , attractive to honey bees, fine foliage	20	<i>Galium verum</i>
			☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		deep blue	+	+		13	<i>Gentiana Freyniana</i>
				☼☼☼☼☼☼☼☼		deep blue	+	+		13	<i>Gentiana septemfida</i>
		☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		deep lavender	+	+		11	<i>Geranium Rogelii</i> (<i>grandiflorum</i> var. <i>alpinum</i>)
		☼☼☼☼☼☼☼☼				violet				11	<i>Geranium sanguineum</i>
			☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		white	+	+		7	<i>Gypsophila paniculata</i> 'Snow White'
				☼☼☼☼☼☼☼☼		yellow or red & gold	+	+		11	<i>Helenium autumnale</i> 'Red and Gold Hybrids'
		☼☼☼☼☼☼☼☼				gold				12	<i>Hemerocallis minor</i>
		☼☼☼☼☼☼☼☼				bright yellow				12	<i>Hemerocallis</i> sp.
		☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		gold	+	+	attractive repeat bloom, shorter stature than species daylilies	12	<i>Hemerocallis</i> 'Stella d'Oro'
		☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼		bright coral	+	+	some plants evergreen	20	<i>Heuchera</i> 'Firefly'
				☼☼☼☼☼☼☼☼		white		+		20	<i>Heuchera micrantha</i> 'Purple Palace'
		☼☼☼☼☼☼☼☼				yellow		+		18	<i>Inula hirta</i>
		☼☼☼				deep purple		+		15	<i>Iris Kaempferi</i> (?)
		☼☼				pale blue		+		15	<i>Iris missouriensis</i> (?)
		☼☼				blue		+	small flowers	13	<i>Iris palustris</i>
								+		19	<i>Iris Pseudacorus</i>
		☼☼				blue		+	one plant remaining	15	<i>Iris setosa</i>
								+		15	<i>Iris setosa arctica</i>
		☼☼☼				deep blue		+		15	<i>Iris setosa nana</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Iris sibirica</i>	Siberian iris	AHS	Aug-91	10	3.3	24	12
<i>Leontopodium alpinum</i>	Edelweiss	T&M	Jul-94	10	3.0	4 (6)	7
<i>Leontopodium stellatum</i>		Magadan, Russia	Aug-93	10	2.4	6	10
<i>Liatris aspera</i>		NEWFS	Aug-93	5	2.2	18	7
<i>Liatris borealis</i>		NEWFS	Aug-93	10	2.9	32	12
<i>Liatris punctata</i>	Dotted gayfeather	NEWFS	Aug-93	7	2.8	8	3
<i>Liatris pycnostachya</i>	Kansas gayfeather	NEWFS	Aug-93	10	1.9	18	9
<i>Lilium</i> 'America'	Asiatic hybrid lily	Waushara	Jul-93	10	0.0	28	24
<i>Lilium</i> 'Antarctica'	Asiatic hybrid lily	Wayside	Jul-93	10	0.5	34	18
<i>Lilium canadense</i>	Canada lily	AHS	Jul-92	3	3.1		
<i>Lilium canadense</i>	Canadian lily	NEWFS	Jul-92	3	3.6		
<i>Lilium</i> 'Chinook'	Asiatic hybrid lily	Wayside	Jul-93	10	0.3	47	15
<i>Lilium</i> 'Coho'	Asiatic hybrid lily	Waushara	Jul-93	10	0.1	38	22
<i>Lilium</i> 'Corina'	Asiatic hybrid lily	VB&S	Aug-90	10	0.4	41	32
<i>Lilium</i> 'Corsica'	Asiatic hybrid lily	South Slope	Jun-91	10	0.9	30	20
<i>Lilium</i> 'Crete'	Asiatic hybrid lily	Waushara	Aug-93	6	0.1	36	24
<i>Lilium</i> 'Crimson Beauty'	Asiatic hybrid lily	Waushara	Jul-93	10	0.3	34	21
<i>Lilium</i> 'Dreamland'	Asiatic hybrid lily	South Slope	Jun-91	10	0.3	42	32
<i>Lilium</i> 'Fireball'	Asiatic hybrid lily	VB&S	Aug-90	10	1.0	19	16
<i>Lilium</i> 'Freckles'	Asiatic hybrid lily	VB&S	Aug-90	10	1.0	33	28

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MAY	WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP	flowers		foliage				
								+	Two plants remaining	13	<i>Iris sibirica</i>
			●●●●●	●●●●●	●●●●●	grey/green	+	+		20	<i>Leontopodium alpinum</i>
		●●●●●	●●●●●			silvery				19	<i>Leontopodium stellatum</i>
				●●●●●		pink		+		18	<i>Liatris aspera</i>
				●●●●●		red violet	+	+	vole damage	18	<i>Liatris borealis</i>
									vole damage	18	<i>Liatris punctata</i>
				●●●●●		red violet		+		18	<i>Liatris pycnostachya</i>
			●●●●●			orange/scarlet			quite spectacular in bloom	6	<i>Lilium 'America'</i>
			●●●●●			white			some disease problems on foliage	6	<i>Lilium 'Antarctica'</i>
									remaining plant died back early in the season	11	<i>Lilium canadense</i>
									remaining plant died back early in the season	11	<i>Lilium canadense</i>
				●●●●●		light orange				6	<i>Lilium 'Chinook'</i>
			●●●●●			pale gold				6	<i>Lilium 'Coho'</i>
			●●●●●	●●●●●		bright orange			very showy	12	<i>Lilium 'Corina'</i>
				●●●●●		pink			some vole damage Summer '93, recovered in 94	16	<i>Lilium 'Corsica'</i>
				●●●●●		rose				19	<i>Lilium 'Crete'</i>
				●●●●●		dark crimson				11	<i>Lilium 'Crimson Beauty'</i>
				●●●●●		bright yellow/gold throat				16	<i>Lilium 'Dreamland'</i>
				●●●●●		burgundy				12	<i>Lilium 'Fireball'</i>
				●●●●●		scarlet				12	<i>Lilium 'Freckles'</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Lilium</i> 'French Vanilla'	Asiatic hybrid lily	VB&S	Aug-90	10	0.6	29	26
<i>Lilium</i> 'Geneve'	Asiatic hybrid lily	Waushara	Jul-93	8	0.7	31	19
<i>Lilium</i> 'Graceland'	Asiatic hybrid lily	Waushara	Jul-93	10	0.2	33	22
<i>Lilium Henryi</i>	Henry lily	de Jager	Aug-93	1	0.5	16	12
<i>Lilium</i> 'Iolanda'	Asiatic hybrid lily	South Slope	Jun-91	10	0.3	52	34
<i>Lilium</i> 'Juliana'	Asiatic hybrid lily	VB&S	Aug-90	10	0.4	24	24
<i>Lilium lanciflorum</i>	Tiger lily	J. Gordon	Aug-92	10	1.1	41	16
<i>Lilium Martagon</i> 'Mix'	Martagon lily	T&M	Jul-92	6	1.9	35	8
<i>Lilium</i> 'Pink Chiffon'	Asiatic hybrid lily	VB&S	Aug-90	10	1.5	27	25
<i>Lilium</i> 'Pink Perfection'	Asiatic hybrid lily	de Jager	Aug-93	3	2.0	27	13
<i>Lilium</i> 'Poet's Dream'	Asiatic hybrid lily	VB&S	Aug-90	10	0.8	31	25
<i>Lilium</i> 'Prince Carnival'	Asiatic hybrid lily	VB&S	Aug-90	10	0.9	33	26
<i>Lilium</i> 'Rainbow'	Asiatic hybrid lily	VB&S	Aug-90	10	1.1	36	24
<i>Lilium</i> 'Red Night'	Asiatic hybrid lily	Waushara	Jul-93	10	0.9	25	17
<i>Lilium regale</i>	Regal lily	de Jager	Aug-93	3	2.2	27	7
<i>Lilium</i> 'Roma'	Asiatic hybrid lily	Waushara	Jul-93	10	0.1	32	15
<i>Lilium</i> 'Rose Fire'	Asiatic hybrid lily	VB&S	Aug-90	10	1.0	20	16
<i>Lilium</i> sp.	Tiger lily	U. Park School	Aug-93	10	0.1	48	18
<i>Lilium</i> 'Sterling Star'	Asiatic hybrid lily	South Slope	Jun-91	9	0.4	34	25
<i>Lilium superbum</i>	Turk's-cap lily	NEWFS	Jul-92	10	3.7	19	7

*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				SEP	BLOOM COLOR	FRONT TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	flowers			foliage				
			●●●●●●●●			light yellow				12	<i>Lilium</i> 'French Vanilla'
			●●●●●●			pale peach				11	<i>Lilium</i> 'Geneve'
			●●●●●●			orange				6	<i>Lilium</i> 'Graceland'
				●●		orange			pendant blooms	19	<i>Lilium</i> 'Henry'
			●●●●●●●●			bright orange				16	<i>Lilium</i> 'Jolanda'
			●●●●●			cream				12	<i>Lilium</i> 'Juliana'
				●●●●●●		orange/dark spots	+	+		12	<i>Lilium lanciflorum</i>
			●●●			mix - white, pink			reflexed blooms	11	<i>Lilium</i> Martagon 'Mix'
			●●●●●●			pink				12	<i>Lilium</i> 'Pink Chiffon'
				●●		dusty rose		+	upward facing flowers	19	<i>Lilium</i> 'Pink Perfection'
			●●●●●●●●			pink, burg. throat				12	<i>Lilium</i> 'Poet's Dream'
			●●●●●●			pink, spotted throat				12	<i>Lilium</i> 'Prince Carnival'
			●●●●●●●●			scarlet				12	<i>Lilium</i> 'Rainbow'
			●●●●●			dark red				6	<i>Lilium</i> 'Red Night'
			●●●●●			purple/yellow throat			fragrant	19	<i>Lilium regale</i>
			●●●●●●			light yellow				6	<i>Lilium</i> 'Roma'
			●●●●			orange/gold			less vigorous variety	12	<i>Lilium</i> 'Rose Fire'
			●●●●●●●●			red			probably an Asiatic hybrid	18	<i>Lilium</i> sp.
			●●●●●●●●			white/spotted throat				16	<i>Lilium</i> 'Sterling Star'
									one plant remaining	12	<i>Lilium superbum</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Lilium</i> 'Tribute'	Asiatic hybrid lily	VB&S	Aug-90	10	0.6	28	20
<i>Lilium</i> 'Vanessa'	Asiatic hybrid lily	VB&S	Aug-90	10	0.7	28	26
<i>Linaria alpina</i>		T&M	Aug-93	10	3.1	7	22
<i>Lychnis chalcidonica</i>	Maltese cross	Applewood	Jul-94	10	0.0	32	20
<i>Lychnis Flos-cuculi</i>	Cuckoo flower	ARGS	Jul-94	10	2.5	25	20
<i>Lychnis Flos-jovi</i>	Flower-of-Jove	ARGS	Jul-94	10	1.3	21	14
<i>Lychnis viscaria</i>	German catchfly	Tack's	Aug-92	10	0.6	12(36)	22
<i>Macleaya microcarpa</i>	Plume poppy	T&M	Jul-94	10	1.1	63	32
<i>Malva churinskaya</i>		PMC	Jul-94	5	2.2	60	64
<i>Mentha</i> sp.	Mint	South Slope	Jun-91	1	0.0	18	
<i>Mentha suaveolens</i>	Applemint	Richters	Jul-94	10	2.7	36	38
<i>Monarda didyma</i>	Bee balm	NEWFS	Jul-94	10	3.2	16	10
<i>Muscari armeniacum</i>	Grape hyacinth	J&P	Aug-92	10	0.9	8	13
<i>Muscari botryoides</i> 'Album'	Common grape hyacinth	de Jager	Aug-93	10	2.7	5	4
<i>Muscari</i> sp. 'Early Giant'	Grape hyacinth	de Jager	Aug-93	10	0.4	5	10
<i>Muscari Tubergenianum</i>	Grape hyacinth	de Jager	Aug-93	10	1.3	6	7
<i>Myrrhis odorata</i>	Sweet cicely	Richters	Jul-93	3	2.7	20	32
<i>Paeonia</i> sp.	Single peony	J. Gordon	Jul-92	10	0.8	26	36
<i>Papaver alboroseum</i>	Pale poppy	Baldwin	Jul-94	10	1.8	4 (8)	7
<i>Penstemon Digitalis</i>		NEWFS	Jul-94	10	3.1	24	18

*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.

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Phacelia sericea</i>		Upper Yukon River, AK	Jul-94	10	3.0	9	14
<i>Physalis Alkekengi (franchetii)</i>	Chinese lantern plant	Burpee	Jul-92	10	2.2	19	30
<i>Physostegia virginiana</i>	Obedience	NEWFS	Jul-93	10	1.4	40	20
<i>Polemonium caeruleum 'Cashmeritanum'</i>		T&M	Jul-92	10	3.4		
<i>Polemonium caeruleum var. lacteum (album)</i>		T&M	Jul-92	10	3.0	15(31)	12
<i>Polemonium reptans</i>	Creeping polemonium	NEWFS	Oct-91	4	2.5	18	25
<i>Polemonium reptans 'Blue Pearl'</i>		Vaughan's	Jul-92	10	3.2	18(41)	12
<i>Polemonium reptans var. villosum</i>		NEWFS	Jul-92	1	0.7	15	10
<i>Polemonium reptans var. villosum</i>		NEWFS	Aug-94	2	0.5	11	15
<i>Polygonatum biflorum?</i>	Solomon's seal	K. Collette	Sep-93	10	2.1	19	17
<i>Potentilla argrophylla</i>		T&M	Aug-93	10	1.3	12(30)	20
<i>Potentilla argrophylla 'Leucochroa'</i>		ARGS	Jul-94	6	0.0	8 (15)	18
<i>Potentilla megalantha</i>		T&M	Aug-93	10	0.5	12(20)	22
<i>Potentilla recta</i>	Sulfur cinquefoil	ARGS	Jul-94	10	0.8	30	24
<i>Potentilla tridentata</i>	Three-toothed cinquefoil	Northern Lights	Jun-91	10	1.9	8(12)	30
<i>Potentilla x 'Melton Fire'</i>		T&M	Aug-93	10	2.0	12(22)	18
<i>Rubus parvifolius</i>	Japanese raspberry	NCRPIS	Sep-89	5	1.3	35	60
<i>Salvia sp.</i>		Gorno-Altaiisk, Russia	Jun-91	10	0.0	66	30
<i>Sanguisorba menziesii</i>		Baldwin	Jul-94	10	0.0	24 (46)	32
<i>Sanguisorba officinalis</i>	Great burnet	Fort Yukon, AK	Jul-94	10	0.4	24 (44)	12

