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Importance of Five Natural Christmas Tree Characteristics as Related to Socioeconomic Variables and Opinions of Choose-and-Cut Farms' Customers[1]

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Abstract

Information about preferred tree features, purchasing habits, preference of a natural versus artificial tree, and socioeconomic characteristics was collected from customers of choose-and-cut Christmas tree farms in Georgia. The preferred tree features are shape, followed by density and height. Color and price are the least important. The test on means of consumers' socioeconomic characteristics revealed that male and female respondents differed in their preference for shape, height, and price; consumers' education impacted the importance of tree height and color; income influenced the importance attached to shape, density, and price. Estimation of models with preferred tree features (shape, density, height, color and price) as dependent variables identified significant negative and positive influences of independent variables. In general, college educated respondents were less concerned about the importance of tree features; female respondents were more concerned about tree shape and price than male respondents; respondents who felt that a natural tree made the season special were less concerned with density and height; an expected visit of a relative during Holidays had a negative impact on the importance of tree height and color suggesting that the visit may have encouraged the tree purchase, but tree features were considered less important.

Index words: consumer preference survey, artificial tree, purchasing habits, socioeconomic characteristics

Significance to the Nursery Industry

Information about ranking of natural tree attributes sold at choose-and-cut farms is not readily available. Each grower learns from his experience about customers' preferences. This study provides a broad summary of customers' opinions collected at Georgia choose-and-cut operations. Also, the identification of factors influencing customers' perceptions concerning shape, density, height, color, and price of a tree aid in meeting customers' expectations and contribute to improved Christmas tree sales.

Introduction

Consumer characteristics influence preference for natural or artificial Christmas trees (2, 3) and the importance of these attributes in natural tree selection by consumers (4, 6). Little attention has been devoted to the perceptions of tree characteristics used by customers when purchasing trees at choose-and-cut farms, which sell about one fourth of all natural trees in the U.S. (1). Choose-and-cut farms can improve returns on tree sales by addressing customers' preferences for tree attributes. Consistency in meeting customers' expectations promises repeated sales in the following marketing seasons.

This paper describes results of a survey conducted among choose-and-cut farms' customers and identifies factors perceived by consumers as important attributes of a natural tree. Statistical tests and qualitative dependent variable models were used to support descriptive results. Results of this study allow us to rank the importance of the tree attributes chosen by buyers at choose-and-cut farms and to identify customer's perceptions and socioeconomic characteristics which influence opinions about tree attributes.

Materials and Methods

Survey description. The Christmas tree consumer's survey was performed in November and December of 1990. Questionnaires were distributed among 11 choose-and-cut Christmas tree growers in Atlanta metropolitan area. This resulted in 148 forms completed by customers. The questionnaire consisted of 15 questions divided into five categories: preferred tree features, socioeconomic characteristic of respondents, documentation of purchasing habits, and preference of a natural versus artificial tree.

Preferred tree features. Consumers were asked which tree characteristics are important while buying a choose-and-cut Christmas tree. Tree shape, color, price, density and height were among tree characteristics given in the survey.

Socioeconomic characteristic of respondents. This group of questions defined characteristics of Christmas tree consumers. Specific information collected included the consumers' gender, individual income, level of education, and age.

Documentation of purchasing habits. Respondents were asked about the selection of a tree farm, time of the day and date of purchase of a Christmas tree, distance travelled to a choose-and-cut farm, and time spent to find the right tree. Consumers were also asked to specify the type and height of the Christmas tree they purchased.

The preference of natural versus artificial tree. Survey participants were asked about their feeling of natural versus artificial Christmas trees. Specific questions probed consumers' opinion if natural Christmas trees are better than artificial because they are natural and have pleasant odor or

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whether artificial trees were perceived as being more expensive than natural trees. The survey also asked the consumers if they owned an artificial tree and if choosing a natural over artificial Christmas tree had to do with bringing the family to a choose-and-cut farm.

Variable selection and model development. The focus of this paper is on five natural Christmas tree attributes (shape, density, height, color and price) which are considered important by the Christmas tree industry (4). These attributes are used as the dependent variables in the final models. Several selection criteria were used to select the independent variables included in the final probit and ordered probit models (5). These included previous empirical studies (3), results of the test on means of socioeconomic variables obtained in the survey and runs of preliminary models which further tested the relationship between the dependent and independent variables. The independent variables used in the final models differed for each attribute (dependent variable). The independent variables selected, as described above, for the final models for each of the five attributes were as follows, 1) shape: gender, education, degree of family participation in the purchase, and the visiting of the relative, 2) density: education, price of an artificial tree, and having a tree makes the season special; 3) height: gender, education, degree of family participation in the purchase, having a tree makes the season special, and a visit of a relative; 4) color: education, degree of family participation in the purchase, visit of a relative, price of an artificial tree, and ownership of an artificial tree and 5) price: gender, education, income, time spent searching for a tree, and the distance between the farm and a residence.

