

MARKETING

Mel Garber
Section Editor and Moderator

Twenty-eight students competed in the Bryson L. James Student Research Competition and twenty-nine research projects were presented in poster form, which were displayed for review during the SNA Research Conference and Trade Show, this year. Their research is presented in the topical sections which follow and are designated as Student or Poster papers.

Writing for the Popular Press

David L. Morgan

NMPro Magazine, P.O. Box 1868, Fort Worth, TX 76101

Nature of Work: Researchers and extension personnel frequently have opportunities to write for non-scientific horticultural publications. These may include trade journals, popular magazines, and association and industry publications. These publications are read by your constituents, the growers and public you cannot reach when you write for your peers. Generally, these publications require different styles of writing from scientifically oriented journals, because their readers are interested in writers' observations, pictorials and conversationally presented information. They are distracted by data tables and literature reviews and the writing style of journals.

Results and Discussion: Here are some suggestions that might make your non-technical writing clearer and more acceptable to editors:

- First, ask the editor for writer's guidelines, which should spell out word length, numbers of pictures, format and whether you should submit via e-mail, hard copy or disk. Ask the editor for specifics.
- Be familiar with the publication; ask the editor for a copy.
- Discuss in advance of submission the publication's policy for paying its contributors, and at what point your payment will be sent; i.e., upon submission, acceptance, publication or at the end of a pay period.
- Meet all deadlines. Better yet, submit early.
- Don't submit a previously published or submitted article unless the editor knows it has been sent to another publication. Nothing irritates an editor more than being surprised by a submitted article in print in a competing magazine.
- Keep it simple. Write in an informal, conversational style. Make it sound as if you wrote it, not the editor. Omit the scientific headings – methods & materials, procedures, literature cited. Use tables sparingly, and explain the results rather than using statistics.
- Make certain your graphics are clear and your photos are high quality. If you are not a good photographer, ask someone to help you.

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- Most publications accept slides. Label them carefully and include your name on each one to assist the editor in sorting them and returning them. If you borrow or purchase the slide from a commercial source, it may not be yours to provide. A line drawing you made for a book may now be the property of the publisher, which means the editor will have to obtain permission to use it. Likewise, if a colleague or a graduate student took the picture, that person should be given proper attribution.
- Include with the graphics or slides a separate page of cutlines describing each scene or plant.
- Include a recent head-and-shoulders photo of yourself.
- On first reference, use both common and scientific names of plants. And make certain they are correct. You are the expert, not the editor who may not check plant names.
- Likewise, check your spelling through your computer.
- Ask a colleague to proof the article before you send it.
- If the article runs longer than expected, separate it into parts that can be used as companion articles (sidebars).
- Include USDA Hardiness Zones, Heat-Zones, Sunset Climate Zones – anything that tells the reader something about the plant, and where it will not grow.
- Remember that you often can publish your information in a non-scientific publication without jeopardizing your opportunity to publish in a refereed journal.
- Finally, stay in touch with the editor. Submit ideas by e-mail. Keep him/her updated on your progress as you write. Let the editor know you respect deadlines. If you do, you may be asked to write another article.

Significance to Industry: Researchers and extension personnel who write for non-technical industry, trade and other popular publications reach a large segment of growers and homeowners who otherwise might be unaware of their results, observations and recommendations.

Distribution of Nursery Sales as Retail or Wholesale and Overall Industry Growth, by State

John R. Brooker, The University of Tennessee, Knoxville

Nature of Work: Green-industry product demand experienced extraordinary growth in the United States during the last part of the 1980s and early 1990s. The growth was quite impressive in some states; however, yearly cash receipts in a few states increased with respect to total dollars but relative market shares declined. Total U.S. grower cash receipts for nursery and greenhouse crops increased 31 percent from \$7.4 billion in 1988 to \$9.7 billion in 1993 (Table 1). Among the 19 states discussed in this paper, U.S. market share for 10 states declined. The increase in U.S. market share for North Carolina was a dramatic 3.4 percent. Florida's market share declined the most, -2.41 percent. Adjustments among the seven northern states ranged from +0.55 percent for Michigan to -1.0 percent for New Jersey. California and Oregon, the only western states included, both experienced increases in their market shares. While considerable debate could ensue regarding the accuracy of these data, the major point here is to compare the high growth states with the lower growth states and try to identify any structural adjustments with respect to market outlets.

This paper uses information about nursery crop sales obtained from nursery-industry surveys in 1989 and 1994. Researchers in 23 states participated in 1989 and 24 states were covered in 1994. The 19 states included in this paper were represented in both surveys. A third nationwide survey will be conducted by the S-103 research committee in early 1999. The relationship discussed in this paper is between the distribution of wholesale sales among three outlet categories (retailers, landscapers, and re-wholesalers).

Results and Discussion: As revealed in Table 1, an interesting point is that the percentage of wholesale sales for the nurserymen in North Carolina (with the largest increase in U.S. market share) dropped from 91.4 percent in 1988 to 67.7 percent in 1993. Florida's dependence on wholesale sales increased from 91 percent to 97 percent, which was the highest percentage value for wholesale sales among all 19 states except Oregon, which remained virtually unchanged at 98 percent. The lowest proportion of sales classified as wholesale occurred in Maine, 43 percent. An even more dramatic adjustment in the proportion of wholesale sales was reported in Connecticut where the percent of wholesale sales dropped from 96 percent to 55 percent. In contrast, in the neighboring state of Delaware, the share of wholesale sales increased from 67 percent to 90 percent.

Once the percentage of total sales considered wholesale was determined, nurserymen were asked to distribute this "wholesale" value among three outlet categories termed retailers, landscapers, and re-wholesalers (Table 2). Out of the nine states with positive increases in market shares, all but two reported higher or equal percentages of sales to the retailer category in 1993 than in 1988. Florida, which experienced the largest reduction in market share (-2.41%), the percent of wholesale sales to landscapers dropped from 46 percent in 1988 to only 24 percent in 1993. Overall, the retailer category became more important. This may be attributable to the expanding interest of homeowners in landscaping and the expansion of plant availability at do-it-yourself mass merchandisers like Home Depot and Lowes.

Significance to Industry: How much of the product for each state is shipped to instate outlets? The four southern states with increased market shares experienced reductions in their nurserymen's wholesale sales to instate outlets (Table 3). Therefore, proportionately more of the growth in total sales appears to be due to capturing additional sales to outlets in other states. In contrast, the proportion of sales to instate outlets increased in the two western states. The percentage of California's wholesale nursery sales to instate outlets was the highest among these 19 states in 1988, yet this percentage increased to 94 percent in 1993. While both California and Oregon nurserymen sell 95 and 98 percent, respectively, of their total sales as wholesale, Oregon is much more dependent on out-of-state buyers. The percent of wholesale sales to instate outlets more than doubled between 1988 and 1993, but the percentage value is still only 27. At the extreme in the other direction is Delaware, where the nurserymen reported that only 3 percent of wholesale sales were made to instate outlets. And, the percent of Delaware sales in the wholesale category was placed at 90 percent.

On a state by state basis, adjustments in the importance of certain types of wholesale outlets and the location of the buyers are changing. The forthcoming 1999 survey of the nursery industry should reveal constructive information that will support analysis of the marketing structure of the U.S. nursery industry. The objective of such research is to provide structural insight that will help nurserymen plan for the future.