*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				SEP	BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	flowers			foliage				
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼			pale		+		23	<i>Penstemon Digitalis</i>
	☼☼					purple		+		23	<i>Phacelia soricea</i>
			☼☼☼☼☼☼☼☼☼☼			creamy white		+	bright orange lanterns (seed pods) in fall, spreads	15	<i>Physalis Alkekengi (Franchetii)</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white or pink	+	+		11	<i>Physostegia virginiana</i>
		☼☼☼☼☼☼☼☼☼☼				deep blue		+	self seeds, hard to tell if any original plants remain	15	<i>Polemonium caeruleum 'Cashmerianum'</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white	+	+		15	<i>Polemonium caeruleum var. lacteum (album)</i>
	☼☼☼☼☼☼					light lavender		+		7	<i>Polemonium reptans</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼		blue		+	reseeds readily	15	<i>Polemonium reptans 'Blue Pearl'</i>
		☼				lavender		+		15	<i>Polemonium reptans var. villosum</i>
		☼				lavender		+		15	<i>Polemonium reptans var. villosum</i>
	☼☼☼☼					white/green		+	a few plants dormant for last growing season, came back this season	4	<i>Polygonatum biflorum?</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		gold, orange centers	+	+		18	<i>Potentilla argrophylla</i>
		☼				yellow/red		+	silver hairs on leaves	23	<i>Potentilla argrophylla 'Leucochroa'</i>
	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼		lemon yellow		+		18	<i>Potentilla megalantha</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		lemon	+	+	evergreen	23	<i>Potentilla recta</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		white	+	+	mounding habit, spreads slowly, some winterburn to foliage	15	<i>Potentilla tridentata</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼		red & lemon	+	+		18	<i>Potentilla x 'Melton Fire'</i>
			☼☼☼☼☼☼			pink		+	ground cover, interesting mounding habit, unobtrusive flowers, thorns, late fall fruits	7	<i>Rubus parvifolius</i>
		☼☼☼☼☼☼☼☼☼☼				lavender pink		+	attractive to bees, seed heads useful dried	16	<i>Salvia sp.</i>
		☼☼☼☼☼☼☼☼☼☼				burgundy		+	leaves and blooms had powdery mildew late	23	<i>Sanguisorba menziesii</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Sedum acre</i>	Golden-carpet	I. Berger	Aug-93	10	3.0	3	10
<i>Silene Schalta</i>		I. Berger	Aug-93	10	1.7	10	24
<i>Silene sp.</i>		Novosibirsk, Russia	Sep-91	10	0.1	35	48
<i>Silphium perfoliatum</i>	Cup plant	NEWFS	Aug-92	8	0.5	80	56
<i>Solidago mutiradiata</i>	Goldenrod	NEWFS	Aug-94	1	1.0	6 (10)	8
<i>Stachys grandiflora (macrantha)</i>	Big betony	ARGS	Jul-94	10	2.6	14	13
<i>Stachys officinalis</i>	Betony	Richters	Jul-94	10	0.2		
<i>Tanacetum vulgare</i>	Common tansy	South Slope	Jun-91	10	0.0	58	
<i>Thalictrum dioicum</i>	Early meadow rue	NEWFS	Aug-92	3	3.2	14	12
<i>Thalictrum sparsiflorum</i>		ANPS	Sep-91	4	0.5	24	25
<i>Tiarella cordifolia</i>	Foamflower	NEWFS	Jul-93	10	3.6	3	9
<i>Trollius europaeus</i>	Globeflower	Holm Town	Jul-92	4	0.9	20(34)	24
<i>Trollius laxus</i>	Spreading globeflower	NEWSF	Jul-92	10	1.3	18(27)	18
<i>Tulipa Batalinii</i>	Batalin tulip	de Jager	Aug-93	6	2.5	3	4
<i>Tulipa Batalinii</i> 'Bright Gem'	Batalin tulip	de Jager	Aug-93	10	3.6	2.5	1.5
<i>Tulipa Clusiana</i>	Lady tulip	de Jager	Aug-93	10	3.2	4.5	3
<i>Tulipa pulchella</i> 'Persian Pearl'		de Jager	Aug-93	10	1.8	7	8
<i>Tulipa tarda</i>		de Jager	Aug-93	9	0.2	5.5	12
<i>Veronica Allionii</i>		ARGS	Jul-94	10	1.0	21	13
<i>Veronica alpina</i>		ARGS	Jul-94	6	2.5	3 (8)	10

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MAY	WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP	flowers		foliage				
		☼				yellow		+		19	<i>Sedum acre</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	rose	+	+		18	<i>Silene Schafta</i>
		☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	white	+	+	reseeds readily, could be invasive, needs staking, good for wildflower meadows	6	<i>Silene sp.</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	bright yellow	+	+	attractive daisy-like flowers, interesting foliage, strong, upright growth habit	6	<i>Silphium perfoliatum</i>
			☼☼			golden				15	<i>Solidago mutiradiata</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	red violet	+	+		4	<i>Stachys grandiflora</i> (<i>macrantha</i>)
				☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	red violet	+	+		20	<i>Stachys officinalis</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	yellow	+	+	aromatic, attractive to moose, invasive spreads by seed and roots	16	<i>Tanacetum vulgare</i>
		☼☼☼				lavender		+	one plant remaining	11	<i>Thalictrum dioicum</i>
	☼	☼☼☼☼☼				pale lavender/white		+	tiny flowers	11	<i>Thalictrum sparsiflorum</i>
								+	one plant remaining	1	<i>Tiarella cordifolia</i>
	☼☼☼☼☼☼☼☼	☼				lemon yellow/ light gold		+	attractive, colorful blooms	11	<i>Trollius europaeus</i>
	☼☼☼☼☼☼☼☼				☼	pale yellow		+	attractive, early-season blooms	15	<i>Trollius laxus</i>
								+	dies back by mid-season	19	<i>Tulipa Batalinii</i>
								+	dies back by mid-season, one plant remaining	19	<i>Tulipa Batalinii</i> 'Bright Gem'
								+	dies back by mid-season	19	<i>Tulipa Clusiana</i>
	☼					fuchsia, yellow center		+	dies back by mid-season	19	<i>Tulipa pulchella</i> 'Persian Pearl'
	☼☼					bright yellow, white edges		+	dies back by mid-season	19	<i>Tulipa tarda</i>
			☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	☼☼☼☼☼☼☼☼☼☼	blue	+	+		23	<i>Veronica Allionii</i>
		☼	☼☼☼	☼☼☼	☼☼☼	blue	+	+		23	<i>Veronica alpina</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Veronica incana</i>	Wooly speedwell	T&M	Jun-91	10	1.4	20	32
<i>Veronica</i> 'Sightseeing Mix'		Stokes	Jul-94	10	0.3	29	24
<i>Veronica spicata</i> 'Nana'	Spike speedwell	ARGS	Jul-94	10	2.5	12	10
FERNS							
<i>Asplenium (Phyllitis) scolopendrium</i>	Hart's-tongue fern	HFF	Jul-94	5	3.4	3	7
<i>Athyrium filix-femina</i>	Lady fern	NEWFS	Jul-93	10	1.8	17	16
<i>Cystopteris bulbifera</i>	Bulblet bladder fern	NEWFS	Jul-93	10	3.2	9	10
<i>Dryopteris arguta</i>	Coastal wood fern	HFF	Jul-94	5	2.0	13	18
<i>Dryopteris campyloptera (austriaca)</i>	Mountain wood fern	NEWFS	Jul-93	10	0.7	19	17
<i>Dryopteris dilatata</i> 'Jimmy Dyce'	Upright broad bucklerfern	HFF	Jul-94	5	1.8	7	8
<i>Dryopteris dilatata</i> 'Lepidota cristata'	Broad bucklerfern	HFF	Jul-94	5	2.2	5	9
<i>Dryopteris filix-mas</i>	Male fern	NEWFS	Jul-93	10	0.5	13	24
<i>Dryopteris filix-mas</i> 'Undulata robusta'	Male fern	HFF	Jul-94	5	1.8	12	18
<i>Dryopteris fragrans</i>	Fragrant wood fern	Fish Creek, AK	Jul-93	10	3.4	4	4
<i>Dryopteris marginalis</i>	Marginal wood fern	NEWFS	Jul-93	10	1.8	18	15
<i>Phegopteris connectilis (Thelypteris phegopteris)</i>	Northern beech fern	NEWFS	Jul-93	3	1.6	10	19
<i>Polypodium virginianum</i>	American wall fern	NEWFS	Jul-93	10	3.2	9	8
<i>Polystichum sp.</i>	Novosibirsk fern		Jul-93	2	0.0	13	16

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MAY	WEEKLY BLOOM PERIOD					BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	SEP	flowers		foliage				
		☼☼☼☼☼	☼☼☼☼☼	☼☼☼☼☼	☼☼☼☼☼	blue	+	+	silver foliage	15	<i>Veronica incana</i>
		☼☼☼☼☼	☼☼☼☼☼	☼☼☼☼☼	☼☼☼☼☼	blue, pink	+	+		23	<i>Veronica 'Sightseeing Mix'</i>
			☼☼☼☼☼	☼☼☼☼☼	☼☼☼☼☼	blue	+	+	evergreen	23	<i>Veronica spicata 'Nana'</i>
								+		1	<i>Asplenium (Phyllitis) scolopendrium</i>
								+		1	<i>Athyrium filix-femina</i>
								+	two plants remaining	1	<i>Cystopteris bulbifera</i>
								+		1	<i>Dryopteris arguta</i>
								+		1	<i>Dryopteris campyloptera (austriaca)</i>
								+		1	<i>Dryopteris dilatata 'Jimmy Dycé'</i>
								+		1	<i>Dryopteris dilatata 'Lepidota cristata'</i>
								+		1	<i>Dryopteris filix-mas</i>
								+		1	<i>Dryopteris filix-mas 'Undulata robusta'</i>
								+	one plant remaining; probably inappropriate growing conditions	1	<i>Dryopteris fragrans</i>
								+	some plants may be misidentified	1	<i>Dryopteris marginalis</i>
								+		1	<i>Phegopteris connectilis (Thelypteris phegopteris)</i>
								+	one plant remaining	1	<i>Polypodium virginianum</i>
										1	<i>Polystichum sp.</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
ORNAMENTAL GRASSES							
<i>Arctagrostis latifolia</i> 'Kenai'	Polar grass	PMC	Jul-92	10	0.3	37(61)	58
<i>Beckmannia syzigachne</i> 'Egan'	American sloughgrass	PMC	Jul-92	10	1.4	38	22
<i>Calamagrostis acutiflora</i> var. <i>stricta</i>	Feather reed grass	Bluebird	Aug-90	1	1.8	48(78)	48
<i>Calamagrostis arundinacea</i> 'Karl Foerster'		Bluebird	Aug-90	2	1.7	40(76)	48
<i>Carex Grayi</i>		NEWFS	Aug-94	4	2.0	15	20
<i>Deschampsia beringensis</i> 'Norcoast'	Bering hair grass	PMC	Jul-92	10	1.0	20	18
<i>Deschampsia caespitosa</i> 'Goldhaenge'	Tufted hair grass	Bluebird	Aug-90	4	2.1	20(40)	28
<i>Festuca valesiaca</i> 'Glauca'	Swiss fescue	Bluebird	Aug-90	3	2.7	6	7
<i>Koeleria glauca</i>	Blue hair grass	T&M	Jul-90	10	3.4	10(20)	10
<i>Poa alpina</i> 'Gruening'	Alpine bluegrass	PMC	Jul-92	10	0.5	10(17)	17
<i>Poa ampla</i> 'Service'	Big bluegrass	PMC	Jul-92	10	1.3	12(27)	16
<i>Poa glauca</i> 'Tundra'	Greenland bluegrass	PMC	Jul-92	10	2.9	13(31)	13
WOODY PERENNIALS							
<i>Acer ginnala</i> 'Bergiana Flame'	Amur maple	Lawyer	Jul-93	5	1.9	40	31
<i>Amelanchier alnifolia</i>	Saskatoon	NCRPIS	Jul-92	2	1.2	51	64
<i>Ampelopsis glandulosa</i> var. <i>brevipedunculata</i>	Porcelain vine	NCRPIS	Jul-93	5	1.2	21	79
<i>Aronia arbutifolia</i>	Chokeberry	NCRPIS	Jul-92	3	2.3	17	15
<i>Aronia melanocarpa</i>	Black chokeberry	NCRPIS	Jul-92	2	1.0	43	46

*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				SEP	BLOOM COLOR	FROST TOLERANT		COMMENTS	PLOT LOCATION	SCIENTIFIC NAME
	JUN	JUL	AUG	flowers			foliage				
		⊗						+	coarse foliage	8	<i>Arctagrostis latifolia</i> 'Kenai'
			⊗					+	susceptible to disease (powdery mildew)	8	<i>Beckmannia syzigachne</i> 'Egan'
			⊗					+		8	<i>Calamagrostis acutiflora</i> var. <i>stricta</i>
			⊗					+		8	<i>Calamagrostis arundinacea</i> 'Karl Foerster'
								+		8	<i>Carex Grayi</i>
								+	fine seed heads	8	<i>Deschampsia beringensis</i> 'Norcoast'
		⊗						+	one plant remaining	8	<i>Deschampsia caespitosa</i> 'Goldgehaenge'
		⊗			⊗			+	one plant remaining	8	<i>Festuca valesiaca</i> 'Glaucia'
								+		8	<i>Koeleria glauca</i>
		⊗						+	slight mildew problem late in season	8	<i>Poa alpina</i> 'Gruening'
			⊗					+	feathery look, reseeds readily	8	<i>Poa ampla</i> 'Service'
								+		8	<i>Poa glauca</i> 'Tundra'
									most plants came back from roots	3	<i>Acer ginnala</i> 'Bergiana Flame'
		⊗				white		+		2	<i>Amelanchier alnifolia</i>
						green		-	had flower buds in July, but didn't appear to open	3	<i>Ampelopsis glandulosa</i> var. <i>brevipedunculata</i>
									2 plants came back from roots, red fall foliage	5	<i>Aronia arbutifolia</i>
			⊗			white			red fall foliage	5	<i>Aronia melanocarpa</i>
		⊗	⊗			yellow		+	has thorns, leaves turn red & gold in fall	3	<i>Berberis koreana</i> x <i>Thunbergii</i> 'Emerald Carousel'

