

Marketing

John Brooker
Section Editor and Moderator

Profile of the Nursery and Greenhouse Industry in the South

Safdar Muhammad, Enefiok Ekanem, Surendra Singh,
Fisseha Tegegne, and Anonya Akuley-Amenyenu
Tennessee State University

Index Words: Nursery and greenhouse farms, South, annual cash receipts

Nature of Work: In the last few decades, U.S. agriculture has been characterized by a shift towards fewer and larger farms except the nursery and greenhouse farms (includes nursery and greenhouse crops, cut Christmas trees harvested, mushrooms, and sod). Total cash receipts for nursery and greenhouse crops were estimated at \$10.94 billion in 1997 (Census of Agriculture, 1997) with average annual growth rate of 15.05 % between 1978 and 1997, and 8.6 percent between 1992 and 1997. The average cash receipt per farm also increased over time, from \$81,839 per farm in 1978 to \$161,360 per farm in 1997 (97.84 % increase between 1978 and 1997). The number of nursery and greenhouse farms increased (95.72 %) during this time period despite a decrease in the number of U.S. farms. The southern region contributes a significant share to the total nursery industry in the U.S., representing 32.54 % of all U.S. nursery and greenhouse farms and generating 33.20 % of total cash receipts. The main objective of this paper is to examine the trend, profile, and characteristics of nursery industry in the southern states. This paper also identifies, compares, and contrasts southern nursery and greenhouse farms with all U.S. farms. The data used for this study was both from various state and U.S. Census of Agriculture.

Results and Discussions: The number of nursery and greenhouse farms increased in all southern states between 1987 and 1997. The highest increase was recorded in Kentucky (155 %), followed by Virginia (127 %), North Carolina (114 %), Georgia (99 %), and South Carolina (91 %). The number of farms in 1987 and 1997 and the percent changes during this period are presented in Table 1. The results also indicated that Florida's share in total nursery and greenhouse farms in the South decreased from 34 % in 1987 to 25 % in 1997. The increase in the total number of farms in the South was 61.8 %, compared to 81.8 % for all U.S. nursery and greenhouse farms between 1987 and 1997.

The average cash receipts per farm were much higher for southern nursery and greenhouse farms than all for U.S. farms (Table 2). The average cash receipts per farm for Tennessee was 307% more than all

U.S. farms, followed by Oklahoma (216 %), Texas (200 %), Alabama (180 %), and Virginia (74 %). On average, nursery and greenhouse farms in the U.S. have 56.70 % more cash receipts than all farms. Like other farms in the U.S., majority of the nursery and greenhouse farms contributed a small proportion to total cash receipts. There were only 6.47 % farms in the south with annual cash receipts of more than \$500,000, compared to 3.6 % for all U.S. farms. In Florida, 11.09 % of farms fall in this category. In the south, 67.18 % of total nursery and greenhouse farms have annual cash receipts of less than \$40,000, compared to 70.83 % for all U.S. farms (Table 3).

Majority of operators of nursery and greenhouse farms (75.34 %) in the south are full owners of their farms, compared to about 60% for all U.S. farms. 71.22 % of total nursery and greenhouse farms in the south are family operated, compared to 85.96 % for all U.S. farms. The number of farms with organizational structure of corporations and cooperatives are much higher for the southern nursery farms (20.54 %), compared to 5.18 % for all U.S. farms (Table 4).

Significance to Industry: The results of this paper will be helpful to existing and new growers, policy makers and others interested to better understand the trends and differences between the nursery industry and the rest of the agricultural sector. Rapid growth, higher cash receipts per farm and other factors predict a bright future for the industry, which is emerging as a significant segment of the U.S. agriculture.

References:

1. United States Department of Agriculture, 1997 Census of Agriculture, National Agricultural Statistics Service, Various States and National Issues.

Table 1. Number of farms and Percent Change During 1987 and 1997

| State | 1987 | | 1992 | | 1997 | | Percent Change (87-97) Percent |
|-------|-------|----------------------|-------|----------------------|-------|----------------------|--------------------------------------|
| | Farms | Percent ^a | Farms | Percent ^a | Farms | Percent ^a | |
| AL | 546 | 4.35 | 703 | 4.25 | 849 | 4.18 | 55.49 |
| AR | 230 | 1.83 | 339 | 2.05 | 401 | 1.97 | 74.35 |
| FL | 4373 | 34.81 | 5180 | 31.29 | 5121 | 25.20 | 17.10 |
| GA | 646 | 5.14 | 999 | 6.03 | 1287 | 6.33 | 99.23 |
| KY | 432 | 3.44 | 792 | 4.78 | 1103 | 5.43 | 155.32 |
| LA | 488 | 3.88 | 547 | 3.30 | 634 | 3.12 | 29.92 |
| MS | 269 | 2.14 | 387 | 2.34 | 476 | 2.34 | 76.95 |
| NC | 1525 | 12.14 | 2028 | 12.25 | 3269 | 16.08 | 114.36 |
| OK | 341 | 2.71 | 436 | 2.63 | 616 | 3.03 | 80.65 |
| SC | 400 | 3.18 | 597 | 3.61 | 766 | 3.77 | 91.50 |
| TN | 1002 | 7.98 | 1654 | 9.99 | 1846 | 9.08 | 84.23 |
| TX | 1574 | 12.53 | 1876 | 11.33 | 2286 | 11.25 | 45.24 |
| VA | 736 | 5.86 | 1019 | 6.15 | 1671 | 8.22 | 127.04 |
| South | 12562 | 100 | 16557 | 100 | 20325 | 100 | 61.80 |
| U.S. | 37298 | 33.68 ^b | 47425 | 34.91 ^b | 67816 | 29.97 ^b | 81.82 |

^apercent share of individual state in the total nursery and greenhouse farms in the South.

^bPercent share of South in the total nursery and greenhouse farms in the U.S.

Table 2. Annual Cash Receipts per Farm and Percent Difference of Nursery and Greenhouse Farms and All U.S. Farms, 1997

| State | Nursery and Greenhouse (\$) | All U.S. Farms (\$) | Percent Difference than All U.S. Farms |
|-------|--------------------------------|------------------------|---|
| AL | 209,913 | 74,884 | +180.32 |
| AR | 67,748 | 121,388 | - 44.19 |
| FL | 283,138 | 172,550 | +64.10 |
| GA | 170,450 | 123,789 | +37.69 |
| KY | 50,786 | 37,247 | +36.35 |
| LA | 114,488 | 85,265 | +34.27 |
| MS | 74,298 | 99,859 | - 25.60 |
| NC | 97,339 | 155,376 | - 37.35 |
| OK | 176,954 | 55,870 | +216.72 |
| SC | 18,839 | 78,665 | - 76.05 |
| TN | 115,582 | 28,358 | +307.58 |
| TX | 213,000 | 70,852 | +200.62 |
| VA | 99,588 | 57,027 | +74.63 |
| U.S. | 161,360 | 102,970 | +56.71 |

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Table 3. Distribution of Nursery and Greenhouse farms by Annual Cash Receipts in the South, 1997

| State | Up to \$2,499 | \$2,500- \$9,999 | \$10,000- \$39,000 | \$40,000- \$99,999 | \$100,000- \$199,000 | \$200,000- \$499,000 | \$500,000 or More |
|----------|---------------------|---------------------|-----------------------|-----------------------|-------------------------|-------------------------|----------------------|
| | ----- percent ----- | | | | | | |
| AL | 18.49 | 20.02 | 24.26 | 14.37 | 6.60 | 8.24 | 8.01 |
| AR | 20.95 | 25.44 | 23.69 | 12.22 | 8.48 | 6.73 | 2.49 |
| FL | 10.45 | 18.30 | 24.19 | 15.93 | 10.35 | 9.69 | 11.09 |
| GA | 19.89 | 22.77 | 25.64 | 12.35 | 5.83 | 6.92 | 6.60 |
| KY | 26.47 | 26.02 | 25.29 | 11.24 | 4.53 | 4.44 | 1.99 |
| LA | 17.51 | 24.61 | 26.81 | 8.52 | 9.78 | 6.78 | 5.99 |
| MS | 20.17 | 26.89 | 22.90 | 13.03 | 9.66 | 3.99 | 3.36 |
| NC | 21.69 | 24.90 | 28.33 | 12.05 | 5.38 | 4.07 | 3.58 |
| OK | 25.16 | 24.68 | 22.40 | 10.88 | 7.14 | 4.71 | 5.03 |
| SC | 20.37 | 23.24 | 25.33 | 12.27 | 5.22 | 7.05 | 6.53 |
| TN | 23.84 | 25.24 | 24.92 | 10.89 | 4.66 | 5.85 | 4.60 |
| TX | 19.51 | 22.00 | 25.55 | 11.77 | 7.13 | 7.26 | 6.78 |
| VA | 26.33 | 28.49 | 22.98 | 9.81 | 3.53 | 4.61 | 4.25 |
| South | 19.08 | 22.94 | 25.16 | 12.67 | 6.99 | 6.69 | 6.47 |
| U.S. | 23.68 | 22.50 | 23.86 | 11.96 | 6.54 | 5.83 | 5.63 |
| All U.S. | 25.97 | 24.40 | 20.46 | 11.07 | 14.50 | 0.00 | 3.60 |

Table 4. Tenure of Operator and Type of Organization of Nursery and Greenhouse Farms in the South, 1997

| State | Organization | | | Tenure | | |
|----------|-------------------------|-------------|---------------------|-------------|-------------|---------|
| | Family or individual | Partnership | Others ^a | Full Owners | Part Owners | Tenants |
| | ----- percent ----- | | | | | |
| AL | 74.32 | 7.42 | 18.26 | 72.44 | 16.73 | 10.84 |
| AR | 77.06 | 7.23 | 15.71 | 77.31 | 15.46 | 7.23 |
| FL | 59.19 | 6.44 | 34.37 | 79.20 | 9.55 | 11.25 |
| GA | 69.70 | 7.38 | 22.92 | 80.50 | 9.87 | 9.63 |
| KY | 76.52 | 8.52 | 14.96 | 68.27 | 22.03 | 9.70 |
| LA | 76.34 | 5.99 | 17.67 | 79.81 | 10.88 | 9.31 |
| MS | 77.94 | 5.46 | 16.60 | 79.83 | 13.45 | 6.72 |
| NC | 74.89 | 11.32 | 13.80 | 67.08 | 23.77 | 9.15 |
| OK | 74.84 | 7.14 | 18.02 | 75.65 | 15.58 | 8.77 |
| SC | 71.15 | 8.22 | 20.63 | 73.89 | 16.84 | 9.27 |
| TN | 80.88 | 10.62 | 8.50 | 72.32 | 20.15 | 7.53 |
| TX | 74.02 | 8.14 | 17.85 | 78.96 | 11.46 | 9.58 |
| VA | 75.94 | 8.44 | 15.62 | 77.32 | 14.78 | 7.90 |
| South | 71.22 | 8.24 | 20.54 | 75.34 | 15.15 | 9.51 |
| U.S. | 73.78 | 8.56 | 17.67 | 75.66 | 14.42 | 9.92 |
| All U.S. | 85.96 | 8.86 | 5.18 | 59.99 | 30.01 | 10.00 |

^ainclude corporations, cooperatives, estate or trust, institutional etc.

