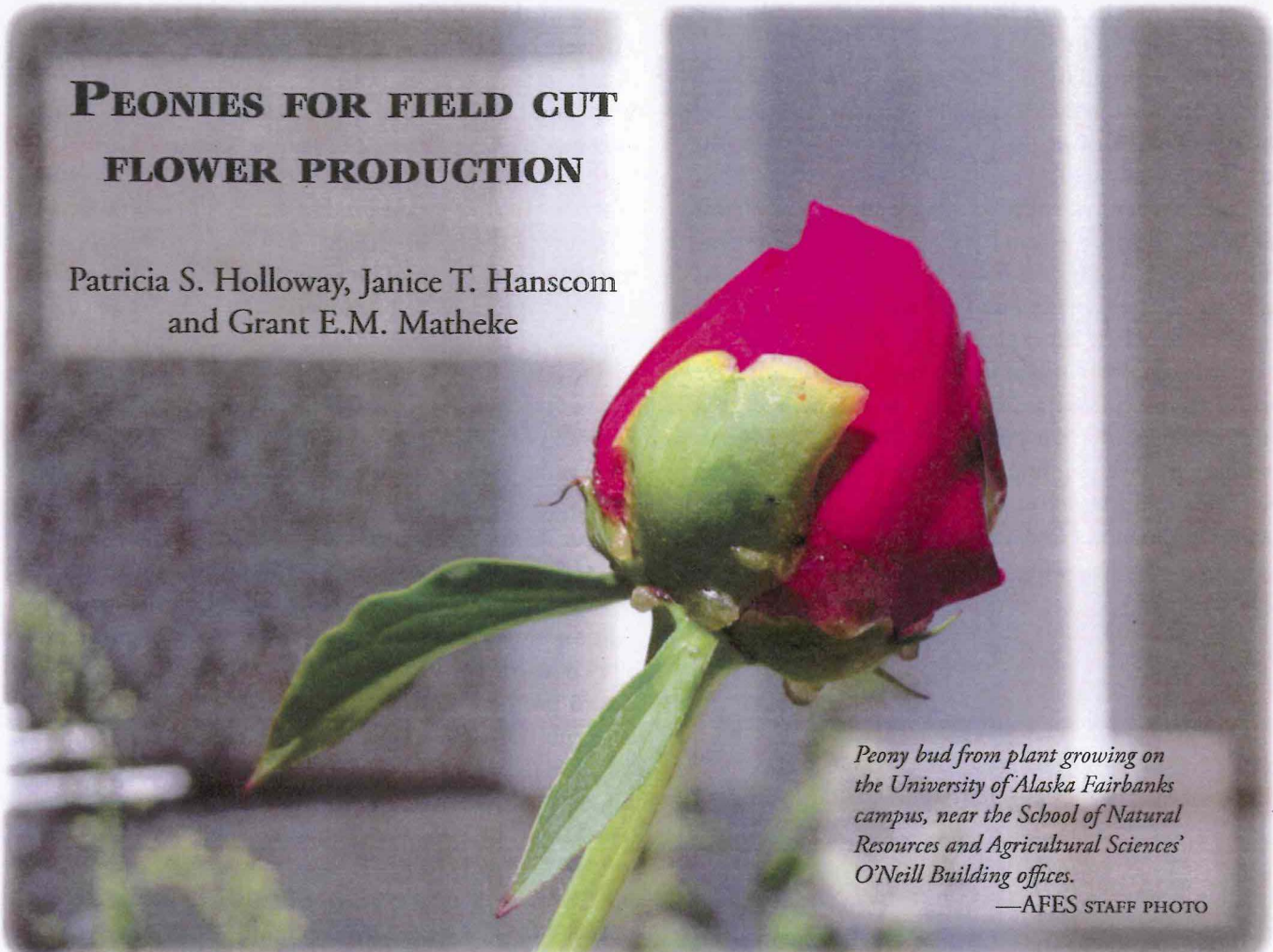


## PEONIES FOR FIELD CUT FLOWER PRODUCTION

Patricia S. Holloway, Janice T. Hanscom  
and Grant E.M. Matheke



*Peony bud from plant growing on  
the University of Alaska Fairbanks  
campus, near the School of Natural  
Resources and Agricultural Sciences'  
O'Neill Building offices.*

—AFES STAFF PHOTO

Cultivar trials with herbaceous peonies were begun during the summer of 2001 to evaluate their potential as field grown cut flowers. All but three cultivars bloomed in 2002. In 2003, all cultivars produced blooms, although individual plants of nine cultivars did not bloom (Holloway *et al.* 2004). The bloom times for all cultivars ranged from 30 June through the first week of August in both 2003 and 2004. Potential problems identified in 2003 included *Botrytis* sp. rot and short stem length (Holloway *et al.* 2003, 2004).