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	No. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Berberis koreana</i> x <i>Thunbergii</i> 'Emerald Carousel'	Hybrid barberry	NCRPIS	Jul-93	5	0.6	33	61
<i>Betula alleghaniensis</i> 'Morton No. 10'	Yellow birch	NCRPIS	Jul-94	5	2.2	34	12
<i>Betula lenta</i> 'Morton No. 9'	Sweet birch	NCRPIS	Jul-94	5	2.8	25	22
<i>Betula michauxii</i>		ARGS	Sep-90	5	1.0	27	56
<i>Betula occidentalis</i>	Water birch	NCRPIS	Jun-90	3	1.9	73	96
<i>Betula</i> sp.		NCRPIS	Jun-90	3	2.6	66	102
<i>Buddleia</i> sp.	Butterfly bush	Fairbanks, AK	Aug-93	1	0.5	49	62
<i>Caragana arborescens</i>	Siberian pea	PMC	Sep-91	3	0.2	103	52
<i>Caragana arborescens</i>	Siberian pea tree (pyramidal)	PMC	Jul-94	2	0.0	48	26
<i>Caragana frutex</i>	Russian pea shrub	NCRPIS	Aug-93	3	1.2	18	18
<i>Caragana pygmaea</i>	Pygmy caragana	Washburn	Jul-94	5	0.4	18	15
<i>Crataegus columbiana</i>	Columbia hawthorn	Lawyer	Jul-93	5	1.5	64	51
<i>Elaeagnus angustifolia</i> 'King's Red'	King's Red Russian Olive	Lawyer	Jul-94	5	2.4	50	42
<i>Forsythia ovata</i> 'Nakai'	Early forsythia	NCRPIS	Sep-90	5	3.0	62	58
<i>Juniperus horizontalis</i> 'Bar Harbor'	Creeping juniper	NCSU Arboretum	Aug-94	1	0.0	3	8
<i>Juniperus horizontalis</i> 'Slow Blue'	Creeping juniper	NCSU Arboretum	Aug-94	1	1.0	6	14
<i>Juniperus horizontalis</i> 'Slow Blue'	Creeping juniper	NCSU Arboretum	Aug-94	1	2.0	2.5	2
<i>Juniperus horizontalis</i> 'Watnong'	Creeping juniper	NCSU Arboretum	Aug-94	1	0.0	3	8
<i>Juniperus horizontalis</i> 'Wilms'	Creeping juniper	NCSU Arboretum	Aug-94	2	2.0	3	8.5
<i>Larix sibirica</i>	Siberian larch	CSBG	Aug-91	5	3.5	56	26

*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		+	has thorns, leaves turn red & gold in fall	3	<i>Berberis koreana</i> x <i>Thunbergii</i> 'Emerald Carousel'
								+	summer vole damage	17	<i>Betula alleghaniensis</i> 'Morton No. 10'
									summer vole damage	17	<i>Betula lenta</i> 'Morton No. 9'
								+	interesting creeping, mounding growth habit	14	<i>Betula michauxii</i>
								+	one plant remaining	3	<i>Betula occidentalis</i>
								+	one plant remaining	3	<i>Betula</i> sp.
		☼	☼	☼	☼	pink		+		5	<i>Buddleia</i> sp.
								+	upright growth habit	5	<i>Caragana arborescens</i>
										5	<i>Caragana arborescens</i>
								+		5	<i>Caragana frutex</i>
									summer vole damage	17	<i>Caragana pygmaea</i>
								+	red fall foliage	3	<i>Crataegus columbiana</i>
								+		17	<i>Elaeagnus angustifolia</i> 'King's Red'
								+	one plant remaining	14	<i>Forsythia ovata</i> 'Nakai'
										9	<i>Juniperus horizontalis</i> 'Bar Harbor'
										9	<i>Juniperus horizontalis</i> 'Slow Blue'
										9	<i>Juniperus horizontalis</i> 'Slow Blue'
										9	<i>Juniperus horizontalis</i> 'Watnong'
										9	<i>Juniperus horizontalis</i> 'Wilms'
									one plant remaining	9	<i>Larix sibirica</i>

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	No. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Lonicera hybrida</i> 'Honey Rose'		NCRPIS	Aug-93	4	1.0	44	52
<i>Lonicera tatarica</i> 'Beavermor'	Tatarian honeysuckle	Beaverlodge	Sep-89	5	1.2	62	63
<i>Mahonia repens</i>	Creeping mahonia	NCRPIS	Jul-94	3	0.7	11	14
<i>Malus baccata</i> var. <i>mandsurica</i>	Siberian crab	PMC	Sep-91	5	1.1	56	70
<i>Malus pallasiana</i> ssp. <i>himalaica</i>		J. Want	Jul-94	5	1.2	48	44
<i>Malus prunifolia</i> 'Kerr'	Kerr crabapple	Lawyer	Aug-93	5	1.3	53	59
<i>Malus Sargentii</i>	Sargent crab apple	Hudson	Jul-92	5	1.5	21	13
<i>Malus</i> sp. 'Almey'	Almey crab	Lawyer	Jul-94	5	2.4	54	41
<i>Malus turkmenoma</i>		J. Want	Jul-94	5	0.4	33	21
<i>Parthenocissus inserta</i>		NCRPIS	Jul-92	3	3.3	16	110
<i>Physocarpus monogynus</i>	Ninebark	NCRPIS?	Sep-89	5	0.7	65	76
<i>Picea Engelmannii</i>	Engelmann spruce	Schumacher	Sep-89	5	2.0	14	13
<i>Picea glauca</i> var. <i>albertiana</i>	Alberta spruce	GBG	Sep-89	5	0.2	32	25
<i>Picea pungens</i> X <i>glauca</i>	Spartan spruce®	BTI	Aug-91	5	3.0	19	15
<i>Pinus cembra</i>	Swiss stone pine	Schumacher	Sep-89	5	1.9	14	15
<i>Pinus cembra sibirica</i>	Stone pine	SAAS	Aug-93	5	0.7	5	4
<i>Pinus Peuce</i>	Macedonian pine	NCRPIS	Jul-94	3	2.0	12	10
<i>Pinus resinosa</i>	Red pine	Lawyer	Aug-93	3	0.2	32	17
<i>Pinus sibiricus</i>	Siberian pine	SAAS	Aug-93	4	0.9	4	4
<i>Populus tremula</i> 'Erecta'	Upright European ash	KHN	Jun-90	5	1.6	77	27

*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			
		●●●●●●	●●●●●●	●●●●●●	●●●●●●	bright rose, red fruits	+	+		5	<i>Lonicera hybrida</i> 'Honey Rose'
		●●●●●●				white, red fruits		+	fruiting begins end of June, severe nutrient deficiency or disease on old growth	2	<i>Lonicera tatarica</i> 'Beavermor'
								+	evergreen	5	<i>Mahonia repens</i>
								+	attractive to moose	5	<i>Malus baccata</i> var. <i>mandsurica</i>
								+	some plants came back from roots, attractive to moose	3	<i>Malus pallasiana</i> ssp. <i>himalaica</i>
								+	attractive to moose	2	<i>Malus prunifolia</i> 'Keri'
								+		14	<i>Malus Sargentii</i>
								+	attractive to moose	2	<i>Malus</i> sp. 'Almey'
								+		17	<i>Malus turkmenoma</i>
								-	vine, remaining plant returns from roots	3	<i>Parthenocissus inserta</i>
		●●●●●●	●●●●●●	●●●●●●	●●●●●●	white		+	brown, papery fruits persistent, a few blooms in September	2	<i>Physocarpus monogynus</i>
									one plant remaining	9	<i>Picea Engelmannii</i>
										9	<i>Picea glauca</i> var. <i>albertiana</i>
									one plant remaining	9	<i>Picea pungens</i> X <i>glauca</i>
									one plant remaining	9	<i>Pinus cembra</i>
										9	<i>Pinus cembra sibirica</i>
										9	<i>Pinus Peuce</i>
										9	<i>Pinus resinosa</i>
										9	<i>Pinus sibiricus</i>
								+	suckers, attractive to moose, susceptible to winter injury, recovers from crown	3	<i>Populus tremula</i> 'Erecta'

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Prunus fruticosa</i>	European dwarf cherry	BCN	Sep-89	5	2.6	35	47
<i>Prunus fruticosa</i> 'Scarlet'	European dwarf cherry	NCRPIS	Sep-89	5	1.6	40	54
<i>Prunus pennsylvanica</i>	Pin cherry	GBG	Jul-94	5	0.6	35	48
<i>Prunus salicina</i> var. <i>mandshurica</i>	Manchurian plum	BCN	Sep-89	5	2.8	56	61
<i>Prunus</i> sp.	Manchurian apricot	Denver, CO	Jul-94	5	2.6	39	21
<i>Prunus tenella</i>	Dwarf Russian almond	Lawyer	Aug-93	1	1.0	49	48
<i>Prunus ussuriensis</i>		Clair's Cultivars	Aug-94	5	0.4	37	24
<i>Prunus X cistena</i>	Purple-leaf sand cherry	Lawyer	Jul-93	5	2.1	47	49
<i>Ribes</i> sp.	Spineless gooseberry	Fred Dorward, Alberta	Jul-94	1	2.0	17	17
<i>Ribes</i> sp.		NCGR	Jul-94	2	2.0	17	20
<i>Ribes nigrum</i> 'Ben Lomond'	Black currant	PMC	Jul-94	5	0.8	28	31
<i>Ribes nigrum</i> 'Ben Moore'	Black currant	PMC	Jul-94	1	0.0	28	22
<i>Ribes nigrum</i> 'Ben Nevis'	Black currant	PMC	Jul-94	5	0.4	25	35
<i>Ribes nigrum</i> 'Boskoop Giant'	Black currant	PMC	Jul-94	2	0.5	35	28
<i>Ribes nigrum</i> 'Erkheikki VII'	Black currant	PMC	Jul-94	5	0.6	20	18
<i>Ribes nigrum</i> 'Jankis Jarvi'	Black currant	PMC	Jul-94	1	1.0	20	18
<i>Ribes nigrum</i> 'Melalathi'	Black currant	PMC	Jul-94	5	0.4	20	20
<i>Ribes nigrum</i> 'Nikkala XI'	Black currant	PMC	Jul-94	5	0.4	17	16
<i>Ribes nigrum</i> 'Pilot Aleksandr Mamkin'	Black currant	NCGR	Jul-94	1	2.0	21	16
<i>Ribes nigrum</i> 'Sunderbyn II'	Black currant	PMC	Jul-94	5	0.4	19	17

*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				
								+	comes back from roots some years, suckers	2	<i>Prunus fruticosa</i>
								+	comes back from roots, some suckering	2	<i>Prunus fruticosa</i> 'Scarlet'
								+	open-pollinated seedling from GBG plots; attractive	17	<i>Prunus pennsylvanica</i>
								+	some plants came back from roots	2	<i>Prunus salicina</i> var. <i>mandshurica</i>
								+		17	<i>Prunus</i> sp.
	*					pink		+		5	<i>Prunus tenella</i>
								+		2	<i>Prunus ussuriensis</i>
		*				pink		+	deep red foliage	3	<i>Prunus X cistena</i>
								+		22	<i>Ribes</i> sp.
								+		22	<i>Ribes</i> sp.
								+		22	<i>Ribes nigrum</i> 'Ben Lomond'
								+		22	<i>Ribes nigrum</i> 'Ben Moore'
								+		22	<i>Ribes nigrum</i> 'Ben Nevis'
								+		22	<i>Ribes nigrum</i> 'Boskoop Giant'
								+		22	<i>Ribes nigrum</i> 'Erkheikki VII'
								+		22	<i>Ribes nigrum</i> 'Jankis Jarvi'
								+		22	<i>Ribes nigrum</i> 'Melalathi'
								+		22	<i>Ribes nigrum</i> 'Nikkala XI'
								+		22	<i>Ribes nigrum</i> 'Pilot Aleksandr Mamkin'
								+		22	<i>Ribes nigrum</i> 'Sunderbyn II'

Table 2. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY*	HEIGHT (IN)	SPREAD (IN)
<i>Ribes</i> sp.	Black gooseberry	Fred Dorward, Alberta	Jul-94	5	1.0	28	51
<i>Ribes</i> sp.	Red gooseberry	Fred Dorward, Alberta	Jul-94	4	2.0	16	16
<i>Ribes</i> sp.	Yakutsk currant	Yakutsk, Russia	Jul-94	2	0.0	20	32
<i>Ribes</i> sp. 'Nariadnaja'		NCGR	Jul-94	2	1.5	18	30
<i>Ribes triste</i>	Swamp red currant	John Holm	Jul-94	5	1.2	11	10
<i>Rosa canina</i>	Dog rose	Novosibirsk, Russia	Aug-94	2	1.0	30	18
<i>Rosa rugosa</i> 'Pl 277 432'	Turkestan rose	PMC	Aug-91	5	3.2	22	38
<i>Rosa</i> sp. 'Lac Majeau'		PMC	Aug-91	5	0.8	52	61
<i>Rosa</i> sp. 'Prairie Wren'		PMC	Aug-91	2	2.0	69	56
<i>Rosa Woodsii</i>	Wood's rose	NCRPIS	Aug-91	5	1.5	50	68
<i>Rubus caesius</i>		NCGR	Jul-94	5	2.6	11	14
<i>Salix alba argentea</i> 'Sericea'	White willow	NCRPIS	Jul-94	5	2.8	33	45
<i>Salix purpurea</i> 'Leicestershire Dicks'	Purple-osier willow	NCRPIS	Jul-94	5	2.6	32	96
<i>Salix</i> sp.		GBG	Aug-91	5	2.0	71	96
<i>Securinega suffruticosa</i>	Fountain hardhack	NCRPIS	Jul-94	5	2.0	28	22
<i>Sorbaria sorbifolia</i>	False spiraea	NCRPIS	Jun-90	3	0.9	51	73
<i>Spiraea</i> sp.	Bridal wreath spiraea?	Fairbanks, AK	Jul-94	2	0.0	35	26
<i>Spiraea chamaedryfolia</i>		NCRPIS	Jul-92	5	1.1	60	55
<i>Spiraea</i> 'Fairy Queen'		Washburn	Jul-94	3	1.0	18	19
<i>Syringa josikaea</i> (?)	Hungarian lilac	Washburn	Jul-94	5	0.2	39	28

*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						
								+			22	<i>Ribes</i> sp.
								+			22	<i>Ribes</i> sp.
								+			22	<i>Ribes</i> sp. 'Nariadnaja'
								+			22	<i>Ribes triste</i>
								+			14	<i>Rosa canina</i>
			⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙	deep rose	+	+	single flowers, large rose hips, one plant remaining	14	<i>Rosa rugosa</i> 'PI 277 432'
		⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙	white/pink centers	+	+	very showy fragrant, double flowers, dark red, ornamental hips	14	<i>Rosa</i> sp. 'Lac Majeau'
		⊙					cream		+	single flowers, one plant remaining	14	<i>Rosa</i> sp. 'Prairie Wren'
		⊙⊙					light pink		+	single flowers, spreads by rhizomes	14	<i>Rosa Woodsii</i>
								+			22	<i>Rubus caesius</i>
								+		came back from roots	17	<i>Salix alba argentea</i> 'Sericea'
								+		purple branches	17	<i>Salix purpurea</i> 'Leicestershire Dicks'
								+		attractive to moose, comes back from roots	2	<i>Salix</i> sp.
								+			17	<i>Securinega suffruticosa</i>
				⊙⊙⊙⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙⊙⊙⊙	⊙	white		+	comes back from roots, very large flower clusters, attractive to all kinds of bees and bee flies	2	<i>Sorbaria sorbifolia</i>
								+			17	<i>Spiraea</i> sp.
		⊙⊙⊙⊙⊙⊙⊙	⊙		⊙⊙⊙⊙⊙⊙⊙		white	+	+	attractive, abundant flowers, nice red and gold fall foliage color	5	<i>Spiraea chamaedryfolia</i>
		⊙⊙⊙⊙⊙					white		+	fragrant flowers	17	<i>Spiraea</i> 'Fairy Queen'
		⊙					purple		+	fragrant flowers	17	<i>Syringa Josikaea</i> (?)
								+		some plants came back from roots	3	<i>Viburnum Lentago</i>

Table 2. (continued)

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SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NO. OF PLANTS	WINTER INJURY ^a	HEIGHT (IN)	SPREAD (IN)
<i>Viburnum Lentago</i>	Sheepberry	NCRPIS	Jun-90	5	2,4	40	32
<i>Viburnum trilobum</i>	Cranberry bush	Schumacher	Sep-91	5	3,0	44	38

^aWinter 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.