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2. Brooker, John R., Steve C. Turner, and Roger A. Hinson, *Trade Flows and Marketing Practices within the United States Nursery Industry:1993*, Southern Cooperative Series Bulletin 384, The University of Tennessee Agricultural Experiment Station, Knoxville, 1995.
3. Johnson, Doyle C., "Table 4 -Greenhouse and Nursery Crops: Grower Cash Receipt- 1994" and "Table 5- Greenhouse, nursery, and turfgrass sector: value of U.S. production, trade, and equivalent wholesale sales and retail expenditures, 1986-95," personal correspondence, ERS-USDA, June 1996.
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Table 1. Grower cash receipts for greenhouse and nursery crops and proportion of sales as wholesale

Region and State: ranked by change in market share	Grower cash receipts		Share of U.S. market		Change in share of U.S. market		Product sales reported as wholesale	
	1988	1993	1988	1993	1988 to 1993	1988 to 1993	1988	1993
	-----dollars-----		-----percent-----					
Southern:								
NC	352988	795113	4.77	8.19	3.43		91.4	67.7
GA	184800	249833	2.50	2.57	0.07		79.2	78.7
MS	20000	32349	0.27	0.33	0.06		87.5	91.1
OK	205535	275356	2.78	2.84	0.06		91.8	92.4
KY	44900	58657	0.61	0.60	-0.01		58.2	63.8
AR	19408	22436	0.26	0.23	-0.03		86.6	67.4
TN	126551	154239	1.71	1.59	-0.12		88.8	93.4
AL	164218	200986	2.22	2.07	-0.15		98.2	93.4
LA	47748	29226	0.65	0.30	-0.35		96.6	91.5
FL	954794	1017655	12.90	10.49	-2.41		90.8	97.1
Northern:								
MI	241370	369574	3.26	3.81	0.55		75	52.5
IL	153630	218314	2.08	2.25	0.38		89.2	71.5
ME	17000	21000	0.23	0.22	0.01		71.2	43.2
DE	31500	27523	0.43	0.28	-0.15		67	90.3
OH	409904	476351	5.54	4.91	-0.63		72.1	85.3
CT	93618	107881	1.26	1.11	-0.78		96.5	55
NJ	232656	208084	3.14	2.14	-1.00		76.2	86.1
Western:								
CA	1547715	1941876	20.91	20.01	0.90		89.9	95.4
OR	251354	352460	3.40	3.63	0.23		98	97.9
U.S. total	7402784	9703629	100.00	100.00	-		-	-

Sources: Economic Research Service/USDA, National Agricultural Statistics Service/USDA, SCB 358, and SCB384.

Table 2. Distribution of wholesale nursery crop sales among three outlet categories

Region and State	1988			1993			Total
	Retailers	Landscapers	Re-wholesalers	Retailers	Landscapers	Re-wholesalers	
-----percent-----							
Southern:							
NC	34.0	33.5	32.5	41.1	41.5	17.4	100
GA	34.6	43.2	22.2	52.2	25.7	22.1	100
MS	44.4	22.0	33.6	61.0	24.6	14.4	100
OK	76.3	15.0	8.7	76.2	18.3	5.5	100
KY	30.6	52.3	17.1	26.6	51.2	22.2	100
AR	50.9	31.4	17.7	63.3	22.7	14.0	100
TN	32.2	33.2	34.6	47.4	22.5	30.1	100
AL	52.1	19.3	28.6	42.8	18.0	39.2	100
LA	45.7	33.9	20.4	63.7	24.5	11.8	100
FL	26.4	46.4	27.2	45.1	24.2	30.7	100
Northern:							
MI	48.0	34.4	17.6	33.5	43.0	23.5	100
IL	27.1	60.2	12.7	34.5	54.5	11.0	100
ME	22.1	36.8	41.1	17.6	53.4	29.0	100
DE	71.4	13.7	14.9	79.9	7.1	13.0	100
OH	33.6	41.9	24.5	45.2	34.4	20.4	100
CT	51.1	8.5	40.4	56.9	31.4	11.7	100
NJ	24.9	55.0	20.1	32.2	51.8	16.0	100
Western:							
CA	45.8	31.8	22.4	60.8	24.2	15.0	100
OR	35.7	6.5	57.8	46.7	12.1	41.2	100

Sources: SCB 358 and SCB 384.

Table 3. Proportion of wholesale sales to in-state outlets, by three outlet categories

State	1988			1993		
	Retailers	Landscapers	Re- wholesalers	Retailers	Landscapers	Re- wholesalers
Southern:						
NC	25.74	20.90	13.16	16.36	30.79	7.90
GA	22.14	35.94	12.14	27.23	16.73	12.35
MS	22.16	12.43	2.92	19.36	4.62	0.37
OK	13.20	9.69	2.73	6.23	4.94	1.78
KY	18.39	34.83	3.69	13.38	37.02	6.99
AR	25.30	26.28	2.99	39.86	17.55	6.93
TN	4.77	9.40	10.17	1.83	6.25	9.36
AL	6.67	7.39	1.49	14.40	5.63	8.15
LA	18.92	7.25	4.67	42.55	13.52	1.92
FL	21.62	43.24	19.64	28.00	20.50	19.46
Northern:						
MI	22.42	27.04	12.32	14.73	31.48	13.16
IL	20.73	52.13	10.43	26.72	49.81	8.21
ME	14.61	32.05	23.39	14.88	50.94	7.25
DE	3.28	1.77	0.66	0.70	2.28	0.00
OH	18.28	27.11	6.96	17.80	19.81	6.90
CT	5.67	0.00	12.24	15.29	20.13	2.83
NJ	13.72	34.49	10.59	12.41	31.29	5.33
Western:						
CA	36.82	30.75	18.41	56.39	23.40	13.80
OR	4.89	1.68	5.90	13.60	6.87	6.30

Sources: SCB358 and SCB 384

Marketing to Retail Garden Outlets

Mel Garber

University of Georgia, P.O. Box 1209, Tifton 31793

Nature of Work: Retail garden outlets are an important customer group for greenhouse and nursery growers. Retail outlets account for much of the plant material that moves through the distribution channel. The type of retail garden outlets in the United States include mass merchants (such as Wal-Mart and K-Mart), home centers (such as Home Depot and Lowe's), traditional garden centers, feed and seed stores, and hardware stores. A well focused grower marketing plan should be based on reliable data for the target type of retail outlet. A thorough understanding of the factors that influence success of retail outlets would enable growers to develop marketing plans to support sales at the retail level.

Survey questionnaires were mailed to 421 firms which were listed as licensed retail nurseries by the Georgia Department of Agriculture. The initial mailing was sent in July 1996, with follow-up mailings to non-respondents in August and September, 1997. With the relatively larger number of respondents for garden centers, feed and seed stores and hardware stores, the survey data was analyzed for each of these types of firms. For analysis by type of firm, the two garden center categories, one-location and multiple-locations, were combined. In addition, all respondents were analyzed as a group, and are referred to as "all firms". Market segmentation can provide specific information on different types of firms and is beneficial to development of marketing plans for suppliers. Earlier research demonstrated that different size landscape architectural firms, landscape installation firms, and landscape maintenance firms in Georgia had different service requirements.

The survey did not include the mass merchants, home stores, or the large multi-store garden center chain, Pike's Family Nurseries. Each of these groups is worthy of a separate survey and the method of survey and the content of the survey would probably vary.

Results and Discussion: Forty-three percent of the firms (181 respondents) completed the survey. The respondents represented 123 cities located through-out Georgia with no city representing more than eight respondents. Most (79%) of the respondents were owners of their business. Therefore, the results discussed in this paper represent a large portion of the decision makers in the retail garden industry and they seem to be evenly distributed through-out the state of Georgia. The retail garden outlets in Georgia were comprised of hardware stores with a garden center (31.3%), independent garden center with one

location (25.8%), feed and seed/farm supply stores with a garden center (15.9%), independent garden center with multiple locations (4.9%), supermarket/grocery store with garden center (4.9%) and 17% of the firms that checked the category, other, which is not described. The traditional garden centers with one or more locations (30.7%), and the hardware stores (31.3%) represented the two largest group of retail outlets. The mix of products sold varied with the type of retail garden outlet. For all firms, plant material was the largest portion of retail sales (36.1%), followed by chemicals and fertilizers (20.2%). Hardgoods (12.7%), and seeds (11.9%), were equally distributed and gift shop items (3.4%) was the smallest category of products sold. Several respondents indicated that the category, other (11.6%), included vegetables transplants but most respondents did not disclose the product type classified as "other".

