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Structure and Market Organization of Florida's Landscape Plant Industry¹

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Abstract

A comprehensive survey of the Florida landscape plant nursery industry was conducted in 1989 in order to document its characteristics. Responses to a mailed-out questionnaire were received from 104 firms. Questions addressed in the survey included product sales, marketing practices, distribution areas, pricing and exchange arrangements. Sales reported by responding firms totaled \$125 million, representing an estimated 59% of total industry sales. Current problems of the industry are discussed in relation to its structural characteristics: larger firms as compared to smaller firms had higher labor productivity, more seasonal sales, greater emphasis on container production rather than field production, more deciduous products, more distant and indirect market outlets, and more negotiable sales arrangements with a higher percentage of repeat customers. Also, within the past decade, an increasing proportion of Florida's landscape plants have been marketed within the state, while the share of sales to other states has been decreasing. At the same time, exports to other countries have increased substantially.

Index words: landscape plant industry, sales, marketing, industry structure, nursery crops

Significance to the Nursery Industry

Many of the current problems of the maturing landscape plant industry in Florida are related to its unconcentrated structural characteristics. A relatively high percentage of small and medium-sized firms, which account for an important share of industry volume, were found to have lower labor productivity, more localized and direct marketing to a lower percentage of repeat customers, more field-grown products, and more non-negotiable sales arrangements. Among the most serious challenges facing the industry are the loss of markets in other states, presumably due to competition from producers in those areas. Markets in other areas are needed to offset depressed sales during summer months, in order to most efficiently use productive resources. The increased share of export sales during the 1980's demonstrated that market development is possible. In order to intelligently deal with its structural problems, policy-makers and leaders in the landscape plant industry need sound economic information which characterizes the industry with respect to small and large firms.

Introduction

Nursery and greenhouse crops represent the seventh largest agricultural industry in the United States, with a total value of \$6.94 billion at the wholesale producer level in 1988. Florida was the second leading state in production of landscape plants in 1988, with an industry value of \$948 million, while California was first with a value of \$1.58 billion (4). Landscape plant products such as trees, shrubs, and groundcovers, used for exterior landscaping in new and existing construction, are a major component of the nursery industry. Sales of landscape plant products in Florida in 1988 were estimated at \$201 million (8). During the late 1970's and early 1980's, Florida's landscape plant industry grew rapidly, with sales climbing from \$50 million in 1979 to \$75 million in 1981 (11). Since

1984, however, Florida's production of landscape plants has stabilized, and growth of the industry has not kept pace with other leading states (4).

This maturation of the landscape plant industry in Florida has been associated with poor economic conditions common to other parts of U.S. agriculture, including overproduction, depressed prices, low profitability, and a growing rate of business failure (6, 9, 13). Relatively low capital requirements and lack of economies of scale in production pose very low barriers to entry of new firms. The population of registered nursery firms has continued to grow more rapidly than aggregate industry sales, resulting in extremely competitive behavior, typified by widespread sales of nursery products below cost (4, 6). Lack of a unifying commodity and a wide diversity of products and market channels further exaggerates the unconcentrated structure of the industry, and has thwarted formal organizational efforts such as cooperatives and marketing orders (6).

The present survey research was undertaken as part of a National Nursery Survey by the Southern Regional Association of Agricultural Economists (S-103 Committee). The objective of the survey was to sample a majority of the larger, strictly commercial firms in the industry.

Materials and Methods

Firms for the survey were selected from the 1988 Florida Division of Plant Industry (DPI) registry and Florida Nurserymen and Growers Association (FNGA) membership rolls. A first mailing to 270 firms was generated from the DPI list for firms having more than 50,000 plant units in inventory. A second mailing 75 days later was sent to 186 firms selected from the FNGA membership list, for firms with 8 or more full-time employees. This mailing included an additional 139 firms, giving a total of 409 firms contacted. Mailed questionnaires included a cover letter from the Florida Nurserymen and Growers Association president and an addressed, postage-paid return envelope.

The questionnaire used for this survey contained 32 numbered questions covering a wide range of subjects, however,

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this paper focuses on three areas: industry size and structure, product sales, and market characteristics. The questionnaire did not request the identity of respondents, although several responding firms did provide their names.

