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## EVALUATION OF IMPATIENS: SPRING AND FALL 1983<sup>1</sup>

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**Abstract.** *Impatiens* (*Impatiens wallerana* Hook. f.) cultivars were grown in replicated trials at the Gulf Coast Research and Education Center, Bradenton, FL during the spring and fall of 1983. Produced as bedding plants, the *impatiens* cultivars were grown under shade and evaluated for time to flower, flower size and color, growth habit, plant height and width, and general horticultural characteristics. Cultivar performance in 10-inch baskets and 4-inch pots was evaluated in the fall. Results indicate that there is a wide range of cultivars from which producers may select for bedding plant or container use. Cultivar selection may be based upon flower color, earliness of flowering, and anticipated final plant size.

Sales of Florida bedding plants, foliar and flowering, totaled \$6.5 million in 1981, the last year that production and sales figures were documented by the USDA (1, 2). This was a 25% increase from 1980 and projections estimated a 14% increase in production area for 1982. Trends indicated that the 1980's would have a production outlook which was excellent (3). Since Florida was ranked sixth in the nation in 1981 in the production of flowering and foliar bedding plants, evaluation of prominent flowering annuals was regarded as necessary to provide information on cultivar performance to commercial growers. Bedding plant evaluations at the Gulf Coast Research and Education Center, Bradenton, FL in 1982 included marigold and zinnia (5, 6).

*Impatiens* was chosen for evaluation in 1983 since it is the best-selling bedding plant according to a survey of bedding plant producers (8). It is ranked as the fifth most popular annual in catalog or direct packet seed sales to homeowners (National Garden Bureau, Inc., personal communication). The suitability of *impatiens* to growing areas with low light conditions has made it useful in the landscape where many other annuals perform poorly. The versatility of this species is increasing due to the development of

improved dwarf cultivars, hybrid strains, and an expanding color selection (4). *Impatiens* were evaluated when grown in beds during the spring and fall, and in containers (4-inch pots and 10-inch baskets) during the fall.

### Materials and Methods

*Field bed trial—Spring and Fall, 1983.* Seed of 24 cultivars of *impatiens* in the spring and 30 cultivars in the fall were sown in flats filled with peat:vermiculite medium (1:1 v/v) on January 3 and August 31-September 1, respectively. Seedlings were transplanted 2 weeks later into Todd Planter flats (1½ x 1½ inch cell size, model 150) filled with peat:vermiculite medium (1:1 v/v). Both sowing and transplant medium were identical and amendments included dolomite (16.9 lb./yd<sup>3</sup>), superphosphate (0-20-0 at 5.6 lb./yd<sup>3</sup>) and Micromax (1.1 lb./yd<sup>3</sup>). Transplants received 465 ppm 20-20-20 liquid fertilizer (Nutrileaf) at irregular intervals until setting in field beds.

Beds of EauGallie fine sand (7) were formed under a black polypropylene shade structure (30% shade) to a width of 39 inches on 7-ft centers. Beds were fumigated with Dowfume MC-2® (98% methyl bromide and 2% chloropicrin) at 650 lb./acre and covered for 3 days with polyethylene sheets. Slow release fertilizer (890 lb./acre Osmocote® 18-6-12) was broadcast over the bed surface and lightly incorporated by hand raking. Superphosphate (0-20-0) plus fritted trace elements (FTE 503®) and dolomite were applied to the trial area before bedding in the spring at the rate of 540 lb./acre each, while in the fall only superphosphate plus fritted trace elements was applied with the other bed fertilizer at the rate of 500 lb./acre. Irrigation water was supplied via 2 trickle tubes (4 mil biwall, 4-inch orifice spacing) which were spaced 7 inches to each side of the bed center. Water was applied at an average rate of 0.15 to 0.2 inches per day as warranted and supplemental to rainfall. The beds were covered with white polyethylene plastic.

Plants were set into beds on 14-inch centers with 3 rows per bed on March 9 (spring trial) and October 10 (fall trial). Four replicates of 6 plants per plot were arranged in a randomized complete block design. Cultivars were evaluated as in previous studies (5, 6). The spring trial was terminated on July 21 and the fall trial was killed in a freeze on December 25.

*Ten-inch basket trial—Fall 1983.* Seed of 36 *impatiens* cultivars were sown and transplants produced as described above. Plants were set in baskets (10-inch diameter) filled

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with a peat:vermiculite:sand:perlite (1.6:1:1:0.5 v:v) medium. Amendments included dolomite (18.7 lb.), superphosphate (4.7 lb.), Micromax (1.4 lb.), and Osmocote 18-6-12 (8.0 lb.), all per cubic yard of medium. Five plants of each cultivar were set in each of 3 baskets on October 17. Baskets were hung in a randomized complete block design in the saranhouse structure described above. Plants were watered by hand daily. Data were taken on the number of days from transplant until all plants in a basket were flowering, and ratings were made on overall appearance (scale 1-5), floriferousness (scale 1-3), and plant habit (scale 1-5). All plants were killed in a freeze on December 25.