The selection of the probit vs. ordered probit model was based on the available data. Respondents to the survey could 'strongly agree', 'agree', 'somewhat agree', 'disagree' or 'don't know' with any of the statements about the five selected attributes. In the case of the shape of a natural tree, answers of all respondents fell only in the first two categories. In this case the probit model was specified because the customers' selection could only be coded as a binary variable. The ordered probit procedure, applied to the estimation of the remaining models followed the theoretical specification proposed in literature (5) and available on a number of statistical software packages.

Results and Discussion

Almost 85 percent of respondents 'strongly agree' that shape is an important attribute. The remaining 15 percent 'agreed' that shape was an important factor. This suggests that shape of a tree is an important tree attribute to customers when selecting a Christmas tree.

A number of respondents 'strongly agreed' that density (63.0 percent) and height (58.7 percent) of a tree are important attributes. Fifty-two percent of respondents 'strongly agreed' that color was an important attribute. The fewest respondents (51.9 percent) 'strongly agreed' that price is an important characteristic. However, more than a half of the surveyed buyers 'strongly agreed' that each of the listed tree attributes was important.

Table 1 presents results of the test on significant differences between means of selected socioeconomic characteristics with regard to five selected tree attributes (shape, density, height, color and price). These variables influence the customers' perception in various ways. Shape, color, and price perceptions differed between male and female respondents while shape, density, and price perceptions differed among customers with different incomes. The height of a tree and its color varied among groups with different education levels.

Shape of a tree was more important to female respondents than to male respondents and to respondents with higher incomes (Table 1). College educated respondents are less concerned with the shape of a tree than customers with lower level of education. Also, customers who brought their fam-

Table 1. Results of the test on significant differences between means of selected respondents' socio-economic characteristics with regard to five Christmas tree attributes.

Tree attribute	Respondent socio-economic characteristic	Reject equality of opinions	Comments
Shape	Gender[z]	Yes	Female respondents were more concerned about shape than male respondents
	Income[y]	Yes	Respondents with incomes falling into the highest income category ($35,000+) were more concerned with tree shape than respondents with the lowest incomes
	Education[x]	No	
Density	Gender	No	
	Income	Yes	Respondents with incomes falling into the highest category were more concerned about tree density than respondents with the lowest incomes
	Education	No	
Height	Gender	Yes	Male respondents were more concerned with height of a tree than female respondents
	Income	No	
	Education	Yes	College educated respondents were less concerned with the tree height than respondents with less education
Color	Gender	No	
	Income	No	
	Education	Yes	College educated respondents were less concerned with tree color than respondents with less education
Price	Gender	Yes	Female respondents were more concerned about price than male respondents
	Income	Yes	Respondents with the lowest incomes were concerned about the price of a tree
	Education	No	

[z]Pairwise test performed: Male vs. female.

[y]Pairwise test performed on income groups: Under $15,000, $15–35,000, over $35,000.

[x]Pairwise test performed: College education vs. lower levels of education (No differences in opinion were found between respondents with a high school degree and those with less than high school degree.)

ily to the choose-and-cut farm were more concerned with tree shape than were customers who came without family members present. The amount of time spent on searching for a tree did not affect the consumer's opinion about the importance of tree shape.

Importance of tree density was significantly related to respondents' education and respondents' opinion about trees making the Holiday season special. Customers with a post-graduate degree were less concerned with the importance of density than customers with less education. Respondents who were more likely to agree with a statement that a tree makes a Holiday season special were less concerned with the tree density. The variable reflecting customers' opinion that artificial trees were expensive did not significantly affect the opinion about tree density, but the sign indicated that they would be less concerned with density than other survey participants.

The importance of tree height was less important to respondents with a college degree than to respondents with other levels of education. Height was also less important to respondents who were more likely to agree that a tree makes the Holiday season special and to those who expected a visit from a relative during the Holidays. Although not statistically significant the sign of the coefficient representing the gender and family participation in tree purchase suggested that male respondents and the presence of family members strengthened the opinion that the height of a tree was important.

The color of a tree had less influence on the opinion of customers who expected a visit from a relative during the Holidays and perceived artificial trees as expensive. The education level did not significantly influence the perception of color, but the sign of the coefficient (Table 2) indicated that respondents with higher than high school education were less concerned about the color. Similarly, the presence of family members and not owning an artificial tree suggested less concern about the tree color although the corresponding coefficients were not significantly different from zero.

The price of a tree was more important to female respondents rather than to male respondents. The price was of less importance to customers with college education when compared with customers with other levels of education. Respondents with higher income levels were paying more attention to price than respondents with lower income level. This result combined with the results of the test on means (Table 1) suggests that higher income consumers may perceive price as the reflection of value which includes a single measure of several tree features. Time spent on searching for the right tree and the distance travelled to the choose-and-cut farms were not statistically significant, but the signs of the coefficients indicated that customers spending more time searching for a tree and travelling longer distances were more concerned about the price of a tree.

