

## Poinsettia Cultivar Evaluation, 1997

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### Introduction

The poinsettia is the number-one selling potted flowering plant in the United States, and it is quickly becoming a popular plant for production in many other countries. With the increasing popularity of the poinsettia, plant breeders have developed many new cultivars. Poinsettia cultivar selection was accelerated in the 1960s, when breeders began selecting cultivars based on color, plant form, post-harvest life, and performance in different climates. Previously, cultivars were all selected from a limited pool of seedlings. Several of the cultivars developed in the 1960s are still in production today. A recent trend in cultivar selection has been for earlier blooming (Williams 1997). While most cultivars require 8.5 to 9.5 weeks of short days to initiate and develop flowers, newer cultivars being released may require as little as 6.5 weeks.

Most customers may not recognize Annette Hegg Red or Gutbier V-14 Glory by sight, but until recently, these cultivars and their color variations were the most commonly grown (Larson 1992). In the 1990s, the number of cultivars released has escalated tremendously, and organized trials have been conducted in Indiana, North Carolina, and Florida (Larson and Hammer 1997). Today, there are more than 60 cultivars available for growers to choose from in planning next season's crop. With the late summer heat and high humidity, poinsettia cultivars do not respond the same in the Midsouth region as in surrounding regions.

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# Materials and Methods

Thirty-nine cultivars of poinsettia were grown at the main campus of Mississippi State University to examine the performance of the cultivars in the Midsouth. Two cultivars were obtained from Ball FloraPlant, 25 from The Paul Ecke Ranch, four from Oglevee, and nine from Fischer USA.

As the rooted cuttings arrived from different vendors, they were potted into 6-inch diameter azalea pots in Sunshine Mix 1 (Sun Gro Horticulture, Bellevue, WA). Ball FloraPlant cultivars arrived on Aug. 13, 1997; Oglevee cultivars on Aug. 21, 1997; Paul Ecke cultivars on Aug. 27, 1997; and Fischer USA cultivars on Sept. 3, 1997 ([Table 1](#)). All cuttings were drenched with the fungicide Banrot (The Scotts Co., Marysville, OH) at the rate of 8 ounces per 100 gallons after potting. On Sept. 4, 1997, photoperiod lighting was set up to provide 4 hours of light from 10 p.m. to 2 a.m. for long-day conditions. The lights were turned off, and short days started on Oct. 6, 1997. Natural short days were used to bring plants to flower. All plants were pinched on Sept. 15, 1997, to remove all but five to six leaves. Marathon (Olympic Horticultural Products, Mainland, PA) was applied on Sept. 16, 1997, to control whiteflies. Most cultivars were treated with 4 fluid ounces of Bonzi (Uniroyal Chemical, Middlebury, CT) soil drench at 4 milligrams per liter 1 to 2 weeks after pinching ([Table 1](#)).

Data collected included plant height (measured from the rim of the container), average number of bracts per plant, bract diameter (average of two bracts per plant), and number of weeks from the start of short days to first pollen shed. Cultivars were also evaluated by 22 open house attendees who were asked to list their first, second, and third favorite. In addition, open house participants also rated the likelihood of their purchasing each plant (scale of 1-10: 1 = would never purchase; 10 = would definitely purchase) and provided overall ratings for plant form and color with (10 = best overall).

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## Results and Discussion

Most of the cultivars in the trials required 7.5 to 8.5 weeks from the start of short days to reach anthesis ([Table 2](#)). The Freedom series, Angelika series, Snowcap, Festival Red, Nutcracker Pink, Nutcracker White, Marblestar, Maren, Noblestar, Sonora Red, and Whitestar all reached anthesis in less than 8 weeks. This reflects the trend toward earlier-blooming new cultivars (Williams 1997). Only two cultivars in the trials required more than 10 weeks to reach anthesis -- Peace Jolly Red and Dark Puebla.

The growth regulator application (Bonzi) early in crop production resulted in plants that were only 5 to 8 inches above the rim of a 6-inch azalea pot or 9 to 12 inches including the container height. While this was shorter than the industry standard of a 14- to 16-inch-tall plant, there was considerable interest in these smaller plants when shown to the public at garden clubs and during the open house. Homeowners said they liked the smaller plants since they fit in with the seasonal decorations of their home on table tops and mantles more easily than larger plants. A shorter, more compact plant is also what many large-volume retailers are demanding (Anonymous 1997). A smaller, more compact plant is less likely to have breakage during shipping.