**Four-inch pot trial—Fall 1983.** Seed of 37 impatiens cultivars were sown August 31 and September 1 into Todd Planter flats (3/4 x 3/4 inch cell size, Model 080A) containing the peat-vermiculite medium described above. The "plug" type transplants were set one per 4-inch pot on October 3. The potting medium was identical to that used for the 10-inch baskets except that Osmocote 19-6-12 (8.5 lb./yd<sup>3</sup>) was used. Eight pots of each cultivar were arranged on a bench in a randomized complete block design in a saran-sided greenhouse. Pots were spaced on 6-inch centers. Light intensity in the greenhouse was approximately 3400 ft-c at noon on days of full sun (8100 ft-c) in early October. By early December, light intensity dropped to 1100 ft-c in the greenhouse. Data were taken on plant height and the number of days from setting to flower. Plant ratings were made as for the 10-inch baskets.

### Results and Discussion

Temperature and rainfall records for 1983 appear in

Table 2. Growth and performance of impatiens cultivars in beds at the Gulf Coast Research and Education Center, Bradenton, March 10 through July 21, 1983.

Cultivar	Days to flower <sup>z,y</sup>	Plant ht at transplant (inches)	Plant ht in May <sup>x</sup> (inches)	Plant diam in May <sup>x</sup> (inches)	Plant ht in June <sup>w</sup> (inches)	Plant diam in June <sup>w</sup> (inches)	Rating in July <sup>v</sup>	Flower color
Baby F <sub>1</sub>	22.4 a <sup>u</sup>	8.6 bc	15.2 a	20.6 a	22.0 a	23.9 ab	6.9 c-e	Solids mix
Double All-Color F <sub>1</sub>	17.1 b	8.3 b-e	12.1 bc	14.9 k	17.1 cd	28.0 fg	7.7 e	Solids mix
Ripples F <sub>1</sub>	16.1 bc	5.4 m	9.4 e-h	19.1 bc	16.7 de	20.5 c-f	5.0 a-c	Star mix
Duet (double) F <sub>1</sub>	16.1 bc	7.7 d-g	12.2 bc	16.2 i-k	17.1 cd	19.1 d-g	4.6 ab	Red/white
Twinkles F <sub>1</sub>	15.9 bc	5.5 lm	9.2 e-h	17.9 b-g	16.6 de	19.3 d-g	6.1 b-e	Star mix
Fantasia F <sub>1</sub>	15.2 b-d	5.5 lm	8.4 hi	18.7 b-d	14.5 f	20.6 c-e	6.6 b-e	Solids & stars mix
Double Bi-color F <sub>1</sub>	14.4 b-e	9.0 b	12.8 bc	16.8 f-j	17.1 cd	20.5 c-f	6.1 b-e	Red/White
Zig Zag F <sub>1</sub>	13.6 c-f	7.7 c-f	11.5 cd	19.3 ab	19.0 bc	21.3 cd	7.4 de	Solids & stars mix
Futura F <sub>1</sub>	12.6 d-g	7.5 e-h	9.4 e-h	17.3 d-j	14.7 ef	20.6 c-e	6.2 b-e	Solids & stars mix
Imp F <sub>1</sub>	12.3 d-g	6.4 i-l	10.1 e-g	18.4 b-f	17.7 cd	19.9 c-f	6.2 b-e	Solids mix
Gem F <sub>1</sub>	11.1 e-g	7.6 d-h	9.5 e-h	17.8 b-h	18.1 b-d	20.5 c-f	6.1 b-e	Solids mix
Crazy Quilt F <sub>1</sub>	11.3 e-h	8.1 b-e	10.5 de	18.6 b-e	19.2 bc	21.0 c-e	7.7 e	Solids & stars mix
Shady Lady Orange F <sub>1</sub>	11.0 e-i	5.8 k-m	8.9 f-h	16.3 g-k	16.7 de	19.1 d-g	6.2 b-e	Red-orange
Huckabuc F <sub>1</sub>	10.8 f-i	6.8 g-j	10.6 de	18.2 b-f	18.0 b-d	22.1 bc	7.2 de	Purple/white star
Shady Lady F <sub>1</sub>	10.2 f-j	6.3 i-m	9.5 e-h	16.9 e-j	17.2 cd	20.7 c-e	5.4 a-d	Solids & stars mix
Super Elfin F <sub>1</sub>	10.1 g-j	6.4 i-l	8.2 hi	16.1 i-k	14.7 ef	19.1 d-g	5.7 a-e	Solids mix
Grande F <sub>1</sub>	8.0 h-k	6.3 i-m	10.2 d-f	18.0 b-f	16.7 de	20.1 c-f	6.9 c-e	Solids & stars mix
Minette F <sub>1</sub>	7.7 i-l	6.7 h-k	8.8 gh	16.9 e-j	17.2 cd	20.4 c-f	5.7 a-e	Solids & stars mix
Blitz F <sub>1</sub>	7.3 j-l	8.3 b-e	11.6 cd	17.7 c-i	18.6 b-d	20.4 c-f	3.9 a	Scarlet
Sherbet F <sub>1</sub>	6.6 k-m	5.8 j-m	7.4 i	15.7 jk	13.3 f	18.6 e-g	4.7 a-c	Pastel solids w/eyes mix
Tangeglow o.p.	6.6 k-m	10.7 a	13.2 b	19.3 a-c	23.0 a	25.7 a	6.7 b-e	Tangerine orange
Grand Prix F <sub>1</sub>	6.3 k-m	8.4 b-d	12.8 bc	18.7 b-d	20.0 b	21.3 cd	5.6 a-e	Solids mix
Showstopper F <sub>1</sub>	4.4 l-m	5.8 k-m	7.1 i	14.9 k	13.3 f	17.3 g	3.6 a	Pink w/rose eye
Novette F <sub>1</sub>	3.6 m	6.9 f-i	8.2 hi	17.0 e-j	16.5 de	20.0 c-f	5.4 a-d	Solids mix