Management recommendations for field production of peonies vary widely among commercial growers and researchers. Plant spacing recommendations range from 18 inches to 4 feet between plants. Because peonies grow across a broad geographic area, recommendations on soils and soil amendments differ by region. No information is available on basic cultivation techniques for peonies in Alaska. The purpose of this report is to present results of

the cultivar trials through the 2004 growing season and identify possible problems with flowering and plant establishment. In addition, data include first-year results of trials with plant spacing and two soil amendments on cut flower production.

One hundred fifty peonies were planted between 15–20 August 2001 into a 20 x 60 ft (6 x 18 m) plot located on a south facing slope at the Fairbanks Experiment Farm's Georgeson Botanical Garden. Peonies were planted in Fairbanks silt loam soil in double-row raised beds covered with landscape fabric; each row was equipped with a double row of Ro-drip® trickle irrigation. Spacing was 18 inches (46 cm) between plants within each row and between adjacent rows on the same 39-inch-wide (1.0 m) raised beds. Each raised bed was 59 inches (1.5 m) on center between beds. Experimental design consisted of six replicates with a single plant each of 30 cultivars in a randomized complete block design. Guard rows of 'Sarah Bernhardt' peonies

surrounded the plot on all sides. Plots were mulched with spruce branches in Oct 2001 and straw in Oct 2002. They were not mulched in 2003, but foliage was removed at the end of the season to minimize disease problems.

In 2002, a second trial plot identical in size and similar in layout on raised beds to the cultivar trials was planted with 'Sarah Bernhardt' peonies at three spacings: 30, 45 and 60 cm between plants. Treatments were randomized within three main plots: unamended Fairbanks silt loam soils and those amended with a 15 cm layer of Lemeta peat or compost from the UAF Agricultural and Forestry Experiment Station farm. The amendments were tilled into the top 20 cm of the soil surface before planting. Between row spacing, weekly irrigation, and use of landscape fabric mulch were identical to the cultivar study. Peonies were planted in a split plot design with ten plants per spacing/amendment combination. Five plants per treatment were randomly selected for nondestructive analysis of flower buds using Analysis of Variance. No data were collected in 2003.



## Cultivar trials

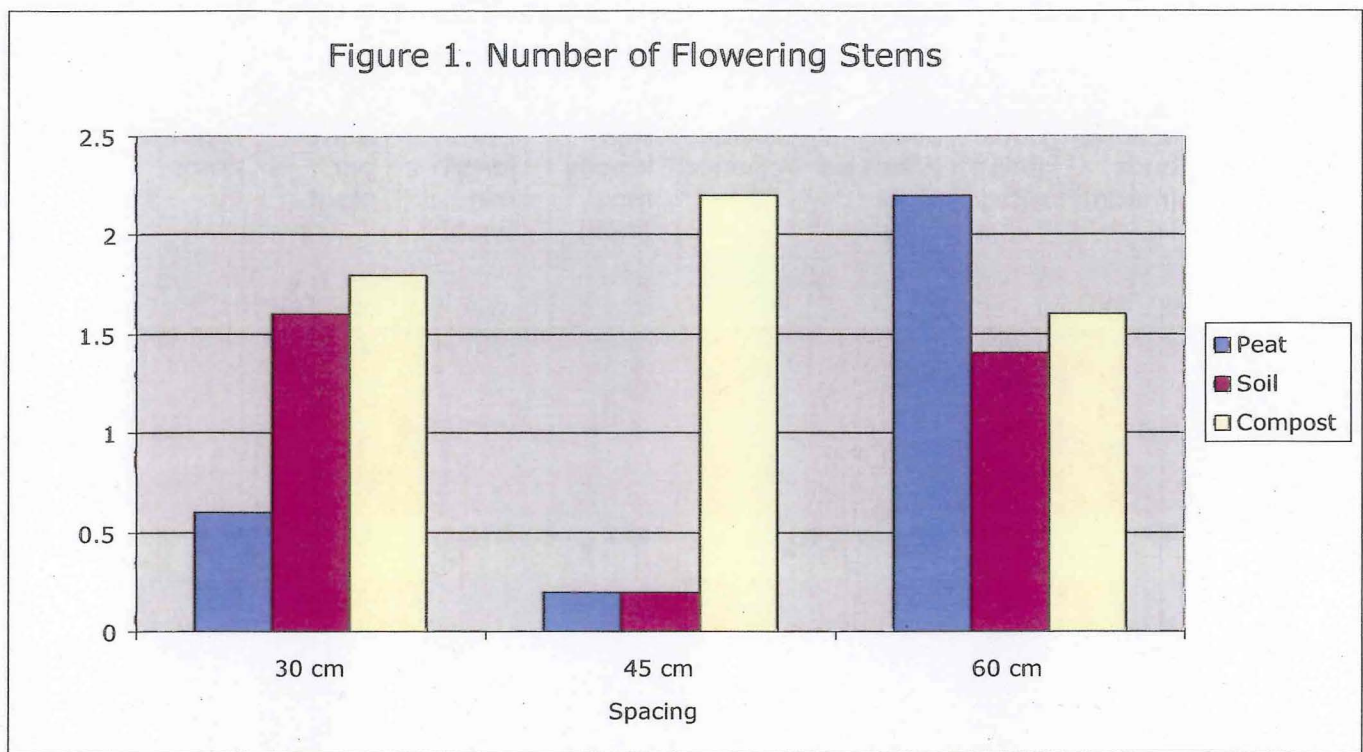
Twenty of the 30 cultivars averaged fewer total number of flowers in 2004 than 2003 (Table 1, p. 4). Reductions ranged on average from 0.2 to 7.3 fewer flower buds per plant. The most productive peonies in 2003 were 'Bowl of Beauty', 'Sarah Bernhardt', 'Louis Van Houtte', 'Karl Rosenfield' and 'Felix Crouse'. All of these cultivars showed reductions in flower bud production in 2004 with 'Bowl of Beauty' and 'Sarah Bernhardt' showing the greatest change of all cultivars. The most productive cultivars in 2004 were 'Duchess de Nemours' and 'Felix Crouse'. The incidence of bud blast in 2004 was reduced for 27 of the 30 cultivars when compared to 2003 possibly because we removed the end-of-season foliage and cleaned off the beds at the end of the season, or, with some cultivars, because there was a lower level of overall flowering (Table 1 and Table 3, p. 14).

