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Acceptance and preference for Winter Rose® Poinsettia (*Euphorbia pulcherrima* L.) used as cut flowers as affected by consumer demographics

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ABSTRACT

The Winter Rose® family of poinsettias (Paul Ecke Poinsettia Ranch) has been identified as a suitable poinsettia for use as a cut flower. With curly bracts that resemble rose petals, they may add welcome variety to florists' holiday repertoire. Winter Rose® poinsettias are now available in cultivars of varying colors. They are considered late-season poinsettias, requiring nine and a half weeks to mature and come into full color from cuttings. The objective of this study was to determine consumer preference for Winter Rose® poinsettia as a cut flower. Consumers preferred the cultivar Winter Rose® 'Dark Red' over 'Deep Pink', 'White', and 'Marble' in order of preference. Consumers indicated a willingness to pay approximately \$14.00 for an arrangement consisting of six poinsettia stems.

KEYWORDS: Willingness to pay, previous purchases, floral arrangement

INTRODUCTION

There are more than 175 commercial varieties of poinsettias (*Euphorbia pulcherrima* L.), and dozens of new varieties are being introduced each year. Poinsettias generate \$250 million per year in wholesale revenues nationally. They are also the biggest single holiday flowering crop, selling more than roses on Valentine's Day or Easter lilies in the spring (Spence, 1999). Poinsettias are found in myriad colors including non-traditional hues such as purple, cranberry, dusty pink, mauve, and rich burgundy. Foliage may range from deep green to variegated with tints of green and gold.

Maximizing profits and sales potential are important objectives for growers and retailers. Sales potential is the amount consumers are willing to buy. Growers choose products based on retailer needs while retailers base their product needs on consumer demands. Knowledge of consumer purchasing characteristics is crucial for the development of risk and sales strategies that enhance profitability, market functionality, improved product quality, and price (Hinson *et al.*, 2012).

Poinsettia as a cut flower is not a new idea. Previous research has shown that 'Renaissance Red', formerly known as Winter

Rose® 'Crimson' made an excellent cut flower (Njue, 2003 and Njue *et al.*, 2003). In fact, the Winter Rose® family of poinsettias (Paul Ecke Poinsettia Ranch) has been identified as a suitable poinsettia for use as a cut flower (Posadas *et al.*, 2002; Coker *et al.*, 2004). With curly bracts that resemble rose petals, they may add welcome variety to florists' holiday repertoire. Winter Rose® poinsettias are now available in five cultivars which vary in color. They are considered late-season poinsettias, requiring nine and a half weeks to mature and come into full color from cuttings.

The objective of this study was to determine the suitability of Winter Rose® poinsettia as a cut flower crop by evaluating consumer preference and willingness to buy Winter Rose® poinsettia as a cut flower. Additionally, these results were evaluated through a demographic lens including respondents' age (in years), gender, level of formal education completed (in years), household size (number of persons), and household income.

MATERIALS AND METHODS

Four cultivars of Winter Rose® poinsettia ('Dark Red', 'Deep Pink', 'White', and 'Marble') were grown at the South

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Mississippi Branch Station in Poplarville, MS according to standard cultural practices.

A single stem of each Winter Rose® cultivar as well as a six-stem arrangement of all four cultivars and the addition of Winter Rose® ‘Pink’, were presented to consumers attending the Coastal Aquaculture Unit’s annual open house in Gulfport, MS. Participants were asked to fill out a short preference survey (Appendix A). Consumer demographics were also collected.

Likert-type data (Boone and Boone, 2012) were collected and analyzed using Multivariate Analysis of Variance (MANOVA) in SPSS. Demographic responses were evaluated using Chi-square analysis.

RESULTS AND DISCUSSION

Personal Preference

In a survey seeking consumer rankings on factors influencing plant choices, a University of Florida survey found plant quality was most important, while price and plant color were second and third, respectively (Khachatryan and Choi, 2014). Cultivar color preference was clearly shown by Coastal Mississippi residents for the four cultivars displayed. ‘Dark Red’ was rated highest with 6.06 (out of a maximum of 7.0). The next preference was ‘Deep Pink’ with an average rating of 4.57 and ‘Marble’ with a mean rating of 4.57. The least preferred cultivar was ‘White’ with a rating of 3.83 (Figure 1). Our results are consistent with the findings of Catanzaro and Bhatti (2006), they interviewed 293 respondents to rank different poinsettias cultivars as favorite based on personal preference and reported that red color cultivar was rated high as compared to other cultivars. Lubell and Brand (2017), also noticed that dark red flowers were favored by a large number of consumers.