<sup>z</sup>From transplant date.

<sup>y</sup>Flowering equal to the first bloom per plant.

<sup>x</sup>May 2, 1983.

<sup>w</sup>June 15, 1983.

<sup>v</sup>July 7, 1983; Rating scale: 1 = excellent, 5 = acceptable, 10 = very poor.

<sup>u</sup>Mean separation within columns by Duncan's multiple range test, 5% level.

Table 1. The spring trial was in the ground from March 10 through July 21 and the fall trial from October 17 through December 25.

Table 1. Temperature and rainfall data taken at the Gulf Coast Research and Education Center, Bradenton, FL, during 1983.<sup>z</sup>

Month	Daily average temperature (°F)		Rainfall (inches)
	Maximum	Minimum	
January	71	47	2.32
February	71	51	9.98
March	73	52	8.63
April	81	57	2.42
May	84	61	1.17
June	90	70	6.79
July	92	72	7.44
August	92	74	6.87
September	89	71	6.45
October	86	62	4.91
November	77	56	4.43
December <sup>y</sup>	73	52	6.23

<sup>z</sup>Taken from: Stanley, C. D. 1984. Temperature and rainfall report for 1983. Bradenton GCRC Res. Rpt. BRA1984-1.

<sup>y</sup>Freezing temperatures on December 25, 26 and 27.

**Field bed trials—Spring and Fall 1983.** *Spring.* Of the 24 impatiens cultivars evaluated in the spring of 1983, the majority provided a good show of color, had fairly uniform plant size and provided a blanketed appearance to the trial beds. Practical differences among cultivars included the number of days to flower from transplant and plant dimensions (Table 2). Earliest flowering cultivars were 'Novette' (3.6 days), 'Showstopper' (4.4 days), 'Grand Prix' (6.3 days),

'Tange glow' and 'Sherbet' (6.6 days). These were significantly earlier than many of the remaining cultivars examined. The most compact plants, as judged from June height and diameter measurements, were produced by 'Showstopper', 'Sherbet', and 'Fantasia' which were statistically similar in height to only 'Super Elfin' and 'Futura.' Largest plants were produced by 'Baby' and 'Tange glow'. Of the two, 'Tange glow' was judged unattractive due to the growth habit which produced very thick stems, an open canopy and a branching pattern which resembled a hat-tree.

Other cultivars which had undesirable traits were 'Double All-Color' and 'Double Bi-Color' which were inconsistent in the production of fully double blooms. The term 'semi-double' is a more appropriate description of the flowers. They also had a tendency to produce plants of varying sizes and displayed susceptibility to stem disease which eventually caused lateral stems to break from the main stem. Cultures of stem tissue produced inconclusive information in the identification of the pathogens.

In July, plots were generally declining in quality and at that time overall ratings for appearance (scale: 1 = excellent; 10 = very poor) were given to all cultivars in order to isolate those which maintained good quality into mid-summer. The best ratings were given to 'Showstopper', 'Blitz', 'Duet', 'Sherbet', and 'Ripples' which all had average

plot ratings of 5.0 or less.