Cut flower grading is based, in part, on stem length with U.S. No 1 grade requiring a minimum stem length of 20 inches, (51cm) and U.S. No 2, 18 inches (46 cm). In addition to the desired product length, growers cut stems high enough to leave at least 12 inches (30 cm) of leafy base to promote future growth (Gast 1997). Therefore, the combined stem length for commercial production is 32 inches (81 cm) for U.S. No.1 stems and 30 inches (76 cm) for U.S. No 2 stems. Five cultivars met the requisite stem length for U.S. No. 1 grading standards: 'Bowl of Beauty', 'David Harum', 'Felix Crouse', 'Shawnee Chief' and 'Therese'. Five other cultivars only met the standards for U.S. No. 2: 'Duchess de Nemours', 'Festiva Maxima', 'Gay Paree', 'Kansas', 'Sarah Bernhardt'. The remaining 20 cultivars had stem lengths that were too short to meet the standards if a 12-inch leafy stem base is to remain on the plant (Table 1). Our list of most productive cultivars is similar to ones reported at lower latitudes (Armitage 2003, Gast 1997).

In 2002 and 2003, the flowering period began on 30 June for all cultivars and ended during the last week of July or first week of August. In 2004, flowering was as much as 10 days earlier than the previous two years because of warm summer temperatures (Table 1a, p. 5). 'Red Charm' bloomed first on 18 June. Only 'Pink Parfait' remained blooming into August. The summer was warm and dry as shown by thaw degree-day accumulation and precipitation records during the season (Table 2, opposite). Although

*'Red Charm' peony, grown at the Fairbanks Experiment Farm in successive years of testing.*

—AFES STAFF PHOTO



**Figure 1.** Flower production on peonies planted on soils amended with peat, compost, and no amendments and planted at three spacings. Because of very high between-plant variability, differences among treatments was not statistically significant.

most peony growers at lower latitudes end peony production in late June, an unseasonably warm summer in Alaska may result in earlier harvest dates and a slight overlap in harvest seasons, negating somewhat the northern geographic advantage.

### Soil amendment trials

No statistically significant differences in the number of flowering stems per plant were measured on ‘Sarah Bernhardt’ peonies planted on silt loam soils compared to those amended with peat or compost (Figure 1). In addition, no differences in flowering stems per plant occurred among plants grown at three different spacings. The between-plant variation was very large and masked any treatment effects. Differences may be evident as the plants mature and become crowded.

In summary, peonies continue to grow well, and we have identified at least 10 cultivars that are worth testing for cut flower production. The bud blast problem from 2003 was partly ameliorated by cleaning the beds off at the end of the season. Warm seasons promote earlier flowering that

**Table 2. Weather statistics for the growing seasons 2002 through 2004.**

Season	2002	2003	2004
Maximum Temp (F)	85	82	90
Minimum Temp (F)	-36.3	-34.6	-44.4
Frost Free Days	113	112	119
Rainfall (inches)	9.35	9.91	4.97
Snowfall*(inches)	39.7	33.2	51.7
Thaw degree days**	2980.0	3122.7	3751.0

\* Previous winter

\*\* cumulative (1 May – 30 Sept) average daily temperature minus 32°F baseline

may reduce the profitability of cut flower sales because of late-season competition with lower latitude growers. ‘Sarah Bernhardt’ peonies grown at three spacings on soils amended with peat or compost showed no difference in flower stem production during the second growing season.