Marketing and Distribution: Structural Changes in Selected States

John R. Brooker, University of Tennessee
Roger A. Hinson, Louisiana State University
Steve C. Turner, University of Georgia

Key Words: Marketing, industry structure, sales, outlets.

Nature of Work: Marketing- and production-related data have been collected as part of the S-290 Regional Research Committee's activity (formerly S-103). On three occasions, a mail-back survey procedure was used to collect information on sales by outlet category, advertising expenditures, and selling methods. Other marketing and production information collected with these surveys is reported in Southern Cooperative Bulletins (SCB 354, SCB384, SCB for 1998 in progress). In 1988, 23 states participated in the survey, 24 states were covered in the 1993 survey, and 22 states were involved in the 1998 effort.

In each survey, the set of participating states varied a bit. For the issues examined in this paper, only results for the states covered in all three surveys are presented. Therefore, results for 14 states are examined - AL, CA, DE, FL, GA, KY, LA, ME, MI, MS, NJ, NC, OK, and TN. The objective of this paper was to present information regarding possible structural changes impacting the industry in these 14 states during the ten-year period from 1988 through 1998. The type of adjustments considered include the overall distribution of sales as retail or wholesale, the distribution of wholesale sales by type of outlet, and the distribution of sales by selling methods. The participating researcher in each state determined the sample size and mailing list for the surveys. Based on the vast swings in average values in some responses for a couple of states, in such cases the results may be influenced more by the sample respondents than overall statewide industry adjustments.

Results and Discussion: The distribution of total annual sales as retail or wholesale in these 14 states varied considerably over the three survey years in some states (Table 1). In other states, the proportions remained quite consistent. In AL, CA, FL, GA, MS, NJ, OK, and TN, the percentage of total sales as wholesale fluctuated within a range of 10 percentage points or less from one survey year to the next. The reported values for DE are so extreme that it seems to suggest that a dominant nurseryman may have participated in 1993 but not in 1998, or vice versus. An increase from 67 percent in 1988 for DE nurserymen to 90.3 percent in 1993 followed by a drop to 29.5 percent in 1998 is certainly extreme, which would suggest further investigation is needed to understand this change.

In NC, the percentage of reported wholesale sales by the survey respondents dropped from 91.4 in 1988 to 67.7 percent in 1993; however, the response in 1998 placed the share of wholesale sales at 91.7 percent in 1998. In LA, the sample size was substantially higher in 1998 than in the earlier surveys, 294 respondents versus 72 in 1993 and 52 in 1988. Based on this larger sample and number of respondents, the reported percentage of wholesale sales dropped from 96.6 in 1988 and 91.5 in 1993 to 77.3 percent in 1998. Apparently, expanding the sample size included a larger number of nurserymen who make retail type sales.

After responding to the question to distribute sales as retail or wholesale, the wholesale share was divided into five possible outlet categories - mass merchandisers, garden centers, other retailers, landscapers, and re-wholesalers. In the 1988 survey data, mass merchandisers and garden centers were included within the catch all category termed "other retailers." Separating out mass merchandisers and garden centers revealed the importance of mass merchandisers in many states in the 1993 survey data, and in several states the shares of wholesale sales to this outlet increased even more in 1998. Substantial increases occurred in AL, CA, MI, NC, and TN. On the other hand, a response/sample problem seems to be evident in DE, because sales to mass merchandisers dropped from 41 percent in 1993 to less than 1 percent in 1998. The big increase in DE was with reported sales to re-wholesalers, which was the declining, in relative terms, category in most of the other states. Likewise, the small number of respondents from KY is probably the explanation for the drastic swing from slightly more than half of sales to landscapers in 1988 and 1993 dropping to 17.6 percent in 1998, while the share of wholesale sales to re-wholesalers moved from 22.2 percent in 1993 to 76.5 percent in 1998.

Looking at the adjustments in most of the states, especially the larger production states, the impact of the mass merchandisers is continuing, which results in the percentages of wholesale sales to landscapers and re-wholesalers declining. Hence, an implication seems to be that much of the growth in overall sales volumes occurring in the nursery industry nation wide is being captured by these huge, large-volume retailers. With respect to dollar volumes, the landscaper and re-wholesaler categories may be holding their own or even increasing in some cases.

Trade Shows: The average number of trade shows attended in 1998 was lower than the number reported for 1993, except in OK where the number increased from 1.8 to 5.7, the highest average number among these 14 states (Table 2). In addition to asking about the number of trade shows attended, respondents were asked the share of total annual sales attributable to trade shows and the share of advertising budgets

allocated to trade shows. Interestingly, while the average number of trade shows attended in 13 of the 14 states declined from the 1993 number to that reported for 1998, the share of advertising money spent on trade shows increased in 7 states. The largest increase occurred in NC, where on average, 64.9 percent of advertising money was devoted to an average of 1.0 show per year.

The importance of trade shows from the respect of sales made at the shows varied considerably among the states. Among the highest, TN and OK nurserymen reported making 17.4 and 16.3 percent of total annual sales at trade shows, respectively. In the other 12 states included in this paper, the 1998 percent of sales from trade shows remained close to the values reported for 1993 or declined. This tends to support the contention that nurserymen are looking less favorably upon trade shows for making sales, but as a time and location to make personal contacts with buyers and other nurserymen.

Repeat Customers: In six states, the shares of sales to repeat customers remained in the same value range during all three survey periods. In four states, the percentages declined slightly. In three states, FL, GA, and ME, the average values increased. In 1998, FL nurserymen reported the largest share of sales to repeat customers, 89.2 percent. The lowest value was reported in MI with 60.7 percent to repeat customers in 1998, which was down from 67.6 percent in 1993. A marketing implication here would be that new nurserymen or nurserymen striving to expand into new geographic markets will face stiff competition from buyers' current suppliers.

Contract Production: Contract production declined in all 14 states between 1993 and 1998. Most of these states reported obtaining 20 to 68 percent of annual sales via contract production in 1993, but this range fell to 5.5 to 32.5 percent in 1998. Conversely, the share of sales from handling material for other growers increased in all of the states in this paper except MI, MS, and OK. Perhaps this adjustment reflects the desire of nurserymen to not accept the risk of a contract, but do benefit from acting as a sales outlet for other growers. For the growers supplying the material, perhaps they like the added flexibility of not being tied by a contract to one nurseryman. Additional research is needed to evaluate the contracting and consignment situation.

Significance to Industry: In addition to the observations and marketing implications noted above, benefits from the survey efforts of the S-290 (formerly S-103) research committee are presented in individual state evaluations of the structural changes occurring within their own industry, and being able to make comparisons with some competing production

areas. Instate analyses will permit the involved researchers in each state to incorporate the possible impact of sampling procedure and response situation from one survey to the next. Also, other topics for which data have been collected will be examined and presented in other papers in various nursery and professional publications.

Literature Cited:

1. Brooker, John R. and Steven C. Turner, *Trade Flows and Marketing Practices within the United States Nursery Industry*, SCB 358, Univ. of Tenn. Agri. Exp. Sta., Knoxville, 1990.
2. Brooker, John R., Steven C. Turner, and Roger A. Hinson, *Trade Flows and Marketing Practices within the United States Nursery Industry: 1993*, SCB 384, Univ. of Tenn. Agri. Exp. Sta., Knoxville, 1995.
3. Brooker, John R., Roger A. Hinson, and Steven C. Turner, *Trade Flows and Marketing Practices within the United States Nursery Industry: 1998*, SCB xxx, Univ. of Tenn. Agri. Exp. Sta., Knoxville, 2000 (currently in the review process).

Table 1. Distribution of annual sales as retail or wholesale, and distribution of wholesale sales by type of outlet, for 14 states included in nursery marketing surveys covering 1988, 1993, and 1998

| State | Year | Total annual sales | | Mass merchandisers | Garden centers | Other retailers | Land-scapers | Re-wholesalers |
|-------|------|--------------------|--------|--------------------|----------------|-----------------|--------------|----------------|
| | | Wholesale | Retail | | | | | |
| | | percent | | | | | | |
| AL | 1988 | 98.2 | 1.8 | a | a | 52.1 | 19.3 | 28.6 |
| | 1993 | 93.4 | 6.6 | 8.0 | 32.8 | 2.0 | 18.0 | 39.2 |
| | 1998 | 97.2 | 2.8 | 24.9 | 33.9 | 3.7 | 9.3 | 28.2 |
| CA | 1988 | 89.9 | 10.1 | a | a | 46.0 | 31.6 | 22.4 |
| | 1993 | 95.4 | 4.6 | 35.3 | 24.2 | 1.3 | 24.2 | 15.0 |
| | 1998 | 92.6 | 7.4 | 41.0 | 14.5 | 4.8 | 21.8 | 17.9 |
| DE | 1988 | 67.0 | 33.0 | a | a | 71.4 | 13.7 | 14.9 |
| | 1993 | 90.3 | 9.7 | 41.8 | 30.6 | 7.5 | 7.1 | 13.0 |
| | 1998 | 29.5 | 70.5 | 0.8 | 18.4 | 1.3 | 33.5 | 46.0 |
| FL | 1988 | 90.8 | 9.2 | a | a | 26.4 | 46.4 | 27.2 |
| | 1993 | 97.1 | 2.9 | 19.7 | 18.7 | 6.7 | 24.2 | 30.7 |
| | 1998 | 96.9 | 3.1 | 20.5 | 8.6 | 7.9 | 23.7 | 39.3 |
| GA | 1988 | 79.2 | 20.8 | a | a | 34.6 | 43.2 | 22.2 |
| | 1993 | 78.7 | 21.3 | 21.1 | 25.6 | 5.5 | 25.7 | 22.1 |
| | 1998 | 82.2 | 17.8 | 13.4 | 15.7 | 8.9 | 29.3 | 32.7 |
| KY | 1988 | 58.2 | 41.8 | a | a | 30.6 | 52.3 | 17.1 |
| | 1993 | 63.8 | 36.2 | 4.7 | 21.5 | 0.4 | 51.2 | 22.2 |
| | 1998 | 74.8 | 25.2 | <0.1 | 4.0 | 1.8 | 17.6 | 76.5 |
| LA | 1988 | 96.6 | 3.4 | a | a | 45.7 | 33.9 | 20.4 |
| | 1993 | 91.5 | 8.5 | 17.1 | 42.2 | 4.4 | 24.5 | 11.8 |
| | 1998 | 77.3 | 22.7 | 10.4 | 29.8 | 8.8 | 30.4 | 20.6 |
| ME | 1988 | 71.2 | 28.8 | a | a | 22.1 | 36.8 | 41.1 |
| | 1993 | 43.2 | 56.8 | 1.1 | 16.4 | <0.1 | 53.5 | 29.0 |
| | 1998 | 44.2 | 55.8 | 0.1 | 21.7 | 3.3 | 53.5 | 21.4 |
| MI | 1988 | 75.0 | 25.0 | a | a | 48.0 | 34.4 | 17.6 |
| | 1993 | 52.5 | 47.5 | 13.3 | 19.2 | 1.0 | 43.0 | 23.5 |
| | 1998 | 66.5 | 33.5 | 26.4 | 26.4 | 6.1 | 24.2 | 16.9 |
| MS | 1988 | 87.5 | 12.5 | a | a | 44.3 | 22.1 | 33.6 |
| | 1993 | 91.1 | 8.9 | 16.2 | 43.6 | 1.2 | 24.6 | 14.4 |
| | 1998 | 83.4 | 16.6 | 12.8 | 52.9 | 13.9 | 9.6 | 10.8 |
| NJ | 1988 | 76.2 | 23.8 | a | a | 24.9 | 55.0 | 20.1 |
| | 1993 | 86.1 | 13.9 | 2.6 | 29.3 | 0.3 | 51.8 | 16.0 |
| | 1998 | 76.9 | 23.1 | 0.1 | 36.2 | 0.4 | 52.3 | 11.0 |
| NC | 1988 | 91.4 | 8.6 | a | a | 34.0 | 33.5 | 32.5 |
| | 1993 | 67.7 | 32.3 | 8.8 | 27.8 | 4.5 | 41.5 | 17.4 |
| | 1998 | 91.7 | 8.3 | 42.1 | 28.2 | 3.1 | 7.8 | 18.8 |
| OK | 1988 | 91.8 | 8.2 | a | a | 76.3 | 15.0 | 8.7 |
| | 1993 | 92.4 | 7.6 | 40.7 | 29.5 | 6.0 | 18.3 | 5.5 |
| | 1998 | 88.4 | 11.6 | 13.2 | 46.7 | 2.4 | 16.8 | 20.9 |
| TN | 1988 | 88.8 | 11.2 | a | a | 32.2 | 33.2 | 34.6 |
| | 1993 | 93.4 | 6.6 | 24.5 | 21.3 | 1.7 | 22.4 | 30.1 |
| | 1998 | 87.7 | 12.3 | 31.8 | 19.2 | 2.3 | 19.2 | 27.5 |

^a Included with other retailers in the 1988 survey.

