

2018 Kentucky Annual Bedding Plant Evaluation

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Growing bedding plants that perform well with minimal maintenance in Kentucky's climate is important to gardeners. The annual bedding plant trials are a statewide Extension Horticulture effort to determine the best performing species and cultivars of annual flowers for Kentucky. Selected annual flowers were grown at a greenhouse in Elkton, KY. The bedding plants were distributed in May to demonstration gardens at county Extension offices, and Robinson Center for Appalachian Resource Sustainability (RCARS). The demonstration garden for Caldwell County was located at the University of Kentucky Research and Education Center (UKREC). Master Gardeners and Extension agents planted the flowers in their trial garden and evaluated them monthly during the season.

Materials and Methods

The goal of the trial garden is to simulate the conditions in a "typical" Kentucky garden. All gardens were mulched with wood chip mulch and received irrigation at planting. Plants received additional irrigation only in the case of drought. Beds were kept as weed free as possible.

Twenty cultivars comprising twelve geneses were planted at thirteen different sites throughout Kentucky (Table 1.). From one to nine people at each county rated their plants on a scale from 0 to 5 scale (see table 1) each month from June through October. The evaluation was based on the individual gardener's determination of the quality of the plants at a particular site. Data was analyzed using the GLM procedure in SAS v.9.4¹.

Table 1. Rating scale for evaluating bedding plants.

0 = plants dead
1 = rough-still alive, no color
2 = minimal flowering, faded foliage, significant pest damage
3 = some flowering, may have noticeable pest damage
4 = almost full color/foliage - may have limited pest damage
5 = full color/foliage no pest damage

Results and Discussion

The top ten cultivars, 'Diana' thru 'Crimson Red' (highlighted in pale green in Tables 2 and 3), averaged statistically significantly higher ratings over the 2018 season than all other cultivars in the trial. Significant differences existed among cultivars within the top ten cultivars but these differences overlapped each other in such a way that there was no definitive separation of means within this grouping. Conversely, the unnamed cultivar of *Petunia* and 'Purple' (highlighted in pale pink in Tables 2 and 3) averaged ratings that were statistically lower than all other cultivars in the trial. Between these top and bottom groups, three other groups were statistically different in their average ratings from each of the other groups, 'Compact Purple' thru 'Funny Honey' (highlighted in blue in Table 2 and 3), 'Serenity' and 'Stormburst' (highlighted in pale yellow in Table 2 and 3), and 'Raspberry Star' (highlighted in pale grey in Tables 2 and 3).

Performance ratings among cultivars differed significantly at Breckinridge, Caldwell, Christian, Hardin, Hopkins, and RCARS. Significant differences among cultivars could not be determined for Daviess, Marshall, Mason, McCracken, Pulaski, Scott, and Warren counties (Table 3), since these counties had only one person rating plants in each county.

A performance rating that a particular cultivar received in one county typically differed significantly from that received in another county (Table 3). This was true for all cultivars except for 'Marrakesh', 'Pink Flirt', 'Pretty in Pink', 'Luca', the unnamed cultivar of *Petunia*, and 'Purple'. These cultivars did not significantly differ from county to county.

We wish to thank the County Extension Agents; Macy Fawns, Hopkins County; Susan Fox, Lyon County; Annette Meyer Heisdorffer, Daviess County; Kelly Jackson, Christian County; Erika Lyons, Hopkins County; Beth Wilson, Pulaski County; and UKREC staff Virginia Travis, Caldwell County; and Master Gardeners at these garden locations for planting, maintaining and evaluating the annuals in these trials. The demonstration gardens are a good educational activity for Master Gardeners and home gardeners. It is the goal of this program to allow Master Gardeners to see new flowers and compare them to the reliable annual flowers seen in Kentucky gardens and use this information in their volunteer activities.

Table 2. Performance of 20 cultivars throughout the summer of 2018 in western Kentucky.

Genus ¹	Cultivar	June	July	August	Sept	October	Average
<i>Cuphea</i>	Diana	4.57	4.70	4.81	4.85	4.63	4.77
<i>Solenostemon</i>	Marrakesh	4.46	4.70	4.81	4.91	4.43	4.71
<i>Scaevola</i>	Pearl	4.51	4.78	4.86	4.53	4.09	4.62
<i>Lantana</i>	Red Sky	4.32	4.68	4.72	4.56	4.43	4.58
<i>Angelonia</i>	Pink Flirt	4.41	4.92	4.50	4.26	4.97	4.47
<i>Solenostemon</i>	Smokey Rose	4.51	4.64	4.42	4.56	3.97	4.46
<i>Lantana</i>	Full Moon	4.24	4.54	4.47	4.47	4.11	4.44
<i>Bidens</i>	Pretty in Pink	4.41	4.54	4.47	4.35	3.80	4.34
<i>Solenostemon</i>	Luca	4.49	4.51	4.31	4.32	3.89	4.28
<i>Petchoa</i>	Crimson Red	4.68	4.86	4.58	4.00	3.06	4.24
<i>Impatiens</i>	Compact Purple	4.14	4.32	4.14	4.12	3.54	4.06
<i>Impatiens</i>	Compact Coral Pink	4.24	4.22	4.00	4.15	3.83	4.05
<i>Portulaca</i>	Fuchsia	4.14	4.05	4.17	3.74	3.54	3.94
<i>Portulaca</i>	Double Magenta/Scarlet	4.05	4.05	4.06	3.65	3.26	3.93
<i>Bidens</i>	Funny Honey	4.22	4.32	4.03	3.79	3.06	3.92
<i>Calibrachoa</i>	Serenity	4.43	4.35	3.56	3.09	2.51	3.57
<i>Verbena</i>	Stormburst	4.19	4.03	3.50	3.29	2.54	3.45
<i>Petunia</i>	Raspberry Star	4.35	4.05	3.03	2.41	1.63	3.08
<i>Petunia</i>		4.19	3.68	2.58	1.42	1.09	2.53
<i>Petunia</i>	Purple	4.08	3.76	2.75	1.48	0.68	2.51
Average for each month		4.33	4.39	4.09	3.81	3.30	4.00
Least Significant Difference (0.05) ²		0.23	0.22	0.24	0.27	0.37	0.16

¹Arranged in descending order of the average of monthly ratings.

²Means within column greater than the least significant difference are not statistically significant at the 0.05 probability level. Refer to text for explanation of highlighted groupings of cultivars their average ratings.

Table 3. Performance of 20 bedding plant cultivars in seven counties in western Kentucky.

Genus ¹ / Cultivar	Sites in Kentucky ²													Means ⁴	LSD ³ (0.05)
	Breckinridge	Caldwell	Christian	Daviess	Hardin	Hopkins	Marshall	Mason	McCracken	Pulaski	RCAES ³	Scott	Warren		
<i>Cuphea</i> / Diana	4.70	4.93	4.50	4.60	4.93	4.96	5.00	5.00	5.00	5.00	4.10	5.00	5.00	4.77	0.60
<i>Solenostemon</i> / Marrakesh	4.60	5.00	4.20	4.80	4.93	4.76	5.00	5.00	5.00	4.60	4.10	5.00	5.00	4.71*	0.77
<i>Scaevola</i> / Pearl	4.50	4.87	4.80	4.80	4.80	4.80	5.00	4.40	5.00	2.60	4.30	4.40	4.80	4.62	0.57
<i>Lantana</i> / Red Sky	4.40	5.00	4.60	5.00	4.63	4.80	5.00	4.60	5.00	4.80	3.50	5.00	5.00	4.58	1.05
<i>Angelonia</i> / Pink Flirt	3.95	4.47	4.50	4.80	4.80	4.76	4.80	4.40	4.60	5.00	3.60	4.80	5.00	4.47*	1.32
<i>Solenostemon</i> / Smokey Rose	4.55	5.00	5.00	4.80	4.60	4.52	5.00	3.20	5.00	5.00	3.25	4.00	5.00	4.46	0.91
<i>Lantana</i> / Full Moon	4.45	4.93	4.50	4.40	4.77	4.92	5.00	4.40	5.00	5.00	2.30	4.80	5.00	4.44	0.92
<i>Bidens</i> / Pretty in Pink	3.85	4.33	4.40	4.00	4.77	4.68	4.40	5.00	2.40	4.80	3.85	4.60	4.80	4.34*	1.27
<i>Solenostemon</i> / Luca	3.85	4.27	4.00	4.80	4.87	3.44	4.20	5.00	5.00	5.00	4.35	4.60	4.20	4.28*	1.50
<i>Petchoa</i> / Crimson Red	3.10	4.67	4.50	3.60	4.60	4.92	5.00	3.40	5.00	3.40	3.60	4.60	4.80	4.24	0.86
<i>Impatiens</i> / Compact Purple	4.30	4.73	4.30	4.60	4.03	3.80	4.60	4.20	5.00	5.00	3.30	1.00	5.00	4.06	1.65
<i>Impatiens</i> / Compact Coral Pink	4.35	4.13	2.90	4.60	4.67	3.92	3.40	4.20	3.00	5.00	4.20	1.00	4.40	4.05	1.66
<i>Portulaca</i> / Fuchsia	4.10	4.67	4.30	5.00	3.70	4.32	4.80	3.60	1.20	4.40	3.05	4.00	4.20	3.94	1.40
<i>Portulaca</i> / Double Magenta	4.25	4.53	5.00	5.00	3.20	4.16	4.80	3.80	1.20	5.00	3.00	4.40	5.00	3.93	1.50
<i>Bidens</i> / Funny Honey	3.85	3.53	3.60	4.40	3.93	4.80	4.40	4.00	3.60	4.00	3.70	1.00	4.40	3.92	1.54
<i>Calibrachoa</i> / Serenity	2.20	4.07	4.10	3.60	4.67	3.80	3.60	1.40	5.00	3.60	2.20	4.40	4.20	3.57	1.50
<i>Verbena</i> / Stormburst	2.95	3.13	3.20	4.60	4.33	4.52	3.60	3.00	5.00	2.60	3.75	4.60	3.20	3.45	1.40
<i>Petunia</i> / Raspberry Star	2.85	3.33	3.80	1.60	3.00	4.32	4.00	1.80	2.40	1.80	1.75	3.80	4.60	3.08	1.32
<i>Petunia</i> /	2.05	2.00	2.80	3.20	2.40	2.96	3.60	2.00	2.00	1.60	2.95	3.60	2.20	2.53*	2.15
<i>Petunia</i> / Purple	2.05	2.93	3.00	3.80	2.64	2.72	1.20	3.40	5.00	1.40	2.00	2.80	3.60	2.51*	1.99
Means of each county	3.75	4.23	4.10	4.30	4.24	4.19	4.32	3.79	3.79	3.98	3.34	3.87	4.47	4.00	0.996
LSD (0.05), Least Significant Difference ³	0.56	0.41	0.33	NA	0.46	1.99	NA	NA	NA	NA	0.48	NA	NA	0.16	

¹Arranged in descending order of the average of monthly ratings.

²Arranged in alphabetical order within rows.

³Robinson Center for Appalachian Resource Sustainability.

⁴Means within columns or across rows that differ by less than the LSD are not statistically significantly different at the 0.05 probability level. An “*” indicates that the means between counties were not significantly different at the 0.05 probability level in the analysis of variance. “NA” indicates “not applicable.” Refer to text for explanation of highlighted groupings of cultivars their average ratings.