**Table 1. Flowering of cultivars over experiment years 2002-2004.**

Cultivar	Year	Total number of flower buds (mean)	No. flower buds (min-max)	Unopened flower buds (blast) per plant	Average no. flowers opened	Average flowering stem length max (inch)	Average flowering stem length min (inch)	Average no. veg. stems per plant	Average height of vegetative stems	Earliest date of first color
Better Times	2002	2.5	1-5	0.3	2.2	50.3	41.6	0.8	41.1	30-Jun
	2003	3.3	1-10	1.7	1.8	21.0	20.0	4.7	18.8	30-Jun
	2004	1.5	0-5	0.5	1.0	17.0	16.0	4.2	17.6	22-Jun
Change from last year		-1.8		-1.2	-0.8	-4.0	-4.0	-0.5	-1.2	
Bowl of Beauty	2002	3.0	0-5	0.3	2.7	63.2	57.6	5.2	49.3	1-Jul
	2003	8.8	2-17	5.0	3.8	29.0	22.8	11.7	27.0	30-Jun
	2004	1.5	0-4	0.3	1.2	39.0	36.0	8.2	22.0	2-Jul
Change from last year		-7.3		-4.7	-2.6	10.0	13.2	-3.5	-5.0	
David Harum	2002	1.2	0-3	0.2	1.0	47.2	42.5	5.2	34.3	30-Jun
	2003	6.5	2-13	4.8	1.7	26.0	20.5	9.5	18.2	6-Jul
	2004	3.0	0-7	1.5	1.5	34.0	27.5	9.7	21.7	22-Jun
Change from last year		-3.5		-3.3	-0.2	8.0	7.0	0.2	3.5	
Doris Cooper	2002	1.0	0-2	0.3	0.7	52.8	39.6	3.3	34.8	30-Jun
	2003	2.7	0-10	2.0	0.3	21.0	19.0	5.7	16.5	6-Jul
	2004	2.5	0-5	0.8	1.8	20.0	19.0	6.7	22.0	22-Jun
Change from last year		-0.2		-1.2	1.5	-1.0	0.0	1.0	5.5	
Dr. Alexander Flemming	2003	1.7	1-3	1.5	0.2	16.0	16.0	1.8	11.2	30-Jun
	2004	4.0	0-4	0.4	1.8	25.3	23.0	6.8	19.0	20-Jun
Change from last year		2.3		-1.1	1.6	9.3	7.0	5.0	7.8	
Duchess de Nemours	2002	1.8	0-2	0.5	1.3	52.1	47.0	3.3	33.0	30-Jun
	2003	4.8	2-8	3.8	1.0	22.3	19.5	6.8	19.3	30-Jun
	2004	8.3	0-32	1.0	7.2	33.7	30.7	10.8	22.6	20-Jun
Change from last year		3.5		-2.8	6.2	11.4	11.2	4.0	3.3	

**Table 1a. Flowering dates of cultivars over experiment years 2002-2004.**

Flowering dates																										
	18-Jun	20-Jun	22-Jun	24-Jun	26-Jun	28-Jun	30-Jun	2-Jul	4-Jul	6-Jul	8-Jul	10-Jul	12-Jul	15-Jul	17-Jul	19-Jul	21-Jul	23-Jul	25-Jul	27-Jul	29-Jul	31-Jul	2-Aug	4-Aug	6-Aug	
							x	x	x	x	x	x	x	x	x											
							x	x	x	x	x	x	x													
			x	x	x	x	x																			
								x	x	x	x	x	x	x	x	x										
							x	x	x	x	x	x	x	x												
							x	x	x	x	x	x	x	x	x	x										
							x	x	x	x	x															
							x	x	x	x	x	x	x	x												
							x	x	x	x	x	x	x	x												

