

Abstract. Rooted cuttings of vegetatively propagated annuals from Proven Winners were planted on February 23, 2016. All cultivars were planted as 3 groups of 6 plants that were randomly placed in the garden. During the second week of each month, evaluations were conducted to measure quality rating. Quality was rated on a scale of 1 to 5 with 5 = excellent and 1 = poor. A consumer preference survey was conducted on March 23, 2017.

Materials and Methods

Transplant production. Rooted liners of cultivars were transplanted into 400 ml round pots filled with Pro-mix 'BX' (Premier Horticulture Inc., Red Hill PA). After transplanting, plants were placed in an open-sided greenhouse exposed to ambient air temperatures of 30°C day/21°C night. Plants were placed in the greenhouse in January 2017. Plants were watered daily and fertilized at planting with 5 g of Osmocote 15N-4.05P-9.96K (The Scotts Company, Marysville, Ohio).

Field evaluation. The garden has a Margate fine sand soil with 1.6% organic matter, a pH of 6.74, a soluble salt level of 0.30 mS/cm, a nitrate (NO₃-N) concentration of 9.00 mg/kg, an ammonium (NH₄-N) concentration of 5.00 mg/kg, a phosphorus (P) concentration of 27.00 mg/kg, and a potassium (K) concentration of 3.7 mg/kg (samples collected from top 6 inches of soil). Samples were analyzed by the University of Florida's soil testing laboratory.

Four inch pots with the plants were transplanted into the garden on March 13, 2017. Eighteen plants of each cultivar were planted in the garden as 3 randomly placed groups of 6 plants per cultivar. One week after the initial planting, 2 groups of plants were removed from the 4-inch pots and planted directly into the ground. For the first week, plants were watered every day for 30 minutes applying 30 ml of water. The second week, irrigation frequency was increased to 1 hour every day applying 60 ml of water for two weeks, and then reduced to 30 minutes every other day.

Data collection. Monthly mean air temperature, humidity, solar radiation, rainfall and wind speed were collected using the Florida Automated Weather Network (FAWN) system (Table 2). During the second week of every month, plant quality was recorded for each individual plant in the garden (Table 3).

A consumer preference survey also was conducted in which participants were asked to check all of the cultivars that they liked. The survey was conducted on March 23, 2017 (Table 4).

Results and Discussion

The weather data collected shows temperature, humidity and solar radiation were close to the average south Florida weather, maximum wind speed was higher than average, and rain fall was well below average.

Due to high wind speeds, high light, and low relative humidity, irrigation was not sufficiently watering the plants for the first three weeks of the trial. Therefore, one week after planting, plants were rapidly declining. The plants were hand watered, and two groups were removed from the 4-inch pots and planted directly into the soil. Irrigation was also increased to one hour every day for the following 2 weeks. During this time, maximum wind speed decreased and rainfall increased resulting in improved plant vigor. At this time, irrigation was reduced to 30 minutes every other day over the remainder of the trial. (Table 2)

Plants reached their peak at 90 DAP. The plants with the highest quality and most improvement or consistency throughout the trial were Canna Toucan Coral, Dark Orange, Rose, Scarlet, and Yellow, Gaura Wonderful Petite Pink Imp, Lantana Luscious Royale Cosmo, Osteospermum Bright Light Moonglow, Phlox Intensia Red Hot, Salvia Purple, and Thunbergia A-Peel Lemon, Orange, Tangerine Slice. (Table 3)

The highest rated cultivars from the consumer survey were Calibrachoa Superbells Plum, Calibrachoa Superbells Rising Star, Lantana Luscious Royale Cosmo, Osteospermum Bright Light Double Moonglow, and Phlox Intensia Red Hot. (Table 4)

Table 1. List of cultivars planted in the Fort Lauderdale Trial garden on March 9, 2017

Plant	Series	Variety
Argyranthemum		Golden Butterfly, Pure White Butterfly, White Butterfly
Bidens	Campfire	Fireburst Imp
Calendula		Orange
Calibrachoa	Superbells	Blue Moon Punch, Double Ruby, Over Easy Imp, Plum, Rising Star, White Imp
Canna	Toucan	Coral, Dark Orange, Rose, Scarlet, Yellow
Cuphea	Fairy dust	Pink
Dahlia	Dahlightful	Crushed Crimson, Tupelo Honey
Diascia	Flirtation	Pink Imp
Gaura	Wanderful	Petite Pink
Hypoestes	Hypnotic	Red
Lantana	Luscious Royale	Cosmo
Osteospermum	Bright Lights Double	Moonglow
Petunia	Supertunia	Bordeaux, Ginger Charm, Hot Pink Charm, Lovie Dovie, Mulberry Charm, Vista Silverberry, Vista Bubblegum, Vista Fuchsia, Vista Valentine, Vista Silverberry
Phlox	Intensia	Blueberry, Red Hot, White Imp
Salvia		Playin' the Blues Imp, Purple
Thunbergia	A-Peel	Lemon, Orange, Tangerine Slice
Verbena	Superbena	Royale Peachy Keen Imp, Royale Red, Royale Romance, Royale Whitecap

Table 2. Average mean air temperature, solar radiation, and rainfall measured at the University of Florida Fort Lauderdale Research and Education Center during February and June of 2017. The Florida Automated Weather Network (FAWN) collected the weather data.