The primary retail sales item for garden centers was plant material (54.4%), followed by much less frequently sold chemicals/fertilizer (12.5%), seeds (10.4%), and hardgoods (9.4%). The gift shop items constituted about 5% of the total sales at retail garden outlets. The plant material sales is consistent with the characterization of garden centers as primarily an outlet for plant material.

The retail sales of feed and seed stores were weighted to chemicals/fertilizers (35.2%) and seeds (27.1%). Hardgoods accounted for 11.6% of retail sales followed by plant material (10.5%) and gift shop (1%). The "other" category represented 14.6% of sales and probably includes various animal husbandry suppliers. The seed sales would include ornamental and agronomic seeds. The large portion of sales represented by chemicals/fertilizers may be due to the fact that they serve both landscape and agronomic customers.

The average annual retail sales for plant material was similar for hardware (\$40K) and feed and seed stores (\$44K) and was much lower than the average garden center (\$229K). The total plant sales for all firms was approximately \$12M. With 107 respondents for this question, the total retail plant sales for the retail garden outlets surveyed was estimated at \$47M. The total retail sales, for all products, was estimated at \$86M. Based on the survey results, the sales potential for nurserymen supplying plant material appears greater for garden centers than for feed and seed or hardware stores. However, the appropriateness of each type of retail outlet, for a particular grower, would require analysis of several factors including the type of plant material purchased. The opportunity for higher average sales of plants would appear greater for garden centers than for hardware or feed and seed stores.

The customers for all types of retail garden outlets were primarily individuals. The percentage of customers represented by individuals was 87% for all firms. The feed and seed (88%) and hardware stores (93%) had a higher percentage of individuals as customers than did garden centers (80%). Garden centers had a higher percentage of landscape customers (15.2%) than did hardware stores (5.7%). The higher level of sales by garden centers to landscapers confirms the findings of previous studies on the suppliers of plant material for landscape installers and landscape maintenance firms. The remaining small percentage of retail sales were represented by government entities (1.7% for all firms) and other types of customers (1.1% for all firms).

Most of the plant material purchased by retail garden outlets was sourced locally. For all firms, about 2/3 of plant material was sourced in-state. Hardware outlets (76.6%) accounted for the highest percentage of in-state plant material sourcing, and feed and seed stores sourced the least in-state (59.3%). The emphasis on local sourcing is consistent with individual garden outlets making their own buying decisions and requiring relatively small quantities of plants on a frequent basis.

Retail garden outlets produced some of the plant material that they retail, in addition to the plants purchased from growers. Approximately 31% of garden centers produce plant material, averaging 29% of the value of their plant material requirements or about 9% of the total plant material requirements for retail garden outlets. The feed and seed and hardware stores are less involved in plant production than are garden centers. Only 7.7% of feed and seed stores produced plants and those firms averaged 10% of their plant material requirements or less than 1% of the total plant requirements for feed and seed stores. For hardware stores, 3.8% of the firms produced plants, averaging 25% of plant material requirements or about 1% of the total requirement for hardware stores.

Several factors were identified as having the potential for negative impact on plant material sales. The three most frequently listed factors, for all firms, were adverse weather (25.9%), competition from mass merchants (23.4%) and a slowing economy (21.5%). These were the three most frequently identified factors for each of the three types of retailers, although the ranking varied. Competition from mass merchants was the most frequently identified factor for garden centers (31.5%) and feed and seed stores (35.3%), followed by adverse weather (20.4% and 23.5%, respectively) and a slowing economy (20.4% and 17.6%, respectively). Hardware stores were more concerned with the negative impact of adverse weather (32.6%) and a slowing economy (26.1%) than competition from mass merchants (13.0%). Apparently garden centers and feed and seed stores feel that they compete directly with the mass

merchants. Of the three firm types, the garden centers (11.1%) were most concerned with their ability to obtain necessary plant quality and variety to compete in the market place. Garden centers indicated in their written comments that they need an advantage over mass merchants in regards to plant quality and variety. This advantage may be necessary to get the higher price typically charged by garden centers. If growers can help garden centers to obtain a higher price through value-added products or services, the result may be higher prices, and hopefully higher margins, for growers.

Significance to the Industry: Retail garden outlets are an important part of the distribution network for greenhouse and nursery crops as evidenced by the value of plant sold by the survey respondents. This study provides insight into the characteristics of retail garden outlets and the differences among three types of outlets. This information should be used by growers to develop strategic marketing plans and to target marketing efforts to a specific segment of the retail garden industry.

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Market Shares of Low-Growing Plants From Selected Southeastern Nurseries

E. Neal Weatherly, Jr., James T. Midcap,
and Forrest E. Stegelin
University of Georgia, School of Environmental Design
Athens, GA 30602-1845

Nature of Work: The features that consumers consistently value from environmental horticulture specialists are contact, information, and/or aesthetics. Contact infers a desire to converse face-to-face with the person in whose hands one entrusts the design, installation and care of some extremely valuable assets; information implies a simple curiosity or a strong appetite for factual instructions that keep the owner abreast of developments in their landscape; and aesthetics conveys that a beautiful lawn, plants, shrubs and trees might mean wealth or achievement or social standing to the consumer, or perhaps just pure pleasure. Regardless, the landscape industry (landscape architects, designers, contractors, installers, and maintenance personnel) must strive to provide homeowners and environmental horticulture consumers with individual landscapes that complement their lifestyle, sense of aesthetics, goals, and reflect their ideas of freshness, color, value, seasonality, and immediacy, among other attributes.

Over time, the popularity of various plant materials may change within the green industry. As residential and commercial properties become smaller with an interest in focal, ground-hugging landscapes, the interest in small and/or low-growing plant materials has increased. However, as new introductions are evaluated, the preponderance of these plant materials appear to be medium-to-large-growing shrubs, shade trees, or hardy perennials. Does that imply that small, low-growing shrubs are not being used by the landscape industry, fewer of the new introductions are in this size category, or perhaps they are not being grown and marketed by production nurseries? What are the representative market shares for the various types of plant materials being emphasized in the residential and commercial landscape?

Results and Discussion: The top fifty selling items in 1995-96 from each of ten Georgia production nurseries were classified as to general type of plant material, and these groupings were then compared to determine the relative market share each category had. Revenue or gross sales dollar data was neither requested nor available from the nurseries for each item cited. As a proxy for sales, the numbers of individual plants marketed by each nursery were used to calculate the market shares. Although information was solicited from more than the

ten nurseries (incomplete or inconsistent data from the additional nurseries), these ten firms represent nearly two-thirds (62.8-percent) of the total grower receipts reported for Georgia's environmental horticulture industry in 1995-96, excluding floriculture and sod/turfgrass [USDA/ERS and Dunn & Bradstreet]. This sample of firms represents (a) predominantly container nurseries, (b) principally field nurseries, and (c) those businesses growing a mix of container and field production. The compiled data sorted the plant materials not only by size (4" pot, 1 gallon, 3" caliper, 5-7', etc.), but also by genus and specie plus cultivar and variety. Because the supply of the appropriate landscape materials is the focus, market price was not requested (and was not offered). The authors realize that prices per unit could possibly be wide-ranging, especially if comparing a groundcover in a 3 1/4" pot versus a 4" caliper or 8-10' large tree, as would the number of plant units in a prescribed landscape.