The level of personal liking by residents of Coastal Mississippi for ‘Dark Red’, ‘Deep Pink’, ‘Marble’, and ‘White’ cultivars of displayed plants was not significantly influenced by their socioeconomic characteristics (Table 1).

In general, results indicated that ratings for ‘Dark Red’, ‘Deep Pink’, ‘Marble’, and ‘White’ were not affected by respondents’ age (in years), gender, level of formal education completed (in years), household size (number of persons), and household income. Female respondents were strongly attracted to the ‘Dark Red’ cultivar (Table 2).

Willingness to Pay for a Poinsettia Arrangement

Coastal Mississippi consumers were likely to purchase a poinsettia arrangement with an average likelihood of 5.42 (SD = 1.31). Females reported higher likelihood to purchase a poinsettia arrangement than male respondents. Overall, respondents’ willingness to pay for a six-stem arrangement averaged \$14.00 (SD = \$9.21).

The likelihood to purchase a poinsettia flower arrangement and willingness to pay for a six-stem arrangement were not influenced

by the socioeconomic characteristics of Coastal Mississippi respondents. MANOVA results showed that respondent’s age (in years), gender, level of formal education completed (in years), household size (number of persons), and household income did not individually or jointly affect their preferences for poinsettia plants (Table 3). These results agree with Getter *et al.*, (2013), who noticed that despite socioeconomic factors, more than 90% of consumers purchased poinsettias.

Table 1: Means and standard deviations of personal liking for four poinsettia cultivars (Winter Rose® Dark Red, Deep Pink, Marble, and White) based on household income

Income group	Dark Red	Deep Pink	Marble	White
< \$50,000	5.71 ± 1.53	4.29 ± 1.35	4.65 ± 1.53	3.82 ± 1.38
\$50,000-\$75,000	6.33 ± 0.97	4.93 ± 0.96	4.93 ± 1.90	4.27 ± 1.87
> \$75,000	6.20 ± 0.94	4.53 ± 0.99	4.13 ± 1.59	3.40 ± 1.29
Total	6.06 ± 1.20	4.57 ± 1.13	4.57 ± 1.67	3.83 ± 1.53

1 = strongly dislike,..., 4 = neither strongly like nor strongly dislike, ..., 7 = strongly like

Table 2: Means and standard deviations of personal liking for four poinsettia cultivars (Winter Rose® Dark Red, Deep Pink, Marble, and White) by gender

Gender	Dark Red **	Deep Pink	Marble	White
Female	6.57 ± 0.72	4.74 ± 1.35	4.43 ± 1.70	3.61 ± 1.40
Male	5.58 ± 1.38	4.42 ± 0.88	4.71 ± 1.68	4.04 ± 1.65
Total	6.06 ± 1.20	4.57 ± 1.13	4.57 ± 1.67	3.83 ± 1.53

** = significantly different at 0.001.

1 = strongly dislike,..., 4 = neither strongly like nor strongly dislike, ..., 7 = strongly like

Table 3: Means and standard deviations of likelihood to purchase a poinsettia flower arrangement, willingness to pay for a six-stem poinsettia flower arrangement, and number of poinsettias purchased in the previous year based upon household income

Income group	Likelihood to purchase ¹	Willingness to pay ²	Number of poinsettias bought
< \$50,000	5.22 ± 1.39	\$11.22 ± 3.30	5.22 ± 4.94
\$50,000-\$75,000	5.42 ± 1.16	\$13.50 ± 9.31	2.83 ± 2.85
> \$75,000	5.60 ± 1.50	\$17.10 ± 12.18	4.50 ± 3.47
Total	5.42 ± 1.31	\$14.00 ± 9.21	4.06 ± 3.76

1 = likelihood to purchase ranges from 1 =not likely, ..., 4 = neither,..., 7 = very likely.

2 = willingness to pay is expressed in dollars per six-stem poinsettia arrangement

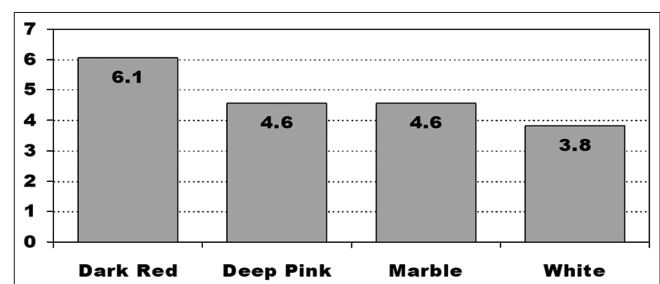


Figure 1: Personal liking for four poinsettias cultivars (Winter Rose® Dark Red, Deep Pink, Marble, and White) by consumers

