Herbaceous Perennial Trials in Central Alabama, 1996-97

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SUMMARY. Fifty-seven herbaceous perennials were evaluated from July 1996 to October 1997 in USDA Hardiness Zone 8. Plants in this study generally performed better the first year after planting than the second year. Several selections did not reemerge the second year, though some natural reseeding occurred. Still other selections never fully recovered from the winter months or succumbed to stress in the summer. Plants that maintained an attractive foliage display while not in bloom and plants that had a high bloom rating during the bloom season are worth incorporating into a full sun perennial or mixed border in the southeastern United States. Performance of perennials in the landscape may vary from year to year as climatic conditions affect performance. Comparison of results from variety trials at other locations should help increase performance information reliability for perennial selection.

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The need for new varieties of plants and an increased interest in perennials were the trends most frequently identified in a recent Georgia survey of retail garden center outlets (Garber and Bondari, 1998). Garden center respondents projected strongest future demand for perennials and groundcovers among eight plant categories during the next 5 years (Garber and Bondari, 1998). While herbaceous perennials continue to gain popularity (Salle, 1991a, 1991b), many field trials continue to lump annuals and perennials together for evaluation (Davis, 1998). When asked to rate projects at public institutions, research and demonstration stations, growers generally put variety trials at the top of the list (Price and Zandstra, 1987). Growers are aware that new varieties have a profound influence on their industry and want to be the first in line when something new comes out. The objective of this study was to focus specifically on the overall performance of full-sun perennials in a USDA Hardiness Zone 8 (USDA, 1990), AHS Heat Zone 8 (American Horticultural Society, 1997) environment in south-central Alabama [26 miles (42 km)] east of Montgomery, Ala). Results generated from the study will assist horticultural professionals and consumers in similar climates with selection of flowering perennials for landscape and garden use. Selections included in these trials were based on the plants landscapers and homeowners might find available in local nursery or retail garden centers.

Materials and methods

In Spring 1996, 57 herbaceous perennial selections were planted for evaluation at the E.V. Smith Research Center (EVSRC) located in Shorter, Ala. (latitude 32°30'N, longitude 85°40'W). Raised beds of Norfolk-Orangeburg loamy sand soil (fine, loamy, siliceous, thermic Typic Kandiuults) were tilled and fumigated with methyl bromide 2 weeks before planting. No other fungicides or insecticides were applied during the trial period. A commercially available controlled-release fertilizer (18N-2.6P-9.9K) was preplant incorporated into the beds as per soil test recommendations and then side-dressed again in the following spring (1997). No additional fertilizer was applied during the

growing seasons. Six beds, each 6 × 80 ft (1.8 × 24.4 m), were prepared for planting on 11 Apr. 1996. Three plants per entry were grown in three separate beds (a total of nine plants per entry) in full sun in a randomized complete block design. The plants were allowed to adjust to transplanting and evaluations began 3 July 1996. Rainfall was supplemented by overhead sprinkler irrigation to provide an equivalent of 1 inch (2.5 cm) of water per week. Minimum deadheading of spent flowers, weeding by hand, and cutting back as needed to prevent breakage was the only other maintenance performed during the trial.

Plants were evaluated every 2 weeks from 3 July 1996 through October 1997. Plants were rated by the same individual using a 0 to 5 scale in three categories: flowering, foliage and overall appearance. Plants were rated primarily on their floral displays, while size, shape and freedom from insect or disease blemishes were also considered. A rating of 0 indicated the absence of a desired characteristic; 1—indicated a minimal amount of the characteristic, but not impressive, could be considered negative in the foliage and overall categories; 2—indicated a small amount of the characteristic, not very impressive in the foliage and overall categories; 3—sufficient display to be attractive in the landscape; 4—above average display and quite beneficial in the landscape; and 5—superior display and extremely showy in the landscape. Ratings were made in whole number units.

CLIMATIC CONDITIONS. Average daily air temperatures in the winter (December through February) of 1996 and 1997 were 1.5 and 2.6 °F (0.8 and 1.4 °C) warmer than normal (daily air temperatures averaged over the years from 1961 through 1990), respectively (Table 1). Spring (March through May) of 1996 was cooler than normal by 0.6 °F (0.3 °C), while spring of 1997 was warmer than normal by 1.0 °F (0.6 °C). Average summer (June through September) temperatures in 1996 and 1997 were only 0.2 and 0.4 °F (0.1 and 0.2 °C) warmer than normal, respectively. Fall (October through November) of 1996 and 1997 was warmer than normal by 0.7 and 2.1 °F (0.4 and 1.2 °C), respectively. Table 1 presents data on average daily sunlight, average rainfall and average chilling hours [<45 °F (7.2 °C)] during 1996 and 1997.