Completed questionnaires were received from 104 firms, representing a response rate of 25.4 percent of all firms contacted. Sales for each firm were reported either as an exact total for 1988 or within one of eight sales volume ranges. Sales reported in ranges were estimated at the midpoint of the reported range. Firms were then categorized for analysis by annual sales volume: Small, less than \$500 thousand; Medium, \$500 thousand to less than \$1 million; Large, \$1 million to less than \$3 million; Very large, \$3 million or greater. In ten cases where sales figures or ranges were not reported, sales were estimated from employment data by applying average sales per employee from the entire data set (8). In one case neither sales nor employment data were reported, so this observation was not represented in results involving sales. Incomplete data for other questions were not adjusted, and percentage results presented in tables below are based upon actual reported totals.

Results and Discussion

Industry size and structure. Industry sales for 1988 reported by survey respondents totaled \$125 million (Table 1). This value is 59% of the landscape plant industry sales estimated by Hodges (9), based upon expansion of labor employment and payroll data. The number of firms in each size class were as follows: 38 small, 25 medium, 31 large, 9 very large, 1 unknown.

Florida's landscape plant industry was found to be relatively unconcentrated, as indicated by the 21 percent share of total industry sales comprised of small and medium sized firms reporting in this survey. Large and very large firms

represented 40% and 39% of sales, respectively (Table 1). In contrast, many food and tobacco industry classes have greater than 80 percent market share by the leading four firms (2, 12). Moreover, the actual market share by smaller firms in the landscape plant industry is probably greater than indicated here because the sampling procedure was biased to selectively sample larger firms.

Sales by product type. Sales reported for major types of woody landscape products are shown in Table 2. Evergreen shrubs were the most important type of product, representing \$40.7 million in sales, or 40 percent of total industry sales, with broad leaved evergreen shrubs accounting for 26 percent and narrow leaved evergreens 14 percent. Evergreen trees represented \$15.2 million (15%) in sales. Deciduous trees comprised \$11.8 million (12%) of sales. Also having a significant market share were vines and groundcovers (8%), fruit trees (7%), deciduous shrubs (6%), propagating material (4%) and other unclassified products (4%). The market share for these product types has not changed substantially since 1980 (11).

Very large firms had the highest share of sales for deciduous shrubs (12%), while small and medium sized firms had greater sales in narrowleaved evergreen shrubs (19% and 18%, respectively). Medium and large firms had substantially greater sales for evergreen trees (23% and 19%) than did small (5%) and very large (6%) firms. Roses were produced almost entirely by very large firms. Propagating material was a specialty of small firms, perhaps because of the high labor intensity involved for this type of product.

Sales by root media holding type. Container growing is the predominant production system in Florida, in contrast to a predominance of field production in more northern areas, where winter temperatures are lethal to unprotected

Table 1. Summary characteristics of reporting firms, 104 landscape plant nurseries in Florida, 1988.

Firm size class	Firms	Sales reported		Sales per firm (\$1,000)	Employees	Employees per firm	Sales per employee
		(\$1,000)	(%)				
Small	38						
Medium	25	\$ 8,973	7.2%	\$ 236	356	9.4	\$31,367
Large	31	\$ 17,657	14.1%	\$ 706	517	20.7	\$43,936
Very large	9	\$ 49,962	40.0%	\$1,612	1,280	41.3	\$51,753
Unknown	1	\$ 48,311	38.7%	\$5,368	1,186	131.8	\$51,808
Total	104	\$124,904	100.0%	\$1,201	\$3,339	32.1	\$41,954

Table 2. Sales by product type and firm size class, 103 landscape plant nurseries in Florida, 1988.

