

Containerized Table-Top Christmas Trees: Part II. Consumer and Grower Preferences for Species, Container Style, and Retail Price

Submitted by

Kathleen M. Kelley
Assistant Professor of Consumer Horticulture

and

Ricky M. Bates
Assistant Professor of Ornamental Horticulture

The Pennsylvania State University
Department of Horticulture
102 Tyson Building
University Park, PA 16802

This is Part II of a two-part research report written for the Pennsylvania Christmas Tree Grower Association. The authors wish to thank the association for funding this research.

Researchers have investigated consumer acceptance of smaller decorated table-top Christmas trees and found that after viewing photographic images of decorated trees participants preferred specific species decorated with red-colored ornaments (Heilig and Behe, 2000). It is of interest, however, to investigate whether consumers would like the option of planting containerized table-top Christmas trees outdoors, after the Christmas season, and if so, what species or container style they might prefer, as well as what retail price they would be willing to pay. As discussed in Part I of this research report, containerized evergreens could meet the needs of individuals who would like to plant a live tree. A live tree would also be less likely to drop needles during display and one which would be easier to transport and set up (Florkowski and Lindstrom, 1995).

Containerized conifers for display during the Christmas season are becoming more commonplace (Downey & Roberge Plantations, Inc., Que. and Misty Hills Nursery, Watsonville, Calif.), but often species are utilized that are not adapted to local or regional climatic conditions for planting outdoors. In exchange for the convenience of a value-added product, growers can charge more for the finished product. Examples in the food industry have shown that prices for value-added products are double the cost of the ingredients themselves (Ridge, 2002). Though factors such as fixed and variable costs as well as proficiency with growing and finishing the product will differ, potential and actual profits should be calculated to determine feasibility of this venture for each individual grower.

Methods and results presented in this paper pertain to a study which consisted of surveying two separate groups at different sites: 1) Pennsylvania Christmas tree growers

who attended the Pennsylvania Christmas Tree Growers Association (PCTGA) summer meeting at Rock Springs, Pennsylvania, 8 Aug. 2003, and 2) consumers who attended Ag Progress Days, Rock Springs, Pennsylvania, 19 and 20 Aug. 2003.

Consumer participants were asked to evaluate live table-top trees and rate the importance of three factors: (1) tree species, (2) container style, and (3) retail price in their decision to purchase the combination for use in their home during the Christmas season. Pennsylvania Christmas tree growers were asked to evaluate the trees from the perspective of what they thought their customers would prefer to purchase. All participants were told that the species were also suitable as landscape trees in Pennsylvania and that they could be planted outdoors after the holiday season.

The study design was developed using seven tree species:

- 1) Canaan fir (*Abies balsamea* var. *phanerolepis*)
- 2) Douglas fir (*Pseudotsuga menziesii*)
- 3) Dwarf Alberta spruce (*Picea glauca* 'Conica')
- 4) Eastern arborvitae (*Thuja occidentalis* 'Emerald')
- 5) Serbian spruce (*Picea omorika*)
- 6) Southwestern white pine (*Pinus strobiformis*)
- 7) White spruce (*Picea glauca*)

Three container styles:

- 1) a black plastic container
- 2) a container with gold foil and a red bow
- 3) a decorative stone finish fiberglass container

Three retail price-points:

- 1) \$18.95, the average retail price calculated from information obtained from local growers selling these species as well as information obtained from the Internet.
- 2) \$21.98, justifies materials and labor needed to foil the container and construct a bow.
- 3) \$27.95, accounts for the addition of the decorative container.

The total number of possible combinations was 63 (tree species × container style × retail price). An orthogonal design developed using OrthoPlan, a computer software program component of the SPSS software package (SPSS Inc., Version 10.1, Chicago) created an arrangement of 27 combinations to reduce participant fatigue. Equal weight was given to all three factors. Combinations were placed on tables arranged in a quarter-circle shape and labeled with a description of the tree species, container style, retail price and each was assigned a number (1 to 27), which corresponded to a rating scale on the survey form.