Table 1. Average daily sunlight, daily air temperature, monthly rainfall, and chilling hours for E.V. Smith Research Center in Shorter, Ala.^z

Month	Avg sunlight ^y		Avg air temp			Total rainfall			Chill hours ^x	
	1996	1997	1996	1997	1961-90	1996	1997	1961-90	1996	1997
	(W·h ⁻¹ ·m ⁻²)		(°F)			(inch)			(h)	
January	2299	2211	43.9	47.6	43.2	6.6	5.6	5.0	423	374
February	3267	2641	48.0	51.0	46.6	3.7	8.1	5.8	305	254
March	4062	4485	51.4	61.8	54.3	9.2	2.1	6.6	254	66
April	5182	5291	60.0	59.2	62.1	4.8	7.2	5.2	104	63
May	6627	5684	72.7	67.3	69.0	4.8	3.8	3.8	6	7
June	6545	5260	76.4	74.1	75.8	2.2	6.7	4.1	0	0
July	6135	6322	80.0	81.0	78.7	9.4	2.6	4.7	0	0
August	5696	5643	78.6	78.0	78.4	5.7	4.6	4.2	0	0
September	4744	5851	72.8	75.6	74.1	8.2	3.5	3.6	0	0
October	3466	M	62.9	63.9	63.7	1.4	3.2	2.6	42	50
November	2935	2661	54.2	50.5	54.8	2.6	8.4	4.1	187	243
December	2083	2177	49.0	45.7	46.8	4.3	6.1	5.2	316	430

^zData were provided by Agricultural Weather Information Service (1999). Rainfall data was collected on site; W·h⁻¹·m⁻² = 0.086 langley; °C = 5/9 (°F - 32); 1.0 inch = 2.54 cm.

^yAverage daily total for the month. Missing data for October 1997 attributed to lightning damage to sensor apparatus.

^xNumber of hours less than 45 °F (7.2 °C).

Results and discussion

BLOOM. The highest average bloom rating for any plant in 1996 was 4.9 for Mexican bush sage (*Salvia leucantha* Cav.) in October, also performing well in September (4.5) and November (3.3) (Table 2). *Salvia leucantha* ratings for 1997 were 3.3 in September and 4.5 in October (Table 2). The second highest rating in 1996 was received by purple loosestrife (*Lythrum virgatum* L.) 'Mordens Pink', also with a rating of 4.9 in July 1996, however performance and bloom duration was not as long as *S. leucantha*. Pink coreopsis (*Coreopsis rosea* Nutt.) had a peak rating of 4.7 in July 1996 while threadleaf coreopsis (*C. verticillata*) 'Moonbeam' rated a

4.7 in July 1996 and kept on blooming with a rating of 4.1 in August 1996. Frikart's aster (*Aster ×frikarkii*) 'Mönch' had a rating of 4.6 in July and a 4.0 in August 1996, also extending it's effectiveness in the landscape. Clump verbena [*Verbena canadensis* (L.) Britt.] 'Alba' had peak rating in April 1997 of 4.4, while threadleaf coreopsis (*C. verticillata* L.) 'Zagreb' peaked in July 1996 with a rating of 4.2 and kept performing well into August with a 3.2. Another good performer was pink boltonia [*Boltonia asteroides* (L.) L'Hér.] 'Pink Beauty', which rated 3.6 in July and 4.2 in August 1996. Two of the longest blooming periods for perennials evaluated were for South American verbena (*Verbena bonariensis* L.) with an aver-

age rating of 4.2, 4.0 and 3.4 in 1996 for the months of July, August, and September, respectively. In 1997, *V. bonariensis* started to show excellent color in May, June, and July with a ratings of 3.9, 3.7 and 3.2, respectively. Purple lythrum (*Lythrum salicaria* L.) 'Robert' also had a long showing with a rating of 4.4 in July and a 3.9 in August 1996 and a 1997 rating of 3.4 in June and July and 3.9 in August. For a listing of selections with flower ratings of 3.0 or higher, see Table 2.