**Table 1. Flowering of cultivars over experiment years 2002-2004.**

Cultivar	Year	Total number of flower buds (mean)	No. flower buds (min-max)	Unopened flower buds (blast) per plant	Average no. flowers opened	Average flowering stem length max (inch)	Average flowering stem length min (inch)	Average no. veg. stems per plant	Average height of vegetative stems	Earliest date of first color
Duchess de Orleans	2002	0.0	0	0.0	0.0			4.8	36.0	
	2003	2.3	0-5	2.4	0.3	23.5	23.5	8.8	19.8	6-Jul
	2004	2.0	0-3	1.2	0.8	28.7	30.0	10.3	21.3	20-Jun
	Change from last year	-0.3		-1.2	0.5	5.2	6.5	1.5	1.5	
Edulis Superba	2002	0	0	0	0			3	24.0	
	2003	1.0	1	1.0	0.0			2.3	11.3	6-Jul
	2004	2.8	0-7	1.5	1.3	29.7	25.3	6.2	17.3	20-Jun
	Change from last year	1.8		0.5	1.3	29.7	25.3	3.9	6.0	
Felix Crouse	2002	2.3	0-3	0.2	2.2	51.8	44.7	5.7	36.8	8-Jul
	2003	10.5	5-15	7.8	2.7	24.8	22.5	16.5	21.3	6-Jul
	2004	8.8	5-13	3.3	5.5	36.0	34.0	16.3	21.7	20-Jun
	Change from last year	-1.7		-4.5	2.8	11.2	11.5	-0.2	0.4	
Felix Supreme	2002	0.3	0-2	0.0	0.3	54.0	48.0	2.0	41.0	30-Jun
	2003	1.3	0-2	0.8	0.5	22.0	22.0	3.0	12.5	2-Jul
	2004	2.5	0-6	1.0	1.5	25.0	24.0	4.8	14.7	22-Jun
	Change from last year	1.2		0.2	1.0	3.0	2.0	1.8	2.2	
Festiva Maxima	2002	0.8	0-1	0.5	0.3	46.0	32.0	4.6	38.4	8-Jul
	2003	3.3	0-6	1.7	1.2	24.0	19.5	6.3	18.0	30-Jun
	2004	1.0	0-2	0.0	1.0	32.0	24.0	7.8	21.0	20-Jun
	Change from last year	-2.3		-1.7	-0.2	8.0	4.5	1.5	3.0	
Florence Bond	2002	1.3	0-2	0.3	1.0	25.4	40.5	1.0	31.5	30-Jun
	2003	1.8	1-3	1.0	0.8	13.8	13.8	3.0	13.7	30-Jun
	2004	2.7	0-10	1.0	1.7	15.0	14.0	5.2	17.0	22-Jun
	Change from last year	0.9		0.0	0.9	1.2	0.2	2.2	3.3	



**Table 1. Flowering of cultivars over experiment years 2002-2004.**

Cultivar	Year	Total number of flower buds (mean)	No. flower buds (min-max)	Unopened flower buds (blast) per plant	Average no. flowers opened	Average flowering stem length max (inch)	Average flowering stem length min (inch)	Average no. veg. stems per plant	Average height of vegetative stems	Earliest date of first color
Gardenia	2002	0.7	0-1	0.5	0.2	40.0	35.0	1.8	30.0	30-Jun
	2003	0.8	0-2	0.8	0.0			3.5	10.2	30-Jun
	2004	0.8	0-2	0.0	0.8	21.5	20.0	2.8	15.5	22-Jun
	Change from last year	0.0		-0.8	0.8	21.5	20.0	-0.7	5.3	
Gay Paree	2002	2.2	1-3	0.2	2.0	45.2	39.0	1.3	28.4	8-Jul
	2003	3.2	1-5	1.8	1.4	21.3	21.3	4.4	19.0	8-Jul
	2004	4.0	0-8	1.0	3.0	32.5	27.5	6.4	17.2	20-Jun
	Change from last year	0.8		1.6	-0.6	-23.9	-17.7	3.1	-9.4	
Jaycee	2002	0.8	0-3	0.8	0.0	35.0	35.0	6.2	34.0	8-Jul
	2003	2.4	1-4	1.0	1.4	18.0	15.7	5.8	15.2	8-Jul
	2004	1.3	0-5	0.3	1.0	27.0	24.0	5.8	18.0	20-Jun
	Change from last year	-1.1		-0.7	-0.4	9.0	8.3	0.0	2.8	
Kansas	2002	0.5	0-3	0.0	0.5	55.0	48.0	8.0	41.0	8-Jul
	2003	3.7	2-7	2.8	0.8	28.0	22.0	8.5	19.8	15-Jul
	2004	5.5	0-12	1.3	4.2	33.0	26.6	11.5	22.0	20-Jun
	Change from last year	1.8		-1.5	3.4	5.0	4.6	3.0	2.2	
Karl Rosenfield	2002	0.3	0-1	0.0	0.3	54.5	54.5	8.5	41.3	8-Jul
	2003	8.0	1-16	5.2	2.8	27.8	24.5	21.5	24.3	8-Jul
	2004	4.5	2-12	1.5	3.0	31.0	30.0	15.2	27.0	22-Jun
	Change from last year	7.7		5.2	2.5	-26.7	-30.0	13.0	-17.0	
Louis Van Houtte	2002	1.3	0-2	1.0	0.3	50.7	33.0	8.3	42.8	30-Jun
	2003	8.0	5-12	5.2	2.8	28.2	23.6	19.3	25.7	30-Jun
	2004	4.5	2-12	1.5	3.0	31.0	30.0	15.2	27.0	22-Jun
	Change from last year	-3.5		-3.7	0.2	2.8	6.4	-4.1	1.3	