Product type	Small	Medium	Large	Very large	Total
Deciduous trees	10%	14%	9%	14%	12%
Deciduous shrubs	5%	1%	4%	12%	6%
Broadleaved evergreen shrubs	29%	27%	28%	22%	26%
Narrowleaved evergreen shrubs	19%	18%	10%	14%	14%
Evergreen trees	5%	23%	19%	6%	15%
Vines & ground covers	10%	8%	12%	2%	8%
Roses	1%	0%	1%	7%	3%
Herbaceous perennials	4%	2%	1%	0%	1%
Tree fruits	1%	0%	9%	10%	7%
Small fruits	0%	0%	0%	1%	0%
Propagating material	16%	5%	3%	1%	4%
Other	0%	0%	2%	11%	4%
Total	100%	100%	100%	100%	100%

plants in above-ground containers (data not presented). Containerized growing allows greater production intensity and greater flexibility to market products at any time of year and to deliver products immediately upon request. Landscape plants sold in nursery containers comprised 82% of total industry sales. The remaining 18% represented field-grown stock balled and burlapped (\$11.5 million, 9.3%), bare root stock (\$6.6 million, 5.4%), balled and potted (2.4%), process balled (.7%), or field grow bags (0.1%). Sales of field-grown stock may be under-represented because the relatively low production density of plant units could have excluded many medium-sized producers by virtue of the survey sampling procedure which selected firms with larger numbers of plant units in inventory. Nevertheless, medium and large producers accounted for 22.5% and 51.9% of total industry sales of non-containerized products, respectively.

The low sales reported for the widely popularized production system of "field grow bags" (in-ground fabric containers) indicates that this hybrid system has not gained acceptance by Florida growers, in spite of advantages claimed by vendors.

Monthly sales trends. Sales reported for each month in 1988 are shown in Figure 1. Peak months for sales were March, April, and May, with 13.9%, 12.9% and 11.4% of total annual sales, respectively. Together, these spring quarter months accounted for 38.2% of annual sales. Lowest monthly sales occurred in July (5.9%), and August (5.5%). This pattern generally held true regardless of firm size, however, very large firms had slightly more peaked springtime sales.

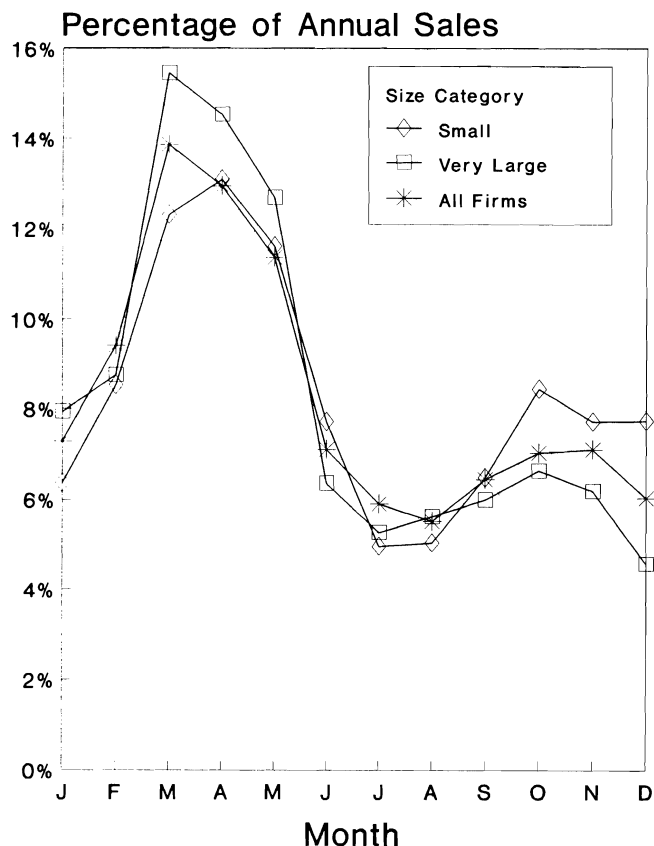


Fig. 1. Monthly sales, 103 landscape plant nurseries in Florida, 1988.

and small firms had greater sales during the late fall and early winter months.

Seasonality of landscape plant sales was not as marked for Florida producers as for other states (1), presumably due to the moderate climate allowing year-round plant production and landscape construction activity. This lower seasonal variability represents a comparative advantage for Florida growers in terms of resource use and market efficiency (7, 10).

Market distribution areas. The majority of Florida's landscape plants (71.5%), were sold within the state (Table 3). This represented a substantial increase from 52 percent for within-state sales in 1980 (11). Thus, sales to other states have declined as a percentage of total industry sales, although actual sales volumes have increased. Most notably, sales to other southern states reported in this survey were 9.8 percent of total sales, down from 32 percent in 1980 (11). Moreover, Table 3 shows that when these survey results are expanded to reflect estimated total industry sales (\$201 million, 8), there was a substantial decrease in the dollar value of sales to other southern states and midwestern states. Sales to mid-atlantic states, New England, western states, Canada, and other foreign countries all increased between 1980 and 1988, both in share of total industry sales and in dollar volume.