FOLIAGE. The perennial with the best foliage performance in this 2-year study was moss verbena (*Verbena tenuisecta* Briq.) (Table 2). This groundcover type perennial received an average rating of 4.0 or above for

Table 2. Average bloom and foliage rating for best performing perennials in the 1996-97 trial garden.^z

Common name	Scientific name	Variety	Date	Bloom	Date	Foliage
Moonshine yarrow	<i>Achilleax</i>	Moonshine		---	July 1996	4.6
				---	October 1996	4.8
				---	November 1996	4.6
				---	December 1996	4.7
				---	March 1997	5.0
				---	April 1997	5.0
			May 1997	3.5	May 1997	5.0
Wormwood	<i>Artemisiax</i>	Powis Castle	June 1997	3.7		---
				---	July 1996	4.7
				---	August 1996	4.1
Frikart's aster	<i>Aster ×frikarkii</i>	Mönch	July 1996	4.6	July 1996	4.4
			August 1996	4.0	August 1996	4.0
White wild indigo	<i>Baptisia alba</i>	Pendula		--	July 1996	4.6
				---	August 1996	4.2
				---	September 1996	4.2

Table 2. Average bloom and foliage rating for best performing perennials in the 1996–97 trial garden (continued).^z

Common name	Scientific name	Variety	Date	Bloom	Date	Foliage
				---	April 1997	4.2
				---	May 1997	5.0
				---	June 1997	5.0
				---	July 1997	4.6
Pink boltonia	<i>Boltonia asteroides</i> (L.) L'Hér.	Pink Beauty	July 1996	4.2	July 1996	4.4
			August 1996	3.7	August 1996	4.6
Pink boltonia	<i>Boltonia asteroides</i> (L.) L'Hér.	Snowbank	July 1996	3.6	July 1996	4.6
			August 1996	4.2	August 1996	4.6
Violet boltonia	<i>Boltonia asteroides latisquama</i>	Nana	July 1996	3.2	July 1996	4.7
Leadwort	<i>Ceratostigma plumbaginoides</i> Bunge.		July 1996	3.8	July 1996	4.1
Pink coreopsis	<i>Coreopsis rosea</i>		July 1996	4.7	July 1996	4.9
				---	August 1996	4.9
				---	September 1996	4.3
Thread leaf coreopsis	<i>Coreopsis verticillata</i>	Moonbeam	July 1996	4.7	July 1996	4.7
			August 1996	4.1	August 1996	4.9
				---	September 1996	4.5
				---	June 1997	4.1
				---	July 1997	4.7
				---	August 1997	4.6
				---	September 1997	4.4
Thread leaf coreopsis	<i>Coreopsis verticillata</i>	Zagreb	July 1996	4.2	July 1996	5.0
			August 1996	3.2	August 1996	5.0
				---	September 1996	4.4
				---	May 1997	4.3
				---	June 1997	4.3
Cottage pinks	<i>Dianthus plumarius</i> L.	Itsaul White		---	July 1996	4.3
				---	August 1996	4.0
				---	May 1997	4.3
				---	June 1997	4.2
Narrow-leaf purple coneflower	<i>Echinacea angustifolia</i> DC.			---	May 1997	4.0
Purple coneflower	<i>Echinacea purpurea</i> (L.) Moench.	White Swan		---	July 1996	4.2
			August 1996	3.9	August 1996	4.1
Blanket flower	<i>Gaillardia × grandiflora</i>	Goblin		---	May 1997	4.0
White gaura	<i>Gaura lindheimeri</i> Engelm. & A. Gray.			---	July 1996	4.1
				---	April 1997	4.5
			May 1997	4.2	May 1997	4.7
Bloody cranesbill	<i>Geranium sanguineum</i>	Album		---	April 1997	4.3
				---	May 1997	4.2
Swamp sunflower	<i>Helianthus angustifolius</i>			---	July 1996	4.8
				---	August 1996	4.7
			October 1996	3.4	---	---
				---	March 1997	4.7
				---	April 1997	5.0
				---	May 1997	5.0
				---	June 1997	4.7
				---	July 1997	4.8
				---	August 1997	4.2
Purple loosestrife	<i>Lythrum virgatum</i>	Mordens Pink	July 1996	4.9	July 1996	4.2
				---	May 1997	4.5
			July 1997	3.1	---	---
Purple lythrum	<i>Lythrum salicaria</i>	Robert	July 1996	4.4	July 1996	4.5
			August 1996	3.9	---	---
				---	April 1997	4.3
				---	May 1997	4.9
			June 1997	3.4	June 1997	4.1
			July 1997	3.4	---	---
			August 1997	3.9	---	---

Table 2. Average bloom and foliage rating for best performing perennials in the 1996–97 trial garden (continued).^z

Common name	Scientific name	Variety	Date	Bloom	Date	Foliage
Pink obedient plant	<i>Physostegia virginiana</i>	Vivid		---	July 1996	4.1
				---	August 1996	4.0
				---	October 1996	4.1
				---	April 1997	4.4
				---	May 1997	4.9
				---	June 1997	4.7
				---	July 1997	4.5
Orange coneflower	<i>Rudbeckia fulgida</i>	Goldsturm		---	July 1996	4.9
			August 1996	4.0	August 1996	4.4
				---	May 1997	4.9
				---	June 1997	4.4
			August 1997	3.6		---
			July 1996	3.6		---
			August 1996	3.1		---
Mealy sage	<i>Salvia farinacea</i> Benth.	Strata	May 1997	3.4		---
Mealy sage	<i>Salvia farinacea</i>	Victoria Blue	July 1996	3.2		---
Mealy sage	<i>Salvia farinacea</i>	Victoria White	August 1996	3.3		---
			September 1996	3.2		---
				---	March 1997	4.0
				---	April 1997	4.4
			May 1997	3.8		---
				---	July 1996	4.5
				---	August 1996	4.6
Mexican bush sage	<i>Salvia leucantha</i>		September 1996	4.5		---
			October 1996	4.9		---
			November 1996	3.3		---
				---	June 1997	4.2
			September 1997	3.3		---
			October 1997	4.5		---
				---	July 1996	4.0
Garden sage	<i>Salvia officinalis</i> L.	Purpurescens	July 1996	3.7		---
Bog sage	<i>Salvia uliginosa</i>		September 1996	3.2		---
			August 1996	3.1		---
				---	April 1997	5.0
				---	May 1997	4.1
			June 1997	3.6		---
Scarlet sage	<i>Salvia van houttei</i>		September 1996	3.6		---
			October 1996	4.0		---
				---		---
Pincushion flower	<i>Scabiosa columbaria</i>	Butterfly Blue		---	July 1996	4.3
				---	August 1996	4.0
				---	October 1996	4.2
				---	November 1996	4.4
				---	December 1996	4.4
			April 1997	4.1	April 1997	4.9
				---	March 1997	4.7
Stonecrop	<i>Sedum spectabile</i> Boreau.	Brilliant		---	May 1997	5.0
				---	June 1997	4.1
				---	March 1997	4.9
				---	April 1997	4.9
				---	May 1997	4.8
				---	June 1997	4.3
				---	March 1997	4.4
Autumn joy sedum	<i>Sedumx</i>	Autumn Joy		---	April 1997	4.4
				---	May 1997	4.4
				---	June 1997	4.4

South American verbena	<i>Verbena bonariensis</i>		July 1996	4.2	July 1996	4.2
				---	March 1997	4.1

Table 2. Average bloom and foliage rating for best performing perennials in the 1996–97 trial garden (continued).^z

Common name	Scientific name	Variety	Date	Bloom	Date	Foliage
			August 1996	4.0		---
			September 1996	3.4		---
			May 1997	3.9		---
			June 1997	3.7		---
			July 1997	3.2		---
Clump verbena	<i>Verbena canadensis</i>	Homestead Purple		---	July 1996	4.0
			April 1997	4.2		---
Clump verbena	<i>Verbena canadensis</i>	Alba	July 1996	3.4	July 1996	4.0
			April 1997	4.4		---
Moss verbena	<i>Verbena tenuisecta</i>	Alba		---	June 1997	4.3
				---	May 1997	4.2
				---	July 1997	4.1
Moss verbena	<i>Verbena tenuisecta</i>		July 1996	3.4	July 1996	4.2
				---	September 1996	4.1
				---	October 1996	4.2
				---	November 1996	4.2
				---	December 1996	4.0
			May 1997	3.4	May 1997	4.7
				---	June 1997	4.6
			July 1997	3.3	July 1997	4.9
				---	August 1997	4.5
				---	September 1997	4.2
				---	October 1997	4.0
Speedwell	<i>Veronica spicata</i>	Red Fox		---	July 1996	4.5
				---	August 1996	5.0
				---	September 1996	5.0
				---	October 1996	4.8
				---	April 1997	4.5
				---	May 1997	4.7
				---	June 1997	5.0
				---	July 1997	4.3
				---	August 1997	4.3
				---	September 1997	4.3

^zStudy conducted at the E. V. Smith Research Center of the Alabama Agricultural Experiment Station in Shorter, Alabama from January 1996 through December 1997. Flower ratings of 3.0 or higher presented, foliage ratings of 4.0 or higher presented. Plants rated using a 0 to 5 scale.

every month evaluated in 1996, with the exception of August. From May through October 1997, *V. tenuisecta* did not fall below a rating of 4.0. This indicates a very healthy, disease and heat resistant perennial. Speedwell (*Veronica spicata* L.) 'Red Fox' had a shorter duration of high foliage ratings than *V. tenuisecta* but ranked second in foliage performance due to several high ratings during the 2 years. The third best foliage performer was pin-cushion flower (*Scabiosa columbaria* L.) 'Butterfly Blue'. This exceptional perennial kept a rating of 4.0 or higher for every month except September 1996 and a rating of 4.0 or higher from March through June of 1997. A few other outstanding foliage performers were swamp sunflower (*Helianthus angustifolius* L.), moonshine yarrow (*Achillea* x 'Moonshine'), white wild indigo [*Baptisia alba* (L.) Venten.]

'Pendula', thread leaf coreopsis (*C. verticillata*) 'Moonbeam' and pink obedient plant [*Physostegia virginiana* (L.) Benth.] 'Vivid'. For a listing of selections with foliage ratings of 4.0 or higher, see Table 2.

OVERALL. The highest overall rating for the perennials in this study was purple loosestrife (*L. virgatum*) 'Mordens Pink' with a rating of 4.9 for July 1996 (Table 3). *Coreopsis rosea* and *C. verticillata* 'Moonbeam' had second highest overall rating at 4.8. 'Moonbeam' also rated of 4.2 for August 1996. *Verbena bonariensis* rated 4.2 and 4.0 for July and August 1996, respectively. The only selection to rate of 4.0 or higher for 2 months in 1996 and 1 month in 1997, was *Salvia leucantha*. A plant with an overall rating of 2.5 or higher was considered a good performing plant and adequate for a full sun garden located in USDA

Hardiness Zone 8 and American Horticultural Society Heat Zone 8 (1997). Only the very best overall performers were highlighted, therefore only selections with an overall rating of 4.0 or higher are listed in Table 3.

Swamp sunflower (*Helianthus angustifolius*) and bog sage (*Salvia uliginosa* Benth.) responded well to pruning once or twice in the middle of the growing season to maintain a manageable height and prevent plants from falling over. Wormwood (*Artemisia*) 'Powis Castle' responded best to early spring pruning than fall or winter pruning, due to a tendency to die from winter injury if pruned too early. Gas plant [*Dictamnus albus* L. (*D. Fraxinella* Pers.)] 'Purpureus', known for its slow development, gradually increased in size each year and should not be dismissed until given a few years to mature. Another slow starter, White

Table 3. Average overall rating for best performing perennials in the 1996–97 trial garden.^z

Common name	Scientific name	Variety	Date	Overall
Moonshine yarrow	<i>Achilleax</i>	Moonshine	May 1997	4.3
Wormwood	<i>Artemisia</i>	Powis Castle	July 1996	4.0
Frikart's aster	<i>Aster ×frikarkii</i>	Mönch	July 1996	4.2
Pink boltonia	<i>Boltonia asteroides</i>	Pink Beauty	July 1996	4.1
Pink boltonia	<i>Boltonia asteroides</i>	Snowbank	August 1996	4.1
Pink coreopsis	<i>Coreopsis rosea</i>		July 1996	4.8
Thread leaf coreopsis	<i>Coreopsis verticillata</i>	Moonbeam	July 1996	4.8
			August 1996	4.2
Threadleaf coreopsis	<i>Coreopsis verticillata</i>	Zagreb	July 1996	4.4
White gaura	<i>Gaura lindheimeri</i>		May 1997	4.3
Purple loosestrife	<i>Lythrum virgatum</i>	Mordens Pink	July 1996	4.9
Purple lythrum	<i>Lythrum salicaria</i>	Robert	July 1996	4.5
Orange coneflower	<i>Rudbeckia fulgida</i>	Goldsturm	August 1996	4.0
Mexican bush sage	<i>Salvia leucantha</i>		September 1996	4.4
			October 1996	4.7
			October 1997	4.5
Pincushion flower	<i>Scabiosa columbaria</i>	Butterfly Blue	April 1997	4.2
South American verbena	<i>Verbena bonariensis</i>		July 1996	4.2
			August 1996	4.0
Clump verbena	<i>Verbena canadensis</i>	Homestead Purple	April 1997	4.2
clump verbena	<i>Verbena canadensis</i>	Alba	April 1997	4.4

