

**PRODUCT AND SERVICE ATTRIBUTES RELATED TO
MARKETING WESTERN NURSERY STOCK**

by

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Abstract

Survey data from 311 garden centers, landscapers, and combined garden center/landscaping firms in selected western US trade centers were analyzed. Results identified important product and service attributes used in respondent decisions to purchase nursery stock. Efforts to segment this market using firm size, business type, and geographic location were unsuccessful.

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Introduction

Production and marketing of nursery crops has been an increasing component of the agricultural sector in the United States over the past 30 years. Grower cash receipts from greenhouse and nursery crops¹ increased from \$661.3 million in 1960 to \$8.145 billion in 1990. In real dollar terms, this represents a 181 percent increase for an average annual growth rate of about 6 percent. In terms of relative importance, greenhouse and nursery products represented 1.9 percent of total U.S. commodity cash receipts in 1960 and 4.7 percent in 1990 (Johnson; Strickland, Johnson and Williams). Due to rapid growth and increasing competitiveness of their market, nursery stock growers need to address the relative importance of product attributes and desired services demanded by their customers. Understanding buyer behavior is critical in a business with lead times from propagation to market often being the longest of any industry (Phelps).

This paper presents results of a 1990 survey of western garden center and landscaping businesses. The objectives of the research were; 1) to assess the relative importance of selected product and service attributes offered by nursery stock growers and wholesalers (referred to as plant suppliers), and 2) determine whether or not the market for nursery stock can be segmented by specific buyer characteristics.

Previous Work

In spite of the growing importance of this commodity group, little empirical work has been done to assess attributes of the market for greenhouse and nursery products. Turner, Dorfman and Fletcher used telephone survey data to investigate target markets for retail outlets of landscape plants using a tobit model. Results indicated that mass

¹ The greenhouse and nursery crops commodity group includes turfgrass, bedding plants, cut flowers and greens, foliage and flowering plants, flower and vegetable seeds, bulbs, greenhouse vegetables, and other greenhouse and nursery products.

merchandisers and large lawn and garden centers should look at population characteristics of surrounding neighborhoods when making the decision where to locate.

Prince, Tayama and Grabner investigated retail florists' ratings of services provided by wholesale growers, wholesale florists, and grower-shippers/brokers. They used factor analysis to identify three major independent classes of service: 1) physical distribution, 2) marketing, and 3) product quality. Florists rated the performance of suppliers' physical distribution services higher than marketing services and product quality. Florists' perceptions of physical distribution services and product quality were similar for the three supplier groups, but wholesale growers were rated higher in performing marketing services.

Gineo identified product characteristics that influenced purchase decisions of Connecticut landscapers and retailers when buying nursery stock from wholesalers. Conjoint analysis was combined with a regression model to analyze eight product and service attributes. Results indicated that the dominant characteristic of buyer preference was plant quality. Bryan and Brooker surveyed 90 nurseries in Tennessee using personal interviews. Though descriptive in nature, their study suggested further research was needed concerning the marketing infrastructure of the nursery industry.

Data

Data for this study were collected using a mail questionnaire. The survey instrument was pretested before distribution to managers of landscape contracting firms and garden centers. Surveys were sent to targeted businesses in Idaho cities with populations greater than 15,000 and regional trade centers in the intermountain region including: Anchorage, Alaska; Denver, Colorado; Billings, Great Falls and Missoula, Montana; Reno, Nevada; Salt Lake City, Utah; Spokane, Washington; and Casper and Cheyenne, Wyoming. A total of 549 questionnaires were sent to landscape and garden center businesses identified from state nursery lists and telephone directories. A total of 421 of the identified

companies were eligible to participate in the survey. The response rate was 73.9 percent, with 311 completed surveys returned.

Respondents were asked about their type of business, seasonality (open all year or not), how long their firm had been in existence, business location, and sales volume. In addition, firms were asked to indicate the relative importance of 35 attributes associated with the purchase of nursery stock. These attributes were grouped on the survey into the following areas: a) plant quality, b) plant selection, c) distribution of plants, d) general services, and e) promotional assistance. These five areas were grouped into "product characteristics" and "supplier services" for purposes of analysis (Table 1). Five additional questions were asked to identify the importance of price in respondent purchasing decisions (Table 2).

The questionnaire used a four point scale for ranking the relative importance of the 35 selected attributes in respondents' nursery stock purchase decisions. The scale ranged from 1 to 4, with 1 being "very important," 2 "moderately important," 3 "slightly important," and 4 being "not important." As indicated in Table 2, the five questions regarding price were addressed using slightly different response scales.