Month/Year	Avg. Mean Air Temperature (°C)	Avg. Humidity	Avg. Mean Solar Radiation (W•m⁻²)	Monthly Rainfall (inches)	Maximum Monthly Wind (mph)
February 2017	21.89	79	185.84	1.42	27.32
March 2017	21.40	71	235.26	2.4	31.30
April 2017	23.88	73	244.89	6.2	25.2
May 2017	26.25	74	286.77	3.8	33.7
June 2017	26.39	85	174.08	13.28	42.18

Table 3. Plant rating. Data was collected at initial, 30, 60, 90 and 120 Days after planting (DAP)

Cultivar	Initial Feb 2017	30 DAP March 2017	60 DAP April 2017	90 DAP May 2017	120 DAP June 2017
Argyranthemum					
Golden Butterfly	4.5	2.0	3.0	3.5	3.0
White Butterfly	4.0	3.5	4.0	4.0	3.0
Vanilla Butterfly	4.0	2.0	3.0	4.0	2.5
Bidens					
Campfire Fireburst Imp	3.0	1.0	2.0	2.5	0
Calendula					
Orange	3.5	2.5	3.0	4.0	0
Calibrachoa					
Superbells Blue Moon Punch	4.0	2.5	3.0	3.0	2.5
Superbells Double Ruby	4.0	1.0	2.0	2.0	2.0
Superbells Over Easy Imp	4.5	2.0	2.0	3.0	2.5
Superbells Plum	4.0	3.0	3.5	3.5	2.5
Superbells Rising Star	4.5	1.0	2.0	2.5	2.5
Superbells White Imp	4.0	3.0	3.0	3.5	2.5
Canna					
Toucan Coral	4.5	5.0	5.0	5.0	4.0
Toucan Dark Orange	4.5	5.0	5.0	5.0	4.0
Toucan Rose	4.5	5.0	5.0	5.0	4.0
Toucan Scarlet	4.5	5.0	5.0	5.0	4.0
Toucan Yellow	4.5	5.0	5.0	5.0	4.0
Cuphea					
Pink	3.0	1.0	1.5	1.0	1.0

Dahlia					
Crushed Crimson	3.0	2.0	2.5	2.0	1.5
Tupelo Honey	3.5	3.0	3.5	2.5	1.5
Gaura					
Wanderful Petite Pink Imp	5.0	4.5	4.5	4.5	4.0
Lantana					
Luscious Royale Cosmo	5.0	5.0	5.0	5.0	5.0
Osteospermum					
Bright Light Moonglow	4.0	3.0	3.5	4.5	3.0
Petunia					
Supertunia Bordeaux	3.5	3.0	3.5	3.5	2.5
Supertunia Fuchsia	4.0	3.5	3.0	4.0	3.0
Supertunia Hot Pink Charm	3.5	1.0	1.0	3.0	2.0
Supertunia Lovie Dovie	3.5	3.0	3.5	4.0	2.5
Supertunia Mulberry Charm	4.0	3.0	3.5	3.5	1.5
Supertunia Vista Bubblegum	4.0	2.0	3.0	4.0	3.0
Supertunia Vista Silverberry	3.5	3.0	3.0	4.0	3.0
Phlox					
Intensia Blueberry	3.0	2.5	3.0	3.0	3.0
Intensia Red Hot	3.5	4.0	4.0	4.5	3.5
Intensia White	3.0	2.5	2.5	3.0	3.0
Salvia					
Playin The Blues	4.5	3.0	3.0	3.5	4.0

Purple	4.5	3.5	4.0	4.5	4.0
Thunbergia					
A-Peel Lemon	4.5	5.0	5.0	5.0	4.0
A-Peel Orange	4.5	5.0	5.0	5.0	4.0
A-Peel Tangerine Slice	4.5	5.0	5.0	5.0	4.0
Verbena					
Superbena Cherryburst	3.0	3.0	3.0	4.0	2.5
Superbena Plum Imp	3.5	2.0	2.5	3.5	2.5
Superbena Stormburst	4.0	3.0	3.0	4.0	3.0

Table 4. Consumer preference survey conducted on March 23 2017.

Cultivar	Survey (%) 70 Surveys
Argyranthemum	
Golden Butterfly	34
Butterfly	27
White Butterfly	11
Bidens	
Campfire Fireburst Imp	14
Calendula	
Orange	29
Calibrachoa	
Superbells Blue Moon Punch	30
Superbells Double Ruby	24
Superbells Over Easy	17
Superbells Plum	71
Superbells Rising Star	50
Superbells White	30
Canna	
Toucan Coral	27
Toucan Dark Orange	33
Toucan Rose	39
Toucan Scarlet	41
Toucan Yellow	31
Cuphea	
Fairy Dust Pink	4

Dahlia	
Dahlightful Crimson	16
Dahlightful Tupelo Honey	47
Diascia	
Flirtation Pink Imp	9
Gaura	
Wanderful Petite Pink Imp	46
Hypoestes	
Hypnotic Red	47
Lantana	
Luscious Royale Cosmo	54
Osteospermum	
Bright Light Double Moonglow	63
Petunia	
Supertunia Bordeaux	23
Supertunia Ginger Charm	27
Supertunia Hot Pink Charm	14
Supertunia Lovie Dovie	37
Supertunia Mulberry Charm	29
Supertunia Vista Bubblegum	7
Supertunia Vista Fuchsia	27
Supertunia Vista Silverberry	16
Supertunia Vista Valentine	53
Phlox	
Intensia Blueberry	43
Intensia Red Hot	91
Intensia White	7

Salvia	
Rockin Deep Purple	21
Rockin Playin' the Blues	6
Thunbergia	
A-Peel Lemon	7
A-Peel Orange	10
A-Peel Tangerine Slice	26
Verbena	
Superbena Royale Cherryburst	3
Superbena Royale Stormburst	9
Superbena Royale Violet Ice	10

Results are based on the percentage of respondents who chose that cultivar as one that they liked. A total of 70 surveys were completed.