The plant materials were grouped accordingly: ground covers; vines; ornamental grasses; hardy perennials; low-growing shrubs; medium shrubs; large shrubs; small/medium trees; and large trees. Because of the comparative advantage sought by the variety of nurseries to secure a market share in a particular plant category, not all plant groupings were marketed by each firm. As a result, the likelihood of any small, low-growing shrub being among the top ten of any one nursery was less than twenty-percent, although the probability approached one-third for a low-growing plant (excluding ground covers, vines, and perennials) to among a firm's top ten sellers if the nursery did produce small shrubs in its whole-firm production-marketing mix.

In evaluating the plant groupings for the ten firms and their top fifty selling plants, the representative market shares based on plant numbers are: ground covers, 49.2%, low-growing shrubs, 24.3%; medium shrubs, 16.0%; and large shrubs, 4.8%. All other categories had less than 3.0% market shares, in plant numbers (see figure 1). Scanning nursery catalogs, the observation could be made that the revenue generated by the field production could possibly balance the revenues obtainable from many of the more compact landscape materials, suggesting a bimodal distribution of grower receipts, but such an analysis is beyond the scope of this study.

Significance to the Industry: The landscape industry (landscape architects, designers, contractors, installers, and maintenance) is but one tier or level in the derived demand for plant materials by residential and commercial consumers. What is placed in a landscape is a function of both demand (by the final purchaser) and supply (from the grower-wholesaler). Although new plant introductions for low growing plants may have been relatively scarce, it appears the old standards are still in

demand as about every fourth plant placed in a landscape is a low-growing shrub, and that nearly half of the plants going into residential and commercial landscapes are classified as ground covers.

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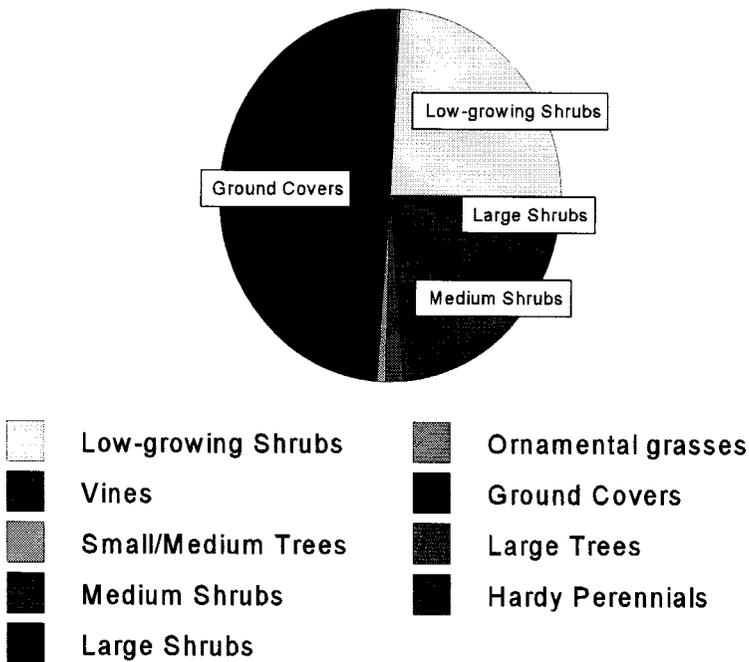


Figure 1. Market Shares of Top 50 Selling Plants, Grouped by Category, from 10 Georgia Nurseries, 1995-96.

The Role of Service and Product Quality in Meeting Customer Expectations

Susan S. Barton and Bridget K. Behe

University of Delaware, Dept. of Plant & Soil Sciences, Newark, DE
19717-1303

Nature of Work: The addition of mass merchandisers to the green goods market place and the expansion of large independent garden centers has resulted in a highly competitive market for landscape plants and related products. Strategies that could potentially help businesses achieve a competitive advantage include delivering high quality customer service, providing high quality merchandise and offering a large variety of merchandise selections. A popular method for assessing the quality of service is a survey questionnaire called SERVQUAL (Zeithaml et. al, 1990). The SERVQUAL questionnaire consisted of 22 pairs of questions, half of which measure expectations and half of which measure perceptions. Questions were asked using a five-point Likert scale where 1 = "strongly disagree" and 5 = "strongly agree." Expectations were defined as what the customer would expect from the "perfect" outlet. Perceptions were defined as what the customer received at his or her current chosen shopping outlet. The level of service quality delivered was then defined as the perceptions of the customer minus the expectations of the customer. If the level of service was negative, Zeithaml et. al (1990) described this as a service quality gap.

SERVQUAL was designed to be usable across a wide variety of industries. The authors presented a basic skeleton to address the five proposed dimensions of service quality. Other researchers are then encouraged to add sections relevant to the industry being evaluated. For the retail horticulture industry, eight product-specific questions (questions 23 - 30) were added. Demographic information was collected at the end of the survey. Customers were also asked to indicate how important some items or aspects of product and service quality were to them by assigning points to these different attributes

Surveys were distributed at 14 stores in seven states (AL, DE, KY, TN, TX, GA and NC). They were a mix of four mass-merchandisers, two high-turnover retailers, and eight traditional retail garden centers representing a mix of horticultural retailers. A total of 680 useful surveys were returned for data analysis.

Results and Discussion: The average age of the survey respondent was 48 years old. The average income level was approximately \$49,000. Respondents on average lived in a household that contained

2.5 people (including themselves). Of the respondents, 75 percent were female and 25 percent were male, 65 percent were college graduates and most (80 percent) were married. Of the married respondents, approximately half had dependents.

Customers were asked how many times they purchased outdoor plants and how much they spent on outdoor plants in the past year at any retail outlet and at the outlet where they were currently shopping. Most respondents made about half their purchasing trips and half their expenditures from the current outlet. This indicates a fairly high level of outlet loyalty, yet consumers do patronize other outlets for garden products.

When asked to rank the relative importance of seven features that contribute to a garden center's quality, respondents ranked plant quality as the most important feature (30%). A garden center's willingness to help customers and provide prompt service as well as the knowledge and courtesy of personnel and their ability to convey trust and confidence were both about half as important to respondents (15%). The other features, appearance of displays, buildings, personnel and communication materials; ability to perform the promised service dependably and accurately; caring, individualized attention provided to customers, and the quality of other products (excluding live plants) were a little less important (approximately 10%). In summary, service quality features account for 60 percent of the customer's perceived satisfaction and product quality features account for 40 percent.

When asked to rank five product features, respondents placed the highest priority on plant health and condition (32%) followed by price (22%) and assortment and variety (21%). Properly labeled plants including name and price was fourth in importance (17%) and the ability of employees to custom-design landscape plans was least important (8%).

In an effort to better understand how well garden centers meet customer's plant quality expectations, respondents were asked to rank their expectations for eight quality factors and perceptions of how the garden center at which they were surveyed performed for those eight quality factors. The rankings on a 1-5 Likert scale and resulting gaps are summarized in Table 1. Customers had the highest expectations for plant health, variety and name labeling (4.8), followed closely by guarantees, clearly marked price and easy and convenient buying (4.7). They had a significantly lower expectation for custom-designed landscapes provided at the garden center. The largest gap (9) and therefore weakest performance in meeting customer expectations was for clearly marking the price of plants. The respondents also noted a large gap (8)

in the garden center's willingness to guarantee plants and in plant health and name labeling (7). While a fairly large gap existed in the garden centers ability to custom-design landscapes (6), that factor was much less important to respondents. The smallest gap existed for plant variety.