Results

Consistent with the sample, the largest number of respondents were from Idaho (28.8 percent). Other represented states included: Colorado (26.9 percent); Utah (13.3 percent); Washington (7.1 percent); Nevada (6.8 percent); Alaska (5.8 percent); Montana (5.2 percent); Wyoming (4.5 percent); and other (1.6 percent). Forty percent of the respondents were landscape contractors, 21 percent were garden centers, and 36 percent were combined landscape contractor and garden center businesses. The remainder were classified as mass merchandisers or were unclassified. Slightly less than half (48 percent) of the businesses were seasonally operated. Almost half (47 percent) of the companies had been in business between 6 and 15 years, and 20 percent had been

Table 1. Differentiating Nursery Stock Retailers by Perceived Need for Product Characteristics and Supplier Services Offered by Nursery Stock Suppliers

| | Average Response ^a | Business Type ^b | Size of Business ^c | Location ^d |
|---|-------------------------------|----------------------------|-------------------------------|-----------------------|
| <u>PRODUCT CHARACTERISTICS</u> | | | | |
| Plants free of insects or disease | 1.0 | N | N | N |
| Properly dug/handled container or balled & burlapped stock | 1.1 | N | N | N |
| Properly dug & handled bare-root stock | 1.2 | N | N | N |
| Plants available when needed | 1.2 | N | N | N |
| Plants uniform in size and quality | 1.3 | N | N | N |
| Availability of plants acclimated to your area | 1.3 | N | N | N |
| Plants properly pruned or sheared | 1.5 | N | Y | Y |
| Root pruning of large trees before digging | 1.5 | N | N | N |
| Plants free of weeds | 1.6 | Y | N | N |
| Wide selection of plant species available | 1.6 | N | N | N |
| Plants available in several sizes | 1.9 | Y | N | N |
| Availability of new plant varieties | 2.0 | N | N | N |
| Availability of plants in containers instead of balled & burlapped plants | 2.1 | Y | N | N |
| Availability of plants in bloom | 2.2 | N | N | N |
| Other growers located nearby for additional plant selection | 2.2 | N | N | N |
| Plants available for late season re-stocking | 2.3 | N | N | N |
| <u>SUPPLIER SERVICES</u> | | | | |
| Supplier knowledgeable about plant materials | 1.2 | N | N | N |
| Plants not damaged during shipping | 1.4 | N | N | N |
| Shipments on time for peak season sales | 1.4 | Y | N | N |
| Notification of order shortages before shipping | 1.5 | N | N | Y |
| Furnish catalogs with good plant descriptions | 1.5 | N | N | N |
| Shipping costs | 1.6 | Y | N | Y |
| Time in transit | 1.6 | N | N | N |
| Supplier willingness to ship small quantities | 1.7 | N | Y | N |
| Scheduled deliveries during the peak season | 1.7 | N | N | N |
| Regular contact with plant supplier | 1.7 | N | N | N |
| Previous experience with plant supplier | 1.7 | N | N | N |
| Furnish tags explaining plant characteristics | 1.7 | Y | N | N |
| Ability to pool shipments with suppliers located close to each other | 1.8 | N | N | N |
| Availability of a toll-free number | 2.0 | N | N | N |
| Furnish plant care instructions | 2.0 | N | Y | N |
| Shared advertising | 2.7 | Y | N | N |
| Furnish promotional items | 2.8 | Y | N | N |
| Availability of a FAX number | 3.0 | N | Y | N |
| Major credit cards accepted | 3.4 | N | N | Y |

Note: The last three columns test for within group independence using the chi-square test with $\alpha = .05$. A "Y" indicates a statistical difference within the respondent groups regarding the importance of the associated characteristic. A "N" indicates no statistical difference.

^a The scale ranged from 1 to 4 with 1 being "very important," 2 "moderately important," 3 "slightly important," and 4 being "not important."

^b Business type is defined as: landscape contractor; garden center; or combined landscape/garden center.

^c Size is measured by gross sales. Sales categories are: greater than \$500,000; \$250,000 to \$500,000; \$100,000 to \$249,999; or less than \$100,000.

^d Location is defined as local (Idaho or Washington) or non-local (outside of Idaho or Washington).