Since it is related to branching, average inflorescence number indicates how readily the cultivar branches after pinching. Inflorescence number ranged from four to seven, with most cultivars having about five ([Table 2](#)). The inflorescence number is usually related to the number of leaves remaining after pinching. In this trial, five to six leaves were left on the plant after pinching. Those cultivars averaging seven inflorescences had branches that developed from axillary buds without attached leaves.

The cultivar with the largest inflorescence diameter (bract spread) was Festival Red ([Table 2](#)). The inflorescence diameter was about 2 inches larger than the next largest cultivars. Winter Rose, a novelty with in-curved bracts, had the smallest inflorescence diameter at 3.75 inches. Of the other cultivars, Red Splendor had small, 6.5-inch inflorescences that allowed the dark-green foliage of this variety to show beneath the bracts.

In the evaluation, Freedom Bright Red, Red Splendor, Freedom Red, and Jingle Bells 3 were the top-rated first-

favorite cultivars (Table 3). Freedom Red and Freedom Bright Red were most frequently listed as the second favorite. Nut cracker White and Pepride were most frequently listed as the third-favorite cultivars. Neither of these third-favorite cultivars was ever listed as a first favorite, which indicates that the traditional red poinsettia is still the holiday favorite.

Freedom Red and Freedom Bright Red were the most popular red cultivars based on the evaluators' votes for 1st, 2nd, and 3rd favorites. Except for Monet, none of the pink cultivars were ranked as first favorite. Only three of the white cultivars grown - - Nutcracker White, Freedom White, and Pearl -- were listed as favorites. Three marbled cultivars were listed as favorites, with Dark Puebla listed as the first favorite of two evaluators. Of the Jingle Bells cultivars, which have red bracts splashed with white speckles, Jingle Bells 3 was the most favored. The new, novelty cultivar, Winter Rose, was twice listed as second favorite.

When evaluators were asked to rate their likelihood of buying each cultivar for their home or office, they rated several plants at 8 or higher (Table 4). Cultivars thus rated were also among those listed as favorites. The exception was Red Splendor; although it was listed as a first favorite, it only received a purchase rating of 6.7. Alternatively, Nutcracker Red earned a purchase rating of 8, but it received only one listing as a favorite. Only two cultivars, Freedom Red and Freedom Bright Red, received an overall rating higher than 8 (Table 4).

## Conclusions

Red cultivars received the highest quality ratings and are still the most popular and most likely to be purchased. White cultivars were the next most popular solid color, while pinks were among the least favorites. Of the novelty types, Jingle Bells cultivars were very popular. Jingle Bells 3, with its greater contrast between the white spots and dark red bracts, was the easy favorite of the novelty cultivars.

## References

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**Table 1. Scheduling information and characteristics of poinsettia cultivars in Mississippi State University trials, 1997.**

Cultivar	Date potted	Date pinched	Date of PGR drench <sup>1</sup>	Response to short days	Color description
				weeks	
<b>Ball FloraPlant</b>					
Peace Jolly Red	08/13/97	09/12/97	09/16/97	10	Red
Red Splendor	08/13/97	09/12/97	09/16/97	10	Red
<b>Paul Ecke Ranch</b>					