Garden centers should focus on stocking and maintaining only the healthiest plants. Respondents placed the highest priority on plant health and condition and a significant gap currently occurs in the ability of participating garden centers to meet customer expectations. Another way to address plant health is to offer a guarantee in case the plant does not survive. Garden centers could better meet customer expectations by providing plant guarantees. Plant assortment and variety was also fairly important to respondents, but garden centers are doing a better job of meeting customer expectations in this category. Another area for improvement in the surveyed garden centers is in plant labeling, especially with the price.

This survey supports the conclusion of many other surveys that plant quality (in this case defined as plant health) is more important to customers than plant price (Khatamian and Stevens, 1994; Niemiera et. al, 1992; Safley and Wohlgenant, 1995; Stamen, et. al, 1990; Swanson, 1984).

Significance to Industry: Garden centers in general should provide customers with healthy plants that are labeled with the correct name and price and come with a guarantee. Product quality is the most important individual garden center feature to customers. Individual garden centers can use the SERVQUAL tool to conduct surveys that would help them discover the areas in which they could improve to better meet customer expectations.

Table 1. Expectations, perceptions and gaps in plant quality perceived by survey respondents from 14 garden centers in six states. (Likert scale of 1-5)

Plant quality question	Expectation	Perception	Gap
sells only the healthiest plants	4.8	4.1	.7
guarantees their plants	4.7	3.9	.8
stocks many different plants	4.8	4.4	.4
carries a wide variety of plants	4.8	4.4	.4
clearly labels all of their plant with the correct name	4.8	4.1	.7
clearly marks the prices of plants	4.7	3.8	.9
will custom-design a landscape to meet customers' specifications	4.1	3.5	.6

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Motivation for Trade Show Attendance and Perceived Economic Benefit from Sales: The Case of Tennessee Nursery Crop Producers

**Enefiok Ekanem, Surendra P. Singh, Fisseha Tegegne,
and Safdar Muhammad
Tennessee State University, Nashville, TN 37209**

Nature of Work: Every year nursery producers spend a lot of money and time preparing for attendance at trade shows. There are many reasons for attending trade shows (Grey; Haydu and Meerow; Kerin and Cron; Mclvor). Most important, perhaps, is the advertising function such attendance serves. Although no known research has linked any increase in nursery products sale to trade show attendance, the shows continue to attract participants. This paper has two objectives: (1) to examine the factors that motivate Tennessee nursery crop producers to attend trade shows, and (2) to determine perceived economic benefits associated with trade show attendance.

A stratified random sample of Tennessee nursery producers listed in the Tennessee Nurserymen's Association 1997 Active Membership Listing was used for this study. Stratification was based on size and region. Surveyed nursery was considered small if it has gross annual sales volume of between \$500,001 to \$999,999 and large if it had more than \$1 million. Members were identified by the region where their business was listed. Respondents were identified according to whether they were located in East, Middle or West Tennessee. After pilot-testing the questionnaire, they were mailed to about two-hundred participants randomly selected according to the above defined strata. Of the 200 questionnaire mailed out, seventy-four were returned and only sixty-nine were useable (35% return rate). Five questionnaires were discarded for being less than 50% complete. Questionnaire data collected was analyzed using the Statistical Package for the Social Sciences (SPSS). The following section provides a summary of the findings of this study.

Results and Discussion: An average of 2.9 trade shows were attended by respondents to this survey. Findings of this study also confirmed a previous study which showed that the number of nursery trade shows attended was directly related to gross annual income of the nursery producer (Ekanem, et. al). While producers with annual gross sales volume of lower than \$750,000 attended an average of 2.3 trade shows in 1996, the higher income group making more than \$750,000 attended 4.1 trade shows in the same period. The mean number of nursery shows attended are also consistent with other national and regional studies (Brooker, et al.).

Respondents were asked to rank (on a scale of 1 to 3, with 1 =most important and 3=least important) five reasons they had for attending trade shows. Most respondents ranked the promotion/display choice as the most important (65.8%) indicating that they attended trade shows to promote and/or display their products. Of importance on the list for trade show attendance reasons were (in order of importance): establishing contacts for future sales (62.3%), finding out what was new in the industry (43%), making social contacts (40%) and finally, spot sales of merchandise (Table 1). This are interesting finding and suggesting that producers still have display of their products as the number one reason for attending trade shows. They are not so much interested in making on-the-spot sales of nursery products as they are with establishing some relationship with visitors to their booths for follow-up sales. Producers are well aware of the fact that every visitor to their booths is a potential customer.

One focus of this study was to assess the economic returns to trade show attendance, so questionnaire respondents were asked to estimate what percentage of the company's sale of nursery products could be attributable to their company's attendance at trade shows during the immediately preceding year. Results indicated a 97% response rate to this question. Respondents indicated that an average of 12.6% of increased sales were directly attributable to attendance at trade shows. This rather high estimate explains why companies spend all that money and time to attend trade shows.

Significance to Industry: Although research has not yet been able to link trade show attendance with increased nursery product sales, there is still need to understand company motivations for attending trade shows. The factors identified in this research will be useful to the industry. Producers can use information from this study to plan a marketing program that embodies a carefully planned advertising. Due to the increasing expenditures allocated for trade show attendance, it is important to measure, although in a limited way, how attendees perceive economic benefits arising from trade show attendance. Marketing directors for nursery producers might be better prepared to justify the enormous amounts spent on trade shows. In this regard, the findings reported here should be of benefit to the industry.

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Table 1. Ranking of Reasons for Trade Show Attendance

Reason for Attending trade shows	Ranking (By % selecting "most important" response)		
	Most important	Important	Least important
Promotion and product display	65.8	10.5	23.7
Establishing contacts for future sales	62.3	32.1	5.7
See what is new in industry	43.6	47.3	9.1
Social contacts	40.0	37.8	22.2
Spot sales of merchandise	31.6	34.2	34.2

[1] 1 See Scheaffer, Richard L., William Mendenhall III, R. Lyman Ott. 1996. Elementary Survey Sampling. Fifth Edition. Belmont, California: Wadsworth Press.

[2] 2 Two categorization of gross sales volume were used: \$500,001 to \$999,999 and more than \$1 million.

[3] 3 East, Middle and West Tennessee regions.

Advertising and Marketing of Tennessee Nursery Crops: An Analysis of Expenditures by Method of Advertisement

**Enefiok Ekanem, Surendra P. Singh, Fisseha Tegegne,
and Safdar Muhammad
Tennessee State University, Nashville, TN 37209**

Nature of Work: Advertising continues to play a large part in the overall marketing of nursery crops and producers continue to spend large sums of money to advertise. A carefully planned and implemented advertising campaign helps increase sales (Konopacki; Simon and Arndt; Assmus, Farley and Lehman; Gupta). In the United States nurserymen spent an average of about 4% of gross sales on advertisement (Brooker, Turner and Hinson). The objectives of this paper are (1) to discuss methods used by Tennessee nursery producers to advertise their products; (2) to analyze advertising expenditures by the advertising method selected.

A stratified random sample¹ of Tennessee nursery producers listed in the Tennessee Nurserymen's Association 1997 Active Membership Listing was used for this study. Stratification was based on size² and region³. After pilot-testing the questionnaire, using selected producers, they were mailed to about two-hundred participants randomly selected according to the above defined strata. Of the 200 questionnaire mailed out, seventy-four were returned and only sixty-nine were useable (35% return rate). Five questionnaires were discarded for being less than 50% complete. Questionnaire data collected was analyzed using the Statistical Package for the Social Sciences (SPSS). The following section provides a summary of the findings of this study.

Results and Discussion: Ten advertising methods (yellow pages, billboards, radio, trade show, newspaper, trade journals, catalogs, newsletters/brochures to former customers, Internet, and word-of-mouth) were presented to respondents who were asked to rank them in order of their usefulness. The following ranking scheme was provided: 1=very useful; 2=useful; 3=somewhat useful; 4=not useful and 5=never used. A mean ranking close to 1 would indicate that the method was considered very useful while a value close to 5 would indicate the method was not very useful. The mean rank was calculated for each of the advertising methods selected. Findings of the survey indicated that the top three methods of advertising considered most useful by respondents were: word-of-mouth (79.4%), catalog (34.6%) and trade show (33.3%). This structure of preference for advertising method was confirmed by further

analysis using mean ranking of scores. Billboards were identified as the least preferred (mean ranking of 4.53) method of advertising and word-of-mouth the most preferred (mean ranking of 1.35).

In order to calculate the average amount of money spent on each advertising method per year, the total amount spent on advertising was calculated as follows:

$$TAE = PADV * GS96 \quad (1)$$

where, TAE = total advertising expenditure; PADV = percentage of gross sales spent on advertising; and GS96 = gross sales for 1996. Once TAE is calculated, the total annual expenditure allocated to each method of advertisement, EXPM, is calculated as follows:

$$EXM_j = TAE * ADM_j \quad (2)$$

where EXPM_j is total annual expenditure allocated to each advertising method, j, and ADM_j is the percentage of total advertising expenditure allocated to each advertising method. The mean values calculated for each method is presented in Table 2. To understand the differences and surprising results in newspaper, yellow pages and radio mean advertising expenditures, the expenditures were disaggregated by size (below \$750,000 for low vs. above \$750,000 for high annual gross sales).

Significance to Industry: This study will provide important information to nursery producers and researchers interested in advertising and marketing of nursery products. While it is important to know how much of the total budget is allocated to advertisement, it is more important to further disaggregation this budget to determine how much is allocated to what advertising method. This kind of analysis will help managers make better budgetary decisions that will enhance the overall marketing function for the nursery producer.

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Table 1. Usefulness Rating of Advertising Methods Selected

Advertising Method*	Response Category Percent of Respondents (%)				
	Very useful	Useful	Somewhat useful	Not useful	Never used
Word-of-Mouth	79.4	9.5	9.5	0.0	1.6
Catalogs	34.6	13.5	11.5	1.9	38.5
Trade shows	33.3	22.2	18.5	5.6	20.4
Brochures to former customers	29.4	29.4	13.7	3.9	23.5
Yellow pages	18.2	16.4	40.0	7.3	18.2
Trade Journals	17.3	17.3	5.8	7.7	51.9
Newspapers	7.5	26.4	15.1	3.8	47.2
Radio	5.8	13.5	15.4	7.7	57.7
Billboards	4.3	6.4	4.3	2.3	83.0
Internet	4.1	12.2	10.2	4.1	69.4

* Arranged in order from most number of respondents in the very useful category.

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Table 2. Mean Expenditure by Advertisement Method

Advertising Method Selected	Number of respondents, N used to calculate overall mean	Mean expenditure for selected Advertising method per year by volume of gross sales		
		<u>Overall</u>	<u>Small</u>	<u>Large</u>
Internet	58	4,224	0	13,611
Word-of-Mouth	63	9,881	576	11,842
Billboards	57	26,860	27	73,529
Trade Journals	61	60,484	11,113	180,278
Catalogs	59	66,290	9,354	165,526
Trade Show	61	111,379	23,003	201,052
Brochures to former customers	59	241,460	13,851	759,583
Newspaper	60	287,118	14,697	792,361
Yellow Pages	59	425,114	78,663	1,227,371
Radio	59	600,993	26,805	1,781,389

¹ See Scheaffer, Richard L., William Mendenhall III, R. Lyman Ott. 1996. Elementary Survey Sampling. Fifth Edition. Belmont, California: Wadsworth Press.

² Two categorization of gross sales volume were used: \$500,001 to \$999,999 and more than \$1 million.

³ East, Middle and West Tennessee regions.

Kinds of Advertising Used by Woody Ornamental Plant Producers in Louisiana

Roger A. Hinson

**Louisiana State University Agricultural Center, Department of
Agricultural Economics and Agribusiness
Baton Rouge, LA 70803**

Nature of Work: Businesses communicate with their customers, their suppliers and with other similar firms. This communication may be initiated to obtain inputs or to influence and inform customers. The set of information transmitted might be through traditional channels such as postal, or through technology such as email. The Supply Chain Management (SCM) concept requires electronic communication between companies or between operations within the same company to coordinate the procurement of products for sale at retail. SCM is an example of technology application in which the objective is getting the right products to the right customers at the right time while optimizing cost levels and efficiency. This concept and others with similar objectives are being applied by many large retailers. Sales Information is captured into a data base when a product is scanned at checkout and used to generate replenishment orders. An electronic system transmits the need for products back through the replenishment system. Appropriate coordination of this system provides significant reductions in inventory costs and increases satisfaction of customers, who ultimately drive the production and marketing system through their choices.

The academic literature on consumer demand for green industry products and services is growing in volume and complexity. For example, Barton et al. reviewed research in this field and summarized important results under a set of headings that included economic status of the industry, customer demographics, practices and priorities of retail customers, customer perceptions of price and packaging, customer reaction to advertising, and preferences of landscape architects. This literature provides useful information about consumers, and can influence advertising messages used at this level of the industry. It is understandable that a substantial body of research would address the retail customer, since most advertising and promotional dollars are spent by retailers and directed at the retail customer.

Like other levels of the industry, producers have customers with whom they must communicate. These activities are similar to promotions used to inform and influence retail customers. Expenditures on advertising produce information that goes to brokers, buyers, landscape architects and others in the marketing system. The messages can be informational

(availability and price of products), they might build name recognition (to influence demand for the products of a specific firm), or both. A variety of kinds of advertising is available to transmit these messages, such as newsletters, printed catalogs, and advertisements in trade press outlets. This report documents the use of kinds of advertising used by Louisiana wholesale nurserymen.

Some investigation of how wholesale nurserymen distribute dollars among alternative advertising media has occurred, but there has been little discussion of the relative effectiveness of dollars spent on the various alternatives. Managers of production and wholesale nurseries ranked sales and merchandising 8th among 15 management assistance needs (Stegelin). It was noted that nurserymen spend large sums on trade shows, but there has been little evaluation of these shows as advertising tools (Kerin and Cron). Buyers' opinions of trade show effectiveness have been recorded at nursery trade shows (Haydu et al.). Advertising budgets for media such as trade journals and catalogs were reported from 23 states in a 1993 survey of wholesale nurserymen, with the finding that an average of 4.3 % of sales went to a broad category called advertising (Brooker et al.). A comparison among regions of the portions of advertising budgets going to different kinds of advertising, by whether it was used in local, state, regional or national outlets, revealed what appeared to be substantial differences. The region that included Louisiana allocated more advertising dollars to nationally focused publications compared to South Atlantic states (Morgan and Butcher). Specific marketing media used included trade shows (15%), trade publications (16%), telemarketing and 800 numbers (23%), brochures and catalogs (19%), direct mail (13%) and an other category (14%).

Data reported here are from a survey of licensed wholesale nurseries in Louisiana. The Dillman survey method was used. About 300 instruments were mailed, with 54 usable responses received. Growers reported gross sales in one of 14 categories, and the midpoint of each range was assumed to represent sales for all members of that group. The percentage of total sales allocated to advertising and the portion of total advertising budget by category were reported. An estimate of dollar expenditure on each kind of advertising was generated from the reported advertising portion and sales level and is reported. Expenditures were based on those respondents who reported use of the specific kind of advertising, not over the entire data set. The dividing point between large and small firms was \$100,000.