Table 2. Importance of Price to Surveyed Purchasers of Nursery Stock

| Price Related Questions | Percent of Respondents in Designated Response Categories | | | | | Responses Differed ^a Based Upon: | | |
|--|--|-----------------------------|---------------------------|----------------------|-------------|---|-------------------------------|-----------------------|
| | Very High | Above Average | Average | Below Average | Very Low | Business Type ^b | Size of Business ^c | Location ^d |
| Rating of price paid for nursery stock in 1990 | 3.1 | 29.9 | 63.9 | 3.1 | 0.0 | N | N | N |
| Try new supplier if same quality plants available for a lower price | | <u>Yes</u> | <u>Maybe</u> | <u>Don't No</u> | <u>Know</u> | N | Y | Y |
| Try new supplier if higher quality plants available for the same price | | <u>Yes</u> | <u>Maybe</u> | <u>Don't No</u> | <u>Know</u> | Y | N | N |
| Importance of the periodic availability of sale price plants | <u>Very Important</u> | <u>Moderately Important</u> | <u>Slightly Important</u> | <u>Not Important</u> | | N | N | N |
| How much increase in sales if plant prices were slightly lower | <u>Large Amount</u> | <u>Moderate Amount</u> | <u>Slight Amount</u> | <u>None</u> | | N | Y | N |

^aTest for within group independence using the chi-square test with $\alpha = .05$. A "Y" indicates a statistical difference within the respondent groups regarding the importance of the associated characteristic.

^bBusiness type is defined as: landscape contractor; garden center; or combined landscaper/garden center.

^cSize is measured by gross sales. Sales categories are: greater than \$500,000; \$250,000 to \$500,000; \$100,000 to \$249,000; or less than \$100,000.

^dLocation is defined as local (Idaho or Washington) or non-local (outside of Idaho or Washington).

operating over 30 years. Thirty-two percent of the firms had annual sales volume greater than \$500,000, 21 percent were in the \$250,000-\$500,000 range, 29 percent had sales from \$100,000 to \$249,999, and 18 percent had annual sales less than \$100,000.

The relative importance of product and service attributes offered by nursery stock suppliers was assessed by comparing the mean responses of the 35 selected attributes (Table 1). Based upon the scale used to rank the attribute, a lower mean value implies a higher level of importance. In general, almost all of the product attributes were viewed as important, with a mean response between one (very important) and two (moderately important). Product quality, especially with regard to being free of insects and diseases as well as proper handling, appeared to be very important to purchasers of nursery stock. Other important product characteristics included plants available when needed, uniformity with regard to size and quality, and having plants acclimated to the area.

Most of the the supplier services were also identified as important. However, when considered in aggregate, the mean responses for service attributes (Table 1) indicated services were viewed as somewhat less important than product characteristics. Supplier knowledge of plant materials and the quality and timing of plant shipments were identified as the more important services. Accepting credit cards, having a FAX number, and providing promotional items were identified as less important service features.

The role of price in nursery stock purchases was addressed with a series of five questions (Table 2). Overall, respondents appeared to consider price as a secondary criterion in purchasing decisions. Respondents knew the survey was being conducted to provide information to plant suppliers. Yet, when presented with an opportunity to comment on prices to this group of potential suppliers, almost two-thirds of the respondents indicated 1990 prices were about average. Even though about 60 percent indicated they would change suppliers if the same quality plants could be purchased for a lower price, 77 percent indicated they would change for a higher quality plant at the same price. Additionally, the availability of sale priced plants seemed unimportant in purchasing decisions. The final price question (expected increase in sales due to

lower prices) provided a possible explanation. About 81 percent of the responding firms indicated that sales would increase only "slightly" to "moderately" if plant prices were slightly lower. Respondents apparently viewed other product or service attributes as being more influential than price when selling plants to their customers. A California survey of lawn and garden center customers provided similar evidence (Stamen, Chambers and Mamer).

Selected buyer characteristics were used to determine the potential for segmenting the market serviced by nursery stock suppliers. Kotler and Armstrong define market segmentation as the process of classifying customers into groups with different needs, characteristics, or behavior. Marketing efforts can be enhanced by targeting one or more market segments and focusing on meeting the distinct needs of the targeted group.

A chi-square test (Conover) for within group independence was used to determine if the relative importance of product and service attributes differed by: a) size of firm based on sales volume, b) type of business, or c) geographic location (Table 1). Since respondents generally rated all of the attributes as very to moderately important, responses were grouped into two categories (very important = 1 versus less important = 2, 3, or 4) for all of the chi-square tests. Additionally, since only nine respondents were classified as mass merchandisers or "other," their responses were eliminated from the chi-square analysis. A "Y" indicates a statistical difference (at the 5 percent significance level) within the respondent groups regarding the importance of the associated characteristic. A similar analysis was completed for the price oriented questions (Table 2).

Overall, respondents had similar perceptions about the importance of most product and service attributes. This similarity provided little opportunity to segment the market based on the three selected buyer characteristics. With regard to the selected product and service attributes, only 16 of the 105 tests identified a statistical within group difference (grouped by business type, size, or location). With regard to price, only four of the 15 tests indicated a significant difference within the respondent groups.