Table 2. Participation in trade shows, share of advertising budget devoted to trade shows, share of total annual sales made at trade shows, and sales to repeat customers, for 14 states included in nursery marketing surveys covering 1988, 1993, and 1998

| State | Year | Trade Shows | | | Share of sales to repeat customers | Share of sales from contract production | Share from handling material for other growers |
|-------|------|--|-----------------------------|---------------------------------|------------------------------------|---|--|
| | | Participation with or without an exhibit | Share of advertising budget | Share of total sales from shows | | | |
| | | number | percent | | | | |
| AL | 1988 | <0.1 | 65.2 | 18.3 | 79.2 | a | a |
| | 1993 | 4.4 | 36.7 | 10.0 | 80.6 | 22.5 | 27.0 |
| | 1998 | 2.2 | 50.6 | 10.1 | 79.2 | 9.8 | 31.4 |
| CA | 1988 | 4.1 | 8.1 | 1.2 | 82.2 | a | a |
| | 1993 | 2.5 | 16.0 | 1.3 | 85.2 | 26.6 | 15.0 |
| | 1998 | 1.0 | 27.9 | 1.3 | 76.3 | 15.5 | 25.5 |
| DE | 1988 | 1.0 | 0.3 | <0.1 | 74.6 | a | a |
| | 1993 | 3.0 | 55.5 | 14.6 | 74.3 | 43.2 | 17.1 |
| | 1998 | 1.1 | 2.0 | <0.1 | 70.5 | 12.3 | 47.8 |
| FL | 1988 | 2.8 | 40.4 | 8.1 | 85.6 | a | a |
| | 1993 | 2.8 | 30.5 | 5.2 | 86.6 | 32.9 | 14.5 |
| | 1998 | 1.8 | 34.2 | 4.3 | 89.2 | 22.4 | 19.1 |
| GA | 1988 | 3.5 | 6.6 | 5.6 | 74.7 | a | a |
| | 1993 | 3.9 | 24.8 | 7.6 | 81.0 | 39.7 | 25.4 |
| | 1998 | 2.3 | 22.8 | 6.3 | 89.0 | 17.1 | 31.4 |
| KY | 1988 | 1.6 | 5.6 | 3.8 | 80.2 | a | a |
| | 1993 | 3.3 | 20.1 | 4.6 | 69.1 | 68.3 | 38.3 |
| | 1998 | 1.0 | 1.1 | 0.2 | 63.6 | 19.4 | 45.7 |
| LA | 1988 | 2.8 | 42.9 | 11.6 | 73.6 | a | a |
| | 1993 | 2.4 | 31.3 | 3.5 | 82.6 | 37.8 | 14.9 |
| | 1998 | 0.8 | 18.4 | 2.9 | 78.2 | 32.5 | 26.2 |
| ME | 1988 | 3.2 | 22.6 | 4.0 | 67.9 | a | a |
| | 1993 | 4.3 | 7.8 | 19.7 | 72.9 | 21.9 | 42.5 |
| | 1998 | 1.3 | 3.1 | 2.0 | 73.3 | 15.7 | 42.8 |
| MI | 1988 | 3.9 | 10.4 | 3.1 | 68.9 | a | a |
| | 1993 | 2.8 | 14.6 | 6.1 | 67.6 | 26.5 | 43.2 |
| | 1998 | 2.0 | 9.4 | 5.0 | 60.7 | 14.2 | 38.4 |
| MS | 1988 | 2.5 | 11.4 | 7.8 | 76.9 | a | a |
| | 1993 | 2.9 | 36.5 | 3.1 | 82.4 | 20.8 | 38.0 |
| | 1998 | 0.8 | 49.1 | 4.2 | 77.1 | 12.2 | 22.9 |
| NJ | 1988 | 2.8 | 19.5 | 11.3 | 76.8 | a | a |
| | 1993 | 4.4 | 27.4 | 10.5 | 79.4 | 32.6 | 32.9 |
| | 1998 | 1.8 | 16.6 | 6.7 | 75.9 | 10.4 | 53.8 |
| NC | 1988 | 3.1 | 41.5 | 11.1 | 80.8 | a | a |
| | 1993 | 2.7 | 17.4 | 6.6 | 77.6 | 29.0 | 30.1 |
| | 1998 | 1.0 | 64.9 | 6.7 | 74.5 | 17.9 | 32.2 |
| OK | 1988 | 4.1 | 32.4 | 11.6 | 71.8 | a | a |
| | 1993 | 1.8 | 20.7 | 4.0 | 76.5 | 20.1 | 44.1 |
| | 1998 | 5.7 | 26.7 | 16.3 | 75.8 | 5.6 | 42.3 |
| TN | 1988 | 4.3 | 44.1 | 20.3 | 82.0 | a | a |
| | 1993 | 2.7 | 22.5 | 10.4 | 79.1 | 22.0 | 19.3 |
| | 1998 | 2.3 | 31.1 | 17.4 | 82.8 | 11.4 | 25.7 |

^aData not collected in 1988.

Factors Important to Price Determination and Expansion of Geographic Trading Area

John R. Brooker, University of Tennessee
Steve C. Turner, University of Georgia
Roger A. Hinson, Louisiana State University

Index Words: Marketing, competition, pricing.

Nature of Work: Marketing- and production-related data have been collected as part of the S- 290 Regional Research Committee's activity (formerly S-103). On three occasions, a mail-back survey procedure was used to collect the information on factors limiting expansion potential, factors limiting expansion of geographic scope of trading areas, and factors impacting price determination. Other production and marketing information collected with these surveys is reported in Southern Cooperative Bulletins (SCB 354, SCB384, SCB for 1998 in progress). In 1988, 23 states participated in the survey, 24 states were covered in the 1993 survey, and 22 states were involved in the 1998 effort.

In each survey, the set of participating states changed. For the issues examined in this paper, only results for the states covered in all three surveys are presented. Therefore, results for 14 states are examined - AL, CA, DE, FL, GA, KY, LA, ME, MI, MS, NJ, NC, OK, and TN. The objective of this paper was to present information regarding changes in the perceptions of respondents regarding the impact of selected factors on their nursery operations. The intent was to determine the key issues confronting nurserymen in these 14 states during the ten-year period from 1988 through 1998.

Results and Discussion: Nurserymen in the 1988 and 1993 surveys were asked to rank the top five factors that limit their expansion potential, from the list shown in the heading of Table 1, on a scale of 1 to 5, with 5 being the most important. For 1998, they were asked to rank each factor on the list from a scale of 1 to 5, again with 5 being the most important. In 1988 and 1993, the same two factors were identified as the most important - capital and market demand. Capital was a top-two factor in 11 states in 1988 and 13 states in 1993. Market demand was a top-two factor in 6 states in 1988 and 5 states in 1993. Results in 1998 were quite different, because labor was the top-ranked factor in 14 states and weather was the second-ranked factor in 11 states. The only three-survey consistency occurred in DE and KY, where labor was one of the top-two factors for all three years. The only other factors being identified as one of the top-two factors in 1998 was competition in FL and KY and "hiring competent management" in CA.

Because of the change in procedure regarding the method for measuring the respondents' perceptions on this issue, the data were reexamined to determine the frequency with which factors were identified as the most important factor (1993) or given a "most important" rating (1998). Capital and market demand were the most important in 1993, while labor and weather were reported as the most important in 1998, i.e., the same results were obtained either way.

Price determination factors were presented to nurserymen in another "ranking" type question (Table 2). Cost of production was ranked first in all 14 states in 1988 and 1993, but ranked second in KY, ME, NC, and TN in 1998. In second place, roughly evenly distributed were comparisons to other growers' prices, plant grade, and market demand. The only unique selection was in KY where product uniqueness was ranked first

Also, growers were asked to rank capital, marketing, personnel, production, transportation, and plant offering with respect to impact on their ability to expand the geographic scope of their trading area. In 1988, this was handled as an open-ended question, so many variations in responses were obtained, but for comparison purposes they were reclassified into one of the six factors shown in Table 3. Production was ranked first or tied for first in 8 states in 1998. Capital was the most limiting factor in 1993 and 1998 among the respondents in NJ and OK. Personnel was ranked first in six states in 1993 and five states in 1998, but only in both years for KY. Marketing was tied for first as most-limiting factor in four states in 1998.

Significance to the Industry: Apparently, labor issues present the number one challenge to growers with respect to potential expansion. Nurserymen in 14 states included in this paper ranked labor as the most important limitation in 1998. And, market demand and capital, leading limitation factors in earlier surveys, are not a top-two limitation in any state. On the other hand, cost of production continues to be the leading factor in price determination, although plant grade and competition are ranked a close second and third. And, for factors limiting geographic expansion, personnel and production are the leading problems.

Literature Cited:

1. Brooker, John R. and Steven C. Turner, *Trade Flows and Marketing Practices within the United States Nursery Industry*, SCB 358, The Univ. of Tenn. Agri. Exp. Sta., Knoxville, 1990.
2. Brooker, John R., Steven C. Turner, and Roger A. Hinson, *Trade Flows and Marketing Practices within the United States Nursery Industry: 1993*, SCB 384, The Univ. of Tenn. Agri. Exp. Sta., Knoxville, 1995.

3. Brooker, John R., Roger A. Hinson, and Steven C. Turner, *Trade Flows and Marketing Practices within the United States Nursery Industry: 1998*, SCB xxx, The Univ. of Tenn. Agri. Exp. Sta., Knoxville, 2000 (currently in the review process).