**Table 1a. Flowering dates of cultivars over experiment years 2002-2004.**

Flowering dates	18-Jun	20-Jun	22-Jun	24-Jun	26-Jun	28-Jun	30-Jun	2-Jul	4-Jul	6-Jul	8-Jul	10-Jul	12-Jul	15-Jul	17-Jul	19-Jul	21-Jul	23-Jul	25-Jul	27-Jul	29-Jul	31-Jul	2-Aug	4-Aug	6-Aug
							x	x	x	x	x	x	x	x	x										
							x	x	x	x	x														
		x	x	x	x	x	x	x	x																
											x	x	x	x	x	x									
											x	x	x	x	x										
	x	x	x	x	x	x	x	x	x	x															
											x	x	x	x	x										
											x	x	x	x	x										
	x	x	x	x	x	x	x	x	x	x				x	x										
											x	x	x	x	x	x	x								
											x	x	x	x											
											x	x	x	x	x										
							x	x	x	x	x	x	x	x											
							x	x	x	x	x	x	x	x	x	x	x	x	x						
		x	x	x	x	x	x	x	x	x															

**Table 1. Flowering of cultivars over experiment years 2002-2004.**

Cultivar	Year	Total number of flower buds (mean)	No. flower buds (min-max)	Unopened flower buds (blast) per plant	Average no. flowers opened	Average flowering stem length max (inch)	Average flowering stem length min (inch)	Average no. veg. stems per plant	Average height of vegetative stems	Earliest date of first color
Mighty Mo	2002	0.5	0-1	0.0	0.5	37.6		5.0	34.3	1-Jul
	2003	2.2	0-5	1.5	0.7	21.8	21.8	5.7	17.5	30-Jun
	2004	0.0	0	0.0	0.0	0.0	0.0	4.6	14.8	22-Jun
	Change from last year	-2.2		-1.5	-0.7	-21.8	-21.8	-1.1	-2.7	
Mons. Jules Elie	2002	1.7	0-3	0.8	0.8	42.7	35.0	3.4	35.5	1-Jul
	2003	2.0	0-6	1.7	0.7	21.0	21.0	5.0	14.5	8-Jul
	2004	1.0	0-3	0.4	0.6	23.0	21.0	4.6	15.2	22-Jun
	Change from last year	-1.0		-1.3	-0.1	2.0	0.0	-0.4	0.7	
Mrs. FDR	2002	0.2	0-1	0.2	0.0	12.0		2.0	29.8	8-Jul
	2003	1.4	0-2	1.0	0.4	17.0	17.0	3.2	10.8	6-Jul
	2004	0.6	0-2	0.4	0.2	27.0	27.0	3.8	19.0	20-Jun
	Change from last year	-0.8		-0.6	-0.2	10.0	10.0	0.6	8.2	
Nancy Nicholls	2002	0.8	0-3	0.0	0.8	53.0	52.0	4.5	39.8	15-Jul
	2003	4.0	1-6	3.5	0.5	12.0	15.5	7.7	17.8	15-Jul
	2004	1.0	0-2	0.6	0.4	28.0	28.0	4.6	15.2	15-Jul
	Change from last year	-3.0		-2.9	-0.1	16.0	12.5	-3.1	-2.6	
Pink Parfait	2002	1.2	0-3	0.3	1.0	41.5	45.0	1.8	38.8	8-Jul
	2003	4.3	1-8	3.0	1.3	21.0	20.2	5.0	18.8	15-Jul
	2004	0.7	0-2	0.3	0.4	23.0	21.0	6.4	21.7	2-Jul
	Change from last year	-3.6		-2.7	-0.9	2.0	0.8	1.4	2.9	
Princess Bride	2002	2.2	0-2	1.3	0.8	38.5	40.0	2.0	34.0	8-Jul
	2003	2.2	1-3	1.3	0.8	19.5	19.3	3.0	19.0	8-Jul
	2004	0.2	0-1	0.2	0.0	19.0	19.0	5.0	18.6	2-Jul
	Change from last year	-2.0		-1.1	-0.8	-0.5	-0.3	2.0	-0.4	