^zStudy conducted at the E. V. Smith Research Center of the Alabama Agricultural Experiment Station in Shorter, Alabama from January 1996 through December 1997. Flower ratings of 3.0 or higher presented, foliage ratings of 4.0 or higher presented. Plants rated using a 0 to 5 scale.

wild indigo (*Baptisia alba*) 'Pendula', has graceful arching limbs with rounded leaflets on pinnately compound leaves that are attractive, with or without flowers.

Among the most impressive performers were pincushion flower (*Scabiosa columbaria*) selections 'Butterfly Blue' and 'Pink Mist'. Once they started blooming, flowers were present on one or more plants even through the winter. *Scabiosa* had a tendency to reseed in the immediate vicinity, providing enough additional plants for transplanting. *Verbena tenuisecta* had a mosslike carpet of foliage, which almost always had a few flowers and sometimes was covered with dark purple blooms. *V. tenuisecta* 'Alba' also performed well, but produced fewer flowers. Clump verbena (*V. canadensis*) 'Homestead Purple' was a similar ground cover that produced purple flowers in mass but had a tendency to flower only along the edges of the spreading plant, leaving the center without blooms. *Verbena bonariensis* had a tall, open, airy growth habit and small purple flowers. Bloody cranesbill (*Geranium sanguineum* L.) 'Album' produced delicate flowers on interesting palmate foliage and spread slowly, making a nice ground cover. Orange coneflower [*Rudbeckia fulgida* Ait. var. *speciosa* (Wend.) Perdue]

'Goldsturm' was a very good performer, with large, golden color ray flowers that attracted butterflies. *Salvia leucantha* was magnificent during its long bloom season (close to 3 months), the grey pubescent leaves provided a good backdrop for earlier flowering plants. Bumble bees were very attracted to the flowers.

Several plants performed well the first year, but did not overwinter. These could be treated as annuals and still be valuable additions to the landscape if replaced every year. One such selection was scarlet sage (*Salvia splendens* F. Sellow ex Roem. & Schult.) 'Van Houttei' with dark maroon flowers that attracted hummingbirds. This plant was very showy, reaching ≈3 ft tall and 2 ft wide (0.9 × 0.6 m) and completely covered with blooms. Once the flowers fell, the dark maroon calyx remained, extending the "effective" period for several weeks. While boltonia selections did produce seedlings to replace the mother plant *Boltonia asteroides* var. *latisquama* (A. Gray) Cronq. 'Nana' could also be treated as an annual, as could *B. asteroides* 'Pink Beauty' and 'Snow Bank', and blanket flower (*Gaillardia ×grandiflora* Van Houtte.) 'Goblin'. In general, *Coreopsis* selections ('Moonbeam', 'Zagreb', and *rosea*) were disappointing, performing beautifully the first year, but,

although alive, did not bloom well in the second year.

White sage (*Artemisia ludoviciana* Hort.) 'Silver King' became so invasive, it had to be removed from the trial. Therefore, we would not recommend planting it in a mixed border due to its aggressiveness. While *Lythrum* species are often considered invasive, we had very few seedlings germinate and no colonizing through underground stolons. Caution should be used when planting this perennial, and it should not be introduced to native wetland areas.

Conclusions

The perennials evaluated in this study generally performed better the first year of planting than the second year. Several varieties did not return the second year, though some natural reseeding occurred. Still other selections never fully recovered from the winter months or succumbed to stress in the summer. Plants that maintained attractive foliage while not in bloom and had highly rated bloom displays during the bloom season are worth incorporating into a full sun perennial or mixed border. Gardeners and growers are encouraged to try plants in several locations to determine suitability for particular locations. Plants that received high ratings in this study ap-

pear to be tolerant of a full sun environment with little care and still perform well. Landscape performance however, may vary from year to year as climatic conditions affect performance. Results from more than one variety trial should be compared to increase the reliability of recommendations because weather, soil type, exposure, cultural practices, and other variables can greatly affect plant performance. Horticulturists are urged to visit several trial gardens to gain a better understanding of variety performance throughout a region or market area.

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