Table 1. Ranking of factors limiting expansion potential reported by nurserymen in 14 states included in nursery marketing surveys covering 1988, 1993, and 1998

| State | Year | Weather | Market demand | Labor | Water | Capital | Own management | Competition | Gov. regulations | | Hiring competent | |
|--|--------|---------|---------------|-------|-------|---------|----------------|-------------|------------------|-------|------------------|--------------|
| | | | | | | | | | Environ-mental | Other | Manage-ment | Hourly labor |
| ----- average ranking of factors on scale of 1 to 5, with 5 being the most important ----- | | | | | | | | | | | | |
| AL | 1988 a | 2.7 | 3.7 | 3.3 | 2.6 | 3.5 | 2.7 | 3.7 | 2.5 | b | 2.8 | b |
| | 1993 a | 2.8 | 3.3 | 3.2 | 2.9 | 4.1 | 3.7 | 2.0 | 2.5 | 2.2 | 3.3 | 3.6 |
| | 1998 c | 4.2 | 2.9 | 4.1 | 3.6 | 3.2 | 3.6 | 3.7 | 3.0 | 3.0 | 3.0 | 2.9 |
| CA | 1988 | 2.6 | 3.0 | 2.7 | 2.8 | 4.0 | 3.0 | 2.6 | 2.2 | b | 2.9 | b |
| | 1993 | 2.6 | 3.5 | 2.6 | 2.6 | 4.3 | 3.2 | 2.6 | 2.8 | 3.0 | 2.7 | 3.4 |
| | 1998 | 4.0 | 3.1 | 4.3 | 3.2 | 3.6 | 3.5 | 3.8 | 3.4 | 3.1 | 4.1 | 3.0 |
| DE | 1988 | 2.6 | 2.6 | 3.6 | 2.4 | 3.4 | 3.7 | 2.7 | 2.0 | b | 2.7 | b |
| | 1993 | 3.4 | 3.6 | 3.6 | 2.8 | 3.4 | 3.8 | 3.0 | 2.5 | 3.2 | 2.4 | 3.5 |
| | 1998 | 4.1 | 2.7 | 4.0 | 2.9 | 3.2 | 2.7 | 3.5 | 3.2 | 2.9 | 2.4 | 1.9 |
| FL | 1988 | 2.2 | 3.6 | 3.0 | 2.8 | 3.6 | 2.8 | 2.8 | 2.4 | b | 3.0 | b |
| | 1993 | 2.0 | 3.8 | 2.4 | 2.6 | 4.0 | 2.8 | 2.8 | 3.1 | 3.2 | 2.7 | 3.5 |
| | 1998 | 3.8 | 2.7 | 4.4 | 3.9 | 3.6 | 3.7 | 4.0 | 3.6 | 3.6 | 3.6 | 3.3 |
| GA | 1988 | 2.6 | 3.0 | 3.1 | 3.3 | 3.7 | 2.6 | 2.6 | 1.9 | b | 3.2 | b |
| | 1993 | 2.7 | 3.2 | 3.5 | 2.9 | 4.2 | 3.2 | 2.4 | 2.5 | 2.7 | 3.2 | 3.4 |
| | 1998 | 4.2 | 2.8 | 4.2 | 3.6 | 3.5 | 3.5 | 3.7 | 3.3 | 3.2 | 3.4 | 3.2 |
| KY | 1988 | 2.0 | 2.3 | 3.4 | 2.7 | 3.1 | 3.4 | 2.0 | 2.0 | b | 3.5 | b |
| | 1993 | 2.9 | 2.9 | 3.4 | 2.0 | 4.1 | 3.1 | 2.4 | 2.6 | 2.7 | 2.7 | 3.8 |
| | 1998 | 3.8 | 3.0 | 4.3 | 3.6 | 2.9 | 2.9 | 3.6 | 3.1 | 2.7 | 2.8 | 3.1 |
| LA | 1988 | 2.3 | 3.8 | 2.9 | 2.8 | 3.7 | 2.6 | 3.1 | 1.3 | b | 2.3 | b |
| | 1993 | 2.2 | 3.7 | 3.0 | 3.4 | 4.1 | 2.9 | 2.4 | 3.0 | 3.1 | 2.5 | 3.6 |
| | 1998 | 4.4 | 3.1 | 4.4 | 3.6 | 3.9 | 3.8 | 4.0 | 3.1 | 3.1 | 2.9 | 3.0 |
| ME | 1988 | 3.4 | 2.5 | 3.2 | 2.5 | 3.8 | 2.6 | 2.4 | 3.0 | b | 3.8 | b |
| | 1993 | 3.0 | 3.8 | 2.8 | 2.2 | 3.8 | 3.1 | 2.8 | 2.6 | 3.2 | 2.6 | 2.4 |
| | 1998 | 4.3 | 2.9 | 4.1 | 3.2 | 3.3 | 3.2 | 3.7 | 3.3 | 2.9 | 2.8 | 2.9 |
| MI | 1988 | 2.6 | 3.1 | 3.0 | 2.1 | 3.7 | 2.7 | 2.6 | 2.0 | b | 3.2 | b |
| | 1993 | 3.2 | 3.4 | 2.9 | 3.5 | 4.3 | 2.5 | 2.7 | 1.4 | 2.7 | 3.1 | 3.3 |
| | 1998 | 4.2 | 3.1 | 4.2 | 4.0 | 3.5 | 3.5 | 4.1 | 3.4 | 3.3 | 3.6 | 3.4 |
| MS | 1988 | 1.5 | 3.7 | 3.3 | 3.0 | 3.8 | 2.8 | 2.0 | 2.5 | b | 3.0 | b |
| | 1993 | 2.0 | 3.4 | 3.0 | 0.0 | 4.3 | 3.3 | 1.8 | 3.4 | 2.6 | 4.2 | 3.3 |
| | 1998 | 4.4 | 2.8 | 4.6 | 3.6 | 3.6 | 3.5 | 4.0 | 3.5 | 3.4 | 3.5 | 3.3 |
| NJ | 1988 | 2.3 | 2.9 | 3.7 | 2.9 | 3.4 | 2.5 | 2.2 | 2.8 | b | 3.3 | b |
| | 1993 | 2.4 | 3.2 | 3.2 | 2.3 | 4.0 | 2.6 | 2.5 | 2.9 | 2.8 | 3.2 | 3.8 |
| | 1998 | 4.3 | 3.2 | 4.2 | 3.9 | 3.4 | 3.6 | 3.8 | 3.4 | 3.6 | 3.6 | 3.1 |
| NC | 1988 | 2.6 | 2.7 | 3.2 | 2.8 | 3.5 | 3.2 | 2.1 | 2.2 | b | 3.3 | b |
| | 1993 | 2.5 | 3.3 | 3.2 | 3.3 | 4.1 | 3.1 | 2.4 | 2.8 | 2.7 | 2.6 | 3.5 |
| | 1998 | 3.8 | 3.0 | 4.1 | 3.3 | 3.7 | 3.5 | 3.6 | 3.1 | 3.2 | 3.2 | 2.5 |
| OK | 1988 | 2.8 | 3.2 | 2.6 | 2.9 | 4.1 | 3.4 | 2.1 | 1.0 | b | 2.9 | b |
| | 1993 | 2.7 | 3.9 | 3.1 | 3.0 | 4.3 | 3.4 | 2.6 | 2.6 | 2.0 | 2.6 | 2.8 |
| | 1998 | 4.3 | 2.7 | 4.1 | 3.7 | 3.7 | 3.8 | 3.7 | 3.1 | 2.8 | 2.8 | 2.8 |
| TN | 1988 | 2.5 | 3.2 | 3.6 | 3.0 | 3.7 | 2.4 | 2.2 | 1.9 | b | 3.3 | b |
| | 1993 | 3.4 | 3.4 | 3.1 | 2.5 | 4.3 | 2.9 | 2.5 | 2.2 | 2.4 | 2.9 | 3.4 |
| | 1998 | 4.4 | 3.3 | 4.2 | 4.0 | 3.4 | 3.6 | 3.6 | 3.2 | 3.4 | 3.5 | 3.3 |
| Avg. | 1988 | 2.5 | 3.2 | 3.2 | 2.8 | 3.7 | 2.8 | 2.6 | 2.3 | b | 3.1 | b |
| | 1993 | 2.7 | 3.5 | 3.1 | 2.8 | 4.1 | 3.0 | 2.6 | 2.8 | 2.8 | 2.8 | 2.8 |
| | 1998 | 4.1 | 3.0 | 4.3 | 3.7 | 3.6 | 3.6 | 3.9 | 3.3 | 3.2 | 3.2 | 3.1 |

^a Nurserymen were asked to rank the top 5 on scale of 1 to 5, with five being most important.

^b Data not collected in 1988.

^c Nurserymen were asked to rank each factor between 1 and 5, with 5 being the most important.

Table 2. Ranking of factors impacting price determination by nurserymen in the 14 states included in marketing surveys covering 1988, 1993, and 1998