**Table 1. Flowering of cultivars over experiment years 2002-2004.**

Cultivar	Year	Total number of flower buds (mean)	No. flower buds (min-max)	Unopened flower buds (blast) per plant	Average no. flowers opened	Average flowering stem length max (inch)	Average flowering stem length min (inch)	Average no. veg. stems per plant	Average height of vegetative stems	Earliest date of first color
Raspberry Sundae	2003	2.5	1-4	1.8	0.7	19.3	18.7	4.5	16.0	15-Jul
	2004	2.8	2-4	0.5	2.3	28.5	25.0	6.3	18.0	20-Jun
	Change from last year	0.3		-1.3	1.6	9.2	6.3	1.8	2.0	
Red Charm	2003	1.5	1-2	1.5	0.0			2.3	7.3	
	2004	1.8	0-3	0.2	1.7	20.0	19.0	4.2	17.3	18-Jun
	Change from last year	0.3		-1.3	1.7			1.9	10.0	
Sarah Bernhardt	2002	3.2	0-3	1.2	2.0	61.0	46.0	3.0	46.8	30-Jun
	2003	11.2	4-18	7.3	3.8	29.0	24.0	11.0	25.0	30-Jun
	2004	4.0	1-9	2.3	1.7	30.0	29.0	13.0	28.0	22-Jun
	Change from last year	-7.2		-5.0	-2.1	1.0	5.0	2.0	3.0	
Shawnee Chief	2002	0.3	0-2	0.3	0.0	32.0	32.0	12.1	33.8	6-Jul
	2003	3.8	1-6	2.8	1.0	19.0	16.5	19.6	16.2	8-Jul
	2004	3.5	0-10	1.5	2.0	32.0	25.5	18.0	22.5	20-Jun
	Change from last year	-0.3		-1.3	1.0	13.0	9.0	-1.6	6.3	
Therese	2002	1.8	0-5	0.0	1.8	59.2	42.3	3.0	41.8	30-Jun
	2003	3.8	2-7	2.8	1.0	27.0	25.7	8.4	22.4	8-Jul
	2004	3.5	0-7	2.0	1.5	37.0	30.5	9.8	21.6	20-Jun
	Change from last year	-0.3		-0.8	0.5	10.0	4.8	1.4	-0.8	
Vivid Rose	2002	1.0	0-3	0.2	0.8	38.5	40.5	3.8	29.6	12-Jul
	2003	2.0	0-6	1.7	0.3	6.3	9.5	3.7	8.8	8-Jul
	2004	0.2	0-1	0.0	0.2			3.0	10.3	6-Jul
	Change from last year	-1.8		-1.7	-0.1	-6.3	-9.5	-0.7	1.5	



*Kansas peonies growing at the  
Georgeson Botanical Garden.*  
—GEORGESON BOTANICAL  
GARDEN COLLECTION



**Table 3. Percent full bloom by cultivar in relation to number of flower buds.**

Cultivar	Full Bloom (%)	Cultivar	Full Bloom (%)
Better Times	54.5	Kansas	21.6
Bowl of Beauty	43.2	Karl Rosenfield	35.0
David Harum	26.1	Louis Van Houtte	35.0
Doris Cooper	12.2	Mighty Mo	31.8
Dr. Alexander Fleming	10.0	Mons. Jules Elie	35.0
Duchess de Nemours	20.8	Mrs. FDR	28.5
Duchess de Orleans	13.0	Nancy Nicholls	12.5
Edulis Superba	0.0	Pink Parfait	30.2
Felix Crouse	25.7	Princess Bride	36.4
Felix Supreme	38.4	Raspberry Sundae	28.0
Festiva Maxima	36.3	Red Charm	0.0
Florence Bond	44.4	Sarah Bernhardt	33.9
Gardenia	0.0	Shawnee Chief	26.3
Gay Paree	43.7	Therese	26.3
Jaycee	58.3	Vivid Rose	15.0

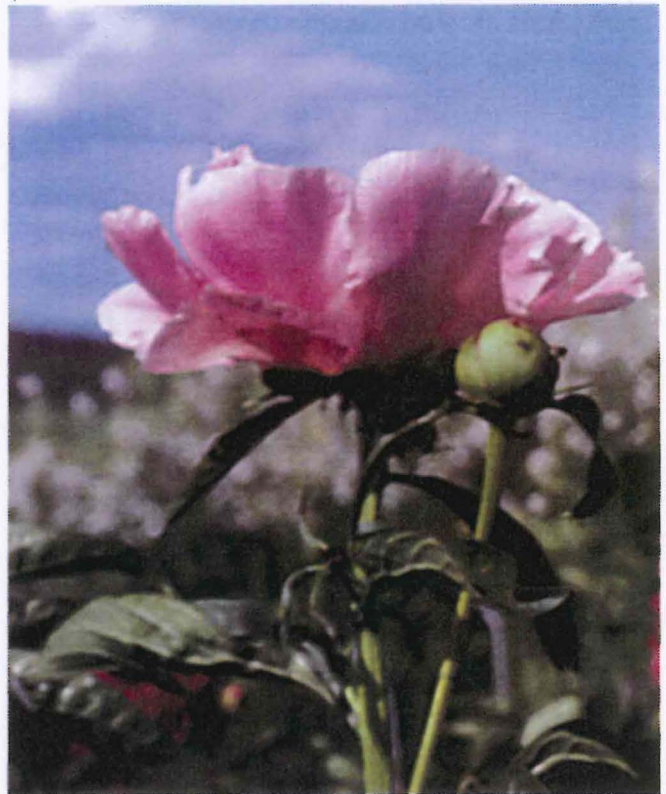
## References

Armitage, A. and J.M. Lauschman. 2003. *Specialty Cut Flowers*. Timber Press, Portland, Oregon.