Live plants were used based on previous studies identifying a variety of features including fragrance (Helmsing, 2003) as an important characteristic in the decision to purchase Christmas trees. The researchers also wanted participants to view an actual representation, get a sense of scale and touch the tree, if they so desired.

Participants were asked to view and rate each combination on a seven-point Likert scale (1 being very unlikely and 7 being very likely), as to how likely they (or in the case of the growers, their customers) would be to purchase the trees for use in their homes with the option of planting them outdoors after the holiday season.

Consumer survey: Conjoint analysis.

Of the 392 consumers who participated in the survey, responses from 372 survey forms were used for the conjoint portion of the analysis. Participants needed to rate all 27 table-top Christmas tree combinations in order for the SPSS Conjoint software to utilize their responses during the analysis.

The species factor had the highest relative importance (73.80%). This measure indicates that when consumers rated the combinations, species as a factor or “category” was the most important in the decision to purchase a table-top Christmas tree combination (Table 1). The next most important factor was the container style, accounting for 13.68% of the decision to purchase, with price (12.51%) being the least important factor in the decision to purchase a table-top Christmas tree combination.

Within the species factor, the most preferred species was Canaan fir followed by Dwarf Alberta spruce. Only these two species received positive utilities; a more positive indicates that the species was more preferred by participants. All other species rated received a negative utility therefore they were not preferred. Only one container style received a positive utility, the decorative container, while two prices \$21.98, and \$18.95 had positive utilities.

Consumer interest and potential use of table-top Christmas trees in the landscape.

As reported in Part I of this research report, sixty-one percent of participants were aware that table-top Christmas trees were available for purchase. Twenty-four percent of participants actually purchased a table-top Christmas tree in the past. While only a quarter of the participants actually purchased table-top Christmas trees, the percent of participants interested in purchasing trees similar to the ones they rated increased to 54%. When asked specifically about their interest in purchasing a containerized table-top tree with the option of planting it outdoors after the holiday season, the percent of those interested in doing so increased to 91%. Asked how likely they would be to actually plant the table-top Christmas tree in their yard after the holidays, 87% said they were likely to do so (combined total of somewhat likely (9%), likely (21%), and very likely (58%)). Hence, there appears to be a high level of interest for this value-added product.

It is evident, however, that consumers need information on how to properly plant and care for the trees. Participants responded to a question regarding how confident they felt they would be to care for a containerized table-top Christmas tree and 24% of the respondents felt that they wouldn't be able to properly care for the tree and that the tree wouldn't survive under their care; 42% felt reasonably confident that the tree would survive; however, only 34% felt very confident that they could care for the tree.

Grower survey: Conjoint analysis.

Of the 113 surveys collected from grower participants, 108 participants had completed all ratings for the table-top Christmas tree combinations that were used for conjoint analysis. As with the consumer conjoint analysis, species had the highest averaged importance (68.88%), therefore it was the most important factor in the decision to purchase a table-top Christmas tree combination, followed by container style (16.43%) and price (14.69%; Table 1). The most preferred species was Dwarf Alberta spruce followed by Canaan fir. These two species that were preferred by consumer participants, however, the order of preference was reversed. Data from the growers conjoint indicated that a third species, Arborvitae was preferred, while the consumer audience did not favor it.

Two container styles were preferred, with the most preferred being the foil and ribbon option followed by the decorative container. Again, growers preferred a container style that was not preferred by the consumer audience; however, the decorative container was preferred for both groups. Growers preferred the lowest price of \$18.95 the most followed by the price of \$21.98. The consumer audience also preferred these two prices, however, the price of \$21.98 was more positive than the \$18.95. As in the consumer analysis, the price of \$27.95 was the least preferred price.