The trend toward a greater share of within-state sales by Florida producers was due to both expansion of Florida markets, and contraction of out-of-state markets. Florida's population has grown 31% during the 1980's, and was accompanied by a 48.5% growth in the value of building construction activity between 1980 and 1987 (5). At the same time, production of landscape plants in other Southern states has increased by 26% during the 1984-1988 period, or 6.5% annually (4). This development has caused vigorous competition for Florida growers in these areas due to their disadvantage in transportation costs. Although the Florida economy has experienced strong growth in recent years, the greater reliance upon markets in a smaller geographical area represents increased risk from a local or statewide economic recession. Furthermore, recapturing markets in other states in the future will be more difficult because of increasingly entrenched competition.

Sales to Canada and other foreign countries were \$4.3 million, representing 4.5 percent of total industry sales. This was a substantial increase from less than 1 percent in 1980 (11). Large and very large firms accounted for most exports. Favorable foreign exchange rates and industry efforts to promote exports of Florida ornamental products (3) are probably both responsible for this growth in export sales.

Market outlets. Wholesale market outlets were summarized in the categories of re-wholesalers, retailers, and landscapers. Re-wholesalers include all brokers, distributors, or other nursery firms, who buy and handle plants for resale to retailers or landscapers. Many nursery firms do substantial business in re-wholesaling in order to offer wider product lines and take advantage of market contacts. Retail merchandisers of nursery products include garden supply stores and large chain stores with garden and plant departments, which sell to landscapers and directly to consumers. Commercial landscapers use nursery products for installation on landscape jobs in new construction or renovations.

Landscapers represented the largest market outlet overall (40%) in this survey (Table 4). Re-wholesalers were the

Table 3. Sales trends by market region, 103 landscape plant nurseries in Florida, 1988.

Region	1981 Sales		1988 Survey sales		1988 Adjusted sales	Net change
	----- \$1,000 -----					
Florida	39,186	52%	68,547	73%	147,505	108,319
South	24,115	32%	9,170	10%	19,732	(4,382)
Midwest	3,014	4%	329	0%	707	(2,307)
West	0	0%	150	0%	323	323
Northeast	8,289	11%	12,005	13%	25,834	17,545
Canada	0	0%	1,031	1%	2,219	2,219
Other Foreign	0	0%	2,318	2%	4,988	4,988
Total	75,358	100%	93,549	100%	201,308	125,950

Table 4. Wholesale sales to various outlets by firm size class, 103 landscape plant nurseries in Florida, 1988.

Outlet	Small	Medium	Large	Very large	Total
Re-wholesalers	28%	19%	23%	49%	33%
Retailers	27%	26%	25%	28%	27%
Landscapers	45%	55%	52%	23%	40%
Total	100%	100%	100%	100%	100%

second largest outlet (33%), and retailers comprised the remainder (27%). This pattern was exaggerated for small, medium, and large sized firms, with 45%, 55%, and 52% of sales to landscapers, respectively. Very large firms, however, had a greater share of sales to re-wholesalers (49%), than to retailers (28%) and landscapers (23%). These results indicate that small to large firms emphasized more direct sales to users in the marketing system, while very large firms made greater use of the services of marketing agents. This finding is at odds with patterns observed in other industries, and suggests that smaller growers attempt to maximize profit margins through direct sales.

Sales methods. Personal sales methods are a key point in marketing programs. Strategic considerations include not only which contact medium to use (trade shows, telephone, personal visit, mail order), but also whether sales are negotiated (prices adjusted for volume discounts, repeat customers, etc.) or non-negotiated. The telephone was the most important sales medium reported in this survey, accounting for 52 percent of total sales (Table 5). Personal visits were the medium for 39 percent of sales, trade shows 7 percent, and mail order 1 percent. Among all sales media, non-negotiated sales represented somewhat more (53%), than negotiated sales (47%). Firm size was unrelated to the pat-

tern of contact media used, but larger firms had a greater share of negotiated sales, suggesting greater use of pricing incentives for marketing, and perhaps some size economy in the employment of sales personnel.