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

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	NUMBER YEARS SURVIVED	COMMENTS
HERBACEOUS PERENNIALS						
<i>Aconitum volubile</i>	Monkshood	T&M	Sep-91	2	0	A
<i>Adenophora Bulleyana</i>	Ladybells	T&M	Jul-92	10	1	
<i>Aquilegia brevistyla</i>	Yukon columbine	ANPS	Jun-91	10	2	
<i>Alchemilla alpina mollis</i>	Mountain ladysmantle	Park	Sep-91	10	0	A
<i>Anemone (Pulsatilla) patens</i>	Pasque flower	M. Earp	Aug-89	10	2	G
<i>Anthemis tinctoria</i>	Golden marguerite	ARGS	Jul-94	1	0	A
<i>Armeria</i> sp.		South Slope	Jun-91	3	0	A
<i>Arnica frigida</i>		C. Parker	Aug-89	18	2	G
<i>Arnica latifolia</i>	Broadleaf anemone	ANPS	Jun-90	10	1	F
<i>Arnica Joviseana</i>		NEWFS	Jun-90	10	1	
<i>Artemisia Absinthium</i>	Common wormwood	Johnny's	Jun-91	10	1	
<i>Artemisia ciantha</i>		ARGS	Oct-90	3	1	
<i>Artemisia frigida</i>	Fringed sagebrush	Fl. Yukon, AK	Jun-91	10	0	A
<i>Artemisia Schmidtlana</i> 'Silver Mound'		Lamb	Jun-91	10	1	
<i>Aster alpinus</i>		I. Berger	Aug-93	1	1	
<i>Aster alpinus</i> var. <i>vierhapperi</i>		NEWFS	Sep-91	4	0	A
<i>Babiana nana</i>	Hardy gladiolus	T&M	Aug-93	10	0	A
<i>Calamintha Nepeta</i>		T&M	Jul-92	10	0	A
<i>Campanula carpatica</i>	Tussock bellflower	I. Berger	Jul-93	10	0	A
<i>Campanula glomerata</i> var. <i>dahurica</i>	Clustered bellflower	ARGS	Aug-92	1	2	B
<i>Campanula rotundifolia</i>	Harebell	ANPS	Aug-89	9	2	G
<i>Carlina acaulis</i>	Smooth carlina	ARGS	Aug-94	1	0	A
<i>Centranthus ruber</i> 'Roseus'	Keys of Heaven	Park	Jul-92	10	0	A
<i>Cephalaria gigantea</i>		T&M	Jul-92	2	0	A
<i>Chrysanthemum arcticum</i> 'Roseum'	Arctic chrysanthemum	NCRPIS	Aug-90	10	4	E
<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</i> sp.	Clematis	Montana	Jul-92	3	1	
<i>Clematis columbiana</i>	Columbian rock clematis	ANPS	Oct-91	1	0	A
<i>Cornus X unalaschkensis</i>		ARGS	Oct-91	2	0	B
<i>Crepis aurea</i>		ARGS	Jul-94	10	0	A
<i>Delphinium cardinale</i>		Park	Aug-93	10	0	A
<i>Delphinium grandiflorum</i> 'Blue Elf'		Harris Moran	Jul-91	10	0	A
<i>Delphinium</i> sp. 'Stand Up'		Park	Jul-91	10	1	
<i>Dianthus arenarius</i>	Sand pink	T&M	Jun-90	2	1	
<i>Dianthus armeria</i>	Deptford pink	NCRPIS	Jun-90	10	1	
<i>Dianthus callizonus</i>	Zoned pink	ARGS	Jun-90	6	4	
<i>Dianthus capitatus</i>		NCRPIS	Jun-90	10	0	A

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SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER YEARS SURVIVED	COMMENTS
<i>Dianthus Freynii</i>		ARGS	Jun-90	6	2	
<i>Dianthus glacialis</i>	Ice pink	T&M	Jun-90	1	0	A
<i>Dianthus gratianopolitanus</i> 'T&M Hybrid Mix'	Cheddar pink	T&M	Jun-90	9	2	
<i>Dianthus gratianopolitanus</i> 'Elfin's Hat'	Cheddar pink	T&M	Jun-90	9	2	
<i>Dianthus pavonius</i>		ARGS	Jun-90	10	3	
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	31	1	
<i>Dianthus plumarius</i>	Cottage pink	Novosibirsk, Russia	Aug-91	19	1	
<i>Dianthus plumarius</i> 'Ballad Blend'	Cottage pink	Stokes	Jul-91	10	0	A
<i>Dianthus plumarius</i> 'Sonate Double Mix'	Cottage pink	Park	Jul-91	10	0	A
<i>Dianthus superbus</i>	Lilac pink	NCRPIS	Jun-90	10	0	A
<i>Digitalis ferruginea</i>	Rusty foxglove	ARGS	Jul-94	10	0	A
<i>Digitalis X mertonensis</i>		ARGS	Jul-94	10	0	A
<i>Dodecatheon cusickii</i>	Shooting star	ARGS	Jul-92	1	2	B
<i>Dodecatheon dentatum</i>	Shooting star	ARGS	Sep-93	1	1	
<i>Dodecatheon Meadia</i> 'Album'	White shooting-star	ARGS	Jul-92	1	0	A
<i>Draba kamschatica</i>		ANPS	Jul-91	10	1	H
<i>Dryas Drummondii</i>	Drummond dryad	ANPS	Aug-89	10	1	C
<i>Echinacea purpurea</i>	Purple coneflower	Johnny's	Jul-93	10	0	A
<i>Echinacea purpurea</i> 'Bravado'		Park	Jul-93	10	1	
<i>Echinacea purpurea</i> 'White Swan'	Purple Echinacea	Park	Jul-93	10	1	
<i>Erigeron compositus</i>	Fernleaf fleabane	ANPS	Jun-90	10	0	A
<i>Erigeron eriocephalus</i>	Fleabane	ANPS	Jun-90	10	0	A
<i>Erigeron Karvinskyanus</i> 'Profusion'		Park	Jul-94	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>Eupatorium rugosum</i>	White snakeroot	NEWFS	Jul-94	1	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 cerastioides</i>	Mouse ear gypsophila	ARGS	Jun-90	8	0	A
<i>Gypsophila globulosa</i>		NCRPIS	Jun-90	10	0	A
<i>Hedysarum coronarium</i>	French honeysuckle	T&M	Jul-94	10	0	A
<i>Hedysarum Mackenzii</i>	Wild sweet pea	ANPS	Aug-89	3	1	B,G
<i>Hedysarum Mackenzii</i>	Wild sweet pea	PMC	Jul-92	10	0	A,D,G
<i>Helianthemum nummularium</i>		I. Berger	Aug-93	10	1	
<i>Heracleum Sphondylium</i> subsp. <i>montanum</i>	Cow parsnip	NEWFS	Oct-90	6	4	
<i>Heuchera americana</i> 'Palace Purple'	Rock geranium	T&M	Jun-91	10	0	A
<i>Heuchera glabra</i>	Alumroot	ANPS	Jun-91	10	0	A

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Table 3. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	NUMBER YEARS SURVIVED	COMMENTS
<i>Heuchera sanguinea</i> 'Bressingham Hybrids'	Coral bells	T&M	Jun-91	10	0	A
<i>Hypericum perforatum</i>	Common St. Johnswort	SBC	Sep-91	1	0	A
<i>Iris Bulleyana</i>	Hollowstem iris	ARGS	Sep-91	1	0	A
<i>Iris scariosa</i>		Russia	Sep-89	7	2	
<i>Iris setosa</i> var. <i>canadensis</i>	Beachhead iris	ARGS	Jul-92	2	2	
<i>Iris sibirica</i> 'Snow Queen'	Siberian iris	ARGS	Aug-91	8	0	A
<i>Jasione laevis</i>		J. Berger	Aug-93	10	1	
<i>Klitalbela vitifolia</i>		NCRPIS	Jun-90	10	0	A
<i>Lavandula angustifolia</i> 'Lady'	English lavender	AAS	Jul-93	10	0	A
<i>Lavandula angustifolia</i> 'Munstead'	English lavender	Johnny's	Jul-93	10	0	A
<i>Levisticum officinale</i>	Lovage	Vermont Bean	Jul-93	10	1	
<i>Levisticum officinale</i>	Lovage	Vermont Bean	Jun-91	10	1	G
<i>Liatris borealis</i>		NEWFS	Jun-91	10	0	A
<i>Liatris punctata</i>	Dotted gayfeather	NEWFS	Jun-91	10	0	A
<i>Lilium speciosum</i> 'Rubrum'	Showy Japanese lily	de Jager	Aug-93	2	1	
<i>Linum perenne</i> subsp. <i>Lewisii</i>	Blue flax	Nauriaq	Jul-92	10	0	A
<i>Lupinus</i> sp.		Fairbanks Ck., AK	Aug-92	10	0	A, G
<i>Lychnis Coronaria</i>	Mullein pink	Tack's	Aug-92	10	0	A
<i>Lysimachia punctata</i>	Garden loosestrife	T&M	Aug-90	10	3	
<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>Mentha suaveolens</i> 'Variegata'	Pineapple mint	Richters	Jul-94	10	0	A
<i>Monarda didyma</i> 'Marshall's Delight'	Bee balm	Richters	Aug-93	2	1	
<i>Monarda didyma</i> 'Panorama Mix'	Bee balm	Johnny's	Jul-92	8	0	A
<i>Monarda punctata</i>	Dotted mint	NEWFS	Jul-94	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 scabiosifolia</i> 'Nagoya'	Dahurian patrinia	Park	Jul-91	10	0	A
<i>Penstemon heterophyllus</i> 'Blue of Zurich'		Park	Jul-92	10	0	A
<i>Penstemon procerus</i>	Littleflower penstemon	ANPS	Aug-91	2	1	
<i>Phuiopsis stylosa</i>		J. Berger	Aug-93	10	0	A
<i>Physostegia virginiana</i>	Obedience	NEWFS	Sep-91	6	0	A
<i>Platycodon grandiflorus</i> 'Hakone Double Blue'	Balloon flower	T&M	Aug-93	10	1	
<i>Polemonium caeruleum</i> subsp. <i>villosum</i>	Jacob's ladder	Eagle Summit, AK	Aug-89	4	2	H
<i>Polemonium</i> sp. 'Apricot Delight'		T&M	Jul-92	5	0	A
<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 incana</i>		Fairbanks, AK	Aug-89	10	3	H

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SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS	NUMBER YEARS SURVIVED	COMMENTS
<i>Primula scotia</i>	Scotch primrose	ANPS	Jun-91	10	0	A
<i>Primula vulgaris</i> 'Dania Mix'	English primrose	Daehnfeldt	Sep-89	10	0	A
<i>Prunella vulgaris</i>	Common selfheal	ANPS	Aug-89	10	0	A
<i>Pycnanthemum virginianum</i>		NEWFS	Aug-93	10	1	
<i>Rudbeckia fulgida</i> 'Goldsturm'		T&M	Jul-94	10	0	A
<i>Saponaria officinalis</i>	Bouncing bet	ARGS	Jul-94	10	0	A
<i>Sidalcea</i> sp. 'Party Girl'		Burpee	Aug-92	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>Silphium terebinthinaceum</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 odora</i>	Sweet goldenrod	NEWFS	Jul-92	10	0	A
<i>Solidago puberula</i>	Downy goldenrod	NEWFS	Sep-91	10	0	A
<i>Solidago rigida</i>	Stiff goldenrod	NEWFS	Aug-94	1	0	A
<i>Taraxacum carneocoluratum</i>		Alaska Range, AK	Aug-89	9	1	
<i>Telekia speciosa</i>		T&M	Jun-91	10	0	A
<i>Tellima grandiflora</i>	Alaska fringe cup	NEWFS	Sep-89	10	0	A
<i>Thermopsis lupinoides</i>		ARGS	Jul-92	9	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 Serphyllum</i>	Lemon variegated thyme	DBG	Jun-91	4	0	A
<i>Thymus Serphyllum</i> 'Pink Chintz'		DBG	Jun-91	4	0	A
<i>Thymus</i> sp.	Lemon thyme	DBG	Jun-91	8	0	A
<i>Tripleurospermum phaeocephalum</i>		ANPS	Jun-90	10	1	
<i>Valeriana sitchiensis</i>	Sitka valerian	ANPS	Jun-91	2	0	A
<i>Verbena hastata</i>	Blue vervain	NEWFS	Aug-93	10	1	
<i>Veronica fruticulosa</i>		ARGS	Aug-92	10	0	A
<i>Veronica saturojoides</i>		ARGS	Aug-92	2	0	A
<i>Viola labradorica</i>	Labrador violet	NEWFS	Jul-92	4	0	A
<i>Viola pedata</i>	Bird-foot viola	NEWFS	Sep-91	10	0	A
<i>Xerophyllum tenax</i>	Bear grass	Lawyer	Aug-90	10	1	E
<i>Zigadenus glaucus</i>	White camas	NEWFS	Aug-92	3	0	A
FERNS						
<i>Cystopteris protrusa</i>	Lowland brittle fern	NEWFS	Jul-93	10	0	A
<i>Dennstaedtia punctilobula</i>	Hay-scented fern	NEWFS	Jul-93	2	1	

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Table 3. (continued)

SCIENTIFIC NAME	COMMON NAME	SOURCE	DATE PLANTED	NUMBER OF PLANTS	NUMBER YEARS SURVIVED	COMMENTS
<i>Dryopteris bissetiana</i>	Beaded woodfern	HFF	Jul-94	5	0	A
<i>Osmunda regalis</i>	Royal fern	HFF	Jul-94	4	0	A
<i>Osmunda regalis</i> 'Purpurascens'	Royal fern	HFF	Jul-94	5	0	A
<i>Osmunda regalis</i> 'Undulata'	Royal fern	HFF	Jul-94	1	0	A
<i>Phegopteris (Thelypteris) decursive-pinnata</i>	Beechwood fern	HFF	Jul-94	5	0	A
<i>Polystichum acrostichoides</i>	Christmas fern	NEWFS	Jul-93	6	1	
<i>Polystichum aleuticum</i>	Aleutian shield-fern	Adak, AK	Aug-93	2	0	A
<i>Polystichum lachenense</i>		Nantou Co., Taiwan, China	Aug-93	2	0	A
<i>Polystichum lonchitis</i>	Northern holly fern	Adak, AK	Jul-93	2	0	A
<i>Polystichum setiferum</i> 'Divisilobum'	Divided soft shield fern	HFF	Jul-94	5	0	A
ORNAMENTAL GRASSES						
<i>Andropogon Gerardii</i> 'Pawnee'	Big bluestem	Bluebird	Aug-90	3	2	
<i>Arrhenatherum 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> 'Bronzeschleier'	Tufted hair grass	Bluebird	Aug-90	2	2	D
<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>Helictotrichon sempervirens</i>	Blue oat grass	Bluebird	Aug-90	1	2	
<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>Melica cillata</i>	Silky-spike melic	Bluebird	Aug-89	10	3	D
<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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WOODY PERENNIALS						
<i>Acer saccharum</i>	Sugar maple	NCRPIS	Jul-92	3	2	E
<i>Actinidia kolomikta</i>	Kolomikta kiwi	BCN	Sep-89	5	3	I
<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>Caragana arborescens</i>	Siberian pea	Chamal R., Gomo-Altaysk, Russia	Sep-91	5	1	
<i>Ceanothus integerrimus</i>	Deerbush	Schumacher	Sep-89	5	0	A
<i>Cercarpus montanus</i>	Mountain mahogany	NCRPIS	Sep-89	1	0	A
<i>Cotoneaster horizontalis</i>	Rock cotoneaster	Schumacher	Sep-89	5	1	
<i>Cotoneaster horizontalis</i>	Rock cotoneaster	Schumacher	Sep-91	5	1	
<i>Cotoneaster integerrimus</i> 'Centennial'	European cotoneaster	NCRPIS	Sep-89	5	1	
<i>Cotoneaster nitens</i>	Pinkblush cotoneaster	NCRPIS	Sep-91	5	1	
<i>Crataegus monogyna</i>	Single-seed hawthorn	NCRPIS	Jun-90	3	2	E
<i>Caragana manshurica</i>		NCRPIS	Sep-90	5	1	
<i>Forsythia ovata</i>	Early forsythia	NCRPIS	Sep-90	5	1	
<i>Jamesia americana</i>		NCRPIS	Jul-92	1	1	
<i>Larix decidua</i>	European larch	PMC	Sep-90	5	2	
<i>Larix Gmelinii</i> var. <i>Gmelinii</i>	Dahurian larch	PMC	Sep-90	4	2	
<i>Larix Gmelinii</i> var. <i>olgensis</i>	Dahurian larch	PMC	Sep-90	5	2	
<i>Larix Gmelinii</i> var. <i>principis</i>	Dahurian larch	PMC	Sep-90	5	2	E
<i>Lonicera Maackii</i>	Amur honeysuckle	NCRPIS	Jun-90	5	2	
<i>Lonicera tatarica</i> 'Siberica'	Tatarian honeysuckle	NCRPIS	Jun-90	3	2	
<i>Myrica Gale</i>	Sweet gale	Fish Creek, AK	Aug-92	2	0	A
<i>Physocarpus opulifolius</i> 'Nugget'	Ninebark	NCRPIS	Sep-89	5	3	I
<i>Picea obovata</i> (blue form)	Siberian spruce	SAAS	Jul-92	5	0	A
<i>Pinus Cembra</i> var. <i>sibirica</i>	Swiss stone pine	SAAS	Jul-92	3	0	A
<i>Pinus pumila</i>	Dwarf stone pine	Schumacher	Sep-89	5	3	E
<i>Pinus sibiricus</i>	Siberian pine	SAAS	Jul-92	2	0	A
<i>Populus deltoides</i> X <i>Petrowskiana</i> 'Brooks #6'		NCRPIS	Jun-90	5	2	I
<i>Populus</i> 'Tower'		PMC	Jun-90	2	2	I
<i>Potentilla mandshunica</i>		SAAS	Sep-91	10	1	
<i>Prunus sargentii</i>	Sargent cherry	PMC	Jun-90	5	1	
<i>Prunus tenella</i>	Dwarf Russian almond	Lawyer	Sep-91	1	1	I
<i>Pyrus pashia</i>		Hudson	Jul-92	2	0	A
<i>Rhododendron dahuricum</i>		Chamal, Russia	Jul-93	5	1	E
<i>Ribes</i> 'Hinnomaken Keltainen'		NCGR	Jul-94	1	0	A
<i>Ribes nidigrolaria</i>	Jostaberry	BCN	Sep-89	4	2	I
<i>Ribes nigrum</i> 'Kantata 50'	Black currant	NCGR	Jul-94	2	0	A
<i>Rhododendron canadense</i>	Rhodora	NEWFS	Aug-91	5	0	A

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Table 4. Plantings from 1995 that have not yet been evaluated for winter survival.

SCIENTIFIC NAME	COMMON NAME	SOURCE	YEAR PLANTED	NUMBER OF PLANTS
HERBACEOUS PERENNIALS				
<i>Antennaria alpina</i>	Pussy-toes	NEWFS	Aug-95	10
<i>Campanula sorbata</i>		G. Gauss	Aug-95	10
<i>Clematis tangutica</i>	Golden clematis	PMC	Aug-95	10
<i>Digitalis lanata x grandiflora</i> 'John Innes Tetra'		T&M	Aug-95	10
<i>Dracocephalum imberbe</i>		T&M	Aug-95	8
<i>Heuchera cylindrica</i> 'Greenfinch'		T&M	Aug-95	10
<i>Lilium</i> 'Alaska'	Asiatic hybrid lily	Waushara	Aug-95	10
<i>Perovskia atriplicifolia</i>	Russian sage	P. Werner	Aug-95	1
<i>Senecio tanguticus (Ligularia tangutica)</i>		Tack's	Aug-95	2
<i>Veronica longifolia</i> 'Pink Shades'	Speedwell	Park	Aug-95	10
<i>Veronicastrum sibiricum</i>	Culver's root	ARGS	Aug-95	4
FERNS				
<i>Adiantum aleuticum</i>	Western maidenhair	HFF	Jun-95	4
<i>Dryopteris sabae</i>	Wood shield fern	HFF	Jun-95	2
<i>Dryopteris sacrosancta</i>	Wood fern	HFF	Jun-95	5
<i>Dryopteris wallichiana</i>	Wallich's wood fern	HFF	Jun-95	3
<i>Polystichum Braunii</i>	Braun's holly fern	HFF	Jun-95	10
<i>Polystichum lemmoni</i>	Shasta holly fern	HFF	Jun-95	9?
<i>Polystichum setiferum</i>	Soft shield fern	HFF	Jun-95	5

Table 5. Annual flowers evaluated in 1995.

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Ageratum	Blue Horizon	Ball Seed	* * *	* * *	* * *	* * *	25	10
Ageratum	Capri	Park Seed		* * *	* * *	* * *	15-20	6
Ageratum	Hawaii Royal	Ball Seed	* * *	* * *	* * *	* * *	4	6
Ageratum	Hawaii White	Ball Seed		* * *	* * *	* * *	5	6
Alyssum	Carpet of Snow	Northrup King	* * *	* * *	* * *	* * *	8	6
Alyssum	Golf Pastel Mix	Clause Seed	* * *	* * *	* * *	* * *	4 1/2	6
Alyssum	Snow Crystals	Stokes	* * *	* * *	* * *	* * *	6	6
Asperula		GBG	* * *	* * *			13	7
Aster	Comet Mix	Stokes		* * *	* * *	* * *	8	7
Aster	Florette Mix	Ball Seed			* * *	* * *	14-20	10
Aster	Milady Mix	Vaughan's			* * *	* * *	10	8
Aster	Milady White	Ball Seed			* * *	* * *	11	8
Aster	Mini-Lady Blue	Stokes			* * *	* * *	11 1/2	8
Aster	Seastar Mix	Park Seed			* * *	* * *	14-22	10
Begonia	Encore Red	Ball Seed		* * *	* * *	* * *	9	8
Calendula	Bon Bon Apricot	Vaughan's		* * *	* * *	* * *	11	8
Calendula	Bon Bon Orange	Vaughan's	* * *	* * *	* * *	* * *	10	8
Calendula	Bon Bon Yellow	Vaughan's	* * *	* * *	* * *	* * *	17 1/2	8
Calendula	Fiesta Gitana	Stokes	* * *	* * *	* * *	* * *	13	10
Calendula	Prince Mix	Park Seed	* * *	* * *	* * *	* * *	21	10
Calendula	Radio	Thompson & Morgan		* * *	* * *	* * *	24	10
Carnation	Essence of Red	Ball Seed		* * *	* * *	* * *	7	7
Carnation	Monarch Mix	Harris		* * *	* * *	* * *	7-10	7
Carnation	Monarch Orange	Vaughan's		* * *	* * *	* * *	8	7
Carnation	Monarch Pink	Ball Seed		* * *	* * *	* * *	9	7
Celosia	Apricot Brandy	Vaughan's		* * *	* * *	* * *	13	8
Celosia	Century Mixed	Stokes		* * *	* * *	* * *	10 1/2	6
Celosia	Kewpie Red	Stokes		* * *	* * *	* * *	11	6
Celosia	Kimono Mix	Ball Seed		* * *	* * *	* * *	5 1/2	6
Celosia	New Look	Burpee			* * *	* * *	11	8
Celosia	Pink Castle	Ball Seed		* * *	* * *	* * *	9	6
Chrysanthemum	Primrose Gem	Thompson & Morgan	* * *	* * *	* * *	* * *	25	10
Chrysanthemum multicaule	Yellow Buttons	Ball Seed	* * *	* * *	* * *	* * *	12	10
Chrysanthemum multicaule	Moonlight	Thompson & Morgan	* * *	* * *	* * *	* * *	18	10
Chrysanthemum paludosum	White Buttons	Ball Seed	* * *	* * *	* * *	* * *	14	10
Cleome	Cherry Queen	Ball Seed		* * *	* * *	* * *	46	10
Cleome	Helen Campbell	Ball Seed		* * *	* * *	* * *	48-54	10
Cleome	Queen Mix	Burpee		* * *	* * *	* * *	48-54	10
Coreopsis	Early Sunrise	Park Seed		* * *	* * *	* * *	21	9
Cosmos	Hinomaru	Vaughan's				*	12	10

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
lavender blue	1/2	+	+		+		excellent
blue with white centers	1/2	-	+				variable height & color
violet (red to blue)	1/2	-	+				compact
white	1/2	-	+				excellent, good rain tolerance
white	1*	+	+	+			excellent
mix - pink, purple, white	1*	+	+	+			good, nice colors
white	1*	+	+	+			excellent
blue	1						became diseased early in the season
mix - rose, white, blue	3		+				die off in half the plants - herbicide damage?
mix - rose, white, blue	4	+	+		+		herbicide damage?
mix	2 3/4						herbicide damage?
white	3 1/4	-	+				good, would benefit from deadheading
violet blue	2 1/2	-	+				very good
mix - cream, rose, pink	4		+		+		herbicide damage?
scarlet red	1 1/2	-	-				excellent, dark foliage, striking color
pale orange	2 1/2	+	+				nice color, needs deadheading
orange	2 1/4	-	-				very good, needs deadheading
yellow	2 1/4	+	+				very good, would benefit from deadheading
mix - orange, yellow, gold	3	-	+				good, needs deadheading
mix	2	+	+		+		bright color mix, some singles, needs deadheading
bright orange	3	+	+		+		very good, needs deadheading
bright red	2	+	+	+			very nice, would benefit from deadheading
mix	2 1/4	+	+	+			great colors, needs deadheading
salmon pink	2	+	+				very nice, covered with flowers, needs deadheading
rose pink	2	+	+	+			excellent, needs deadheading
apricot	1 3/4 x 6*	-	-			+	excellent, striking color, bronze foliage
mix	2 1/4 x 1 1/4*	-	+			+	nice, somewhat variable bloom, a few died
red orange	6 1/2 x 2 1/2*	-	-			+	eye-catching color, nice
mix	2 x 1*	-	+			+	very nice, a few plants died off
scarlet red	1 1/4 x 2*	-	-			+	bright foliage, smaller plumes
pink	2 x 3 1/2*	-	-			+	good, contrasting yellow green foliage
pale yellow, dk yellow center	1 3/4	+	+				very good, needs staking, lots of blooms
yellow	1	+	+				very nice, needs sun to open
pale yellow	1 1/2	+	+				excellent, very nice color, needs sun to open
white with yellow center	1	+	+				a few plants diseased, otherwise very good
rose	4 x 4*	+	+		+		not as vigorous as other cleomes, thorns
white	3 1/2 x 5*	+	+		+		very nice, pale foliage, thorns
purple white rose	4 x 6*	+	+		+		excellent, quite striking, thorns
gold	2 1/4	+	+		+		very attractive, long stems
light pink			-		+		very late bloomer