Based on conjoint analysis for both groups, there appears to be a shared preference for factors. Within each factor, both groups also preferred certain levels (specific tree species, container styles and prices) to others rated. A containerized table-top Christmas tree option, which may appeal to both groups, could consist of either a Canaan fir or Dwarf Alberta spruce in a decorative container for a price of \$21.98 or \$18.95. Data indicates that growers may be more price sensitive than the consumer audience. Reviewing results from this conjoint analysis provides evidence that consumers may be willing to pay more than growers assume, and that consumers may not necessarily choose the lowest price for containerized table-top Christmas trees. According to Heilig and Behe (2000), consumers who participated in their survey didn't choose the lowest price as the most preferred, perhaps their choices were based on the unique qualities of the products displayed. By including both growers and consumers in a survey to rate live containerized table-top Christmas trees, we can present data that demonstrates what growers believe their customers will prefer but may actually differ from what this group desires. Therefore, growers should be informed about the wants and needs of their clientele and evaluate the consumers who shop in their establishments.

For growers to truly estimate consumer demand for these containerized table-top Christmas trees, it would be necessary to create combinations and analyze consumer interest and actual purchasing. This data could be used to determine not only if there is a market for this product in the regions they serve, but if this new product would generate profit.

Ninety-one percent of consumer participants were interested in purchasing a containerized table-top tree with the option of planting it outdoors. As noted, interest in planting the trees outdoors remained high with 87% of participants likely to do so. Grower participants recognized the potential consumer interest for both cut and containerized table-top trees, with a majority of growers noting that demand would increase for both trees (Part I of this research report). When estimating profitability, only 22% believed that cut table-top Christmas trees were less profitable than full-sized cut trees. Others believed they were either more profitable, the same, or don't know or had no opinion.

Obstacles growers may have to overcome include informing consumers about how to plant and care for the containerized table-top Christmas trees after the holiday season. Ninety-six percent of growers who sell these trees encourage their customers to do so (Part I of this research report), however, 24% of consumer participants felt that they wouldn't be able to properly care for the tree and that the tree wouldn't survive. In addition, 49% of consumers who actually purchased containerized table-top Christmas trees had experienced loss the first year after planting. It is possible that the species purchased that didn't survive or was discarded after the holiday may not have been 'cold hardy' to the consumer's climate or the consumer lacked proper instructions as how to plant and care for the tree once placed outdoors. Recognized cold hardy species would be a better choice for this market, as consumers will benefit from the use of the tree both indoors and outdoors. There also may be less chance of having a disappointing planting experience or feeling guilty about discarding a live tree since consumers have the option of planting this renewable resource.

Table 1. Conjoint analysis of consumer and Christmas tree grower participants' ratings of table-top Christmas tree species, container style and retail price based on evaluation of 27 live trees.

Factor	Consumer Participant		Christmas Tree Grower Participant	
	Averaged Importance ^z :	Ranking (most to least preferred)	Averaged Importance ^z :	Ranking (most to least preferred)
Species	73.80		68.88	
Canaan fir		1		2
Douglas fir		4		6
Dwarf Alberta spruce		2		1
Eastern arborvitae		5		3
Serbian spruce		3		4
Southwest white pine		7		7
White spruce		6		5
Container	13.68		16.43	
Standard black pot		3		3
Foil and ribbon		2		1
Decorative container		1		2
Price (U.S. dollars)	12.51		14.69	
\$18.95		2		1

\$21.98	1	2
\$27.95	3	3

Consumer participant: Pearson's R = .954
Christmas tree grower participant: Pearson's R = .919
^zA higher value indicates a greater importance

Literature Cited

Florkowski, W.J. and O.M. Lindstrom. 1995. Consumer characteristics associated with perceptions of live Christmas trees. *J. Environ. Hort.* 13(1):15-18.
Heilig, J. and B. Behe. 2000. Consumer preferences for alternative tabletop Christmas trees. *Southern Nursery Association Conference* 45:525-528.
Helmsing, P. 2003. The perfect Christmas tree. *American Christmas Tree Journal* 43(2):34-35.
Ridge, D. 2002. Oceans of opportunity. *Food Management* 37(2):42-48.
SPSS Inc. 2001. SPSS training: Advanced market research. Chicago, IL.