*Fall.* Performance of impatiens cultivars in the fall was similar to the spring (Table 3). Of the 30 cultivars evaluated in the fall, 21 were examined in the spring trial. Earliest blooming cultivars included all of the 'Princess' types, 'Showstopper', 'Novette', 'Super Elfin Blush', 'Shady Lady Orange', and 'Minette', all of which flowered in less than 20 days from transplant. These were significantly earlier than at least one-third of the cultivars tested. The 5 cultivars which produce double flowers took the greatest time to show the first flower, being among the last 6 to bloom. Flower diameters ranged from 1.9 inches ('Blitz') to 1.3 inches ('Princess Ruby'). Plant heights were measured on December 19 and showed that, as in the spring, 'Tange glow' was the largest (17.7 inches), but was not significantly different from 7 other entries. The shortest cultivars were 'Super Elfin Blush', 'Super Elfin' mix, 'Fantasia' and these were similar in height to 14 other cultivars.

'Tange glow', 'Double All-Color', and 'Double Bi-Color' had characteristics similar to those mentioned for the spring with the exception that disease problems were not evident for the double cultivars. Another poor performer was 'Morton Double' which had spectacular, fully double flowers but a poor plant habit. The plants were tall, open and lacked prolific branching common to most impatiens culti-

Table 3. Growth and performance of impatiens cultivars in beds at the Gulf Coast Research and Education Center, Bradenton, October 10 through December 25, 1983.

Cultivar	Days to flower <sup>z,y</sup>	Plant ht at flower <sup>z,y</sup> (inches)	Flower diam <sup>x</sup> (inches)	Plant ht Dec. <sup>w</sup> (inches)	Plant diam Dec. <sup>w</sup> (inches)	Flower color
Double Bi-color F <sub>1</sub>	36 a <sup>v</sup>	7.4 a	1.4 g	15.8 a-e	19.9 d-f	Red/white
Duet (double) F <sub>1</sub>	33 ab	6.6 ab	1.5 e-g	16.1 a-d	21.3 b-f	Red/white
Double All-color F <sub>1</sub>	33 ab	6.0 b-d	1.4 gh	13.3 e-k	18.7 f	Solids mix
Twinkles F <sub>1</sub>	31 a-c	4.5 a-b	1.4 gh	12.0 i-k	20.8 b-f	Stars mix
Moreton Double F	29 b-d	7.2 a	1.8 a-c	17.0 ab	20.5 b-f	Solids mix
Rosette (double) F <sub>1</sub>	29 b-d	6.2 bc	1.4 gh	15.6 a-f	20.3 b-f	Solids & stars mix
Fantasia F <sub>1</sub>	28 b-d	4.4 e-h	1.6 c-f	11.8 jk	19.6 d-f	Solids & stars mix
Huckabuc F <sub>1</sub>	27 c-e	5.1 d-f	1.5 d-g	15.2 a-g	20.6 b-f	Purple/white star
Tange glow o.p.	27 c-f	6.8 ab	1.6 b-e	17.7 a	25.1 a	Tangerine orange
Shady Lady F <sub>1</sub>	27 c-f	4.5 e-h	1.4 f-h	13.7 d-k	20.5 b-f	Solids & stars mix
Baby F <sub>1</sub>	27 c-f	5.3 c-e	1.5 d-g	13.8 d-j	21.3 b-f	Solids mix
Grand Prix F <sub>1</sub>	26 c-g	5.1 d-f	1.8 ab	16.4 a-c	22.7 bc	Solids mix
Grande F <sub>1</sub>	24 d-h	4.5 e-h	1.6 c-f	13.9 c-i	20.3 b-f	Solids & stars mix
Futura F <sub>1</sub>	24 d-i	4.5 e-h	1.6 b-e	13.0 f-k	20.0 c-f	Solids & stars mix
Sherbet F <sub>1</sub>	24 d-i	4.4 e-h	1.5 d-g	13.6 d-k	20.2 b-f	Pastel solids w/eyes mix
Super Elfin F <sub>1</sub>	23 d-j	4.1 f-h	1.5 d-g	11.5 jk	20.2 b-f	Solids mix
Zig Zag F <sub>1</sub>	23 d-j	5.4 c-e	1.5 d-g	14.7 b-h	21.9 b-e	Solids & stars mix
Cinderella F <sub>1</sub>	23 d-j	5.1 d-f	1.5 d-g	14.0 c-j	22.2 b-d	Solids mix
Blitz F <sub>1</sub>	22 e-k	4.2 f-h	1.9 a	15.4 a-f	20.6 b-f	Scarlet
Gem F <sub>1</sub>	22 f-k	4.4 e-h	1.4 gh	14.9 b-h	22.9 ab	Solids mix
Novette Improved F <sub>1</sub>	21 g-k	3.9 gh	1.5 d-g	12.5 h-k	21.9 b-e	Solids mix
Minette F <sub>1</sub>	19 h-k	3.8 h	1.4 gh	12.6 g-k	21.1 b-f	Solids & stars mix
Shady Lady Orange F <sub>1</sub>	19 h-k	4.1 gh	1.4 f-h	12.3 h-k	19.3 ef	Red-Orange
Princess F <sub>1</sub>	19 h-k	5.1 d-f	1.5 d-g	14.5 b-i	21.0 b-f	Solids mix
Super Elfin Blush F <sub>1</sub>	19 i-l	4.6 e-h	1.4 gh	11.1 k	19.6 d-f	Light pink/scarlet eye
Princess White w/eye F <sub>1</sub>	18 j-l	4.9 e-g	1.5 d-g	12.4 h-k	19.8 d-f	Very light pink/dark pink eye
Novette F <sub>1</sub>	17 kl	3.8 h	1.5 e-g	13.3 e-k	22.6 bc	Solids mix
Princess Ruby F <sub>1</sub>	17 kl	4.5 e-h	1.3 h	16.6 ab	21.0 b-f	Dark pink
Showstopper F <sub>1</sub>	16 kl	4.2 f-h	1.5 d-g	12.0 i-k	20.8 b-f	Pink w/rose eye
Princess Coral Dk. Margin F <sub>1</sub>	13 l	4.1 f-h	1.7 b-d	12.5 h-k	20.8 b-f	Coral