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SUP		
Cosmos	Sonata Mix	Park Seed	***	***	***	***	30	10
Cosmos	Sonata White	Ball Seed	***	***	***	***	30	10
Cosmos	Sunny Red	Ball Seed		***	***	***	24	10
Cosmos	Versailles	Johnny's		***	***	***	43	11
Dahlia	Calico Mix	Clause Seed	***	***	***	***	20	10
Dahlia	Mignon Mix	Vaughan's		***	***	***	20-24	10
Dahlia	Rigoletto	Vaughan's		***	***	***	16-22	10
Dianthus	Coral Charm	Vaughan's	***	***	***	***	12	8
Dianthus	First Love	Ball Seed	***	***	***	***	20	8-10
Dianthus	Floral Lace Purple	Ball Seed	***	***	***	***	14	8
Dianthus	Ideal Deep Violet	Ball Seed	***	***	***	***	16	8
Dianthus	Ideal Rose	Vaughan's	***	***	***	***	13	8
Dianthus	Ideal Violet	Vaughan's	***	***	***	***	12	8
Dianthus	Princess Mixture	Harris	***	***	***	***	10-12	8
Dianthus	Raspberry Parfait	Ball Seed		***	***	***	8	8
Dianthus	Telstar Mix	Vaughan's	***	***	***	***	13	8
Dianthus	Telstar Picotee	Park Seed		***	***	***	13	8
Dianthus	Telstar Pink	Ball Seed		***	***	***	13	8
Dimorphotheca	Aurantiaca Hybrids	Stokes		***	***	***	27	8
Dusty Miller	Silver Dust	Vaughan's		***	***	***	10	8
Dusty Miller	Silver Feather	Harris		***	***	***	22	8-10
Dwarf Morning Glory	Rose Ensign	Thompson & Morgan	***	***	***	***	14	10
Flowering Cabbage	Pink Beauty	Harris		***	***	***	10	18
Flowering Kale	Coral Prince	Ball Seed		***	***	***	15	24
Foxglove	Foxy	Ball Seed		***	***	***	32	12
Gaillardia	Red Plume	Stokes		***	***	***	17	9
Gazania	Chansonette Mix	Ball Seed		***	***	***	11	8
Gazania	Daybreak Bronze	Vaughan's		***	***	***	7 1/2	8
Gazania	Ministar White	Ball Seed		***	***	***	11	8
Geranium	Avanti Cherry	Clause Seed	***	***	***	***	12	12
Geranium	Avanti Scarlet	Clause Seed	***	***	***	***	10	12
Geranium	Freckles	Vaughan's	***	***	***	***	13	12
Geranium	Glamour Light Salmon	Ball Seed	***	***	***	***	15	12
Geranium	Glamour Rose Pink	Ball Seed	***	***	***	***	12	12
Geranium	Glamour Scarlet	Ball Seed	***	***	***	***	12	12
Geranium	Orange Appeal	Vaughan's	***	***	***	***	14	12
Geranium	Orbit Violet	Vaughan's	***	***	***	***	12	12
Geranium	Ringo 2000 White	Ball Seed	***	***	***	***	13	12
Geranium	Signal Bicolor Red	Clause Seed	***	***	***	***	14	12
Geranium	Signal Orange	Clause Seed	***	***	***	***	17	12

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
mix - pink, white, rose	4 1/2	+	+		+		nice, some old blooms moldy
white	3 1/4	-	-		+		excellent mid-season, old blooms moldy
orange-scarlet	2	-	-				nice, some disease late in season
pink with rose centers	3 1/2	+	+		+		excellent blooms, needs staking
mix	3 3/4	-	-		+		excellent, good colors
mix	4	-	-		+		excellent, single blooms
mix	3 3/4	-	-		+		excellent
coral pink	1 3/4	+	+				excellent, lots of color
rose fading to light pink	1 1/4	+	+		+		excellent, tall
red violet	1 1/2	+	+				very nice
red violet	1 1/2	+	+				excellent, covered with blooms
bright rose	1	+	+				excellent, very showy
red violet	1 1/2	+	+				excellent
mix	1 1/4	+	+				excellent, good color mix
pink/burgundy center	2	+	+				excellent, very showy color
mix - pink, rose, red, purple	1 1/4	+	+				excellent, some picotee
deep pink/white edge	1 1/2	+	+				very good
pink	1	+	+				excellent
orange and yellow mix	2 1/2	+	+		+		nice, needs sun to open, some disease late in season
			+				compact, silver-green foliage
			+				grey-green feathery foliage
rose w/yellow, white center	2	+	+				nice blooms, spreading habit
			+				excellent, compact, rose pink center
			+				excellent, white center with hint of coral
mix - pastels	11x4 3/4*	+	+		+		slow to bloom
burgundy red	2 1/2	+	+				very nice, some with gold-edged petals
mix	3	+	+				nice color mix, open with minimal sun
rusty orange-gold	3	+	+				striking flowers, open with minimal sun
creamy white	3	+	+				excellent, open with minimal sun
hot pink	3 1/2*	+	+				good, nice color
scarlet red	4*	+	+				good, nice zoned foliage, needs deadheading
rose with red splotches	3 1/2*	+	+				very good
salmon pink, light edges	3 1/4*	+	+				very attractive color, needs dead heading
bright rose	3 1/2*	+	+				good, similar to Orbit Violet but foliage not as uniform
scarlet	3 1/2*	+	+				ok, might have been too shaded by plants behind
hot orange	4*	-	+				very nice, good foliage
hot pink	4 1/4*	+	+				very good, uniform, nice zoned foliage
white with pink tint	3 3/4*	-	+				rain damage on flowers
coral red, lighter eye	4 1/4*	+	+				good, attractive foliage
neon orange	4*	+	+				best orange geranium, good foliage, could use deadheading

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Geranium	Tetra Scarlet	Stokes		* * * * *	* * * * *	13	12	
Godetia	Dwarf Gem Mix	Northrup King			* * * * *	12-17	8	
Godetia	Grace Mix	Ball Seed		* * * * *	* * * * *	17	8	
Godetia	Grace Salmon Improved	Ball Seed		* * * * *	* * * * *	15	8	
Godetia	Satin Deep Rose	Vaughan's			* * * * *	14 1/2	8	
Helichrysum	Bright Bikinis	Vaughan's		* * * * *	* * * * *	16 1/2	9	
Helichrysum	Monstrosum Mix	Park Seed			* * * * *	40	10	
Helichrysum	Rose Beauty	Johnny's		* * * * *	* * * * *	18	9	
Heliotrope	Blue Wonder	Ball Seed	* * * * *			11	8	
Hollyhock	Zebrina	Park Seed	* * * * *	* * * * *	* * * * *	42	10	
Impatiens	Dazzler Apricot	Ball Seed		* * * * *	* * * * *	5	8	
Impatiens	Dazzler Bright Eye	Ball Seed		* * * * *	* * * * *	4	8	
Impatiens	Showstopper Cherry Flair	Ball Seed		* * * * *	* * * * *	3 1/2	8	
Impatiens	Showstopper Deep Orchid	Ball Seed		* * * * *	* * * * *	4 1/2	8	
Impatiens	Super Elfin Swirl	Vaughan's		* * * * *	* * * * *	4 1/2	8	
Larkspur	Earlibird Blue	Stokes	* * * * *			24	8	
Larkspur	Earlibird Mix	Stokes	* * * * *			24	8	
Larkspur	Earlibird White	Stokes	* * * * *			21	8	
Lavatera	Mont Blanc	Park Seed		* * * * *	* * * * *	21	10	
Linaria	Northern Light	Ball Seed		* * * * *	* * * * *	20	8	
Lobelia	Crystal Palace	Vaughan's		* * * * *	* * * * *	8	6	
Lobelia	Fountain Lilac	Vaughan's		* * * * *	* * * * *	13 1/2	7-8	
Lobelia	Fountain White	Vaughan's		* * * * *	* * * * *	6	7	
Lobelia	Paper Moon	Vaughan's		* * * * *	* * * * *	6	6	
Lobelia	Riviera Blue Splash	Vaughan's		* * * * *	* * * * *	5 1/2	6	
Lobelia	Blue Moon	Vaughan's		* * * * *	* * * * *	8	6	
Lupine	Gallery Mix	Vaughan's		* * * * *	* * * * *	22-26	12	
Lupine	Russell Mixture	Vaughan's		* * * * *	* * * * *	30	12	
Marigold	Antigua Orange	Ball Seed		* * * * *	* * * * *	9	8	
Marigold	Antigua Yellow	Ball Seed		* * * * *	* * * * *	9	8	
Marigold	Aurora Orange	Ball Seed		* * * * *	* * * * *	8	10	
Marigold	Bonanza Yellow	Northrup King		* * * * *	* * * * *	9	7	
Marigold	Disco Orange	Bodger		* * * * *	* * * * *	7	8	
Marigold	Doubloon	Vaughan's		* * * * *	* * * * *	35	9	
Marigold	Espana Ole	Stokes		* * * * *	* * * * *	11	8	
Marigold	Espana Viva	Stokes		* * * * *	* * * * *	9	8	
Marigold	Golden Gate	Stokes		* * * * *	* * * * *	11	10	
Marigold	Hero Red	Ball Seed		* * * * *	* * * * *	9	7	
Marigold	Hero Yellow	Vaughan's		* * * * *	* * * * *	8	7	
Marigold	Inca Orange	Harris		* * * * *	* * * * *	13	8	

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
scarlet red	4*	+	+				a little disease, but very nice
mix - wht, rose, pink, lav.	1	+	+				very good, uneven plant heights
mix	3	-	+				excellent, beautiful blooms
salmon	3	+	+				very good, excellent color, attractive to horn worms
deep rose/light center	2	-	+				spectacular in bloom
mix	1 1/2	+	+		+	+	vivid colors, needs sun to open
mix	2	+	+		+	+	very good, needs sun to open
lt rose to white	2*	+	+				very nice, dainty blooms
deep purple	2*	-	+				seemed to die back in mid-July
lt pink w/ burgundy center	2	+	+				excellent, self seeds next year, needs staking to contain
light coral	1 3/4	-	-				very good, nice color
white/bright rose eye	2 1/4	-	-				very nice
white with cherry center	1 3/4	-	-				good
orchid pink	2 1/4	-	-				very good
pink, hot pink edging	2	-	-				nice, a little rain damage
blue	3/4	-	-		+		gone to seed early, not all blue
mix	6x2*	-	-		+		gone to seed early
white	1 1/4	-	-		+		gone to seed early
white	3	+	+				very attractive
mix	3x1 1/4*	+	+		+		very good, baby snaps
deep blue	3/4	+	+				excellent, bronze foliage, lots of blooms
lilac	3/4	+	+				large flowers, good spread
white	3/4	+	+				good, a little disease, some blue flowers
white	1/2	+	+				nice, 1 blue plant, a little rain damage on blooms
blue/white splash	1/2	+	+				attractive color, was seeded late
blue	1	+	+				very good, green foliage
mix	7x1 1/2*	+	+		+		many plants did not bloom
mix	9x2 1/2*	+	+		+		nice, large blooms but some rain damage
orange	3 1/2	-	-				nice, large blooms but rain damage
yellow	3 1/2	-	-				very nice, needs deadheading
orange	2	+	+				very good, crested blooms, fewer than some varieties
yellow	2 1/4	-	-				very showy, large single blooms
bright orange	2 1/2	+	+				nice mix of flowers & foliage, needs staking
yellow	3 1/4	-	-		+		excellent, single flowers
gold	2 1/4	-	-				excellent, single flowers, uniform
lemon yellow	2 1/4	-	-				very good
gold/red	2	+	+				excellent, numerous blooms
deep red, gold flecked cntrs.	1 1/2	+	+				excellent, crested flowers, many blooms, needs deadheading
yellow	2	-	-				good, huge blooms, rain damage on blooms
orange	4	-	-				

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Marigold	Inca Yellow	Vaughan's		**	***	**	12	8
Marigold	Janie Gold	Vaughan's	**	***	***	**	6	6
Marigold	Jubilee Mix	Ball Seed		**	***	**	20	9
Marigold	Little Devil Yellow	Ball Seed	**	***	***	**	6	7
Marigold	Orange Boy	Northrup King	**	**	***	**	11	6
Marigold	Perfection Yellow	Burpee		**	***	**	13 1/2	8
Marigold	Primrose Lady	Vaughan's		**	***	**	17	8
Marigold	Red Marietta	Vaughan's	**	**	***	**	11	8
Marigold	Safari Scarlet	Vaughan's	**	**	***	**	10	8
Marigold	Safari Tangerine	Ball Seed	**	**	***	**	11	8
Marigold	Snowdrift	Burpee		**	***	**	22	9
Marigold	Zenith Lemon Yellow	Clause Seed	**	**	***	**	12	8
Marigold, Signet	Little Giant	Stokes		**	***	**	17	10
Marigold, Signet	I ulu	Stokes		**	***	**	14	10
Matricaria	Santana	Vaughan's		**	***	**	8	8
Nasturtium	Alaska	Ball Seed		**	***	**	14	12
Nasturtium	Empress of India	Stokes		**	***	**	19	12
Nasturtium	Jewel Mix	Vaughan's		**	***	**	16	12
Nasturtium	Tip Top Mix	Ball Seed		**	***	**	12	12
Nemesia	Carnival Mix	Park Seed	**	**	***	**	7-12	8
Nicotiana	Domino Purple	Ball Seed		**	***	**	26	10
Nicotiana	Domino Salmon Pink	Ball Seed		**	***	**	24	10
Nicotiana	Nickle Pink	Burpee		**	***	**	24	10
Nicotiana	Nickie Rose	Burpee		**	***	**	25	10
Nicotiana	Starship Red	Ball Seed		**	***	**	18	10
Nicotiana	Starship White	Ball Seed		**	***	**	17	10
Nierembergia	Mont Blanc	Park Seed	**	**	***	**	5	6
Pansy	Chalon Mix	Clause Seed	**	**	***	**	13	8
Pansy	Crown Azure	Ball Seed	**	**	***	**	12	8
Pansy	Crown Mix	Vaughan's	**	**	***	**	12	8
Pansy	Crown Rose	Vaughan's	**	**	***	**	10	8
Pansy	Jolly Joker	Ball Seed	**	**	***	**	9	8
Pansy	Maxim Marina	Burpee	**	**	***	**	12	8
Pansy	Padparadja	Park Seed	**	**	***	**	11	8
Pansy	Springtime Azure Blue	Harris	**	**	***	**	14	8
Pansy	Springtime Yellow Marble	Clause Seed	**	**	***	**	10-14	8
Pansy	Universal Deep Yellow	Ball Seed	**	**	***	**	10	8
Pansy	Universal Plus Rose	Ball Seed	**	**	***	**	12	8
Pansy	Universal True Blue	Vaughan's	**	**	***	**	10-14	8