Candy Cane	08/27/97	09/15/97	09/30/97	9.5	White with red and pink
Celebrate II	08/27/97	09/15/97	09/30/97	8.5	Red
Darlyne	08/27/97	09/15/97	09/30/97	8.5	Pink
Freedom Bright Red	08/27/97	09/15/97	09/30/97	8	Bright Red
Freedom Jingle Bells	08/27/97	09/15/97	09/30/97	8	Red with white speckle
Freedom Marble	08/20/97	09/15/97	09/30/97	8	White with pink
Freedom Pink	08/20/97	09/15/97	09/30/97	8	Pink
Freedom Red	08/27/97	09/15/97	09/30/97	8	Red
Freedom White	08/27/97	09/15/97	09/30/97	8	White
Jingle Bells	08/27/97	09/15/97	09/30/97	9.5	Red with white speckle
Jingle Bells 3	08/27/97	09/15/97	09/30/97	9.5	Red with white speckle
Monet	08/27/97	09/15/97	09/30/97	9.5	Multi-color cream, rose
Pearl	08/27/97	09/15/97	09/30/97	8.5	White
Peptide	08/27/97	09/15/97	_2	8	Red, oak leaved
Peterstar Jingle Bells	08/27/97	09/15/97	09/30/97	8.5	Red with white speckle
Peterstar Marble	08/27/97	09/15/97	09/30/97	8.5	White with pink
Peterstar Pink	08/27/97	09/15/97	09/30/97	8.5	Pink
Peterstar White	08/27/97	09/15/97	09/30/97	8.5	White
Petoy Red	08/27/97	09/15/97	09/30/97	8.5	Red
Snowcap	08/27/97	09/15/97	_2	8.5	White
Success	08/27/97	09/15/97	09/30/97	9.5	Red
V-14 Glory	08/27/97	09/15/97	09/30/97	9.5	Red
V-17 Angelika Marble	08/27/97	09/15/97	09/30/97	9	White with pink marble
V-17 Angelika White	08/27/97	09/15/97	09/30/97	9	White
Winter Rose	08/27/97	09/15/97	_2	10	Red, incurved bracts
<b>Oglevee</b>					
Festival Red	08/21/97	09/12/97	09/30/97	8.5-9	Red
Nutcracker Pink	08/21/97	09/12/97	09/25/97	8.5-9	Pink
Nutcracker Red	08/21/97	09/12/97	09/16/97	8.5-9	Red
Nutcracker White	08/21/97	09/12/97	09/25/97	8.5-9	White
<b>Fischer USA, Inc.</b>					
Cortez Red	09/03/97	9/15/97	09/30/97	8.5-9	Red
Dark Puebla	09/03/97	09/15/97	_2	10	White with pink marble
Marblestar	09/03/97	09/15/97	09/30/97	8.5	White with pink marble
Maren	09/03/97	09/15/97	09/30/97	8.5	Salmon pink
Nobelstar	09/03/97	09/15/97	09/30/97	8	Red
Picacho	09/03/97	09/15/97	_2	7.5	Red
Sonora	09/03/97	09/15/97	09/30/97	9-9.5	Red
Sonora Pink	09/03/97	09/15/97	09/30/97	9-9.5	Pink
Whitestar	09/03/97	09/15/97	_2	7.5	White

<sup>1</sup>The plant growth regulator Bonzi was applied at 4 parts per million.

<sup>2</sup>No growth regulator was applied.

**Table 2. Comparison of poinsettia cultivars grown at Mississippi State University, 1997.**

Cultivar	Height	Avg. no. inflorescences	Inflorescence diameter	Weeks to anthesis
	<i>in</i>		<i>in</i>	
<b>Ball FloraPlant</b>				
Peace Jolly Red	6.75	5.5	9.50	11.0
Red Splendor	6.25	7.2	6.50	8.6
<b>Paul Ecke Ranch</b>				
Candy Cane	5.25	4.6	10.00	9.1
Celebrate II	7.00	5.5	8.75	8.3
Darlyne	5.00	4.6	8.25	8.3
Freedom Bright Red	6.25	4.8	9.00	7.7
Freedom Jingle Bells	4.25	5.4	7.25	7.7
Freedom Marble	5.50	5.3	8.25	7.7
Freedom Pink	5.00	6.6	8.50	7.7
Freedom Red	6.75	5.4	9.75	7.7
Freedom White	6.00	4.1	9.75	7.6
Jingle Bells	5.50	5.6	9.75	8.6
Jingle Bells 3	5.50	4.9	9.50	8.6
Monet	5.50	5.3	9.50	8.6
Pearl	6.25	5.2	9.75	8.3
Peptide	6.50 <sup>1</sup>	4.2	8.25	8.3
Peterstar Jingle Bells	5.00	5.3	9.25	8.6
Peterstar Marble	5.75	5.6	8.00	8.3
Peterstar Pink	5.00	6.6	8.25	9.1
Peterstar White	4.75	5.6	8.75	8.6
Petoy Red	4.00	3.9	7.75	8.0
Snowcap	6.75 <sup>1</sup>	5.6	10.00	7.7
Success	5.25	5.5	10.00	9.1
V-14 Glory	5.25	4.9	10.25	9.1
V-17 Angelika Marble	5.50	6.7	8.00	7.7
V-17 Angelika White	4.75	4.8	7.50	7.7
Winter Rose	5.00 <sup>1</sup>	4.6	3.75	8.2
<b>Oglevee</b>				
Festival Red	5.50	5.2	12.00	7.7
Nutcracker Pink	6.75	4.9	8.00	7.7
Nutcracker Red	5.50	5.3	8.75	8.0
Nutcracker White	8.50	6.3	9.50	7.7

