



*Diascia 'Red Ace'*



*Bacopa 'Lavender Storm'*



*Supertunia 'Royal Velvet'*



*'Millionbells Yellow'*



*Nemesia 'Compact Innocence'*



*Babylon 'Lilac'*



*'Millionbells Terra Cotta'*



*'Mini Strawberry Pink Veined'*

# WINTER TRIALS OF VEGETATIVE ANNUALS IN FLORIDA

During the abnormally cold winter trials in the deep South, several flower varieties truly earned their semi hardy and

BY RICK SCHOELLHORN

While northern growers begin specialty annual production in spring and continue production through summer, the Deep South industry runs on an almost inverse schedule for these generally cool season crops. Production in Florida begins as temperatures drop in fall and continues through the beginning of the warm nights in early summer. The Mediterranean-type specialty annuals such as *Sutera* (*Bacopa*), *Brachycome*, *Osteospermum*, *Argyranthemum*, *Nemesia fruticans* and *Diascia* all prefer cool nights and low humidity. Fall through spring in the Deep South provides these conditions, while summer heat and humidity generally signal the end of these plants due to disease pressure and a lack of heat tolerance.

Southern landscapers usually stay away from specialty annuals. Their susceptibility to diseases in the summer and their freeze sensi-

tivity usually limit their use to the short weeks between summer heat and first winter freeze, or the even shorter time between last freeze and the high summer temperatures. Most people, as a result, are limited to using the basics for winter and fall color. Pansies, violas and ornamental kale traditionally provide the backbone of the winter annual industry in the Deep South.

The winter trials I present here were part of an evaluation of specialty annuals to broaden the winter palate of color available to homeowners and landscapers in Florida and other regions of the Deep South. The goal of the trials was not only to find out what does well in

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Table 1. Rating system in use at the Milton Gardens.

Rating	Characteristics	
Performance		
5	Superior floral display and sufficient foliage display.	Excellent
4	Above average floral display and sufficient foliage display.	Good
3	Sufficient foliage and floral display to be attractive in the landscape.	Average
2	Adequate foliage with one or two flowers present.	Fair
1	A small display of foliage with no flowers present.	Poor

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southern winters, but also what plants can be established in fall for longer — and more impressive — spring flowering.

There are many trial gardens in the state of Florida; some are private, others are public gardens where the emphasis is on display, while evaluations go on behind the scenes. What is the purpose of these trial gardens? How is their information made available to industry and the consumer? These questions are part of a seminar entitled "Southeastern Trial Gardens" at the Southeast Greenhouse Conference and Tradeshow in Greenville, S.C. in June 2001.

For the University of Florida, there are currently two main gardens: 1) The Milton Gardens, in northwest Florida, for vegetative plug evaluations, and 2) The trial gardens at the Gulf Coast Research Center, Bradenton, Fla., where the statewide seed industry evaluations are held.

#### TRIALING METHODS

Trials are all in full sun with at least six full hours of sun per day. Plants are spaced on approximately 10-inch centers, slow release fertilizer is incorporated at planting and a 2-inch layer of cedar mulch is placed over the soil surface. Every two years the beds are amended with mushroom compost at a rate of about one cubic yard of compost for every 200 square feet. Plants are evaluated for quality at planting and every four weeks thereafter throughout the season.

Trials and evaluations are done both in plastic beds and landscape plantings. While both methods have some merit, the plastic beds

(similar to those used in commercial vegetable row crop production) generate a more positive rating for marginal plants, especially the specialty annuals. Plastic bed trials are actually a bit like container trials in that the amount of

splashback from rain, and therefore disease pressure, is reduced. The landscape trials, however, inevitably provide a much more realistic evaluation.

Table 1 displays the rating system used in the Milton Gardens.

#### WINTER TRIALS

In the 2000-2001 winter trials, plants were obtained from EuroAmerican Propagators and represent both the Proven Winners and EuroSelect collections. Results are shown in Table 2.

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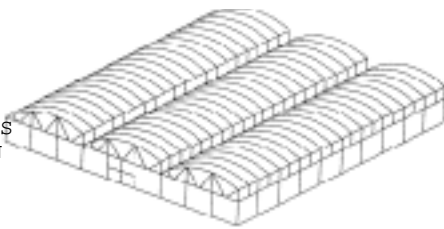
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Table 2. Results of the 2000–2001 trials