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
yellow	4 1/4	-	-				excellent, huge blooms, uniform height, rain damage
golden orange	1 3/4	+	+				excellent, crested flowers
mix - orange, gold, yellow	3						attractive plants, nice size blooms
golden yellow	1 3/4						very nice, crested blooms, needs dead heading
orange	1 3/4						excellent, covered with blooms
yellow	3						very showy, uniform
pale yellow	3 3/4				+		excellent
red/orange edges	2 1/2						very nice, single flowers, lots of blooms
red petals edged with gold	2	+	+				excellent, very showy
light orange	2 1/2	-	-				excellent, covered with blooms, a little disease
creamy white	3 1/4				+		attractive blooms, no marigold smell to foliage
lemon yellow	3						nice, some rain damage, heights variable
gold/orange center	1 1/4	+	+				excellent, single blooms
yellow	1	+	+				excellent, fine textured foliage, slightly lemon fragrance to foliage
white with yellow center	3/4		+				excellent, covered with flowers
mix - peach, yellow, tangerine	2 1/4	-	-				variegated foliage, pale blooms
mix - orange, red, scarlet	2 1/4	-	-				leaves lighter than usual, not as striking, flowers under foliage
mix	2 1/4	-	-				nice colors, flowers held above foliage
mix	2						nice colors, blooms somewhat hidden
mix	3/4	+	+				suffered from various diseases during season
purple with white centers	2 1/4	+	+				nice, some rain damage
light salmon pink	2	+	+				excellent, great color
pink	2 1/4	+	+				good, may be weakest of nicotianas
bright rose	2 1/4	+	+				excellent
dark red	2 3/4	+	+				nice, a little rain damage
white	2	+	+				good, some rain damage
white with yellow center	1						disease problems late in season
mix	2 1/2	+	+				excellent, unique colors, ruffled
light blue	2 3/4	+	+				very good, a few with faces, suffered rain damage
mix	2 1/2	+	+				very good, no faces
burgundy to rose, some faces	2 1/4	+	+				very good, some color variability
purple and orange	2 1/4	+	+				a few plants hit by herbicide, otherwise excellent
light blue/purple, white face	2	+	+				attractive, some rain damage
tangerine	2	+	+				excellent, no face, some with whiskers
light blue/dark violet center	2	+	+				excellent
white, cream, yellow	2 1/2	+	+				nice colors, some rain damage, otherwise very good
deep yellow	2	+	+	+			excellent
light burgundy	2	+	+				very good
clear blue	2	+	+				some plants damaged by herbicide, but nice, no faces

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Pansy	Watercolor Mix	Clause Seed	**	**	**	**	12	8
Petunia	Celebrity Blue Ice Improved	Park Seed	**	**	**	**	16	9
Petunia	Celebrity Chiffon Morn	Ball Seed	**	**	**	**	12	9
Petunia	Double Madness Burgundy	Ball Seed	**	**	**	**	15	9
Petunia	Double Madness Rose	Ball Seed	**	**	**	**	14	9
Petunia	Double Madness Salmon	Ball Seed	**	**	**	**	14-20	9
Petunia	Fantasy Pink Morn	All-America Selections	**	**	**	**	8	8
Petunia	Heavenly Lavender	All-America Selections	**	**	**	**	13	9
Petunia	Horizon Coral Halo	Clause Seed	**	**	**	**	12	9
Petunia	Madness White	Ball Seed	**	**	**	**	12	9
Petunia	Midnight Madness	Ball Seed	**	**	**	**	14	9
Petunia	Polo Burgundy Star	Ball Seed	**	**	**	**	12	9
Petunia	Polo Salmon	Stokes	**	**	**	**	15	9
Petunia	Primetime Light Blue	Vaughan's	**	**	**	**	15	9
Petunia	Primetime Red Frost	Ball Seed	**	**	**	**	10	9
Petunia	Primetime Rose	Vaughan's	**	**	**	**	13	9
Petunia	Prism Red	Harris	**	**	**	**	14 1/2	9
Petunia	Prism Salmon	Harris	**	**	**	**	15	9
Petunia	Purple Wave	Stokes	**	**	**	**	6	12
Petunia	Rose Madness	Ball Seed	**	**	**	**	13	9
Petunia	Ultra Crimson Star	Ball Seed	**	**	**	**	13	9
Phlox	Dwarf Beauty Violet	Stokes	**	**	**	**		
Phlox	Dwarf Varieties Finest Mix	Stokes	**	**	**	**	12	8
Phlox	Grandiflora Choice Finest Mix	Stokes	**	**	**	**	18-24	9
Phlox	Palona Deep Rose	Vaughan's	**	**	**	**	8	8
Phlox	Palona Deep Salmon	Vaughan's	**	**	**	**	3	8
Phlox	Palona Light Blue	Vaughan's	**	**	**	**	5	6
Phlox	Phlox of Sheep	Thompson & Morgan	**	**	**	**	8	8
Phlox	Promise Pink	Ball Seed	**	**	**	**	7	8
Rudbeckia	Becky Mix	Vaughan's	**	**	**	**	15	9
Rudbeckia	Double Gold	Burpee	**	**	**	**	38 1/2	10
Rudbeckia	Goldilocks	Vaughan's	**	**	**	**	24	10
Rudbeckia	Indian Summer	Vaughan's	**	**	**	**	40	10
Rudbeckia	Marmalade	Vaughan's	**	**	**	**	24	10
Rudbeckia	Nutmeg	Thompson & Morgan	**	**	**	**	33	10
Salpiglossis	Casino	Vaughan's	**	**	**	**	18	8
Salvia	Coral Nymph	Park Seed	**	**	**	**	36	8
Salvia	Empire Light Salmon	Ball Seed	**	**	**	**	14	8
Salvia	Empire Lilac	Ball Seed	**	**	**	**	12	8
Salvia	Lady in Red	Burpee	**	**	**	**	33	8

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
pastel mix	2 1/4	+	+				a little rain damage, otherwise excellent, nice colors
light blue/dark veins	3 1/4	+	+				very nice, large flowers, some disease
pale pink with yellow center	3	+	+				nice color, some rain damage
red violet	2 1/2	+	+				nice blossoms, some disease
rose	3	+	+				good, some rain damage
deep salmon pink	3	+	+				excellent, great color, a little disease
lt. pink/white & yellow throat	1 3/4						dainty flowers, disease problems
pinkish lavender	3	+	+				nice double, some rain damage
coral pink, yellow throat	3	+	+				very good, a little disease
white	3	+	+				good, some disease, little rain damage for a white
deep blue	3	+	+	+			good, sparse foliage
burgundy with a white star	2 1/2	+	+				
salmon pink	2 1/2	+	+				very nice, a little disease
lavender blue	2 1/2	+	+	+			very showy, rain damage
red with white rim	3						rain damage
bright rose	2 3/4	+	+	+			great color, a little disease
dark coral red	4		+				huge blooms
coral pink	3 3/4		+				some disease problems
red violet	2 1/2	+	+				started out weak, excellent late season
bright rose	2 1/2	+	+				excellent, a little rain damage
dark purple/white star	4		+				
							severe herbicide damage
mix	1	+	+				some plants killed by herbicide, remaining plants very good
mix	1 1/2	+	+				many plants did not survive herbicide, rest are very nice
deep rose, darker centers	1 1/2	+	+				some herbicide damage, rest very nice
	1						severe herbicide damage
light purple/dark centers	1 1/4	+	+				most plants killed by herbicide
salmon pink	1 1/4	+	+				herbicide damage, surviving plants very nice
rose pink	1	+	+				herbicide damage
mix - gold, mahogany	3 1/4	+	+				variable height & foliage, very nice
bright gold/brown center	4 1/2	+	+		+		showy blooms, excellent
gold/brown center	3 1/2	+	+		+		excellent
bright gold/brown centers	7	+	+		+		excellent
gold/brown center	3	+	+		+		a little rain damage, but very nice
mix - mahogany, gold	4 3/4	-	+		+		excellent, unique color, various shades
mix	2 3/4		+				spectacular blooms & colors, but blooms wiped out by
light/dark coral	3 3/4x2*	+	+				very dainty, nice color
salmon	7x2*		+				1/3 of plants purple, needs deadheading
lilac	6 1/2 x 3*		+				pretty good, needs deadheading
scarlet red	11 x 2 1/2*						unique look, very nice

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Salvia	Maestro	Clause Seed	***	***	***	***	11	7
Salvia	Oxford Blue	Ball Seed	***	***	***	***	31	10
Salvia	Primco	Clause Seed	***	***	***	***	8-1/2	7
Salvia	Rhea	Clause Seed	***	***	***	***	21	8
Salvia	Silver White	Park Seed	***	***	***	***	24	8
Salvia	Sizzler Red	Clause Seed	***	***	***	***	10	6
Salvia	Snow Nymph	Park Seed	***	***	***	***	28	8
Salvia	Strata	All-America Selections	***	***	***	***	18	10
Salvia	Victoria	Clause Seed	***	***	***	***	22-27	8
Sanvitalia	Mandarin Orange	Park Seed	***	***	***	***	16	8
Schizanthus	Hit Parade Mix	Stokes	***	***	***	***	18	7
Schizanthus	Royal Pierrot Mix	Vaughan's	***	***	***	***	11	7
Shasta Daisy	Alaska	Vaughan's	***	***	***	***	34	10
Shasta Daisy	Snow Lady	Ball Seed	***	***	***	***	11-18	6
Shasta Daisy	White Knight	Burpee	***	***	***	***	18	9
Shoo-Fly Plant	Black Pod	Big Dipper	***	***	***	***	48	12
Snapdragon	Bells Mix	Park Seed	***	***	***	***	8	8
Snapdragon	Chimes Mix	Park Seed	***	***	***	***	6-8	8
Snapdragon	Cinderella Mix	Ball Seed	***	***	***	***	26-36	10
Snapdragon	Floral Carpet Orchid	Vaughan's	***	***	***	***	12	8
Snapdragon	Kim Mix	Clause Seed	***	***	***	***	9-14	10
Snapdragon	Liberty Lavender	Ball Seed	***	***	***	***	31	10
Snapdragon	Madame Butterfly	Vaughan's	***	***	***	***	24	9
Snapdragon	Pink Bells	Ball Seed	***	***	***	***	7-10	8
Snapdragon	Princess White/Purple Eye	Ball Seed	***	***	***	***	17	8
Snapdragon	Rocket Bronze	Ball Seed	***	***	***	***	32	10
Snapdragon	Rocket Lemon	Ball Seed	***	***	***	***	35	10
Snapdragon	Rocket Light Pink	Harris	***	***	***	***	34	10
Snapdragon	Rocket Orchid	Vaughan's	***	***	***	***	36	10
Snapdragon	Rocket Red	Vaughan's	***	***	***	***	31	10
Snapdragon	Rocket White	Vaughan's	***	***	***	***	38-44	10
Snapdragon	Rocket Yellow	Ball Seed	***	***	***	***	38	10
Snapdragon	Sonnet Bronze	Ball Seed	***	***	***	***	18	8
Snapdragon	Tahiti Appleblossom	Vaughan's	***	***	***	***	8	8
Snapdragon	Tahiti Mix	Vaughan's	***	***	***	***	6-8	8
Statice	Turbo Mix	Stokes	***	***	***	***	30	10
Stock	Avalanche	Ball Seed	***	***	***	***	36	9
Stock	Cheerful White	Park Seed	***	***	***	***	25	8
Stock	Legacy Rose	Vaughan's	***	***	***	***	19	8

BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
red	5 1/2 x 3*		+				nice, lost a few plants to disease early, needs deadheading
violet blue	4 1/4 x 2	+	+		+	+	excellent, good color impact
red	4 1/4x2*		+				quite good, needs deadheading
deep blue	4 1/4x1 1/4*	+	+		+	+	very nice
white	5x1 1/2*	+	+		+	+	nice accent
red	5 x 2*		+				good,needs deadheading
white	4 3/4x 1/4*		+				fairly late bloom, some disease, mostly foliage interest
blue/white	5x1 1/4*	+	+		+	+	interesting color combination, very nice
deep blue	5 x 1 1/2*	+	+		+	+	excellent
gold/brown center	1		-				excellent, spreading habit
mix - red, rose, pink, purple	1 1/4		-				very good, some rain damage, died off at end of August
mix - pink, purple, rose	1 1/4		-				very nice mix, some rain damage, died off at end of season
white	3 1/2	+	+		+		nice long stems, single blooms
white	2 1/2	+	+				compact, some variability, very good
white	2 3/4	+	+		+		lots of blooms, very attractive
lavender blue	2						interesting Chinese lantern-type seed pods
mix	2x2*	+	+				open faced, very nice, good color mix
mix	3 1/2x2*	+	+				excellent, mostly gone to seed by end of season
mix	7x3 1/2*	+	+		+		height not uniform, but very nice
orchid	3x5*	+	+				excellent, one yellow plant
mix	4x2*	+	+				excellent, good color mix
purple	14 3/4 x3*	+	+		+		excellent
mix	5x3*	+	+	+	+		open faced, nice colors, blooms a little diseased at end
pink	3 1/2x2*	+	+				open faced, excellent
white with purple	3 1/2 x 2 1/2*	+	+				excellent, nice color combination
bronze, yellow ctr. (pink/orng.)	12x3*	+	+		+		excellent, except half of plants were yellow flowered
light yellow	10 x 3*	+	+		+		very good, although some disease on stems by end of Aug.
medium pink	10x3 1/2*	+	+		+		very good
orchid	12x3*	+	+		+		excellent, could use staking
deep velvet red	10 1/2 x2 3/4*	+	+	+	+		very nice, great color, needs staking
white	9x2 3/4*	+	+		+		excellent, may need staking
lemon yellow	14 x 3*	+	+		+		very good, a little disease on stems late in season
orange with pink & yellow	6 1/4 x 2 1/2*	+	+				good color show
light pink	2 1/2x2 1/2* (1)	+	+				very good, nice color
mix	2 1/2x2*	+	+				nice colors, may go to seed early
mix	2*	+	+			+	good, too much shade from other plants
white	17x3 1/2*	+	+		+		excellent, 3/4 double flowers, very showy
white	12 1/4 x31/2*			+			poor performance
light rose	6 x 2 1/4*	+	+				late, but very showy

Table 5. (continued)