<sup>z</sup>From transplant date.

<sup>y</sup>Flowering equal to the first bloom per plant.

<sup>x</sup>Diameter for first open bloom per plant.

<sup>w</sup>December 19, 1983.

<sup>v</sup>Mean separation within columns by Duncan's multiple range test, 5% level.

vars. While pinching or growth retardants may enhance plant habit, it may also delay an already late blooming cultivar.

*Ten-inch baskets.* Performance of impatiens cultivars in 10-inch baskets paralleled their performance in beds. The times of flowering were essentially the same as were the growth habits (Table 4). The baskets were rated at a time of peak quality for overall appearance, floriferousness and plant habit. The best cultivars were ones which scored 1.0 in all 3 categories. Only 'Showstopper' and 'Super Elfin Blush' scored in the excellent range for all parameters. These cultivars were very compact, covered by numerous flowers and formed symmetrically filled baskets. Poorest cultivars for use in baskets were those which flowered later and had a straggling habit, such as 'Tange glow', 'Moreton Double', 'Huckabuc', 'Grand Prix', and 'Cinderella'.

*Four-inch pots.* Data on the impatiens cultivars examined in 4-inch pots are arranged in Table 5. Flowering of cultivars was nearly identical, in terms of the relative order of bloom, to the fall ground bed and basket trials. 'Novette' cultivars, 'Princess' cultivars, 'Super Elfin' cultivars, 'Shady

Lady Orange,' and 'Cinderella' were among the earliest to flower. Plant heights were taken throughout the trial; the last measurement listed was made on November 16 after the plants were allowed to stretch due to crowding on the bench. Cultivars which were still considered saleable included those which scored well in the ratings taken on November 23. Generally, dwarf cultivars were judged the most acceptable after being held 7 weeks after transplant.

*Summary.* Selection of impatiens cultivars for use in ground beds, baskets, or 4-inch pots should be made based on the time of flowering, ultimate growth habit and flower color. Earliest flowering cultivars allow transplant producers to sell flats of plants displaying floral color sooner than later flowering cultivars, and this allows greenhouse space to be turned over more rapidly. The proper habit of a plant in bed or containers affects the initial sale or the return of customers if the plants become unattractive during or after the purchase of impatiens. The dwarf cultivars appear to afford the most flexibility in use (e.g. beds or containers) and hold their quality longer.

Table 4. Growth and performance of impatiens cultivars in 10-inch baskets at the Gulf Coast Research and Education Center, Bradenton, October 17 through December 25, 1983.