Customers at choose-and-cut farms do not attach the same degree of importance to each tree attribute according to this study. Shape of a tree is by far the most important tree attribute; however, tree density and height are also important. Female respondents, when compared to male respondents, were particularly concerned about the shape of a tree and its price. The presence of family members during purchase of a tree at choose-and-cut farms was important for perceptions of tree's shape. In general, results suggested that customers with a higher level of education were less concerned with tree attributes. Similarly, surveyed customers who thought that a tree makes a Holiday season special paid less attention to tree attributes. Finally, the expected visit from a relative was less important in influencing the perception of height or color of a tree. It is possible that customers felt pressured into having any natural tree rather than no tree at all.

Operators of choose-and-cut farms could improve sales by applying production practices improving the shape and density of natural trees. At choose-and-cut farms in Georgia this implies, generally, careful and judicious shearing of commonly grown pine species. Shape and density were considered more important than, for example, color according to the survey results. However, we do not know if respondents had an opportunity to actually compare a colored tree with a tree of natural color. Therefore, tree color may be more important than suggested by the results.

Operators must pay attention to gender of a tree buyer and the presence of family members. Operators, turning the purchase of a tree at choose-and-cut farms into a family affair, may have to be able to supply trees of especially proper shape. Overall, a tree of good quality was more important to respondents than the tree's price. However, further research is needed to assess how much consumers would be willing to pay for each quality attribute.

Table 2. Estimated relationships between Christmas tree attributes (shape, density, height, color, price) and selected socioeconomic characteristics and opinions of choose-and-cut Christmas tree farm customers.

Attribute	Independent variable name	Coefficient
Shape	Constant	−.3429
	Gender	−1.3270[z]
	High school education	.2128
	College education	−.8691[z]
	Income	.8234[z]
	Time spent searching for the right tree	.0087
	Family participation	.8735[z]
Density	Constant	4.6279[z]
	College education	−.1342
	Post-graduate education	−2.1891[z]
	Artificial tree is expensive	−.6441
	Tree makes the season special	−1.3874[z]
Height	Constant	1.2023[z]
	Gender	.1606
	College education	−.2549[z]
	Post-graduate education	.0340
	Family participation	.2325
	Tree makes the season special	−.4060[z]
	Relative visit	−.1365[z]
Color	Constant	6.1543[z]
	College education	−1.4443
	Post-graduate education	−.4552
	Family participation	−2.0276
	Relative visit	−.7875[z]
	Artificial trees are expensive	.5694[z]
	Have artificial tree	−1.3603
Price	Constant	1.8145[z]
	Gender	−.4810[z]
	High school education	−.4088
	College education	−.4700[z]
	Income	.3122[z]
	Time spent searching for a tree	−.0122
	Distance between the farm and residence	−.0001

[z]Significant at $\alpha = 0.10$.

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Opportunities for Cooperation between Landscape Contractors and Landscape Architects[1]

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Abstract

Landscape architects identified the most common complaints they receive regarding plant material installed in the landscape. The 54 responses from a survey of landscape architects in Georgia were grouped into four categories relating to plant size, plant quality, site preparation and installation, and plant maintenance. Specific opportunities are identified for landscape contractors to help landscape architects address these customer concerns. In addition, landscape architects identified several areas for landscape contractors to assist them in supplying better products and services. These areas include plant material care and availability, close supervision of the installation process, and a closer working relationship between the two groups.

Index words: market research, nursery crops, site preparation, plant specifications, plant availability.

Significance to the Nursery Industry

This study identifies opportunities for landscape contractors and landscape architects to work together more effectively and to achieve a higher quality installed landscape. Since their business success is dependent on a satisfied landscape customer, landscape contractors and landscape architects could use this information as a basis for future cooperative efforts directed to this important customer group.

Introduction

Landscape contractors and landscape architects play an important role in the establishment of landscapes for commercial, governmental, and homeowner clients. The value of these landscapes is substantial. For instance, it is reported that the urban forest in the U.S. consists of 61 million street trees with an estimated aggregate value of between 18 and $30 billion (7). The same study reports that an estimated 600 million trees exists in yards and parks. It has been estimated that about $425 million are spent each year on management of these trees (9). Landscape contractors and landscape architects can significantly affect the economic importance of these and other landscape plantings through selections and installation procedures.

A formal exchange of information between landscape architects and landscape contractors could enhance their working relationship and the quality of installed landscapes. The American Society of Landscape Architects has initiated an effort to foster a closer working relationship among landscape architects, landscape contractors, and nurserymen through formation of the "New Alliance" (1). Recent research identifies opportunities for landscape architects and nurserymen to work together more effectively (2, 5, 6). However, relatively little information is available to help landscape contractors and landscape architects achieve their mutual goal (3). This study provides quantitative information on opportunities for landscape contractors and landscape architects to: a) improve the quality of installed landscapes and satisfy the landscape customer and b) improve the effectiveness of interaction between the two groups.

Materials and Methods

The survey instrument was mailed to landscape architects in Georgia who are members of the American Society of Landscape Architects (ASLA). The ASLA members represent 168 landscape architectural firms. The initial mailing

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