Repeat customers are the foundation of continued strong sales. Repeat business is generally more profitable because of lower overhead costs required for development of new sales contacts. The overall share of landscape plant sales to repeat customers was 84 percent (data not represented). Very large firms had a somewhat higher share of repeat business (90%), which is consistent with the above-mentioned finding of greater negotiated sales. This rather high percentage of business conducted with repeat customers suggests that competition for customers in this industry may be characterized as a zero-sum game; the acquisition of a new customer by one firm means the loss of a customer from another firm.

Pricing. Establishing prices for products has become a major issue in the ornamental industry because of widespread below-cost pricing (6). As costs of production have continued to rise along with inflation in the general economy, prices for ornamental products have remained relatively stable for a decade, resulting in a cost-price squeeze.

Data were collected in this survey for rankings of factors

Table 5. Sales by type of contact and negotiation, and by firm size class, 104 landscape plant nurseries in Florida, 1988.

Contact type	Small	Medium	Large	Very large	Total
Trade show negotiated	3%	2%	3%	5%	4%
Trade show non-negotiated	3%	3%	5%	2%	3%
Telephone negotiated	25%	20%	11%	45%	27%
Telephone non-negotiated	29%	37%	36%	11%	26%
In-person negotiated	13%	12%	17%	19%	17%
In-person non-negotiated	28%	22%	28%	17%	23%
Mail order	0%	4%	0%	2%	1%
Total	100%	100%	100%	100%	100%
Negotiated total	41%	34%	31%	69%	47%
Non-negotiated total	59%	66%	69%	31%	53%

used to determine prices on a scale of one to six, with rankings of 1 being most important. The most important factor used to determine prices was cost of production, which received a number one ranking from 49 percent of growers. Comparison to other firms and market demand were the next most important factors, each top-ranked by 17 percent of firms. These two factors also were rated as important secondary factors by 30 percent and 29 percent of firms, respectively. Grade (quality) was the first-ranked factor by 11 percent of growers. Inventory levels (availability) of product were consistently rated as a tertiary consideration in price determination, with 22% and 23% of firms giving this a third or fourth ranking, respectively. These results support the contention that a significant portion of growers probably do not base product pricing on costs of production, and probably do not consider total costs in making business decisions. One important step towards improving the pricing of ornamental products would be to educate growers about production costs and use of cost information in business management.

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Growth and Flowering of 'Alice du Pont' Mandevilla in Response to Sumagic¹

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Abstract

Vegetative growth of 'Alice du Pont' mandevilla can be controlled by selection of an appropriate foliar application rate of Sumagic (uniconazole) and application interval. A single application of 5 to 20 ppm ai Sumagic (uniconazole) controlled vegetative growth for only 3 to 4 weeks; after this time, growth rates were similar to control plants. Multiple applications of 5 to 20 ppm ai Sumagic (uniconazole) effectively restricted vegetative growth; as the concentration of Sumagic (uniconazole) increased, the interval between applications increased from about 4 (5 ppm) to 6 (20 ppm) weeks. A single application of higher rates (30 to 120 ppm) of Sumagic (uniconazole) was phytotoxic. Generally, time to flowering increased and flower diameter decreased when application rate increased.

Index words: growth retardant, growth regulator, tropical nursery crop, landscape plants

Growth regulator used in this study: Sumagic (uniconazole), (E)-1-(p-chlorophenyl)-4,4-dimethyl-2-(1,2,4-triazol-1-yl)-1-penten-3-ol.

Species used in this study: 'Alice du Pont' mandevilla (*Mandevilla* sp. 'Alice du Pont').

Significance to the Nursery Industry

The vigorous, vining growth habit of 'Alice du Pont' mandevilla is desirable in the landscape but can be trou-

blesome during production and marketing. Sumagic (uniconazole) can be used to effectively control excessive vegetative growth of 'Alice du Pont' mandevilla if an appropriate application rate and interval between applications are used. Lower rates of Sumagic (uniconazole) require more frequent application to maintain a compact growth habit; higher rates can delay flowering. Sumagic (uniconazole) should be reapplied when the majority of plants begin

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