| State | Year | Cost of production | Inflation | Other growers' prices | Grade of plants | Market demand | Product uniqueness (time of year) a | Inventory level | Last year's price |
|-------|--------|--------------------|-----------|-----------------------|-----------------|---------------|-------------------------------------|-----------------|-------------------|
| AL | 1988 b | 4.6 | 1.9 | 3.0 | 3.0 | 3.3 | 2.4 | 2.1 | 2.7 |
| | 1993 b | 4.4 | 2.3 | 2.9 | 3.3 | 2.8 | 1.7 | 2.0 | 2.4 |
| | 1998 c | 4.5 | 2.9 | 3.5 | 4.3 | 4.2 | 3.9 | 3.1 | 3.0 |
| CA | 1988 | 4.1 | 2.5 | 3.7 | 2.7 | 3.0 | 2.2 | 1.7 | 2.8 |
| | 1993 | 4.0 | 2.1 | 3.3 | 2.8 | 3.3 | 2.0 | 2.3 | 2.7 |
| | 1998 | 4.2 | 3.0 | 3.8 | 4.1 | 4.1 | 4.0 | 3.3 | 3.1 |
| DE | 1988 | 4.0 | 2.0 | 3.0 | 3.2 | 3.4 | 2.2 | 2.2 | 2.7 |
| | 1993 | 4.0 | 3.3 | 3.5 | 3.3 | 1.2 | 2.0 | 2.7 | 2.6 |
| | 1998 | 3.8 | 2.6 | 3.7 | 4.0 | 4.1 | 3.5 | 3.3 | 3.3 |
| FL | 1988 | 4.0 | 2.3 | 3.2 | 3.0 | 3.3 | 2.2 | 2.1 | 2.1 |
| | 1993 | 4.1 | 2.3 | 3.3 | 2.6 | 3.4 | 2.3 | 2.2 | 2.2 |
| | 1998 | 4.4 | 2.8 | 3.8 | 4.2 | 4.1 | 3.8 | 3.5 | 3.2 |
| GA | 1988 | 4.0 | 2.5 | 3.5 | 3.1 | 3.0 | 1.9 | 2.1 | 2.2 |
| | 1993 | 4.1 | 2.6 | 3.5 | 3.0 | 3.1 | 2.0 | 2.0 | 2.3 |
| | 1998 | 4.2 | 2.9 | 3.8 | 4.0 | 4.2 | 3.8 | 3.4 | 3.2 |
| KY | 1988 | 4.1 | 2.7 | 3.4 | 3.2 | 2.6 | 1.0 | 2.0 | 2.8 |
| | 1993 | 3.9 | 2.0 | 3.4 | 3.7 | 3.0 | 1.5 | 1.9 | 2.3 |
| | 1998 | 4.3 | 2.9 | 4.2 | 4.0 | 4.1 | 4.4 | 3.1 | 3.5 |
| LA | 1988 | 4.0 | 1.9 | 3.1 | 3.3 | 3.2 | 2.1 | 2.3 | 2.3 |
| | 1993 | 4.2 | 2.3 | 3.3 | 3.1 | 3.0 | 1.9 | 2.1 | 2.6 |
| | 1998 | 4.4 | 3.3 | 3.6 | 4.3 | 4.3 | 3.9 | 3.7 | 3.2 |
| ME | 1988 | 4.4 | 1.8 | 3.3 | 3.7 | 2.2 | 2.2 | 1.6 | 3.3 |
| | 1993 | 3.9 | 2.4 | 3.2 | 3.1 | 3.2 | 1.5 | 1.7 | 2.5 |
| | 1998 | 4.2 | 2.9 | 3.7 | 4.4 | 3.9 | 3.9 | 3.4 | 3.3 |
| MI | 1988 | 4.0 | 2.2 | 3.5 | 2.8 | 3.2 | 1.4 | 2.0 | 2.3 |
| | 1993 | 4.2 | 2.0 | 2.9 | 2.9 | 3.0 | 1.8 | 2.1 | 3.1 |
| | 1998 | 4.3 | 3.2 | 3.8 | 4.3 | 4.2 | 4.0 | 3.5 | 3.5 |
| MS | 1988 | 4.2 | 2.5 | 3.8 | 3.1 | 2.9 | 2.0 | 1.5 | 2.0 |
| | 1993 | 4.7 | 2.3 | 3.2 | 3.2 | 2.9 | 1.8 | 1.3 | 2.7 |
| | 1998 | 4.6 | 3.2 | 3.9 | 4.5 | 4.1 | 3.8 | 3.2 | 3.3 |
| NJ | 1988 | 4.1 | 2.6 | 3.3 | 3.1 | 3.0 | 2.4 | 1.9 | 2.8 |
| | 1993 | 4.4 | 2.4 | 2.9 | 3.3 | 3.1 | 2.0 | 2.0 | 1.9 |
| | 1998 | 4.2 | 3.1 | 3.9 | 4.4 | 4.3 | 4.1 | 3.8 | 3.5 |
| NC | 1988 | 4.1 | 2.2 | 3.2 | 3.3 | 2.9 | 1.4 | 1.8 | 2.3 |
| | 1993 | 4.2 | 2.1 | 3.0 | 3.3 | 3.2 | 1.8 | 1.9 | 2.3 |
| | 1998 | 4.1 | 2.9 | 3.7 | 4.2 | 4.1 | 4.0 | 3.4 | 3.3 |
| OK | 1988 | 3.9 | 2.2 | 3.7 | 3.0 | 2.8 | 1.8 | 2.0 | 2.7 |
| | 1993 | 3.8 | 2.0 | 3.5 | 3.1 | 3.2 | 1.7 | 2.1 | 2.5 |
| | 1998 | 4.4 | 2.6 | 3.6 | 4.4 | 4.2 | 3.8 | 3.6 | 2.7 |
| TN | 1988 | 3.9 | 2.8 | 3.4 | 3.2 | 2.9 | 1.8 | 2.1 | 2.5 |
| | 1993 | 3.9 | 2.2 | 3.4 | 3.1 | 3.0 | 1.8 | 2.5 | 2.5 |
| | 1998 | 4.3 | 3.3 | 3.5 | 4.4 | 4.2 | 3.8 | 3.8 | 3.6 |
| Avg. | 1988 | 4.0 | 2.4 | 3.4 | 3.1 | 3.0 | 2.0 | 2.0 | 2.5 |
| | 1993 | 4.1 | 2.3 | 3.2 | 3.1 | 3.2 | 2.0 | 2.2 | 2.4 |
| | 1998 | 4.1 | 3.0 | 4.3 | 3.7 | 3.6 | 3.6 | 3.3 | 3.2 |

a "Product uniqueness" replaced the "time of year" option used in the 1988 and 1993 surveys.

b Nurserymen were asked to rank the top 5 on scale of 1 to 5, with five being most important.

c Nurserymen were asked to rank each factor between 1 and 5, with 5 being the most important.

Table 3. Ranking of factors limiting expansion of geographic scope of trading area, by nurserymen in the 14 states included in marketing surveys covering 1988, 1993, and 1998

| State | Year | ranking | Capital | Marketing | Personnel | Production | Transportation | Plant offering |
|-------|--------|---------|---------|-----------|-----------|------------|----------------|----------------|
| AL | 1988 | percent | a | a | a | a | a | b |
| | 1993 c | number | 2.8 | 3.2 | 3.4 | 3.0 | 3.2 | b |
| | 1998 d | number | 3.7 | 3.8 | 3.2 | 3.9 | 3.2 | 3.3 |
| CA | 1988 e | percent | 9.6 | 25.0 | 20.2 | 21.2 | 24.0 | b |
| | 1993 | number | 3.3 | 3.3 | 2.6 | 3.1 | 3.2 | b |
| | 1998 | number | 3.6 | 3.7 | 3.6 | 3.8 | 3.6 | 3.4 |
| DE | 1988 | percent | 15.0 | 15.0 | 45.0 | 20.0 | 5.0 | b |
| | 1993 | number | 2.7 | 3.4 | 4.1 | 3.5 | 1.9 | b |
| | 1998 | number | 3.3 | 3.5 | 3.4 | 3.5 | 3.2 | 3.1 |
| FL | 1988 | percent | 23.9 | 25.4 | 9.0 | 25.4 | 16.4 | b |
| | 1993 | number | 3.3 | 3.5 | 2.9 | 3.1 | 2.6 | b |
| | 1998 | number | 3.5 | 3.6 | 3.7 | 3.7 | 3.4 | 3.4 |
| GA | 1988 | percent | 24.5 | 15.7 | 31.4 | 10.8 | 17.6 | b |
| | 1993 | number | 3.3 | 3.0 | 3.3 | 3.2 | 2.7 | b |
| | 1998 | number | 3.5 | 3.4 | 3.6 | 3.7 | 3.5 | 3.2 |
| KY | 1988 | percent | 6.3 | 12.5 | 18.8 | 31.3 | 31.3 | b |
| | 1993 | number | 3.4 | 3.1 | 3.6 | 2.7 | 2.3 | b |
| | 1998 | number | 3.1 | 3.4 | 4.0 | 3.1 | 3.3 | 3.2 |
| LA | 1988 | percent | 22.2 | 22.2 | 16.7 | 11.1 | 27.8 | b |
| | 1993 | number | 3.2 | 3.2 | 3.3 | 3.2 | 2.4 | b |
| | 1998 | number | 4.0 | 3.8 | 3.8 | 4.2 | 3.9 | 3.7 |
| ME | 1988 | percent | 13.3 | 20.0 | 26.7 | 6.7 | 33.3 | b |
| | 1993 | number | 3.5 | 3.4 | 2.6 | 3.2 | 2.5 | b |
| | 1998 | number | 3.3 | 3.6 | 3.6 | 3.4 | 3.0 | 2.9 |
| MI | 1988 | percent | 8.9 | 25.0 | 26.8 | 21.4 | 17.9 | b |
| | 1993 | number | 3.3 | 3.7 | 3.5 | 2.6 | 2.2 | b |
| | 1998 | number | 3.7 | 3.6 | 4.1 | 3.9 | 3.4 | 3.4 |
| MS | 1988 | percent | 0.0 | 12.5 | 37.5 | 50.0 | 0.0 | b |
| | 1993 | number | 3.0 | 3.4 | 2.7 | 3.3 | 2.9 | b |
| | 1998 | number | 3.4 | 3.9 | 3.9 | 3.6 | 3.8 | 3.4 |
| NJ | 1988 | percent | 15.0 | 18.8 | 28.7 | 16.3 | 21.3 | b |
| | 1993 | number | 3.4 | 3.0 | 3.0 | 3.3 | 2.6 | b |
| | 1998 | number | 3.7 | 3.5 | 3.6 | 3.6 | 3.6 | 3.4 |
| NC | 1988 | percent | 24.2 | 28.8 | 19.7 | 19.7 | 7.6 | b |
| | 1993 | number | 2.8 | 3.2 | 3.4 | 3.0 | 2.7 | b |
| | 1998 | number | 3.5 | 3.6 | 3.2 | 3.6 | 3.1 | 3.5 |
| OK | 1988 | percent | 24.1 | 20.7 | 37.9 | 3.4 | 13.8 | b |
| | 1993 | number | 3.4 | 3.4 | 3.2 | 2.9 | 2.2 | b |
| | 1998 | number | 3.7 | 3.6 | 3.3 | 3.5 | 3.3 | 3.4 |
| TN | 1988 | percent | 10.5 | 24.6 | 28.1 | 26.3 | 10.5 | b |
| | 1993 | number | 3.5 | 3.5 | 3.1 | 3.0 | 2.1 | b |
| | 1998 | number | 3.8 | 3.6 | 3.9 | 4.1 | 3.5 | 3.6 |
| Avg. | 1988 | percent | 17.0 | 21.9 | 24.8 | 18.5 | 17.9 | b |
| | 1993 | number | 3.2 | 3.3 | 3.2 | 3.1 | 2.6 | b |
| | 1998 | number | 3.6 | 3.6 | 3.7 | 3.8 | 3.5 | 3.4 |

¹ No response from nurserymen on this question.

² This option not included in 1988 or 1993 questionnaires.

³ Nurserymen were asked to rank the top 5 on scale of 1 to 5, with five being most important.

⁴ Nurserymen were asked to rank each factor between 1 and 5, with 5 being the most important

⁵ In 1988, growers were asked to list the most important factors. Responses were grouped into the five categories used in 1993. The value presented in this table is the percent of times each factor was listed versus the others..

Florida's Changing Foliage Industry: 1987-1997

Tara M. Minton, Ferdinand F. Wirth, and Sandra B. Wilson
University of Florida - Fort Pierce

Index Words: Economic impact, economic trends, nominal sales, real sales, regional distribution

Nature of Work: Since World War II, the tropical foliage industry has been one of the fastest growing segments of American agriculture. In 1997, U.S. sales of foliage plants exceeded \$700 million. Florida dominates the U.S. market for tropical foliage, with over 63% of sales, and in 1997 was ranked number one in sales of foliage plants, both potted foliage and foliage hanging baskets, with over \$386 million in sales (USDA-NASS, 1998). Numerous trends have affected, and will continue to affect, the growth rate and location of Florida's foliage plant industry. Many of these trends are determinants of change for the entire environmental horticulture industry. These trends include: increasing population, increasing urban construction and coastal urbanization, increasing firm size with decreasing profit margins, changing workforce, shortage of skilled personnel, and increasing governmental regulations (UF/IFAS, 1999).

This research project described and evaluated changing patterns of sales and production within Florida's foliage industry on both a state and regional level over the ten-year period from 1987 to 1997. The data source was the U.S. Department of Agriculture (USDA) Census of Agriculture, conducted during the years of 1987, 1992, and 1997 by the USDA National Agricultural Statistics Service (USDA-NASS). State sales data were presented on a nominal basis, and also were adjusted for inflation to make the real changes in sales more evident. To examine industry changes on a regional basis, county-level Census of Agriculture data were aggregated into the seven geographical regions (Northwest, Northeast, Central, Tampa Bay, Southwest, Lower East Coast, and Dade County) described by Hodges and Haydu (1999).