Gast, K.L.B. 2000. 1997 Production and post harvest evaluation of fresh-cut peonies. Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Available on line: [www.oznet.ksu.edu/library/hort2/Samplers/SRP818.asp](http://www.oznet.ksu.edu/library/hort2/Samplers/SRP818.asp).

Holloway, P.J. Hanscom and G. Matheke. 2003. Peonies for field cut flower production. First-year growth. University of Alaska Fairbanks. Agricultural and Forestry Experiment Station Research Prog. Report 41. 4 pp.

Holloway, P.J. Hanscom and G. Matheke. 2004. Peonies for field cut flower production. Second-year growth. University of Alaska Fairbanks. Agricultural and Forestry Experiment Station Research Prog. Report 43. 8 pp.



Above: side view of the single peony variety 'Sea Shell'.

—GEORGESON BOTANICAL GARDEN COLLECTION

Below: 'Karl Rosenfeld' peony.

—GEORGESON BOTANICAL GARDEN COLLECTION



## Other AFES publications on peonies

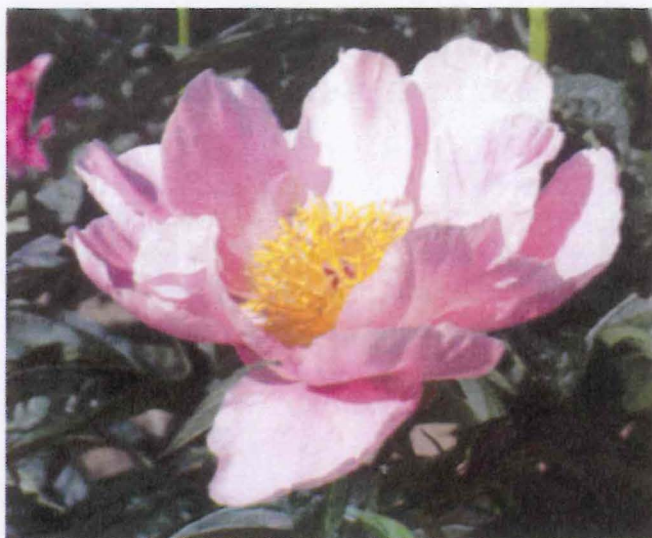
---

Peonies for field cut flower production. First-year growth. Patricia Holloway, Janice Hanscom, and Grant E.M. Matheke. 2003. AFES Research Progress Report No. RPR 41. Available on line at <http://www.uaf.edu/snras/afes/pubs/rpr/RPR%2041.pdf>.

Peonies for field cut flower production. Second-year growth. Patricia Holloway, Janice Hanscom, and Grant E.M. Matheke. 2004. AFES Research Progress Report No. RPR 43. Available on line at <http://www.uaf.edu/snras/afes/pubs/rpr/RPR%2043.pdf>.

Peony—a crop for Alaska? Doreen Fitzgerald. AFES Miscellaneous Publication No. MP 2004-01. Available on line at [http://www.uaf.edu/snras/afes/pubs/misc/MP\\_04\\_01.pdf](http://www.uaf.edu/snras/afes/pubs/misc/MP_04_01.pdf).

Production and Transportation Considerations in the Export of Peonies from Fairbanks, Alaska. Marie A. Klingman. AFES Senior Thesis No. ST 2005-01. (Thesis date 4/02) Available on line only, at <http://www.uaf.edu/snras/afes/pubs/SeniorTheses/index.html>.



'Sea Shell' peony.

—GEORSON BOTANICAL GARDEN COLLECTION



## Agricultural and Forestry Experiment Station

---

University of Alaska Fairbanks  
AFES Publications Office  
P.O. Box 757200  
Fairbanks, AK 99775-7200  
[fynrpub@uaf.edu](mailto:fynrpub@uaf.edu) • [www.uaf.edu/snras](http://www.uaf.edu/snras)  
907.474.6923 or 907.474.5042  
fax: 907.474.6184

*NOTE: Research Progress Reports are published by the Alaska Agricultural and Forestry Experiment Station to provide information prior to the final interpretations of data obtained over several years. They are published to report research in progress but may not represent final conclusions.*

*To simplify terminology, we may use product or equipment trade names. We are not endorsing products or firms mentioned. Publication material may be reprinted provided no endorsement of a commercial product is stated or implied. Please credit the researchers involved, the University of Alaska Fairbanks, and the Agricultural and Forestry Experiment Station.*

*The University of Alaska Fairbanks is accredited by the Commission on Colleges and Universities of the Northwest Association of Schools and Colleges. UAF is an affirmative action/ equal opportunity employer and educational institution.*