COMMON NAME	CULTIVAR	SOURCE	WEEKLY BLOOM PERIOD				HEIGHT (IN)	RECOMMENDED SPACING (IN)
			JUN	JUL	AUG	SEP		
Sunflower	Italian White	Park Seed		***	***	***	68	10
Sunflower	Sonja	Park Seed		***	***	***	46	10
Sunflower	Sunbird	Burpee		***	***	***	68	12
Sunflower	Sunwheat 103	C & V	**	***	***	***	50	12
Sunflower	Teddy Bear	Stokes		***	***	***	27 1/2	10
Sunflower	Valentine	Park Seed		***	***	***	67	12
Twinspur	Pink Queen	Ball Seed		***	***	***	20	7
Verbena	Amour Mix	Ball Seed		***	***	***	9	8
Verbena	Blue Lagoon	Clause Seed		***	***	***	11	8
Verbena	Imagination	Stokes	**	***	***	***	20	8
Verbena	Novalis Deep Blue/White Eye	Stokes	**	***	***	***	10	8
Verbena	Peaches & Cream	Stokes		***	***	***	12	8
Verbena	Sandy White	Vaughan's		***	***	***	8	8
Verbena	Showtime Blaze	Northrup King	**	***	***	***	12	8
Verbena	Trinidad	Vaughan's		***	***	***	10	8
Verbena	Valentine	Ball Seed		***	***	***	9	8
Vinca	Parasol	Ball Seed	**	***	***	***	6-10	4
Vinca	Pretty in Rose	Vaughan's		***	***	***	4	4
Viola	Purple	Clause Seed	**	***	***	***	6-9	8
Viscaria	Blue Angel	Thompson & Morgan	**	***	***	***	10	7
Xeranthemum	Lumina Double Rose	Thompson & Morgan	**	***	***	***	16	8
Zinnia	Border Beauty Mix	Burpee	**	***	***	***	14-20	10
Zinnia	Border Beauty Rose	Burpee	**	***	***	***	19	10
Zinnia	Border Beauty Scarlet	Burpee	**	***	***	***	24	10
Zinnia	Burpeeana Giant Mix	Stokes	**	***	***	***	40	10
Zinnia	Fantastic Pink	Park Seed	**	***	***	***	19 1/2	10
Zinnia	Scarlet Splendor	Burpee	**	***	***	***	23	10
Zinnia	Short Stuff Deep Red	Ball Seed	**	***	***	***	8	8
Zinnia	Small World Cherry	Vaughan's	**	***	***	***	12-15	10
Zinnia	Splendor Orange	Burpee	**	***	***	***	23	10
Zinnia	Star White	Ball Seed	**	***	***	***	12	8
Zinnia	Yellow Marvel	Stokes	**	***	***	***	13 1/2	8

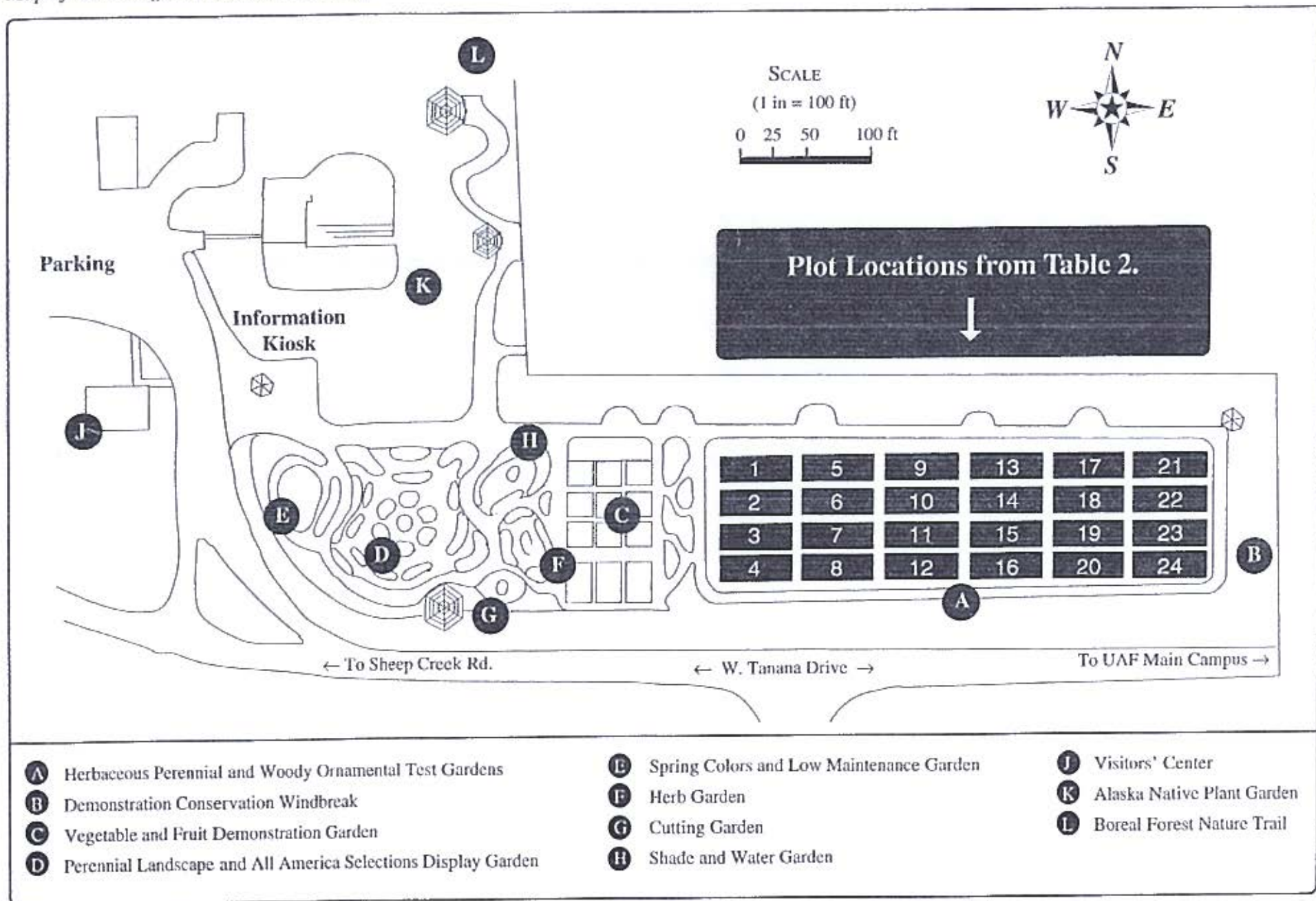
BLOOM COLOR	BLOOM SIZE (IN)	FROST TOLERANT		FRAGRANT	CUTTING	DRIED	COMMENTS
		FLOWERS	FOLIAGE				
creamy white/brown centers	4	+	+		+		very nice, staking a must
bright gold	2 3/4	+	+		+		nice, a few plants with much larger flowers
bright yellow	7						large heads with edible seeds
bright yellow	5						oil seed type
gold	4		-		+		very good, double blooms
lt yellow/ large brown centers	4	+	+		+		excellent, very showy
pink	4 1/4 x 1 3/4*	+	+				delicate, very nice
mix	2 1/4*	+	+				very nice, but slow to bloom
deep blue	2 1/4*	+	+				excellent, but a little late
purple	1 1/4*	+	+				excellent, ferny foliage, spreading habit
blue/white eye	2*	+	+				excellent
peach/coral	2*	+	+				very good, interesting color, a little late to bloom
white	2*	+	+				late to bloom, but very attractive
red	2 1/4*	+	+				very good, striking red
rose pink	2*	+	+				excellent, a little late to bloom
red with white eye	2 3/4*	+	+				very nice
white with dark pink center	1 1/4	-	-				weak
	1						poor
deep purple	1 1/4	+	+				very good after recovered from herbicide damage
blue	1 1/2						excellent early, gone to seed by Sept.
silvery rose	1 1/2	+	+			+	nice star-like blooms
mix	3	-	-		+		very good
coral rose	3	-	-		+		excellent, nice color, one orange plant
scarlet	4	-	-		+		very nice, needs deadheading
mix	4	-	-		+		excellent, nice colors
light pink	5	-	-		+		excellent
scarlet red	4 1/4	-	-		+		very good, could use deadheading
red	3 1/2	-	-				very nice, needs deadheading
cherry red	2 1/2	-	-				very good
deep orange	4 1/2	-	-		+		excellent, needs deadheading
white/gold center	1 1/4	+	+				excellent
golden yellow	2 1/2	-	-				very good, needs deadheading

Appendix I. Commercial sources and organizations.

AAS	ALL-AMERICA SELECTIONS	Lawyer	LAWYER NURSERY INC., 950 HWY 200 W, PLAINS, MT 59859
Agway	AGWAY, INC SEED PLANT, 1225 ZEAGER RD., ELIZABETHTOWN, PA 17022	Nauriaq	NAURIAQ GARDENS, PO BOX 82692, FAIRBANKS, AK 99708
AHS	THE AMERICAN HORTICULTURAL SOCIETY, PO BOX 6118, 7931 E. BOULEVARD DR, ALEXANDRIA, VA 22308	NCGR	NATIONAL CLONAL GERMLASM REP., 33447 PENEIA RD, CORVALLIS, OR 97333
ANPS*	ALASKA NATIVE PLANT SOCIETY, PO BOX 141613, ANCHORAGE, AK 99514	NCRPIS	NORTH CENTRAL REGIONAL PLANT INTRODUCTION STATION, AMES, IA
Applewood	APPLEWOOD SEED CO., 5380 VIVIAN ST, ARVADA, CO 80002	NCSU	NORTH CAROLINA STATE UNIVERSITY ARBORETUM, DEPT OF HORTICULTURAL SCIENCE, BOX 7609, RALEIGH, NC 27695-7609
ARGS*	AMERICAN ROCK GARDEN SOCIETY, PO BOX 67, MILLWOOD, NY 10548	NEWFS*	NEW ENGLAND WILD FLOWER SOCIETY, GARDEN IN THE WOODS, HEMENWAY RD, FRAMINGHAM, MA 01701
Ball Seed	BALL SEED CO., PO BOX 335, WEST CHICAGO, IL 60185-0335	Northrup King	SEE VAUGHAN'S
Barnaul	THE LISAVENKO RESEARCH INSTITUTE OF HORTICULTURE, BARNAUL, ALTAI REGION, RUSSIA	Nourse	NOURSE FARMS INC., BOX 485 RFD, SOUTH DEERFIELD, MA 01373
BCN	BEAR CREEK NURSERY, PO BOX 411, NORTHPORT, WA 99157	Park	PARK SEED CO., COKEBURY RD, GREENWOOD, SC 29647-0001
Beaverlodge	BEAVERLODGE NURSERY, LTD., BOX 127, BEAVERLODGE, AB, T0H 0C0, CANADA	PMC	PLANT MATERIALS CENTER, HC02 BOX 7140, PALMER AK 99645
Big Dipper	BIG DIPPER GARDENS, PO BOX 82234, FAIRBANKS, AK 99708	Richters	RICHTERS, GOODWOOD, ON, L0C 1A0, CANADA
Bluebird	BLUEBIRD NURSERY, INC., PO BOX 460, CLARKSON, NE 68629	The Roseraie	THE ROSERAIE AT BAYFIELDS, P.O. BOX R, WALDOBORO, ME 04572-0919
BTI	BETTER TREES, INC., 7894 W MAPLE RAPIDS RD, ST JOHNS, MI 48879	SAAS	DENDROLOGICAL GARDEN - SIBERIAN ACADEMY OF AGRICULTURAL SCIENCES, NOVOSIBIRSK REGION, RUSSIA
Burpee	W. ATLEE BURPEE & CO., 300 PARK AVE, WARMINSTER, PA 18991-0091	SBG	SIBERIAN BOTANICAL GARDEN, NOVOSIBIRSK, RUSSIA
C & V	C & V SEED & LEASING, INC., P.O. BOX 55148 NORTH POLE, AK 99705	Schumacher	F.W. SCHUMACHER CO., INC., 36 SPRING HILL RD, SANDWICH, MA 02563-1023
Chamal	MOUNTAIN EXPERIMENT STATION, GORNO-ALTAISK REGION, RUSSIA	Seeds of AK	SEEDS OF ALASKA, BOX 3127, KENAI, AK 99611
Chair's	CLAIR'S CULTIVARS, 1384 ESRO RD, FAIRBANKS, AK 99712	Seiberling	SEIBERLING NATUREALM, AKRON, OHIO
Clause	CLAUSE SEED CO., NORTH AMERICAN OFFICE, 100 BREEN RD., SAN JUAN BAUTISTA, CA 95045	South Slope	SOUTH SLOPE GREENHOUSES, FAIRBANKS, AK
CSBG	CENTRAL SIBERIAN BOTANICAL GARDEN, NOVOSIBIRSK, RUSSIA	Stokes	STOKES SEEDS INC., PO BOX 548, BUFFALO, NY 14240-0548
Dachnfeldt	DAEHNFELDT, BOX 947, ALBANY, OR 97321	Tack's	TACK'S GENERAL STORE, PO BOX 16004, TWO RIVERS, AK 99716
DBG	DENVER BOTANIC GARDENS, 909 YORK ST, DENVER, CO 80206	T&M	THOMPSON & MORGAN INC., PO BOX 1308, JACKSON, NJ 08527
de Jager	PETER DE JAGER BULB CO., PO BOX 2010, SO HAMILTON, MA 01982	Vaughan's	VAUGHAN'S SEED CO., 5300 KATRINE AVE, DOWNERS GROVE, IL 60515-4095
GBG	GEORGESON BOTANICAL GARDEN, UNIVERSITY OF ALASKA FAIRBANKS, PO BOX 757200, FAIRBANKS, AK 99775-7200	VB&S	K. VAN DOURGONDIE & SONS, INC., 245 FARMINGDALE RD, BABYLON, NY 11702
Harris Moran	HARRIS MORAN SEED COMPANY, 1155 HARKINS RD, SALINAS, CA 93901	Vermont Bean	VERMONT BEAN SEED CO., GARDEN LANE, FAIR HAVEN, VT 05743
HFF	HARDY FERN FOUNDATION, PO BOX 60034, RICHMOND BEACH, WA 98160	Washburn	WASHBURN FARM NURSERY, PO BOX 823, PALMER, AK 99645
Holm Town Nursery (NORTHERN LIGHTS NURSERY)	1301 30TH AVE, FAIRBANKS, AK 99701	Waushara	THE WAUSHARA GARDENS, N 5491 5TH DR, PLAINFIELD, WI 54966
Hudson	J.L. HUDSON, PO BOX 1058H, REDWOOD CITY, CA 94064	Wayside	WAYSIDE GARDENS, 1 GARDEN LN, HODGES, SC 29695-0001
J & P	JACKSON & PERKINS, PO BOX 1028, MEDFORD, OR 97501	White Flower	WHITE FLOWER FARM, PO BOX 50, LITCHFIELD, CT 06759-0050
KHN	KNIGHT HOLLOW NURSERY, INC., 238 E SUNSET CT, MADISON, WI 53705	Wildseed	WILDSEED FARMS, INC., PO BOX 308, EAGLE LAKE, TX 77434
Johnny's	JOHNNY'S SELECTED SEEDS, FOSS HILL RD, ALBION, ME 04910	William Dam	WILLIAM DAM SEEDS, PO BOX 8400, DUNDAS, ON, L9H 6M1, CANADA
Lamb	LAMB NURSERIES, 101 E SHARP AVE, SPOKANE, WA 99202	WNS	WILDWOOD NORTHERN SEEDS, WHITEHORSE, UT, CANADA

*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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