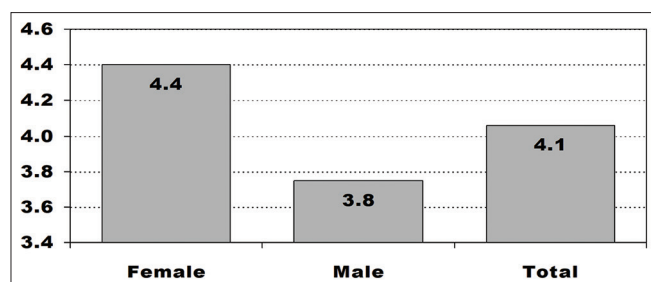


Figure 2: Number of poinsettias previously purchased by gender

Table 4: Frequency and distribution of respondents who bought poinsettias in the previous year for home use and as gifts based on plant color

Item	Red		Pink		White	
	No.	%	No.	%	No.	%
Did not buy	16	29%	49	88%	49	88%
Bought	40	71%	7	13%	7	13%
Total	56	100%	56	100%	56	100%

Previous Poinsettia Purchases

Understanding ornamental customer demand starts with understanding how consumers make purchasing choices, to buy or not to buy, and the frequency of purchases. One important influence of a poinsettia buyer's decision is aesthetic value (Palma *et al.*, 2011). The number of poinsettias purchased in 2001 was not influenced by the socioeconomic characteristics of Coastal Mississippi residents. Results showed that respondent's age (in years), gender, level of formal education completed (in years), household size (number of persons), and household income did not influence their purchases of poinsettia plants. Coastal Mississippi consumers reported that they bought an average of 4.06 (SD = 3.76) poinsettias in 2001 for use at home and given away as gifts (Figure 2).

The choice of colors was not influenced by respondent's socioeconomic characteristics. Results indicated that respondent's age (in years), gender, level of formal education completed (in years), household size (number of persons), and household income did not influence their choices of colors for poinsettia plants. The majority of the respondents (71%) bought red poinsettias in 2001 while 13% of the respondents bought pink and white poinsettias (Table 4). About 13% of all respondents did not purchase any poinsettia plants, 50% purchased only one color, 13% purchased two colors, and 9% purchased 3-4 colors.

CONCLUSIONS

New poinsettia cultivars are released every year. Breeders and growers may very well be ahead of the marketplace as new cultivars make their way into retail centers. Even though consumers are eager to explore new cultivars, it has been well-documented that they continue to purchase red cultivars (Hansen, 2020).

Poinsettias are widely produced in greenhouses across the country. Plants that may be culled because of broken stems may still have stems suitable for the floral trade. Overstocked plants could also be marketed to local florists. Selling poinsettias as cut flowers may provide supplemental income to producers for plants that may have otherwise been discarded.

Producing poinsettias exclusively for cut flower use is still a novel concept. However, continued research in consumer preferences and buying patterns coupled with expanded postharvest quality research may reveal a viable marketplace.

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APPENDIX A

Appendix A. Questionnaire Used During the Survey of Consumers' Acceptance of Cut Winter Rose® Poinsettia

Please look at the poinsettias on display, identified as separate varieties by a letter on each vase. For each variety, please circle the number which indicates how much you personally like the displayed plant, representative of this variety. A response of 1 would indicate that you strongly dislike the poinsettia or a 7 would indicate that you strongly like the poinsettia. A rating of 4 means you neither strongly like nor strongly dislike the variety.

Poinsettia variety	Strongly do NOT LIKE this variety			Neither like nor dislike the variety		Strongly LIKE this variety		
A	1	2	3	4	5	6	7	
B	1	2	3	4	5	6	7	
C	1	2	3	4	5	6	7	
D	1	2	3	4	5	6	7	

How likely would you be to purchase a poinsettia flower arrangement? **Please circle one number.**

Not likely			Neither		Very likely		
1	2	3	4	5	6	7	

How much would you be willing to pay for a six-stem poinsettia arrangement, identified by the letter E? \$ _____

We would like to have some additional information about yourself. Your responses are anonymous and are very helpful to us when interpreting results.

How many poinsettias did you buy last year (2001) for your home and to give as gifts? _____ poinsettias

What color/s of poinsettia did you buy last year (2001)? Check all that apply:

___ Red ___ Pink ___ White ___ Other, specify _____

In what year were you born? _____

Are you _____ male or _____ female?

How many years of formal education have you completed? (Ex. 12 years = High School Graduate) _____ years

Counting yourself, how many people live in your household? _____ persons

What is your approximate household income last year (2001) before taxes?

___ less than \$25,000 ___ \$25,000 to \$50,000 ___ \$50,001 to \$75,000

___ \$75,001 to \$100,000 ___ more than \$100,000

THANK YOU FOR YOUR TIME.