Results and Discussion: Table 1 presents nominal and real sales of Florida foliage plants for 1987, 1992, and 1997. From 1987 to 1992, nominal sales of Florida foliage plants grew by only 6%, from \$280.3 million to \$297.4 million. Nominal sales growth increased between 1992 and 1997. Sales rose from \$297.4 million in 1992 to \$386.7 million in 1997, a 30% increase over the five-year period. Over the entire 10-year study period, nominal sales increased 38% from \$280.3 million to \$386.7 million. Although nominal sales increased over the ten years, real sales (nominal sales adjusted for inflation) fell by 7% over the 1987 - 1992

period, and then increased by nearly 11% from 1992 - 1997. The net result was only a 3% increase in real foliage sales over the ten-year study period.

TABLE 1. FLORIDA FOLIAGE TRENDS, 1987-1997

| Category | 1987 | 1992 | 1997 |
|---|------------|-------------|-------------|
| Nominal Sales in \$1,000 | 280,283 | 297,361 | 386,735 |
| Real Sales in \$1,000 (1977=100) | 264,418 | 245,778 | 272,349 |
| Number of Farms | 1,625 | 1,631 | 1,454 |
| Sq. Ft. Under Glass or Other Protection | 97,932,470 | 100,210,335 | 114,046,897 |
| Acres in the Open | 5,265 | 5,262 | 4,710 |

Florida state foliage plant trends for the number of farms growing foliage plants, square feet under glass or other protection, and acres in the open, indicates that the industry was very stable between 1987 and 1992 (Table 1). There was virtually no industry growth or shrinkage. However from 1992 to 1997, the number of foliage plant farms decreased by 11%, from 1,631 to 1,454. This decrease in number of farms during a period of high real sales growth suggests that average foliage firm size increased through internal growth and consolidation. The 13.8% increase in the square feet under glass from 1992 to 1997, along with a 10.5% decrease in acres in the open, indicates that Florida's foliage industry started to undergo a shift in production practices between 1992 and 1997.

Of the seven geographical regions, the Central, Lower East Coast, and Dade County regions were the most significant producers of foliage plants, accounting for 92% of Florida foliage plant sales during the 10-year study period (Table 2). From 1987 to 1997, the Central region dominated the other regions in foliage plant sales and number of farms, with over 40% of the state's total. Sales for the Lower East Coast region were virtually unchanged, but the region's share of total sales has fallen from 26.1% to 19.3% of total state sales. The number of foliage plant farms in both the Central and Lower East Coast regions have declined steadily over the 10 years, but both regions have maintained their share of the state's total foliage farms. Dade County has experienced the greatest growth of any region. Over the ten years, sales doubled, and Dade County's share of Florida foliage sales has increased from 22.9% to 33%. The number of farms in Dade County increased by 25%, from 222 to 278, between 1987 and 1992, but had declined slightly to 267 by 1997.

TABLE 2. NOMINAL FOLIAGE SALES AND NUMBER OF FARMS, BY REGION

| Region | Nominal Sales in \$1,000 (% of State Total) | | | Number of Farms (% of State Total) | | |
|------------------|---|----------------|----------------|------------------------------------|------------|------------|
| | 1987 | 1992 | 1997 | 1987 | 1992 | 1997 |
| Northwest | No data | 268 (0.1) | 76 (0.0) | 15 (0.9) | 34 (2.1) | 27 (1.9) |
| Northeast | 1,308 (0.5) | 2,422 (0.8) | 2,451 (0.6) | 96 (5.9) | 110 (6.7) | 92 (6.3) |
| Central | 119,375 (42.6) | 121,268 (40.8) | 155,432 (40.2) | 755 (46.5) | 700 (42.9) | 623 (42.8) |
| Tampa Bay | 9,307 (3.3) | 11,220 (3.8) | 17,316 (4.5) | 187 (11.5) | 174 (10.7) | 148 (10.2) |
| Southwest | No data | 1,161 (0.4) | 1,259 (0.3) | 46 (2.8) | 62 (3.8) | 52 (3.6) |
| Lower East Coast | 73,027 (26.1) | 66,210 (22.3) | 74,535 (19.3) | 264 (16.2) | 257 (15.8) | 226 (15.5) |
| Dade County | 64,159 (22.9) | 83,062 (27.9) | 127,579 (33.0) | 222 (13.7) | 278 (17.0) | 267 (18.4) |

The foliage plant regional data for square feet under glass or other protection and acres in the open also illustrates some of the changing production trends in Florida's foliage industry (data not shown). Square feet under glass in the Central region fell by 20% from 1987 to 1992, while acres in the open increased by 59%. Between 1992 and 1997, square feet under glass rebounded by 16.7%, while acres in the open fell by 33%. The Lower East Coast experienced a similar situation. Square feet under glass fell by 8% between 1987 and 1992, and then increased by 6% from 1992 to 1997. Lower East Coast region acres in the open decreased steadily from 2,229 in 1987 to 1,663 in 1992 and 1,235 in 1997, a total decrease of almost 45% over the ten-year period. In contrast, Dade County has experienced continuous increase in square feet under glass, from 20.1 million square feet in 1987 to 33.7 square feet in 1992 and 39 million square feet in 1997, a total increase of almost 94%. Dade County foliage plant acres in the open increased by 23.3%, from 1,178 acres in 1987 to 1,453 acres in 1992. Acres in the open remained unchanged between 1992 and 1997.

Significance to Industry: Success for any business depends on a combination of factors, including business acumen, ability to identify opportunities, and access to information. Local economic conditions affect business, but seeing the big picture provides perspective to local developments and aids in better long-term production and marketing planning. Given the dynamic nature of the floriculture industry, the significance of foliage plants to both the nation and the state of Florida, and the importance of Florida within the foliage industry, it is critical for all foliage-producing firms to understand trends and changes within the Florida foliage industry. Foliage producers throughout the U.S. may benefit by identifying how Florida foliage producers have been affected by determinants of change and have responded by altering production patterns.

Literature Cited:

1. Hodges, Alan W. and John J. Haydu. 1999. *Economic Impact of Florida's Ornamental Horticulture Industry*. Economic Information Report 99-1, Food and Resource Economics Department, University of Florida, Institute of Food and Agricultural Sciences, Gainesville.
2. USDA, National Agricultural Statistics Service. *Census of Agriculture*. Washington, D.C.: 1997, 1992, 1987.
3. USDA, National Agricultural Statistics Service. *Floriculture Crops 1997 Summary*. Washington, D.C.: June 1998.
4. University of Florida, Institute of Food and Agricultural Sciences. *Florida FIRST Base Papers*. Gainesville, Florida. 1999.

Profit Impact of Customer Retention

Forrest E. Stegelin

University of Georgia Dept. of Agricultural and Applied Economics
Athens, Georgia 30602-7509

Index Words: marketing costs, margin per customer, customer retention/defection/acquisition

Nature of Work: Customer dissatisfaction and defection as well as customer retention both impact profits of a nursery, and all involve marketing costs. Most dissatisfied customers do not complain; they merely walk away or defect. Lost customers are generally dissatisfied or neutral customers who depart part way through the marketing season. Retaining dissatisfied customers is expensive because they require the business to expend extra resources in an attempt to keep them. These extra efforts often mean extra work for the sales force, price concessions, adjustments in inventory or terms of sale, and more customer service.

Acquiring new customers, including replacements for those customers who defected, is also costly. Advertising and sales promotion dollars have to be spent to generate sales leads and produce trial purchases. This raises the marketing expenses associated with attracting, qualifying, and serving new customers. New customers also generally buy less because they are in the evaluation stage and have not yet fully committed themselves to the nursery business or its plants (products).

Retaining existing customers reduces the cost associated with customer satisfaction and exit as well as lowering the spending on marketing efforts to attract new customers. Retention of customers is not without its costs although retained customers typically produce a higher revenue and margin per customer to the firm than do lost or new customers, thereby increasing total profits.

How much revenue is generated per retained customer, per lost customer, and per new customer? What is the variable cost and the marketing cost associated with each of these customers? To what extent do these retained, lost, and new customers impact the overall profitability performance of the nursery? Specialty nurseries in the Southern Appalachian region were solicited to provide customer data, as these nurseries typically maintain extensive customer files for supporting distribution of newsletters and other targeted marketing activities. Upon reviewing the responses from the grower-marketers, three small specialty nurseries that marketed both wholesale and retail (each sold "native" or

“indigenous” plant materials on-site plus mail order plus e-commerce) were selected as collaborators. The three nurseries had some commonalities: a willingness to share customer data with the investigator, a desire to learn the answers to the posed questions, an extensive customer data base, and a similarity in their product lines (and customer purchases).

Results and Discussion: The key results from the three nurseries were:

Customer Satisfaction: 70% (rounded percentage) of the customers are satisfied and 30% dissatisfied; satisfied customers produce an average revenue of \$312 per year and an average margin of \$86; dissatisfied customers who are retained produce an average revenue of \$257 and an average margin of \$46; dissatisfied customers who discontinue their purchasing produce an average \$94 in revenue per year and an average margin of \$21.

Customer Complaint Behavior: 40% of the dissatisfied customers complain about dissatisfaction, and of these, 80% are retained and 20% discontinue being a customer; 60% of the dissatisfied customers do not complain, and of these, 25% are retained and 75% are lost as customers.

New Customers: new customers generate an average revenue of \$120 and an average margin of \$30.

Marketing Costs: the average marketing cost for retaining a satisfied customer is \$25; the average marketing cost of managing a dissatisfied customer is \$50; the average marketing cost to attract a new customer is \$80.

A customer retention tree (Figure A) was developed for the aggregation of the three nurseries to get a closer look at the relative proportions of customers who exhibited satisfaction, complaint behavior, and retention in spite of dissatisfaction.

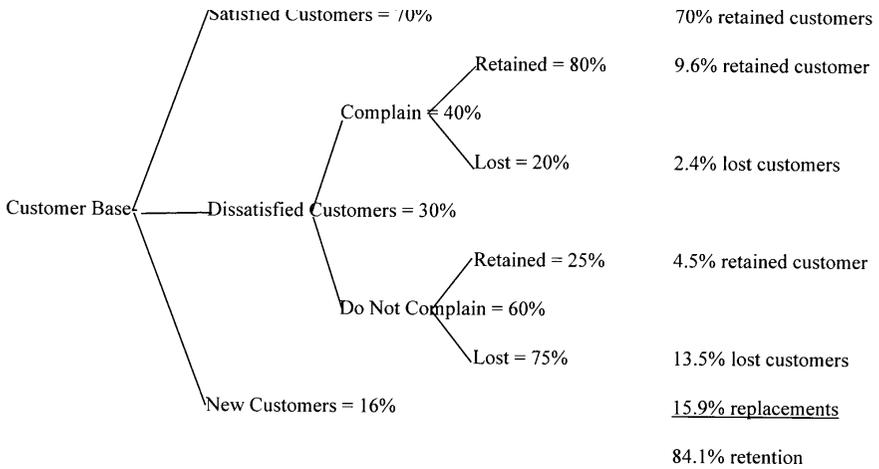


Figure A. Customer Retention Tree

The overall business situation portrayed by the three specialty nurseries is presented in Table 1.