Cultivar	Days to full flower <sup>z</sup>	Ratings: December 7, 1983			Flower color
		Overall <sup>y</sup>	Floriferousness <sup>x</sup>	Habit <sup>w</sup>	
Baby F <sub>1</sub>	44 a <sup>v</sup>	3.7 b-d	1.3 cd	3.7 b-d	Solids mix
Double All-color F <sub>1</sub>	40 ab	3.7 b-d	2.3 a-c	3.7 b-d	Solids mix
Double Bi-color F <sub>1</sub>	40 ab	3.0 c-f	2.3 a-c	2.7 d-g	Red/white
Crazy Quilt F <sub>1</sub>	40 ab	3.7 b-d	2.7 ab	3.7 b-d	Bi-color mix
Moreton Double F <sub>1</sub>	39 a-c	4.7 ab	3.0 a	4.7 ab	Solids mix
Huckabuc F <sub>1</sub>	37 a-d	3.3 c-e	1.7 b-d	4.0 a-c	Purple/white star
Ripples F <sub>1</sub>	35 a-e	3.0 c-f	1.7 b-d	2.7 d-g	Star mix
Rosette (double) F <sub>1</sub>	33 a-f	3.0 c-f	2.3 a-c	2.7 d-g	Solids & stars mix
Fantasia F <sub>1</sub>	33 a-f	1.3 hi	1.7 b-d	1.7 g-i	Solids & stars mix
Twinkles F <sub>1</sub>	32 b-g	2.7 d-g	2.0 a-d	2.3 e-h	Star mix
Duet (double) F <sub>1</sub>	31 b-g	3.0 c-f	2.3 a-c	3.0 c-f	Red/white
Grande F <sub>1</sub>	30 b-g	2.0 f-i	1.3 cd	2.3 e-h	Solids & stars mix
Shady Lady F <sub>1</sub>	29 b-h	2.7 d-g	1.3 cd	3.0 c-f	Solids & stars mix
Grand Prix F <sub>1</sub>	27 c-i	4.0 a-c	2.0 a-d	4.0 a-c	Solids mix
Gem F <sub>1</sub>	26 d-j	2.0 f-i	1.0 d	2.3 e-h	Solids & stars mix
Minette F <sub>1</sub>	26 d-j	1.3 hi	1.0 d	1.3 hi	Solids & stars mix
Futura F <sub>1</sub>	26 d-j	3.3 c-e	2.0 a-d	3.7 b-d	Solids & stars mix
Tange glow o.p.	25 d-j	5.0 a	3.0 a	5.0 a	Tangerine orange
Cinderella F <sub>1</sub>	24 e-j	4.0 a-c	2.3 a-c	4.0 a-c	Solids mix
Sherbet F <sub>1</sub>	24 e-j	2.0 f-i	2.0 a-d	1.3 hi	Pastel solids w/eyes
Super Elfin F <sub>1</sub>	24 e-k	1.7 g-i	1.0 d	1.7 g-i	Solids mix
Norette Improved F <sub>1</sub>	23 e-k	1.0 i	1.0 d	1.3 hi	Solids mix
Zig Zag F <sub>1</sub>	23 e-k	3.3 c-e	1.7 b-d	4.0 a-c	Solids & stars mix
Novette F <sub>1</sub>	22 e-l	1.5 g-i	1.0 d	2.0 f-i	Solids mix
Blitz F <sub>1</sub>	22 f-l	2.3 e-h	1.0 d	3.3 c-e	Scarlet
Shady Lady Orange F <sub>1</sub>	21 f-l	1.3 hi	1.3 cd	1.7 g-i	Red-orange
Princess Watermelon F <sub>1</sub>	20 g-m	1.7 g-i	1.3 cd	2.3 e-h	Watermelon pink
Princes F <sub>1</sub>	20 g-m	2.3 e-h	1.3 cd	2.3 e-h	Solids mix
Super Elfin Blush F <sub>1</sub>	20 g-m	1.0 i	1.0 d	1.0 i	White w/scarlet eye
Princess Cherry Rose F <sub>1</sub>	17 h-m	2.0 f-i	1.0 d	1.5 g-i	Dark pink w/red eye
Princess Ruby F <sub>1</sub>	15 i-m	2.0 f-i	1.3 cd	3.0 c-f	Dark pink
Princess White w/Eye F <sub>1</sub>	15 i-m	2.0 f-i	1.0 d	2.7 d-g	Very light pink w/dark pink eye
Novette New Scarlet F <sub>1</sub>	15 j-m	1.3 hi	1.0 d	1.3 hi	Scarlet
Novette Violet F <sub>1</sub>	12 k-m	2.7 d-g	1.0 d	3.3 c-e	Violet
Showstopper F <sub>1</sub>	10 l-m	1.0 i	1.0 d	1.0 i	Pink w/rose eye
Princess Coral Dk. Margin F <sub>1</sub>	9 m	2.3 e-h	1.0 d	3.7 b-d	Coral

<sup>z</sup>Number of days from transplant until all flowers in basket have first bloom.

<sup>y</sup>Appearance: 1 = excellent, 2 = good, 3 = acceptable, 4 = poor, 5 = very poor.

<sup>x</sup>Floriferousness: 1 = excellent, 2 = acceptable, 3 = poor.

<sup>w</sup>Habit: 1 = excellent, 2 = good, 3 = acceptable, 4 = poor, 5 = very poor.

<sup>v</sup>Mean separation within columns by Duncan's multiple range test, 5% level.

Table 5. Growth and performance of impatiens cultivars in 4-inch pots at the Gulf Coast Research and Education Center, Bradenton, October 3 through November 23, 1983.