Plants free of weeds were less important to landscaping businesses compared to garden centers and combined operations. This difference may be due to the fact that landscape contractors select plants for use at a job site, but consumers select their own plants at retail garden centers.

Landscapers and combined landscape/garden center operations also indicated that plants available in several sizes was of less importance than did garden centers. Availability of plants in containers instead of balled and burlapped was also relatively less important for landscape firms compared to garden centers. Containerized plants are more convenient for hauling by retail customers, and retail customers generally purchase smaller plants better suited to containers (Davidson, Mecklenburg and Peterson).

Shipping costs were identified as more important by garden centers. Garden centers are probably more competitive on plant prices than landscapers, and need to control costs in order to maintain this price competitiveness. Shipments on time for peak season sales were more important for landscapers and combined landscape/garden center businesses. This result appears to be contrary to expectations, since garden centers have more customer contact and would be expected to need plants when consumer demand exists. However, landscape firms need to meet contracts with a time deadline and order plants as needed rather than maintain a large product inventory.

Shared advertising was more important to garden centers than the other business types. Descriptive tags furnished by the nursery stock supplier were also viewed as more critical by garden centers and combined landscape/garden center firms than by landscapers. These services tend to be more important for a retail business that deals directly with individual customers in a store setting.

Properly pruned or sheared plants were more important to larger firms (more than \$500,000 in annual sales) than those companies with lower sales. Since evaluating this plant characteristic is somewhat technical, larger firms more likely have the expertise required to judge the quality of pruning and shearing. Plant care instructions were also found to be of less importance to larger firms (over \$500,000 in sales). Willingness to ship small quantities was more important for

smaller firms (those with annual sales less than \$250,000). Sales volume associated with smaller firms would imply they are unable to accommodate large shipments from either a storage, merchandising, or cash flow standpoint.

Nursery stock suppliers from outside the Idaho/Washington area indicated properly pruned or sheared plants were more important than did firms within the two states. Respondents outside of the Idaho/Washington area also rated shipping costs as more important compared to firms in Idaho and Washington. Firms outside the Idaho/Washington area regarded notification of order shortages before shipping as more important than firms within the region. Since the survey came from the Idaho/Washington region, retailers in surrounding states may have been more sensitive to shipping costs and information about the status of their orders.

Acceptance of major credit cards by plant suppliers appeared to be of minor importance to the majority of responding firms. However, responses to this service varied by location. Respondents outside of the Idaho/Washington area placed a higher level of importance on this service. This result may reflect the fact that firms farther away may be unknown to the suppliers. Thus, a credit card reduces the risk of nonpayment by the retailer as well as potentially being more convenient for both parties.

Group differences with respect to the five price questions were also limited (Table 2). Fifteen tests for group independence on responses to price resulted in four with a significant difference. Combined landscape/garden center firms were more inclined to switch suppliers if higher quality plants could be purchased for the same price. Mid-sized firms (\$100,000 to \$249,999 in annual sales) indicated more of a willingness to switch suppliers based on plant price, and smaller firms (less than \$100,000) thought lower plant prices could increase their sales by a large amount. Firms responding from outside the Idaho/Washington region were more likely to switch suppliers if the same quality plants could be purchased for a lower price.

Summary and Conclusions

The greenhouse and nursery products category of U.S. agricultural commodity receipts is increasing in size and relative importance. In spite of this increasing importance, limited work has focused on characteristics of the market for greenhouse and nursery products. Potential for continued growth, renewed interest in alternative crops, and the extensive period of time from propagation to sale (especially for nursery crops) suggests a need to develop information on market characteristics. This analysis used a survey of garden centers and landscaping firms in regional trade centers of selected western states to address the relative importance of several product and services attributes associated with nursery crops. Additional analysis was conducted to identify the potential for segmenting the market based upon selected firm characteristics.

Market segmentation based upon three selected buyer characteristics (business type, size measured by sales volume, and geographic location) was attempted. Overall, the analysis identified limited differences in desired product and service attributes based upon the three buyer characteristics. Market segmentation, at least with regard to business type, size, and location may be an ineffective marketing strategy for nursery stock suppliers.

Wholesale purchasers of nursery stock appeared to be a discerning group, and generally expected a quality product and a high level of service from plant suppliers. Product characteristics appeared to be somewhat more important than service, but certain product and service attributes were relatively more important than others. Plants free of insects or disease, properly dug and handled stock, and plants available when needed were the more important product characteristics. A supplier that is knowledgeable about plant materials was the most important supplier service. A few service attributes were considered unimportant, including shared advertising, furnished promotional items, fax availability, and acceptance of credit cards.

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