Results and Discussion: The average portion of sales allocated to advertising by Louisiana nurserymen was 4.0%, so a representative firm with sales of \$100,000 spent about \$4,000 on the advertising categories identified in Table 1.

For large firms, the highest allocations were to trade shows, newspapers, yellow pages, and catalogs. For all except yellow pages, the average expenditure exceeded \$10,000. These were expected results for trade shows and catalogs. However, a value in this range for newspapers seems high for wholesale nurseries. Trade journals were less important in percentage and dollar terms compared to categories identified above. It is possible that some expenditures were reported under the newspaper category that might have been included in the trade journal category. Other kinds of advertising were substantially lower in terms of percentage of advertising budget. The trade journal had an average expenditure of almost \$6,300 despite its low budget portion, suggesting that firms advertising in trade journals are the larger firms.

For small firms, catalogs, newsletters, newspapers and yellow pages all had more than a 50% budget allocation. These essentially local forms of advertising are consistent with the more limited geographic reach of small firms. The average dollar allocation to the catalog category was by far the largest among these categories, suggesting that those using catalogs were among the bigger firms in this size category. Trade journals and attendance at trade shows were intermediate in portion of budget.

Unfortunately, the results presented here are not directly comparable to those studies discussed in the earlier review of literature. The category definitions were not consistent, and the method of calculation differed. However, the Morgan and Butcher results are reported in a way that facilitates limited comparisons. By comparing the categories that were among the 3 most important in each study, a general determination of whether these Louisiana results are consistent with the Morgan and Butcher study can be gained. To make the comparison more straightforward, only the large firms group in this study is discussed. In both surveys, trade shows were among the most important advertising categories. Trade publications (when the newspaper and journals categories are considered a single category in this study) was a leading category. Catalogs appeared to complete the top 3 categories. Telemarketing and 800 telephone numbers, reported in the Morgan and Butcher study, were not included in this study because they are expected to be reported as a sales expense rather than as part of the advertising budget. Given these considerations, there appears to be a reasonable degree of consistency between the sets of results.

Significance to Industry: Results suggest that the allocation of advertising budgets of wholesale nurserymen differed depending on firm size. Each size chose appropriate tools from the advertising box. Smaller firms used advertising that effectively reached customers who were

geographically close - specifically newsletters, yellow pages, and catalogs. For larger firms, trade shows, trade press, and catalogs were most important.

This study should be viewed as preliminary or exploratory. The data represent a fairly small number of respondents within this Louisiana survey. A larger data base is available to compare advertising use between states and regions, and this study is being extended to the larger sample. Even then, most results document what is being done currently. They do not provide information to suggest managerial choices of advertising budget allocations that are most effective as measured by objective criteria such as increase in sales per additional dollar spent in a particular advertising category.

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Table 1. Allocation of advertising budget dollars among alternative advertising tools, Louisiana, 1993.

kind of advertising	number of users	% of advertising budget*	estimated average expenditure (\$)
<u>yellow pages</u>			
small firms	2	55	937.50
large firm		50	2940.00
<u>trade journals</u>			
small firm	4	26.75	640.63
large firm	4	13.0	6296.25
<u>trade shows</u>			
small firms	3	36.67	595.83
large firms	11	54.6	10852.27
<u>newspaper</u>			
small firms	2	55.0	312.50
large firms	6	50.0	10025.00
<u>radio</u>			
small firms	0	0	0
large firms	3	16.67	5550.00
<u>catalogs</u>			
small firms	5	61.0	2800.00
large firms	7	46.0	10498.57
<u>newsletters</u>			
small firms	2	55.0	687.50
large firms	5	25.0	1680.00

* average of those firms reporting this kind of expenditure.

Marketing and Business Management Training Series for the Ornamental Horticulture Industry

F. Brian Smith
Clemson Extension Service, 259 Meeting St.
Charleston, SC 29401

Nature of Work: A problem relating to the marketing and business management of nursery and landscape businesses was observed through many conversations between Clemson Extension Service Agents and area Green Industry professionals: the company owners/managers were competent horticulturalists but rarely prepared to manage and grow a business that accomplished their financial goals. The E Myth Revisited articulated the situation best: the problem is that "the typical small business owner is 10% Entrepreneur, 20% Manager, and 70% Technician...to the business it's a disaster, because the wrong person is at the helm. The Technician is in charge!" (Gerber, 1995, p.29)

The problem was assessed by interviewing five key Green Industry leaders. Based upon the information obtained in these interviews, a survey was created and distributed to 225 professionals to determine what needed to be addressed. The results showed the following needs: how to run a small business, developing a business and marketing plan, obtaining financing, determining what kind of clients to target and effective ways to reach the target groups.

The problem was addressed by conducting a six class training series. It was developed from the needs assessment and resulted in the following curriculum:

- Industry Overview and Trends
- Introduction to The E Myth Revisited by Michael Gerber and
Business and Personal Goal Setting worksheets
- Writing a business plan that meets your goals
- Financial Planning to support your business
- Marketing as part of your business plan
- Personal selling techniques
- Nonpersonal selling - Improving your business image
- Nonpersonal selling - Product promotion
- Vendor/Retailer relationships
- Merchandising your product
- A presentation of individual plans
- Graduation and Awarding Certificates

The services of Judy Sharpton of Growing Places Marketing, a horticultural marketing consultant, and the Small Business Development Center (SBDC) in Charleston, a division of the Small Business Administration and the University of South Carolina, were acquired to teach these topics.

Results and Discussion: The sessions were attended by more than 30 horticultural professionals, from each size and type of Green Industry company. Here are some of the comments received: "Getting Judy Sharpton here for an excellent series on management will surely benefit everyone who attended. If so many who have been in the business feel they will benefit, I'm sure a new [one] like myself will benefit the most." (Johnny Driggers, owner, Town & Country Lawn Care) "What a great program! Mrs. Sharpton was not only very knowledgeable in this field but also a great motivational speaker...Overall, this was an excellent class that helps to fill a void in most landscapers' businesses. I would welcome the opportunity to expand upon this during the future." (Robert Williamson)

One of the repeated comments from participants was "there is nowhere else that we could have gotten this information." Another individual commented, "if it were not for Brian...there would be no one to help us with this type of education." Several success stories have already come out of the program. One participant immediately took advantage of information presented by Darlene Gauer from the SBDC on procuring government contracts by winning the contract for grounds maintenance services at a local government facility. This contract impacted his business by approximately \$40,000.

Some other significant results were that 63% of class participants said the training series provided them with business management empowerment, 80% said the marketing concepts presented in this series will allow them to develop specific marketing strategies for their businesses. Participants stated the following as high priorities marketing as a result of this series:

- 1) 50% said getting more clients, with a target of 53 new customers in the next six months. If this figure of 53 is realized, based on stated annual sale per customer, a \$413,655 impact on the industry will be realized.
- 2) 43% said getting more business from existing customers.
- 3) 53% said increasing the average sale of both existing and new customers.

Participants stated ways for achieving their new sales goals:

- 1) Raising prices for existing services, by an average of 16%.
- 2) Additional services rendered that will increase the perceived value of the product from the client's viewpoint.
- 3) Communicating existing services in a more consumer friendly way so as to increase the perceived value of current products.

One accomplishment that made the entire project worthwhile was that the wholesale growers, retail garden centers/merchandisers, and landscape service providers recognized they all had the same client: the homeowner who wanted a beautiful landscape. It behooved the wholesale grower to help the retailer and landscaper market to the homeowner the plants the wholesaler grows.

Significance to Industry: Most of the participants in this training series developed goals for sales and growth for the first time in their company's history. They decided to whom they wanted to market to and learned the finer points of customer relations, product perception, and company image; the participants learned to cultivate the entrepreneurial and managerial skills in order to achieve their goals. Industry trade groups or extension organizations have a great opportunity to provide this necessary training to meet a real need and assist the industry's growth.

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Evaluating Consumer Perceptions of Plant Quality (Student)

**Tom E. Glasgow, Ted E. Bilderback, Tom Johnson, Katheryn
B. Perry, and Charles D. Safley
North Carolina State University**

Nature of Work: Surveys of garden center customers have identified plant quality as one of the most important factors in their selection of garden centers and plants (Safley and Wohlgenant, 1995; Khatamian and Stevens, 1994; Niemiera et al., 1993). More information is needed, however, on how retail customers actually define plant quality and what criteria they use in selecting one plant over another. The objective of this research was to develop a better understanding of consumer perceptions of quality of selected woody ornamental plant species. This presentation will be limited to results for Kurume and Girard azalea hybrids.

Characteristics theory provides the underlying theoretical foundation for this research. From the perspective of characteristics theory, products or services are viewed as bundles or collections of attributes, and consumers derive utility not from the products per se but rather from the unique sets of attributes the products contain (Terry et al., 1985). Accordingly, research began with focus group meetings in an effort to identify salient attributes of several woody ornamentals, including azaleas. Meetings were held in New Bern, North Carolina in July and August of 1995 and in Raleigh, North Carolina in September of 1996 with eight to ten participants in each group. All participants had visited a garden center at least once in the past year, and each group contained a balanced mix from serious amateur to occasional weekend gardener.

In the second stage of the research, five marketing research survey scales were utilized in an effort to learn more about the relative importance customers place on the various azalea attributes (for a discussion of survey scales see Dillon et al., 1983 and Hartley et al., 1987). The survey scales selected were purchase intent, paired comparison, rank order, dollar metric and constant sum scaling. Each survey incorporated attributes identified by focus group participants, either explicitly as in the case of constant sum scaling, or implicitly through the use of photographs in the other four surveys. A total of 463 customers of independent garden centers were interviewed on site in North Carolina, South Carolina, Virginia, Tennessee, Alabama, Georgia and Florida during the spring and early summer of both 1997 and 1998.

The third portion of the research was comprised of a hedonic analysis of price of one-gallon Kurume azaleas. Hedonics utilizes regression analysis to estimate the marginal prices of additional units of attributes. From this perspective, the market price at any given point in time is considered to be determined by some combination of implicit or hedonic prices which are assigned to individual attributes of the product (Espinosa and Goodwin, 1991). Therefore, hedonics provides important market based information about the relative importance of a product's various attributes.

A total of twelve sets of ten randomly selected one-gallon Kurume azaleas were evaluated at twelve different garden centers, including both independents and chain stores. Price was noted for each block and each individual azalea was evaluated on nine attributes.

Results and Discussion: *Focus groups:* An 8-inch by 10-inch color photograph of a 3-gallon 'Girard Pink Delight' azalea was used in each of the focus group meetings as an example to prompt comments and discussion regarding azalea quality characteristics. Azalea characteristics most frequently mentioned by focus group participants were fullness, symmetry, new growth, healthy, green foliage or good foliage color, not pot bound, in full bloom, and the presence of an information tag or label.

Surveys: Constant sum scales ask respondents to allocate points or chips among a set of alternatives according to criterion such as preference or importance. A constant sum scale for azaleas was developed in which respondents were instructed to allocate a total of 100 points among the attributes of full dense foliage, green foliage, symmetry or balance, healthy (no insect or disease damage), label with information, and adequate pot size. The same photograph of a 'Girard Pink Delight' azalea used in the focus groups was provided as an example. In preliminary results from a sample size of 33, the average response for full dense foliage was 27(out of 100); for healthy, 27; for green foliage, 16; for symmetry or balance, 15; for a label with information, 11; and for adequate pot size, 4.

The purchase intent survey utilized seven 8-inch by 12-inch color photographs of 'Hinodegiri' azaleas. For each azalea pictured, respondents were asked to indicate their willingness to buy on a scale ranging from 1, definitely would buy, to 5, definitely would not buy. Results were obtained from 135 respondents. Based on responses to the various sets of characteristics represented in the photographs, it was inferred that the most preferred or "best" azalea featured the best symmetry and was densely foliated from the top of the plant down to the container.

Eight-inch by twelve-inch photographs of 'Girard Rose' azaleas were utilized in the remaining three surveys. The rank order scale instructed respondents to rank seven of these photographs in order of preference from first to seventh place. With 107 responses, the trend from least preferred to most preferred was towards full foliage on the lower branches of the plant (not "leggy") and an overall fuller and more symmetrical form.

In the paired comparison survey, the sixth-place azalea from the rank order results was dropped to reduce respondent fatigue. Each of the remaining six photographs was compared with the other five in a total of 15 pairings, and for each pairing the respondent was asked to indicate the preferred azalea. With 122 responses obtained, the first, second and last place azaleas were the same as for the rank order survey.

The dollar metric scale is an extension of the paired comparison scale, the difference being that in a dollar metric scale the respondent is asked for each pairing how much extra he would be willing to pay for his preference. The fifth place azalea from the paired comparison results was dropped to compensate for the additional effort involved in providing the price information. Preliminary results, with 66 responses, indicated that the first, second and last place azaleas were the same as for the paired comparison and rank order results. Given a base price of \$3.99, respondents were willing to pay an additional \$.97 for the first place azalea, which represented good symmetry and full foliage on the lower branches, over the last place azalea, which was characterized primarily by bare branches on the lower third of the plant and a lean off-center in the container.

Hedonics: For consistency, evaluations were limited to one-gallon cultivars of the Kurume group; it was not possible to find 120 plants of the same cultivar among the 12 stores visited. The total sample consisted of 40 'Hinodegiri', 20 'Hino Crimson', 20 'Mother's Day', 10 'Christmas Cheer', 10 'Hershey's Red', 10 'Sherwood Red' and 10 'Snow'. Each plant was randomly selected and evaluated on a 1-4 ordinal scale on the presence of foliage on the lower portion of the plant, fullness, color, new growth, symmetry, degree the roots were pot bound, and healthiness, which was measured as the degree of disease or insect damage to foliage. Presence or absence of an information label and whether the business was independently owned or part of a chain were included as 0-1 dummy variables. In the full model, only the variables information label, independent/chain, the highest level for healthiness (healthy4 - damage present on 0-5% of the foliage) and the highest level for foliage on the lower portion of the plant (lowbranch4) were significant at the .01 level. A reduced model regressing the natural log of price on these four explanatory variables obtained a marginal implicit price of \$.50

for lowbranch4 and \$.21 for healthy4. These prices can be interpreted as the estimated changes in retail prices of lowbranch4 or healthy4 from plants with average values for these variables.

Significance to Industry: Focus groups identified several characteristics or attributes which are important in the consumer's evaluation of azaleas. Results from intercept surveys as well as the hedonic price analysis imply that the presence of foliage on the lower branches (not "leggy"), was the single most important quality attribute. The three other most important quality attributes were healthiness, full dense foliage (no holes or gaps in the body of the plant), and symmetry.

This research presents one possible strategy for developing information on consumer perceptions of quality for selected plant species. Numerous additional marketing research tools are available for application to quality studies of woody ornamentals. Information obtained can be used to improve the competitive positions of individual growers or garden centers and to evaluate the appropriateness of industry grades and standards. Additionally, hedonics data can be compared with cost of production data to judge the feasibility of product changes.

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