Cultivar	Plant ht	Plant ht	Days to flower <sup>z</sup>	Flower diam	Plant ht	Plant ht	Plant diam	Ratings: Nov. 23, 1983 <sup>y</sup>		
	Oct. 4, 83	Nov. 3, 83			at flower	Dec. 16, 83	Dec. 16, 83	Overall <sup>x</sup>	Floriferousness <sup>w</sup>	Habit <sup>v</sup>
Novette Improved F <sub>1</sub>	1.6 a <sup>u</sup>	4.3 d-g	31.4 mn	1.5 c-f	4.3 mn	9.0 b-g	14.3 a-g	3.6 c-h	2.2 a-e	3.6 a-c
Tangeglow o.p.	1.6 ab	6.7 a	43.6 c-i	1.7 a-d	10.7 ab	11.7 a	16.2 a	5.0 a	2.2 a-e	4.8 a
Showstopper F <sub>1</sub>	1.5 a-c	5.2 b-d	32.4 k-n	1.5 d-f	5.4 k-n	9.3 b-g	14.2 a-g	3.0 f-h	1.0 f	3.6 a-c
Duet (double) F <sub>1</sub>	1.4 a-d	5.0 b-e	49.1 a-e	1.5 c-f	9.4 a-f	9.5 b-e	13.5 b-g	4.4 a-d	3.0 a	3.0 bc
Super Elfin F <sub>1</sub>	1.4 a-d	5.2 b-e	35.5 h-n	1.6 b-e	6.3 h-n	9.6 b-e	14.2 a-g	3.8 b-g	1.6 c-f	4.0 ab
Moreton Double F <sub>1</sub>	1.4 a-e	5.7 b	49.4 a-d	1.6 b-e	11.0 a	10.5 ab	13.6 b-g	5.0 a	3.0 a	3.8 ab
Sherbet F <sub>1</sub>	1.3 b-f	4.2 e-g	34.0 j-n	1.4 ef	4.8 l-n	9.0 b-g	13.3 c-g	3.2 e-h	2.0 a-f	3.4 bc
Double Bi-Color F <sub>1</sub>	1.3 c-g	4.6 c-g	51.1 a-c	1.6 c-e	9.7 a-e	9.3 b-g	12.8 e-g	4.8 ab	3.0 a	3.4 bc
Shady Lady Orange F <sub>1</sub>	1.3 d-h	4.4 c-g	32.5 k-n	1.6 c-e	4.9 l-n	8.6 c-g	13.7 b-g	4.0 a-f	1.6 c-f	3.0 bc
Novette New Scarlet F <sub>1</sub>	1.3 d-h	4.5 c-g	32.0 l-n	1.5 c-f	4.8 l-n	9.4 b-f	15.4 a-c	3.6 c-h	1.0 f	4.0 ab
Princess Ruby F <sub>1</sub>	1.3 d-i	4.5 c-g	36.0 h-n	1.4 ef	5.3 k-n	8.8 c-g	14.0 a-g	3.8 b-g	1.8 b-f	4.0 ab
Novette Violet F <sub>1</sub>	1.2 d-j	4.7 c-f	31.9 l-n	1.3 f	4.9 l-n	9.2 b-g	14.3 a-g	3.2 e-h	1.6 c-f	3.8 ab
Minette F <sub>1</sub>	1.2 d-j	4.2 f-h	40.0 f-m	1.5 d-f	6.4 g-n	8.0 e-g	14.1 a-g	2.8 gh	1.8 b-f	3.0 bc
Novette F <sub>1</sub>	1.2 d-j	4.4 c-g	31.6 l-n	1.4 ef	4.3 mn	9.1 b-g	13.7 b-g	4.0 a-f	2.0 a-f	3.0 bc
Princess Watermelon F <sub>1</sub>	1.2 d-j	5.2 b-e	40.4 f-l	1.8 a-c	8.1 c-j	9.5 b-e	14.9 a-e	2.8 gh	1.4 d-f	2.8 bc
Super Elfin Blush F <sub>1</sub>	1.2 e-k	4.3 d-g	39.0 f-m	1.6 c-e	6.7 g-n	8.5 d-g	14.7 a-f	2.6 h	1.2 ef	3.0 bc
Futura F <sub>1</sub>	1.2 e-k	4.5 c-g	40.9 e-k	1.6 b-e	6.8 f-m	8.7 c-g	15.2 a-d	3.0 f-h	2.0 a-f	3.2 bc
Cinderella F <sub>1</sub>	1.2 e-k	4.8 b-f	35.5 h-n	1.5 d-f	5.9 i-n	8.9 b-g	14.0 a-g	3.6 c-h	1.2 ef	3.6 a-c
Princess White w/eye F <sub>1</sub>	1.2 f-k	4.8 b-f	35.3 h-n	1.5 c-f	6.5 g-n	9.4 b-f	13.6 b-g	4.0 a-f	1.3 ef	4.0 ab
Gem F <sub>1</sub>	1.2 f-k	4.6 c-g	35.1 h-n	1.5 d-f	6.4 g-n	8.9 b-g	14.8 a-e	3.4 d-h	1.8 b-f	3.6 a-c