	Field rating		Greenhouse rat-	Greenhouse evaluations
(Bacopa) Sutura hybrids 'Giant Snowflake', 'Snowstorm', 'Green & Gold', and 'Lavender Storm'	0	None - early frosts caused majority of losses, as plants were not well hardened off at planting. Green & Gold cuttings came in damaged in shipment and did	5	Excellent growth on Giant Snowflake and Lavender Storm, both excellent fill in baskets. Green and Gold did not survive. Giant Snowflake very strong,
Acorus gramineus 'Ogon' and 'Variegatus'	5	100% - very little freeze damage, excellent	5	Slow growth, but little different than plants in field
Ajuga reptans 'Caitlin's Giant' and 'Mahogany'	2	Caitlin's Giant 20% survival, Mahogany 100% and new growth continues. Both cultivars were burned back by freezes,	4	Caitlin's Giant excellent growth and flowering; Mahogany is smaller with less flowering. In greenhouse trial,
Argyranthemum hybrids 'Summer Angel', 'Summer Pink', 'Lemon Delight', 'Summer Eye' and	0	None - All plants died in early frosts.	3	Moderate flowering on all colors, vigorous growth. However, plant size in all forms exceeds amount of flowering, good foliage,
Artemisia 'Oriental Limelight'	0	15% - plants still have green stems but all foliage has died. Recovery may	5	Excellent foliage color, semi-prostrate growth habit. No flowering, but striking color. Very Strong.
Bergenia hybrid 'Baby'	0	None	2	Great foliage, 6-inch
Brachycome 'Amethyst', 'City Lights' and	0	None	4	Excellent growth, strong flowering at ends of branches, tends to flower
'Toucan Tango' Calibrachoa 'Million Bells Cherry Pink', 'Terra Cotta' and 'Trailing Yellow'	2	100% - Plants are undamaged by freezes. No flowering, but foliage remains in good	5	Excellent performance, vigorous growth and flowering baskets are 36 inches in
Carex comans 'Bronze Form' and 'Leather Leaf Sedge'	5	100% - No freeze damage, and brown foliage coloration and texture excellent in winter land-	5	Plants are growing fine, but in containers, the coloration has less impact than in the landscape. Good growth. Would be excellent in
Dianthus 'Melody Pink' and 'Melody White'	2	100% - early flowering has passed and foliage damage minimal. New growth and good estab-	NA	Not trialed.
Diascia hybrid 'Coral Belle', 'Little Chamer', 'Red Ace' and 'Strawberry Sundae'	1	Most plants remain alive, but all early growth has died back. Little Chamer & Strawberry Sundae both 80% survival, Red Ace and Coral Belle around 15% survival.	5	Excellent growth and continual flowering. Impressive baskets, especially Red Ace. Very large and deep flower color. Strawberry Sundae is more compact but equally
Heuchera hybrid 'Amethyst Myst' and 'Spish Splash'	1	100% - early growth has died but crowns show new growth and establishment.	4	high in flowering. No flowering but strong growth in 6-inch pots. Both have good coloration and
Lamium galeobdolon 'Herman's Pride' and Lamium maculatum 'Golden Anniversary'	4	100% - with new growth evident and very little damage to foliage. Occasional flowers on Golden Anniversary.	5	vigorous growth. Herman's Pride very vigorous. 24-inch stems, striking variegation. Golden Anniversary more compact and continual
Lobelia 'Compact Royal Jewels' and 'Laguna Blue'	0	None	3	flowering, with strong gold- coloration. Very vigorous in baskets. Form complete globe

of bright green foliage but flowering is limited.

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	Field rating		Greenhouse rating	Greenhouse evaluations
Nemesia fruticans 'Blue Bird', 'Compact Innocence' and 'Innocence'	1	50% survival on 'Blue Bird' and 80% survival with both forms of 'Innocence.' Early foliage is gone or damaged but new growth evident on	5	All cultivars excellent growth and continual flowering. Compact Innocence seems to flower more than Innocence. Blue Bird
Dandenong Daisy 'Cream', 'Mauve', 'Purple', 'Blush', 'Rose'	1	Cream and White cultivars both died in December's hard freezes. All other colors average	2	also very strong. Minimal flowering, good growth. Some of the series appear to be more rosettes in habit than oth-
Osteospermum 'Cream Symphony', 'Lemon Symphony', 'Springstar Arctur', 'Springstar Aurora', 'Springstar Mira' and 'Springstar Sirius'	0	None	3	The symphony cultivars have great growth habit and flowering has been continual. Excellent in baskets. Springstar series has vigorous, horizontal growth; a little awkward in anything but a hanging basket. Flowering is increasing into January, but still not
Supertunia 'Mini Purple', 'Mini Strawberry Veined Pink', 'Priscilla', 'Royal Velvet' and 'White'	2	All range around 30-50% survival. White has highest survival rate at 50%; all others between 30-40%. No flowering, but green secondary growth.	4	Much earlier flowering than Surfinia series. Best of group are Priscilla - double blue veined flowers; Royal Velvet - Deep purple, rich color; Strawberry Veined pink - delayed flowering but good
Surfinia 'Blue Veined', 'Blue Violet', 'Line', 'Mini Brilliant Pink' and 'White'	2	Blue Veined 100% survival, all others between 30-40%.	2	All show vigorous growth but no flowering to speak of. Stems to 30-inch length with flower buds just beginning to show at tips. Less use as a winter
Verbena Tapien Series 'Pink', 'Lavender', 'Blue-Violet', 'Powder Blue', 'Salmon' and 'Soft Pink'	2	Best cold hardiness of all series, new growth continues on all cultivars. Salmon seems weakest in regrowth. No flowers, but strong establishment. Older foliage	3	Extremely prostrate growth, very flat in a hanging basket, but lots of good foliage, hanging 24-30 inches. Very vertical effect. Reduced flowering.
Verbena Babylon Series 'Light Blue', 'Lilac', 'Neon Rose',	2	All average 75-80% survival. Older foliage burned; new growth is slow. No	5	Slightly more upright than Tapien series, stronger flowering, and better overall
Verbena Temari Series 'Patio Blue', 'Patio Hot Pink', 'Patio Pink' and 'Patio Rose'	1	Patio Hot Pink at 30%, all others 70-80%. Upright growth and old foliage burned. No signs yet of regrowth, though stems	4	Makes a very nice symmetrical basket. Good upright growth, mounding habit. Moderate flowering has increased
Verbena Tukana Series 'Denim Blue', 'Salmon' and 'Scarlet'	1	Denim Blue and Salmon 15-20%, Scarlet 90%. No new growth or flowers evident.	3	Moderate growth and flowering. Scarlet has a weak habit and less substance in the pot, but good flowering, and a strong red color.