Table 1. Revenues and Costs of Customers Retained, Lost and Acquired on Overall Performance.

| | Retained | Lost | New | Overall |
|------------------------------|------------|------------|-------------|-------------|
| Customer Performance | Customers | Customers | Customers | Performance |
| Number of Customers | 1,047 | 198 | 200 | 1,445 |
| Revenue Per Customer | \$ 303 | \$ 94 | \$ 120 | |
| Sales Revenue | \$ 317,042 | \$ 18,612 | \$ 24,000 | \$ 359,654 |
| Variable Cost Per Customer | \$ 224 | \$ 73 | \$ 90 | |
| Margin Per Customer | \$ 79 | \$ 21 | \$ 30 | |
| Total Contribution | \$ 83,038 | \$ 4,097 | \$ 6,000 | \$ 93,135 |
| Marketing Expense / Customer | \$ 29 | \$ 50 | \$ 80 | |
| Total Marketing Expense | \$ 30,550 | \$ 9,900 | \$ 16,000 | \$ 56,450 |
| Net Marketing Contribution | \$ 52,488 | (\$ 5,803) | (\$ 10,000) | \$ 36,685 |

A nursery manager can readily see the enormous potential for increased profits and cash flow that centers around customer satisfaction and retention. For each additional customer that is retained, net profits increase. Inefficient costs associated with serving dissatisfied customers and the cost of acquiring new customers to replace them are reduced. Thus, there is tremendous financial leverage in satisfying and retaining customers.

Significance to Industry: There is considerable evidence that businesses, including nurseries, that operate with higher levels of customer satisfaction are more profitable. They are more profitable because they are able to retain a high percentage of customers, have less rework as a result of poor product or service quality, and need to spend less time and money attracting new customers to replace lost customers. Thus, businesses with a strong market orientation are able to deliver higher levels of both customer satisfaction and profitability.

Literature Cited:

1. Hiebeler, Robert, Thomas Kelly and Charles Kettelman. 1998. *Best Practices: Building Your Business With Customer-Focused Solutions*. Simon and Schuster (New York).
2. Johnston, Bernice. 1996. *Real World Customer Service — What to Really Say When the Customer Complains*. Small Business Source Books.
3. Schnaars, Steven. 1998. *Marketing Strategy*. Free Press (New York).

Tips for Selling Plants to Horticultural Distribution Centers

M.P. Garber
University of Georgia

Index Words: marketing, plant material, landscaping, horticultural distribution center.

Nature of Work: HDCs serve as rewholesalers for a large portion of the plant material purchased by landscape contractors. In a Georgia study in 1995, about 30% of the plant material purchased by landscapers was obtained from HDCs (3,4). Since 1995 the amount of plant material handled by HDCs has probably increased as more growers choose to supply the landscape trade through HDCs (personal communications). The ability of growers to be good suppliers to HDCs requires an understanding of the current and future needs of this important industry sector.

As an emerging sector of the lawn and garden industry, HDCs have not been analyzed for regional /geographic differences. A 1994 report (1) provided a national overview of HDCs and their customers. The primary customer of HDCs was identified as landscape contractors (1).

This study was conducted to determine the nature of HDC communications with landscape architects, factors influencing HDCs decisions on which plants to purchase, opportunities for growers to be better suppliers, and expected HDCs changes over the next five years. Surveys were mailed to all members (158) of the HDC committee of American Nursery and Landscape Association (ANLA) in 1998. The response rate was 32.3%.

Results and Discussion: HDCs are rewholesalers of plant material primarily to landscapers. The profit margins are created by purchasing from growers at a discount and by adding value to the product. HDCs identified the type of services provided to add value to plant material. The services, most commonly offered were delivery (98%), credit (90.2%) and information (84.3%). Three other widely offered services were sourcing of special products for customers (68.6%), education, such as formal training sessions (52.9%), and product warranty (47.1%).

The plant purchase decisions of landscape contractors, the primary customer of HDCs, is determined in large part by landscape architects (3). As such, landscape architects influence demand for plant material at HDCs. HDCs were asked if they had a communication program with landscape architects. A rather small percentage of HDCs (29.4%) communicate with landscape architects, ranging from a low of 22.2% in the Northeast to a high of 44.4% in the West. The HDC firms that communicate with landscape architects, were asked to indicate whether

the objective of their program was to influence which plants were specified or to simply monitor plant trends. For all HDC firms that communicate with landscape architects, about two-thirds try to influence demand, while about one-third simply monitor plant material trends. The HDCs trying to influence plant selection by landscape architects ranged from a low of 25% in the Northeast to a high of 100% in the West.

HDCs were asked to rate the importance of several criteria used to select plant suppliers. The most important criteria in selecting plant suppliers by HDCs in all regions was the supply of consistent plant quality (89.4%). The next two highest rated criteria were delivery on short notice (22.9%) and price (22.4%).

To better understand how HDCs make their plant purchase decisions, they were asked to rate the importance of several sources of information. The three most influential sources of information, which over 50% of the respondents rated as "used a lot", were sales records or previous purchase history (87.8%), customer requests for plants (71.4%), and plant availability list from growers (55.1%). Plant producers making sales calls with HDCs should consider preparing a list of plants sold to that HDC the previous year and the projected product availability. The sales records should probably include timing (month), variety/cultivars, and sizes. This would expedite the purchasing decisions of HDCs and allow for greater input by the grower. The fourth highest rated source of information was nursery catalogs (20.4%). An additional 42.8% of respondent rated catalogs as "use some" and very few respondents do not make use of catalogs. This suggests that distribution of product catalogs to HDCs would be beneficial to growers. All regions agreed on the relative ranking of the top three sources of information. For each of the top three sources, there was about a 20% point difference between the region with the lowest use (Northeast) and the region with the highest use (Southeast).

HDCs were asked to identify expected changes in the type of plant material purchased over the next five years. The top three expected changes were larger plant sizes (21.9%), more color (20.3%), and more container plants, especially trees (20.3%). The projected movement by HDCs to container trees, in lieu of B&B trees, is in agreement with retailers (6) and landscape architects (2), who expressed interest in increased use of container trees. Tree producers that serve multiple industry segments and previously produced only B&B trees might consider producing container trees to maintain market share.

Respondents identified seven opportunities areas for growers to assist HDCs. The identified areas should be of particular interest to growers since they represent opportunities to distinguished themselves from other growers and to enhance their position as a preferred supplier. The most frequently identified area was marketing support (21.3%), followed closely by more frequent delivery of product (19.7%) and meeting

commitments for booked product (18.0%) (Table 7). HDCs book product ahead of delivery schedule, but appear to be disappointed in the ability of growers to deliver committed product. The request for more frequent delivery of product may be an indication that HDCs are more carefully managing inventory turnover and want to enhance plant quality. HDCs were asked to identify the most common complaints received from their customers (primarily landscape contractors) regarding plant material or services. These complaints can be used by other HDCs to benchmark complaints or by growers to determine priority services and plant attributes to improve upon. The two most frequently received complaints, identified in over 20% of the responses, were prices too high (23.8%) and inconsistent availability of products (20.6%). The inconsistent availability of product can hurt future demand if landscapers can not depend on a supplier. This could be an important area for cooperation between HDCs and growers. The identified lack of specimen or large material (12.1%) may be one specific opportunity area for growers. About 28% of the complaints were related to plant quality (15.6%) or specifications (12.1%) and appear to be an area where HDCs need to understand customer expectations and convey the expectations to growers.

Significance to Industry: The information can be used by nurserymen to develop marketing plans for selling product to HDCs and by the HDCs to benchmark their firm to competitors.

Literature Cited:

1. Barton, Susan S. 1994. Business insights into horticultural distribution centers. American Nursery and Landscape Association, Washington, D. C.
2. Garber, M.P. and K. Bondari. 1993. Trends in plant material requirements of landscape architects. *J. Environ. Hort.* 11(3):110-115.
3. Garber, M.P. and K. Bondari. 1995. Landscape installation firms: I. Business characteristics and trends affecting industry performance. *J. Environ. Hort.* 13(1):31-34.
4. Garber, M.P. and K. Bondari. 1996. Landscape maintenance firms: I. Business features and factors influencing industry performance. *J. Environ. Hort.* 14(2):53-57.
5. Garber, M.P., W. G. Hudson, J. G. Norcini, R. K. Jones, A. R. Chase, and K. Bondari. 1996. Pest management in the United States greenhouse and nursery industry: I. trends in chemical and non-chemical control. *HortTechnology* 6:194-200.
6. Garber, M. P. and K. Bondari. 1998. Retail garden outlets: plant material purchases and trends. *J. Environ. Hort.* 16:20-26.

Why Consumers Buy Potted Flowering Plants: A Focus Group Study of Master Gardeners

Elizabeth Moore, Bridget Behe and Kathleen Kelley
Michigan State University

Index Words: Purchase habits, Expectations, Seasonality

Nature of Work: Many businesses use focus groups to determine perceptions and attitudes from a certain group of consumers (Cowley 1999). Businesses that use focus groups are often looking for ways to satisfy customer needs more effectively or investigate new product acceptance. Focus group information is then used to further develop a product and its marketing. Understanding how and why a consumer makes a purchase helps businesses develop more profitable products and marketing methods. Our goal was to identify the key purchase attitudes that garden product consumers have toward flowering plants.

There are common assumptions that growers and retailers make regarding the consumers wants and needs. One widely accepted thought is that there are seasonal limitations of plant sales such as poinsettia or Easter lily. Another thought is that consumers are not willing to purchase plants, other than those seasonal selections, that have been forced. Growers and retailers tend to plan their crops based on these assumptions rather than direct input from the customer. It would be a great advantage to know what consumers are looking for and are willing to buy before production begins. Our goal was to delineate the key factors influencing flowering plant purchase decisions. On August 7, 1999, fifteen Master Gardeners from Genessee County, Michigan, participated in a focus group concerning purchase habits, paradigms, and expectations of flowering plants. The group convened at 9a.m. in the county extension office and worked for eighty-five minutes. Master Gardeners were chosen because of their pre-disposition toward gardening and level of gardening experience. The first ten minutes of the group consisted of introductions among participants and moderator and explanation of the project and legalities. The next twenty minutes consisted of a discussion concerning the how's and why's of purchase habits. Within the next forty minutes, the group was asked to discuss certain paradigms they have toward seasonally and indoor/outdoor use of plants. Finally, in the last fifteen minutes, the group was focused on a discussion about expectations of forced plants.

Results and Discussion:

Purchase Habits

When asked the question "Why do you buy flowering plants?", participants gave a very wide range of responses, many of which were expected. However, there were several unique statements made. Among

the expected responses were “constant color”, and “to liven up my garden.” One of the participants responded differently when she stated that she was looking for seasonal rotation for a planter box in her home. She said that after Christmas, there was a serious lull in selection and that “bulbs just aren’t satisfying.” Participants said they tend to purchase plants in very large quantities and throughout the year. Two participants said they make most of their purchases through catalogues, but most other participants purchase from garden centers and “definitely not” from mass merchandisers. Participants expressed a great dissatisfaction with customer service at mass merchandisers.