Blitz Violet F <sub>1</sub>	1.1 f-l	4.6 c-g	35.0 i-n	1.8 ab	5.5 j-n	9.4 b-g	13.8 b-g	4.0 a-f	2.0 a-f	4.0 ab
Double All-Color F <sub>1</sub>	1.1 f-l	4.4 c-g	53.3 ab	1.5 c-f	10.2 a-d	9.2 b-g	13.1 c-g	5.0 a	3.0 a	3.4 bc
Grand Prix F <sub>1</sub>	1.1 f-m	4.5 c-g	40.3 f-l	1.9 a	6.9 f-m	9.9 b-d	14.6 a-g	4.2 a-e	2.0 a-f	4.0 ab
Princess Coral Dark Margin F <sub>1</sub>	1.1 f-m	5.0 b-e	27.5 n	1.5 c-f	4.1 n	8.5 d-g	15.6 ab	4.0 a-f	1.0 f	4.0 ab
Grande F <sub>1</sub>	1.1 g-m	4.5 c-g	50.3 a-c	2.0 a	9.4 a-f	9.5 b-e	13.9 b-g	4.8 ab	3.0 a	3.3 bc
Princess Cherry Rose F <sub>1</sub>	1.1 g-m	4.2 d-g	41.0 e-k	1.6 b-e	6.9 f-m	8.7 c-g	13.6 b-g	2.8 gh	2.4 a-d	2.8 bc
Shady Lady F <sub>1</sub>	1.0 h-m	4.6 c-g	40.1 f-m	1.6 b-e	8.1 b-j	9.8 b-d	14.2 a-g	4.0 a-f	1.6 c-f	3.0 bc
Baby F <sub>1</sub>	1.0 h-m	4.4 d-g	45.5 b-g	1.4 ef	8.3 b-i	8.8 c-g	13.6 b-g	3.8 b-g	2.6 a-c	3.0 bc
Fantasia F <sub>1</sub>	1.0 i-m	3.8 f-h	41.4 d-j	1.5 d-f	5.7 i-n	7.7 g	12.9 d-g	4.0 a-f	2.8 ab	2.4 c
Rosette (double) F <sub>1</sub>	1.0 j-m	4.3 d-g	55.8 a	1.5 c-f	10.3 a-c	9.2 b-g	12.5 fg	5.0 a	3.0 a	3.4 bc
Princess F <sub>1</sub>	1.0 j-m	4.7 c-f	33.4 j-n	1.6 b-e	5.3 k-n	9.1 b-g	14.0 a-g	3.8 b-g	2.2 a-e	3.4 bc
Huckabuc F <sub>1</sub>	1.0 k-m	3.3 h	50.3 a-c	1.7 a-d	8.1 c-j	8.4 d-g	12.4 g	4.8 ab	3.0 a	3.8 ab
Zig Zag F <sub>1</sub>	0.9 k-n	4.8 b-f	43.8 c-h	1.6 b-e	9.0 a-g	9.9 b-d	14.2 a-g	4.0 a-f	2.4 a-d	4.0 ab
Blitz F <sub>1</sub>	0.9 l-n	5.4 bc	37.8 g-m	2.0 a	7.6 d-k	10.2 bc	15.4 a-c	3.6 c-h	1.4 d-f	4.0 ab
Twinkles F <sub>1</sub>	0.9 l-n	3.7 gh	50.5 a-c	1.5 c-f	9.4 a-f	9.0 b-g	13.1 d-g	4.6 a-c	3.0 a	4.0 ab
Crazy Quilt F <sub>1</sub>	0.9 mn	4.0 f-h	46.6 b-f	1.6 b-e	7.3 e-l	7.8 fg	14.8 a-f	4.0 a-f	3.0 a	3.8 ab
Ripples F <sub>1</sub>	0.7 n	4.4 d-g	49.6 a-d	1.5 c-f	8.8 a-h	8.8 c-g	12.8 e-g	4.3 a-e	3.0 a	3.5 bc

<sup>z</sup>Number of days from transplant, October 3, 1983.

<sup>y</sup>Ratings made after plants were at peak appearance to ascertain ability to hold plants. Made on 5 plants only.

<sup>x</sup>Appearance: 1 = excellent, 2 = good, 3 = acceptable, 4 = poor, 5 = very poor.

<sup>w</sup>Floriferousness: 1 = excellent, 2 = acceptable, 3 = poor.

<sup>v</sup>Habit: 1 = excellent, 2 = good, 3 = acceptable, 4 = poor, 5 = very poor.

<sup>u</sup>Mean separation within columns by Duncan's multiple range test, 5% level.

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