**Field trials.** All plants were planted on October 10-15, 2000, and Osmocote 14-14-14 with minors was incorporated at medium label rates. The winter of 2000 has proven so far to be the coldest winter in over six years for this region of the state. Beginning with first frost on November 12 and experiencing over three weeks with night temperatures below 30° F in December, the trials faced a much more demanding test than we expected.

**Greenhouse trials.** Greenhouse trials were completed in 10-inch hanging baskets, unless otherwise noted, using Fafard #2 mix, constant feed with Peters 15-5-15, natural photoperiod and temperatures of 58° F night and 75° F day. The average light level was 550  $\mu\text{mol}\cdot\text{m}^2\cdot\text{s}^{-1}$ . All ratings were done at

# annuals

12 weeks from planting, so baskets evaluated were large and past market in terms of shipping. However, performance ratings are averages of the entire production cycle.

## GENERAL RESULTS

In general, the year 2000 proved too much for many of the plants in the trials. Six nights below 20° F and 12 nights below 30° F took a high toll among the trial materials. However, there are

two categories (shown in Fig. 1) worthy of further consideration: those plants that came through the winter relatively undamaged by the freezes (winter hardy) and those plants that may not add anything to the landscape, but are alive and well (semi hardy), will be established for extended spring flowering. If the 2000 winter is colder than "normal," performance on both sets of plants could be expected to improve

Figure 1. Categorization of trialed plants.

Winter Hardy	
Acorus gramineus 'Ogon' and 'Variegatus'	Form' and 'Leather Leaf Sedge'
Ajuga reptans 'Mahogany'	Dianthus 'Melody Pink' and 'Melody White'
Calibrachoa Million Bells - 'Cherry Pink', 'Terra Cotta', 'Trailing Yellow'	Heuchera hybrid 'Amethyst Myst' and 'Spish Splash'
Carex comans 'Bronze'	Lamium galeobdolon 'Herman's Pride'
Semi Hardy	
Diascia hybrid 'Coral Belle', 'Little Chamer', 'Red'	Ace' and 'Strawberry Sundae'
	Nemesia fruticans 'Blue Bird',

Table 3. Top Spring & Winter performers 1996-2000

Cultivar Name & Source	Notes
Black Gamecock Iris - Emerald Coast Growers	Excellent purple-black color and vigorous growth.
Verbena 'Twilight' series - Flowerfields	All perform well from fall plantings; spring plantings less vigorous. Flowering stops as temperatures rise, but plants have persisted for two years; repeat blooming when conditions allow.
Trailing Snapdragon 'Chandelier' and 'Luminaire' - Flowerfields & Ball Floraplant	Excellent in hanging containers, many survive over the summer. Limited landscape performance.
Snapdragon Solstice series - PanAmerican Seed	Excellent for April flowering, long stems, strong colors.
Daylily 'Hall's Pink' - Emerald Coast Growers	Four-foot spikes of strong pink, long lasting.
Calibrachoa 'LiricaShower' - Flowerfields	All Calibrachos seem to have excellent winter survival rates, excellent spring flowering. Heat stops the winter plant and spring season seems

during milder winters.

While these "hardiness" ratings will be fairly specific for areas along the latitude of northern Florida, they are also true for growers a little farther north in cool greenhouse production or in getting a jump on the spring season.

One thing we can say for harsher winters is that they bring the customers out in spring to replace what was lost over the winter. With last year's drought, most growers are looking for a strong spring to get things back on track for 2001. These are some crops with excellent potential. Other strong crops for spring,

based on previous years of trialing in north Florida's Milton gardens, appear in Table 3.

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