<b>Fischer USA, Inc.</b>				
Cortez Red	4.50	4.1	8.25	8.0
Dark Puebla	5.50 <sup>1</sup>	4.3	7.00	10.9
Marblestar	5.00	4.4	8.00	7.7
Maren	5.00	4.5	8.25	7.7
Nobelstar	5.00	4.6	8.75	7.7
Picacho	5.00 <sup>1</sup>	5.0	7.25	7.9
Sonora	4.25	4.9	8.25	7.7
Sonora Pink	4.00	4.9	8.00	7.9
Whitestar	5.50 <sup>1</sup>	4.0	9.00	7.7
<b>LSD0.05</b>	<b>1.63</b>	<b>0.8</b>	<b>4.27</b>	<b>0.1</b>
<sup>1</sup> No growth regulator was applied.				

**Table 3. Evaluator's selections of first, second, and third favorite cultivars.**

Cultivar	First favorite		Second favorite		Third favorite	
	Frequency	%	Frequency	%	Frequency	%
Red Splendor	4	18.2	0	0	1	4.5
Freedom Red	3	13.6	4	18.2	0	0
Freedom Bright Red	6	27.3	3	13.6	0	0
Pepride	0	0	2	9.1	3	13.6
Success	1	4.5	0	0	0	0
Nutcracker Red	1	4.5	0	0	0	0
Sonora Red	0	0	1	4.5	1	4.5
Nobelstar	0	0	0	0	1	4.5
Darlyne	0	0	1	4.5	0	0
Nutcracker Pink Nutcracker White	00	00	02	09.1	14	4.518.2
Freedom White	0	0	2	9.1	2	9.1
Pearl	0	0	2	9.1	0	0
Peterstar Marble	0	0	1	4.5	0	0
Marblestar	0	0	0	0	2	9.1
Dark Puebla	2	9.1	0	0	1	4.5
Jingle Bells	0	0	0	0	2	9.1
Jingle Bells 3	3	13.6	2	9.1	2	9.1
Freedom Jingle Bells	0	0	0	0	1	4.5
Monet	2	9.1	0	0	1	4.5
Winter Rose (Curly Red)	0	0	2	9.1	0	0

**Table 4. Evaluator's ratings of likelihood of purchasing each plant and overall appearance of each plant.**

Cultivar	Likelihood	Overall
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	of purchase <sup>1</sup>	appearance <sup>2</sup>
Peace Jolly Red	6.8	6.4
Red Splendor	6.7	7.3
Celebrate II	6.5	6.2
Freedom Red	8.7	8.7
Freedom Bright Red	8.6	8.4
V-14 Glory	6.3	5.9
Pepride	7.5	7.2
Petoy Red	5.6	5.5
Success	7.2	6.9
Cortez Red	5.4	4.9
Nutcracker Red	8.0	7.7
Festival Red	7.0	7.0
Picacho	4.4	4.0
Sonora Red	5.8	5.8
Noblestar	5.1	5.2
Freedom Pink	5.5	5.5
Peterstar Pink	4.5	4.5
Darlyne	5.7	5.5
Maren	6.1	5.8
Nutcracker Pink	7.0	7.0
Sonora Pink	5.9	6.5
Nutcracker White	8.1	7.9
Freedom White	7.9	7.9
Peterstar White	6.5	6.5
Pearl	7.7	7.2
V-17 Angelika White	5.9	6.1
Snowcap	6.7	6.5
Freedom Marble	5.5	5.6
V-17 Angelika Marble	5.7	5.8
Peterstar Marble	6.5	6.8
Marblestar	6.5	6.5
Dark Puebla	7.0	7.4
Jingle Bells	6.5	6.3
Jingle Bells 3	7.5	7.2
Freedom Jingle Bells	6.0	5.9
Peterstar Jingle Bells	6.2	6.4
Candy Cane	5.5	5.6
Monet	6.9	7.4
Winter Rose (Curly Red)	5.9	5.5
<b>LSD0.05</b>	<b>1.4</b>	<b>1.6</b>

<sup>1</sup>When asked the question, "Would you buy this plant for your home or office?", 22 evaluators rated their responses on a scale of 1-10, with 10 being the most likely to purchase a given plant.

<sup>2</sup>When asked the question, "What is your overall rating of this plant's form and color?", 22 evaluators rated their responses on a scale of 1-10, with 10 being the most positive.

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