The Master Gardeners said they tend to purchase potted flowering plants for holidays, table centerpieces and gifts. With regard to gifts, the plants were mostly given to elderly parents. The most frequently mentioned plants included poinsettia, Easter lily and spring bulbs. Uniquely, one of the respondents said that he wished coleus was sold more often for indoor color use. “With coleus you don’t have to worry about whether or not there’s a flower— it’s just about the color... the leaves are always there. Flowers fade.”

Flowering Plant Paradigms

When asked, “Do you see a distinct difference between indoor and outdoor plants?” there were varying responses. The participants who said yes said that outdoor plants tend to be “larger” and require full sun, while indoor plants are smaller, tropical, have longer bloom periods, and do not require as much sun. Those who said that there is no difference had many reasons. Several people stated that they tend to “hold things indoors if in bloom” and then return the plants outdoors when finished blooming. Two participants had an opposite thing to say in that they use houseplants as annuals in the garden.

All participants said that they purchase a poinsettia strictly because it is a winter holiday (mainly Christmas) tradition. However, most said they would be willing to purchase a poinsettia in spring if it were pastel or white. Two people said that they would not be willing to do this. When asked about alternatives to poinsettia during the winter holidays, the response was “anything red.” Some specific suggestions included Lenten Rose (*Heleborus*), Christmas Cactus (*Schlumbergera*), a small holly shrub with berries, and red geraniums. When asked, “Would you purchase a twelve-inch tall echinacea in bloom in March?” there were several different responses. Some participants said no, that they would be “afraid that it would die.” Another participant said that she would make the purchase depending on the price. “If it were \$10.00 or less I probably would buy it...I think it would be a very cute window plant.” Another woman said, “at that time of year I’ll buy anything.” Most

participants agreed that they would make the purchase for a special occasion for a table centerpiece. When asked to choose between the echinacea and a cut flower arrangement for a centerpiece, thirteen of the fifteen said they would choose the echinacea.

Expectations

Participants were asked to discuss how they felt about forced herbaceous plants. There was a general consensus that forced plants are not "as hardy", and that the term "forced" should be on the label. This was the most frequently voiced concern. All of the participants felt that the label should also have extensive cultural information and the natural bloom time of the plant. One woman said that if she was not familiar with a forced plant she purchased, she would be disappointed when it did not bloom at the same time the following year. The rest of the group agreed. They also wanted the label to say how long the blooms would last. Another woman said, "if I could get the same amount of bloom time as other disposables (meaning mums and poinsettias), I would buy it.

Among the participants there seemed to be a feeling of failure or dissatisfaction with throwing out herbaceous perennials. While the majority of the participants said they throw away poinsettias after the winter holidays, there was not such a willingness to throw out perennials. One woman said "I know that echinacea is a perennial plant" and that she would "feel bad" about throwing it out. When asked, "What would encourage you to purchase a non-traditional, forced potted flowering plant?" the two responses were price and uniqueness.

Significance to Industry: This focus group provided insight into how consumers, specifically Master Gardeners, consider purchasing flowering potted plants. As Michigan State University researchers program perennials to flower at any certain time, marketers turn their attention to best positioning these "new products". Inexperienced gardeners may make purchases differently, but knowing what experienced gardeners are thinking gives marketers a good place to initiate a marketing strategy. In fact, turning attention to Master Gardeners as the first line of consumers to market to may have a serious impact on what purchases other gardeners make and how they make them. "Virtually all gardeners say that other gardeners are their most important source of information about their hobby, and Masters are asked about gardening more than any other segment". (Waldrop, 1993).

Throughout the focus group activity, Master Gardeners showed a willingness to purchase programmed plants. They reiterated a desire to have proper care and habit information about the plant. They also expressed interests in unique plants and alternatives to traditional indoor and seasonal plants. This gives growers an opportunity to address a new need among garden consumers. If Master Gardeners are willing and even desirous of these "new products", then it is likely that other gardeners will follow.

Consumer Preferences for Alternative Tabletop Christmas Trees

James Heilig and Bridget Behe
Michigan State University - East Lansing

Index words: survey, conjoint, utility

Nature of Work: During the Christmas holiday season, several species of potted plants, traditional to the holiday season, can be found. While poinsettias dominate this market, there are other traditional plants. One group of traditional plants are evergreens used as "Christmas trees." A more typical use for these plants is as larger specimens, which are fresh-cut, decorated, and displayed indoors. More recently, marketers have discovered a demand for potted Christmas trees, either grown in a container or balled-and-burlapped for interior decoration and display.

An alternative use for some evergreens may be in smaller containers, such as would be suitable for tabletop display. Research conducted by Florkowski and Lindstrom (1995) showed that as consumer age, their concerns about transporting, installing, and removing a traditional fresh-cut tree increase. It appears that tabletop trees may be an alternative for the aging Baby Boomers and their parents, who desire a fresh or live tree, but don't want the mess. Also, the proliferation of large homes gives other consumers the opportunity to decorate more than one Christmas tree. A single home may have a tree in each room, decorated with a different theme. Smaller, tabletop trees afford this consumer an alternative to a large tree.

Researchers at MSU were interested in determining which species of evergreens would be most appealing to consumers when grown in 6" containers, suitable for tabletop display. We were also interested to determine if an undecorated tree was preferred to a decorated tree, and which decoration would be most preferred.

Eight evergreen species were selected for potential use as potted Christmas trees: Blue Spruce (*Picea pungens*), two genotypes of Black Hills Spruce (*Picea glauca* cv 'Densata'), Serbian Spruce (*Picea omorika*), Fraser Fir (*Abies fraseri*), Concolor Fir (*Abies concolor*), Emerald Beauty Arborvitae (*Thuja* sp 'Emerald Beauty'), and Lawson False Cypress (*Chamaecyparis lawsoniana*). Trees were potted in #1 nursery containers that were covered with black cloth, before photographs were taken. Three levels of decoration were used: (a) gold and silver combination (b) red, blue, and silver, and (c) plain, or without decoration. Three price points were identified: \$14.95, \$19.95, and

\$24.95. The same tree was used in each picture however decorations were changed to picture each tree in each of the above-described levels of decoration.

The eight tree species were split between two groups at random to allow for the development of two 3 x 3 x 4 designs. We entered the three variables and multiple levels into SPSS to generate the incomplete factorial design. The two resulting designs contained 16 photographs each. Five by seven-inch photographs were created, with a label showing the price in the bottom right hand corner. In the bottom left hand corner, we placed a letter to identify the picture. Two sets of boards were constructed to reduce the number of photographs any one consumer evaluated. Photographs were randomly distributed between both boards. Both boards were displayed in December at two sites: Fredrick Meijer Botanic Garden (Grand Rapids, MI), and the MSU annual Christmas Open House (East Lansing, MI).

On the survey form participants were asked to rate each picture, "would not buy," "might buy," and "would buy," (a 3-point Likert scale) and seven other questions assessing demographic information (e.g., age, sex, income etc.). No incentives were offered for participation in Grand Rapids. A small, non-monetary incentive was offered in East Lansing. A total of 180 surveys were collected. The data were analyzed using SPSS Conjoint 8.0.

Results and Discussion: The average age of participants was 46 years. In East Lansing the average age was 45, while in Grand Rapids the average age was near 47 ($p=.485$). Overall, 81% of participants were female, and 16% male. When we compared each site, we found that in East Lansing, 76% were female and 21% were male (3% not responding), and in Grand Rapids, 85% were female, and 12% (3% not responding) of participants were male ($p=.09$). We asked about their income by category, asking if they made below or above \$75,000. Overall, 71% indicated they made between \$0 and \$75,000, 22% said they made over \$75,000 (7% not responding). Our sample was likely representative of Baby Boomers, who are a prime market for Christmas tree purchases.

SPSS analysis helped us determine an "averaged importance" for each variable level. The total points of importance equal 100%. The variable that was most important for both studies was tree species. For Grand Rapids the averaged importance value of evergreen species was 68.42% and for location 2 the value was 44.8%. Overall, the Black Hills Spruce was the most preferred species, because it received the highest utility

score (0.48) and the Lawson False Cypress was the least preferred, because it received the lowest utility score (-.3192). The Black Hills Spruce most closely resembled a traditional pyramidal tree. The Lawson False Cypress was much less traditional in appearance.

The value for decoration was 26.1% for board 1 and 41.0% for board 2, thus decoration was of intermediate importance to evergreen species. Red was the only decoration that received a positive utility value for both boards (.0353 Board 1, .1758 board 2). Undecorated received a negative utility on each board (-.1609 Board 1, .1340 Board 2). Gold decoration had a positive utility on board 1 (.1256), but received a negative utility value on board 2 (-.0444). It was clear that the decorated trees were preferred to the undecorated trees, and the red-colored decorations were preferred to gold. Again, our sample appeared to be quite traditional in their preference for color, selecting the red and green direct color contrast as most appealing.

Overall, the averaged importance for price was 5.4% for board one and 4.2% for board two. The lowest price, \$14.95, received a negative utility on both boards (-.0231 Board 1, -.0639 Board 2). The intermediate price, \$19.95, had a positive utility for both boards (.0365 Board 1, .0194 Board 2). While \$24.95 was positive on board 2, .0444, and negative on board 1, -.0135. This would indicate relatively small importance of price, and price inelastic over the range examined. It appeared as though none of the prices was too high to deter preference. Often, lower prices are preferred to higher prices, but in this case, the product offering may have been unique enough to create a high interest or truly price was not an important criterion.

We calculated the utility values and the predicted preference score for each combination possible using the three levels in this study. Overall, the least preferred tree was a Lawson False Cypress, priced \$14.95, without decoration. The most preferred item was a Black Hills Spruce, priced \$19.95, with gold decorations. Those trees not decorated tended to receive a lower increase in preference over the least preferred tree. Decoration was of intermediate importance, overall.

Significance to Industry: When a grower considers production of alternative or tabletop trees, information on preferred species is very useful. In Michigan, in 1997, there were more acres of Colorado Blue Spruce than any other spruce (12,300 acres). If an individual were making a decision based on other sources, Blue spruce would seem like a good choice. Our study, however, shows that this species was one of the least preferable trees. A more likely candidate would be a black hills spruce, or a fir.

Our work showed that after cultivar, decoration was the most important variable. We also found that decoration was slightly more important to women than to men. In most cases red was preferred over gold, and definitely over no decoration. So, our recommendation to growers and retailers would be to produce fir trees and market them at approximately \$25 with a red theme for decoration.

Literature Cited:

1. Florkowski, W.J. and O.M. Lindstrom. 1995. Consumer Characteristics Associated with Perceptions of Live Christmas Trees. *J. Env. Hort.* 13(1):15-18.

Table 1. Averaged Importance of each level, on each board

| Level | Board 1 | Board 2 |
|------------|---------|---------|
| Price | 5.4 | 4.2 |
| Decoration | 26.1 | 41.0 |
| Cultivar | 68.4 | 44.8 |
| Total | 100.0 | 100.0 |

Table 2. Averaged Importance of each level, at each location, on each board, by gender

| Level | Grand Rapids, MI | | East Lansing, MI | |
|------------|------------------|---------|------------------|---------|
| | Board 1 | Board 2 | Board 1 | Board 2 |
| | Male | Male | Female | Female |
| Price | 14.5 | 14.8 | 5.9 | 16.2 |
| Decoration | 16.7 | 33.3 | 27.5 | 41.9 |
| Cultivar | 68.8 | 51.9 | 66.5 | 41.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |