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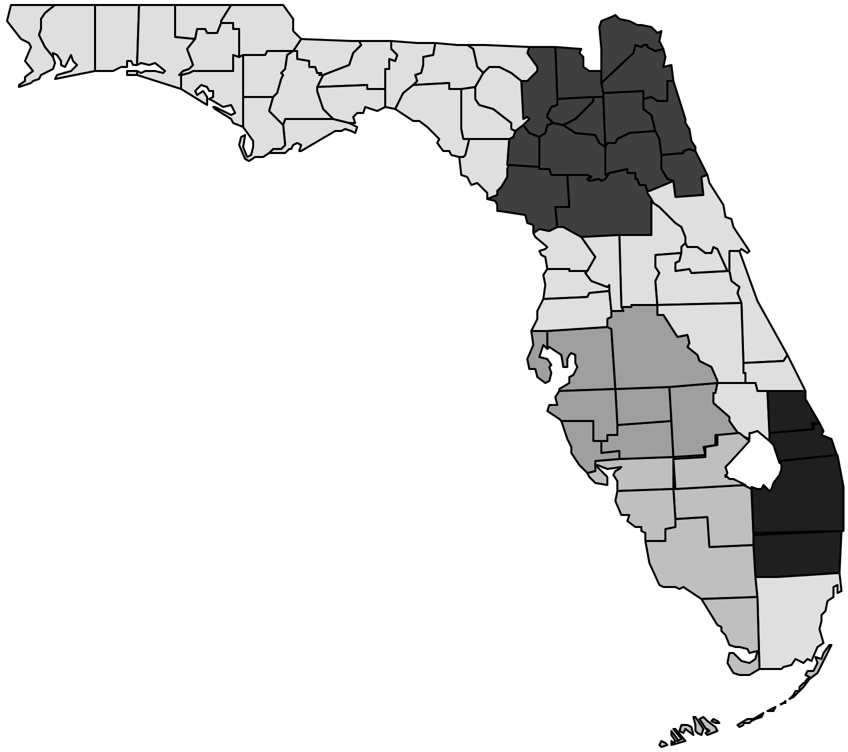
Economic Impact of Florida's Environmental Horticulture Industry, 1997



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Economic Impact of Florida's Environmental Horticulture Industry, 1997

by Alan W. Hodges and John J. Haydu[1]

Executive Summary

The economic impact of Florida's horticultural industries for fiscal year 1997 was estimated based on primary information collected in 2217 telephone survey interviews in mid-1998 with wholesale nurseries, horticultural retailers, landscape service firms, residential households and commercial/institutional consumers of horticultural products and services. Sales of ornamental plant products by nurseries totaled $1.462 billion, including $503 million (M) or 34 percent in tropical foliage plants or palms, $420M (29%) in woody ornamental trees and shrubs, $265M (18%) in potted flowering plants and bedding plants, and $255M (17%) in other plant products. Also, $101M (7%) of sales were considered native Florida plants. Nursery area totaled 38 thousand acres in greenhouses and shade houses, open container and field production areas. Major customers served by nurseries were other growers (28%), landscapers (23%), retail mass merchandisers (15%), retail garden centers (10%), re-wholesalers and brokers (12%), property developers and mangers (3%), and the public at-large (9%). Horticultural retailers had total sales of $1.751 billion, including plants (24%), lawn and garden supplies (12%) and hard goods (7%), and other items. Total retail sales area managed was 64.7 million square feet. Landscape service firms had total sales of $2.704 billion, including plants and lawn and garden supplies (20%), and landscape services for maintenance (25%), installation (42%), and design (14%). Domestic and international exports of horticultural products and services from the state of Florida amounted to $659M. Employment by nurseries and landscape service firms totaled about 33,000 and 87,000 persons, respectively. Florida's single-family households purchased plants and other horticultural goods and services valued at $2.891 billion, and maintained a landscape area of 3.084 million acres. Commercial and institutional consumers, such as hotels, restaurants, schools/colleges, governments, and commercial building managers, purchased $195 million in horticultural products and services and maintained 1.50 million acres of landscape. Total economic output associated with the horticulture industries was estimated at $6.363 billion, including the multiplier effect of direct, indirect and induced impacts of local/state and export sales associated with purchased inputs and employee spending. Total employment associated with the horticulture industries was estimated at 187,000 jobs. Total value added generated by the horticulture industries was $5.424 billion, including personal income of $3.600 billion, employee compensation of $2.999 billion, and indirect business taxes paid amounting to $501 million. Information for the nursery sector on sales, employment, production area, output and economic value added were estimated for seven regions of the state. Survey information is also presented on types of services offered and marketing practices of industry firms, financing of nurseries, trends in business conditions, the mid-term business outlook, and factors considered by consumers for purchase of plant products, and selection of vendors of horticultural goods and services.

Keywords: Florida, horticulture industry, economic impact, economic multipliers, economic output, employment, value added, plant nurseries, landscape services, horticultural retailers, commercial/institutional consumers, households, marketing.

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Table of Contents

Table of Contents (continued)

List of Tables

List of Tables (continued)

List of Figures

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1: Introduction

Project Background and Purpose

For more than 10 years there has been a keen interest by certain people in Florida's nursery industry and the University of Florida to capture the economic importance of ornamental crops. Although some data has been collected by various State and Federal agencies, the information has tended to be either incomplete or too general to accurately depict the full scope of the industry. For example, for many years the Florida Agricultural Statistics Service has closely monitored the production and sale of foliage, floriculture and cut greens but has not measured other sectors, such as field-grown and container-grown landscape plants, a significant and vital component of the industry. Similarly the U.S. Department of Agriculture's *Economic Research Service* has conducted national surveys and has provided the only consistent economic measures available of nursery crops. However, because of the sheer size and complexity of these industries in the larger producing states, gathering detailed economic data at the state-level has not been feasible. In both cases the reason for this deficiency is largely due to the very high cost of collecting, analyzing and publishing agricultural data on a regular basis. Prohibitive costs combined with the desire to down-size government bureaucracy, has resulted in fewer and less comprehensive information services available to the public.

In response to this change in government policy, many private sector organizations have begun implementing their own studies – particularly those industries representing some of the more non-traditional commodities. In 1997 grant funding was provided to the University of Florida's Institute of Food and Agricultural Sciences by the Florida Nurseryman & Growers Association ($43,000) and AgFirst-Farm Credit Bank of Columbia, SC ($12,000), to undertake an economic impact assessment of the nursery industry. This was supplemented with an additional $6,000 in intramural funds by UF/IFAS. The study, implemented in January of 1998, represents the first such comprehensive assessment of the economic impacts of Florida's floriculture and environmental horticultural industry.

The United States Horticulture Industry

Nursery and greenhouse crops represent the sixth largest agricultural commodity group in the United States, with a farm gate value of $10.9 billion in 1996[2]. Floriculture and environmental horticulture is the fastest growing segment of U.S. agriculture, averaging 9 percent annual growth during 1982-91, and has expanded its contribution from two percent of total farm cash receipts in 1976 to 11 percent today[3]. This striking growth is due to the recent strong demand for landscape plants and the relatively high unit value of nursery crops. Demand for landscape plants has been driven by a strong national economy and growth of new housing developments, which are large consumers of landscape plants, bedding plants and sod. The high unit value of ornamental crops is illustrated by the fact that nursery farms account for only one fiftieth of all U.S. farms yet they generate nearly one-eighth of total farm receipts. The average floriculture and environmental horticulture farm yields nearly four times the net income as does the average "traditional" food and fiber farm, and horticulture crops out performed all other farm commodities in terms of net income per farm.

The U.S. Department of Agriculture classifies nursery and greenhouse products as floriculture crops, including bedding plants, cut flowers, cut cultivated greens, potted flowering plants and foliage plants, and as environmental horticulture products, including landscape nursery plants, unfinished plant material, sod, and flower and vegetable seeds. In terms of value, environmental horticulture products

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[2] Floriculture and Environmental Horticulture: Situation and Outlook Report, D. Johnson, USDA/ERS, FLO-1997, 1997.

[3] Financial Performance of US Floriculture and Environmental Horticulture Farm Businesses, 1987-91, D. Johnson and T. Johnson, USDA/ERS, Statistical Bulletin 862; and USDA/ERS, 1998 – http://www.econ.ag.gov/briefing/floral/).

comprise roughly two-thirds ($7.5 billion) of the total industry, with the remaining one-third ($3.4 billion) constituting floriculture (see footnote 1). Trends in US grower cash receipts for floriculture and environmental horticulture crops, 1989-96, are given in Table 1.1.

Table 1.1. United States and Florida Grower Cash Receipts for Nursery and Greenhouse Crops, 1989-96.

	United States			Florida		
Year	Total Floriculture Crops	Other Environ-mental Crops	Total Nursery and Greenhouse	Total Floriculture Crops	Other Environ-mental Crops	Total Nursery and Greenhouse
			million dollars			
1989	2,505	5,272	7,777	506	455	961
1990	2,652	6,025	8,677	531	460	992
1991	2,795	6,240	9,035	529	475	1,004
1992	3,022	6,263	9,285	553	475	1,028
1993	3,073	6,515	9,588	543	475	1,018
1994	3,247	6,760	10,000	601	480	1,080
1995	3,329	7,094	10,423	630	480	1,110
1996	3,421	7,491	10,912	660	480	1,140

At the retail level, growth in expenditures nationwide for floriculture and environmental horticulture products has averaged 5 percent annually since 1989, reaching $37.2 billion in 1996, or $140 per capita. Retail expenses of environmental horticulture products, sold primarily through chain stores (e.g. Home Depot, WalMart, K-Mart), as well as numerous independent garden centers, accounted for 57 percent of the $37.2 million. Floricultural products representing 43 percent of the total are sold for indoor use by retail florists, garden stores – both independent and chain) and increasingly supermarkets and street vendors. Just over half of all retail floral sales are made by the 42,000 retail florists, with the remainder sold by all other retail categories.

Florida's Horticultural Industry

The three leading states in nursery and greenhouse industry production are California, Florida and Texas, with Florida ranked second with an industry value of $1.14 billion according to USDA estimates. Ornamental crops are among the largest agricultural commodity group in Florida, together with citrus, vegetables and livestock. Florida dominates the US market for tropical foliage crops, with over 90 percent of sales. Overall sales for greenhouse and nursery crops by Florida growers have increased from $961 million to $1.14 billion over the period 1989 to 1996 (Table 1.1). Among specific types of ornamental crops, sales have increased substantially for bedding plants, and increased more modestly for potted flowering plants, foliage plants, and other environmental crops, while sales have remained level for cut cultivated greens and decreased for cut flowers.

Like many agricultural sectors, Florida's nursery industry has been forced to adapt to an increasingly competitive marketplace by developing new products and markets, achieving greater efficiencies through the use of new technologies, and through consolidation to achieve economies of scale. During the 1989 to 1994 period, average sales per firm grew by 26 percent in constant-dollar terms, and average employment increased by 15 percent, resulting in an 8 percent increase in sales per employee. The product mix of Florida's nurseries became much more diverse, with sales of "other" plant products increasing from 5 to 39 percent of total sales. Markets for the state's ornamentals were substantially expanded into other regions, with sales to destinations outside the state growing from 23 to 33 percent of total sales. Retailers such as garden centers and mass merchandisers became the dominant market outlet for Florida ornamentals rather than landscapers. The competitiveness of the nursery industry was reflected in growers' recognition of cost as the most important limiting factor for expanding business operations[4].

Trends in Florida Nursery Firm Performance

During the past three decades, several explicit developmental stages can be identified for Florida's nursery industry. Sales of ornamental plant products rapidly increased during the 1970s and early 1980s, then underwent slower but steady growth during the latter 1980s and 1990's. This period of industry maturation is especially prominent today as markets become increasingly open and competitive with the advent of international trading blocks. Although a significant player when volume sales are considered, Florida nursery businesses must still operate under the same financial conditions as any other type of business enterprise.

The University of Florida's *Nursery Business Analysis Program* has examined the financial performance of numerous wholesale nurseries for nearly 25 years, and these results provide a useful financial profile of the size, structure and profitability of the Florida producers. Results for the period 1985-95 show that the average participating firm has increased dramatically in size, in terms of sales, production area, plant inventory, employment, and net income (Table 1.2). Meanwhile, production efficiencies have remained relatively constant, as indicated by the value produced per full time equivalent employee or per acre, or decreased, as indicated by the inventory turnover. Costs of production have increased for labor, but remained level for materials. Profitability has declined slightly, as indicated by the net margin and rate of return on net worth. Financial risk has increased somewhat, indicated by the higher leverage value.

Different types of firms in the *Nursery Business Analysis Program* have fared more or less well over the past 15 years. Net profit margin for all firms has declined from 15% in 1985 to 12% in 1990, then recovered to 13% in 1995 (Table 1.3). Large firms, defined as having annual sales of at least $1 million, exhibited the same trend, while small firms (less than $250K sales) have suffered greater declines. Flowering plant producers have shown remarkable growth in their markets, which has translated to dramatic improvement in profitability. Tropical foliage growers have also shown deteriorating profitability, more so for growers in Central Florida than for growers in South Florida. Producers of container-grown woody ornamentals likewise have suffered decreased net margins, but still enjoy a rather high level of profitability. Field-grown woody ornamentals, on the other hand have enjoyed steadily improved profitability.

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[4] The Changing Structure of Florida's Ornamental Plant Nursery Industry, 1989-94, A. Hodges and J. Haydu, UF/FRE Dept., *Economics Report* ER96-1, 1996.

Table 1.2. Financial Characteristics of Florida Nursery Firms, 1985-95. Values represent averages per firm.

Measure*	1985	1990	1995
Sales (1000$)	712	871	1,535
Production Area (Acres)	13.08	19.75	34.12
Plant Inventory (1000$)	516	598	1,628
Employment, full time equivalents (FTE)	15.2	19.5	32.9
Net Income (1000$)	162	168	320
Net Worth (1000$)	674	769	1,576
Value Produced Per FTE (1000$)	51	48	53
Value Produced Per Acre (1000$)	59	48	51
Cost/Value Produced, Labor	28%	29%	34%
Cost/Value Produced, Materials	32%	35%	32%
Inventory Turnover	138%	146%	94%
Financial Leverage	132%	134%	165%
Quick Ratio	209%	243%	105%
Net Margin	15%	12%	13%
Rate of Return on Net Worth	17%	12%	10%

* Monetary measures deflated (adjusted for inflation).
Source: Nursery Business Analysis Program, UF Food & Resource Economics Department.

Table 1.3. Net Profit Margin of Florida Nursery Firms, by Industry Group, 1985-95.

Industry Group	**1985**	**1990**	**1995**
All Firms	15%	12%	13%
All Large Firms	15%	12%	13%
All Small Firms	14%	12%	10%
Flowering Plants	2%	17%	18%
Foliage, Central Florida	8%	2%	1%
Foliage, South Florida	11%	12%	7%
Woody Ornamentals, Field-grown	19%	22%	29%
Woody Ornamentals, Container-grown	25%	13%	19%

Source: Nursery Business Analysis Program, UF, Food & Resource Economics Department.

2: Methods

Survey Populations and Sampling

Estimation of the economic value of Florida's horticultural industries was based upon information obtained from telephone surveys conducted with 5 different groups: wholesale nurseries, horticultural retailers, landscape service providers, single family detached residential households, and institutional/commercial consumers (Table 2.1). The first three groups, wholesalers, retailers, and service providers, represent the primary business sectors of interest, while the consumer sectors were surveyed to better understand the changing marketplace for horticultural products and services. The survey focused on single family detached residential households because it was expected that these households were most likely to purchase horticultural goods and services for maintenance of a lawn and garden. The commercial-institutional consumer group represented a sample of firms drawn from 11 different standard industrial classifications (SICs), including primary schools, colleges/universities, cemeteries, public golf courses, restaurants, hotels, museums/galleries/gardens, religious organizations, governments, and commercial building maintenance services (Table 2.2).

Table 2.1. Number of Firms and Households Sampled for Survey.

Survey Group	Number Sampled
Nurseries	579
Horticultural Retailers	224
Landscapers	200
Commercial/Institutional Consumers	626
Households (single family detached)	589
Total	2,217

Table 2.2. Number of Commercial and Institutional Consumer Businesses Sampled for Survey.

Industry Group	Standard Industrial Classification Code	Number Firms Sampled
Eating and drinking Places	581000	44
Cemetery subdividers and developers	655302	40
Hotels and motels	701101	100
Building maintenance services	734911	3
Public golf courses	799201	116
Elementary and secondary schools	821103	97
Colleges and Universities	822101	55
Museums, galleries and botanical gardens	840000	55
Religious organizations	866110	19
General government	910000	93
Total		622

Listings of firms for the survey were obtained from a variety of sources. The Florida Department of Agriculture, Division of Plant Industry provided a list of certified nurseries and stock dealers, which were taken as the population of nurseries and retailers, respectively, because any firm which produces or sells plant products in Florida is required to register with the Division of Plant Industry. The population of nursery firms was considered to be those firms which were indicated as "wholesale" or "wholesale and retail" operations. A listings of landscapers in Florida and commercial/institutional consumers in selected

SIC groups was provided by American Business Information (ABI). The University of Florida Bureau of Economic and Business Research provided the listing of randomly selected residential households, and an estimate of the number of single family households in Florida in 1997 from US Census data for 1990 together with data on housing starts and occupancy rates. The population of firms in each sector was checked with data from the Florida Department of Labor, Bureau of Labor Market Information (BLMI) on number of units reporting for purposes of unemployment compensation, as required by law for any firm employing five or more persons. The population of landscape firms was estimated from the BLMI reporting units based on survey information about the number of locations (reporting units) for each firm.

The survey was designed as a stratified sampling plan for nurseries, landscapers, and institutions, with probability of sampling proportional to firm size. For retailers and households, no size stratification variable was available, so sampling was proportional to the population in each telephone area. Telephone numbers called for the survey were selected at random from the population or group list. The distribution of survey interviews across Florida telephone area codes is indicated in Table 2.3.

Table 2.3. Survey Respondents by Florida Telephone Area Code.

Telephone Area Code	Number Sampled
305	215
352	254
407	254
561	194
813	250
850	129
904	398
941	392
954	131

For wholesale nurseries, additional sampling was done within 7 different regions of the state, as shown in Figure 2.1. Counties included in each region are listed in Table 2.4. Approximately 90 firms were sampled in each region.

Table 2.4. Florida Regions Analyzed for Wholesale Nurseries.

Florida Region	Counties
Northwest	Escambia, Santa Rosa, Okaloosa, Walton, Holmes, Washington, Bay, Jackson, Calhoun, Gulf, Liberty, Franklin, Gadsden, Wakulla, Leon, Jefferson, Madison, Taylor, Lafayette, Dixie, Hamilton, Suwannee
Northeast	Alachua, Marion, Putnam, Flagler, St. Johns, Clay, Duval, Nassau, Baker, Union, Bradford, Gilchrist, Levy, Columbia
Central	Orange, Lake, Seminole, Volusia, Pasco, Hernando, Citrus, Sumter, Osceola, Brevard, Okeechobee, Indian River
Tampa Bay	Hillsborough, Pinellas, Polk, Manatee, Sarasota, Hardee, DeSoto, Highlands
Southwest	Collier, Lee, Monroe, Hendry, Charlotte, Glades
Lower East Coast	Palm Beach, Broward, Martin, St. Lucie
Dade County	Dade

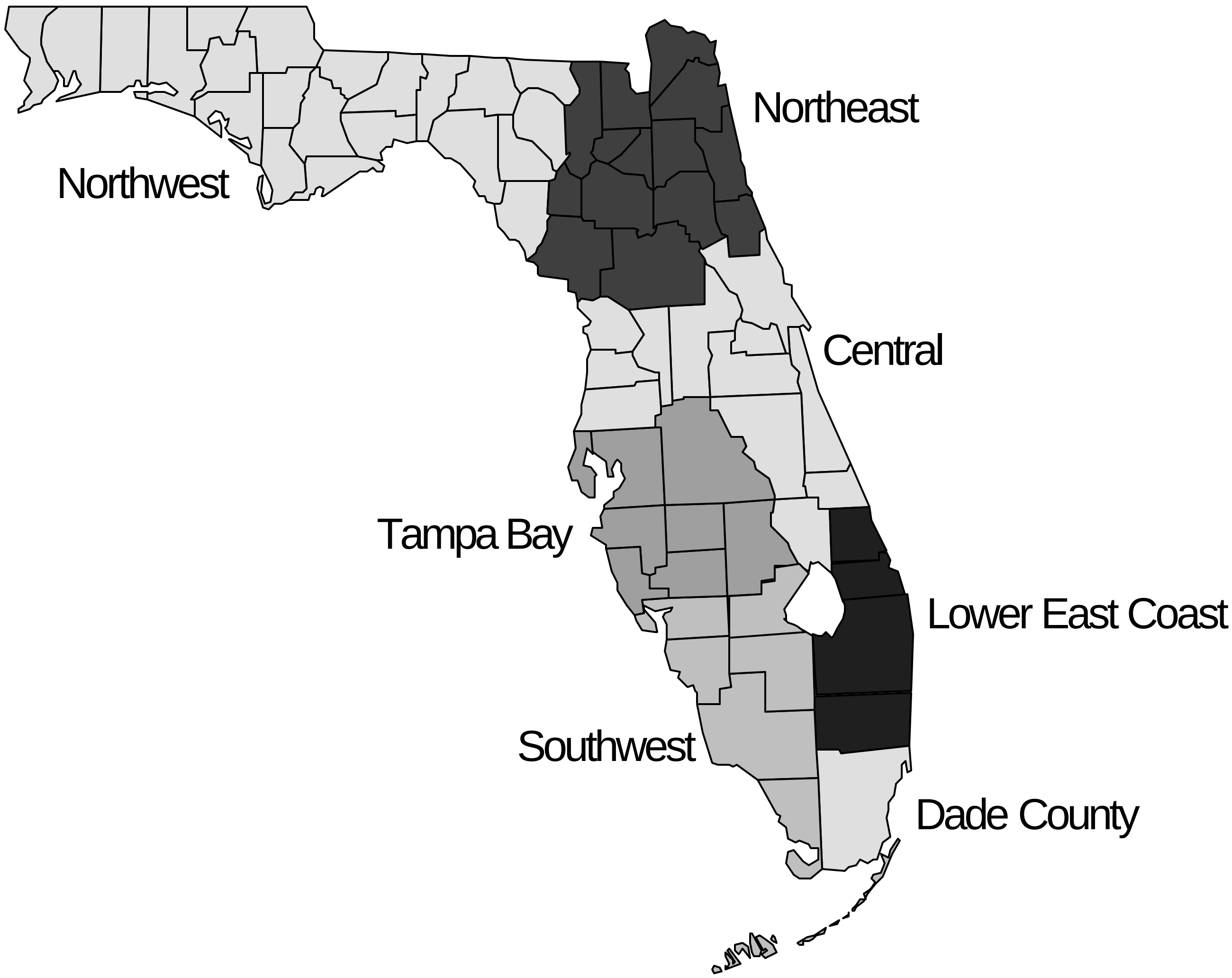

Figure 2.1. Florida Regions Evaluated for the Nursery Sector of the Horticulture Industry.

Survey Interviews and Respondent Qualification

Telephone interviews were conducted under subcontract by the University of Florida's Bureau of Economic and Business Research Telephone Survey Program Unit, during the period April-June, 1998. Call-backs were made to verify information from selected respondents in July-August, 1998.Telephone interviews were conducted with a computer-assisted system (“Cases”) that automatically dialed telephone numbers, generated questions to ask in the proper sequence, and recorded the respondent’s answer entered by the operator. The system also recorded information on interview time elapsed and the number of interviews completed, incomplete, refused, ineligible, non-working number, and no answer. Firms or households and persons interviewed for the survey were qualified by a series of questions. For nurseries, retailers and landscapers, the person answering the phone call was asked whether the firm sells horticultural products or services. Households and commercial/institutional consumers were asked whether they maintained a landscape at the present location. Respondents were asked the question “are you knowledgeable about the company’s business?” (nurseries, retailers, landscapers) or “are you knowledgeable about management of the landscape at this location?” (households, institutions). If this person was not knowledgeable, the interviewer asked for the name of the appropriate person and to be connected with that person or arranged for a time to call back if not available. A total of telephone 2,520 calls were made, of which 18 percent were completed, 10 percent were refused, 33 percent were ineligible, 13 percent non-working, 17 percent no answer, and 9 percent incomplete interviews (Table 2.5).

Table 2.5. Number and Disposition of Telephone Calls for Survey, by Survey Group.

Survey Group	Call Disposition (Percentage)						Total Number of Calls
	Completed	Refused	Ineligible	Non-working	No answer	Incomplete	
Nurseries	28.6	7.5	28.7	8.3	15.9	10.9	2,157
Retailers	24.4	12.2	30.5	11.7	11.2	10.1	1,030
Landscapers	28.6	7.5	16.1	7.4	21.6	18.9	704
Institutions	16.6	8.0	43.7	5.3	13.7	12.7	3,786
Households	12.2	13.0	30.0	21.2	19.6	4.0	4,843
All Sectors	18.3	10.2	33.2	12.6	16.6	9.1	12,520

Survey Information Collected

Survey data was collected for fiscal year 1997. Information collected from the primary business sectors included annual sales, employment, production area (nurseries), retail sales area (retailers) types of horticultural goods or services sold, types of plant products sold, sales to different customer markets, regional sales, marketing practices, changes in business volume and pricing, the outlook for business , and financial borrowing practices and considerations (nurseries). Information collected from the consumer sectors included landscape area maintained, value of purchases of plants, other horticultural goods and horticultural services, types of plant products purchased, types of vendors purchased from, and factors considered for purchasing plants and selecting vendors. Information on annual sales by commercial firms and value of purchases by consumers was collected in terms of categories that represented ranges of values. Survey questionnaires were developed separately for each survey group and pretested in personal interviews with industry representatives. The questionnaires were translated into a computer code for operation of the computer-assisted telephone interview system. The survey questionnaire for wholesale nurseries is presented in the Appendix as an example.

Analysis of Survey Data

Analysis of the survey data was carried out with spreadsheet and statistical software packages (*Lotus 1-2-3*, Lotus Development Corp.; *Statistica*, StatSoft, Inc.). The value of sales or purchases by each firm or household were estimated at the midpoint of the range for the category indicated, or in the case of landscaper firms as the lognormal geometric mean for each to account for the highly skewed distribution of firm sizes (Tables 2.6-7).

Estimates of the total value of sales or purchases for the entire population of firms or households were based on expansion factors that represent the ratio of the population to the number sampled, as shown in Table 2.8. Expansion factors were calculated as $E = P * (1-I) / S$, where E is the expansion factor, P is the Florida population, I is the percentage of firms/households ineligible for the survey, and S is the number of firms/households that reported sales or total value of purchases. The population of firms was adjusted down to account for the percentage of firms that were ineligible for the survey according to the screening questions discussed above. Expansion factors for nurseries, landscapers and commercial/institutional consumers were compiled by firm size strata. Sales of specific products or services by industry firms, and sales by market segment or region, were estimated as a percentage of total sales for each industry sector, with the total controlled to the amount estimated from the expansion formula. Similarly, purchases of specific products or services by consumers, and purchases by type of vendor, were estimated as a percentage of total purchases, with the total amount controlled.

Table 2.6. Estimated Values for Annual Sales Categories.

Annual Sales Category*	Midpoint Value (thousand $)	Lognormal Value (thousand $)
Less than $250K	$125	$125
$250 to $499K	$375	$363
$500 to $999K	$750	$714
$1.0 to $1.99M	$1,500	$1,392
$2.0 to $3.99M	$3,000	$2,813
$4.0 to $5.99M	$5,000	$4,841
$6.0 to $7.99M	$7,000	$6,832
$8.0 to $9.99M	$9,000	$8,967
$10M or more	$10,000	$16,167
$10 to 14.9M	$12,500	
$15 to 19.9M	$17,500	
$20 to 24.9M	$22,500	
$25M or Over	$25,000	

*"K" indicates thousands, "M" indicates millions dollars.

Table 2.7. Estimated Values for Annual Purchases by Consumers.

Annual Purchases Category	Estimated Value (midpoint)
Less than $100	$50
$100 to $499	$300
$500 to $999	$750
$1000 to $1999	$1,500
$2000 to $4999	$3,500
$5000 to $9,999	$7,500
$10,000 to $14,999	$12,500
$15,000 to $19,999	$17,500
$20,000 or Over	$20,000

Table 2.8. Survey Expansion Factors.

Survey Group	Survey Sample	Firms Reporting Sales or Purchases	Florida Population	Percentage Contacted Ineligible	Expansion Factor
Nurseries	581	511	4,042	28.7%	4.4
Horticultural Retailers	225	125	1,478	30.5%	8.2
Landscapers	202	182	4,655	16.1%	13.5
Commercial/Institutional Consumers	637	573	44,774	43.7%	42.0
Households (single family)	589	510	4,040,620	30.0%	5546

Estimation of Economic Impacts

Regional impacts and economic multipliers were developed with an input-out model and social accounting matrix, IMPLAN Pro software licensed from MIG, Inc (Stillwater, MN), and the associated database for Florida, 1995. The IMPLAN databases consist of a set of social/economic accounts which describe the structure of the US economy in terms of transactions between households, governments, and 528 standardized industry sectors classified on the basis of the primary commodity or service produced (SIC's). The databases also describe local or regional economies, at the county level, in terms of industry output, value added, employment, imports and exports. A wide variety of statistical sources are used to construct these databases, including the annual economic censuses conducted by the US Commerce Department and US Bureau of Labor Statistics. IMPLAN uses a matrix inversion procedure to develop economic multipliers which reflect the direct, indirect and induced impacts of specified changes in final demand, output or employment for any given industrial sector[5]. Indirect impacts result from changes in economic activity of other industrial sectors which supply goods or services to the sector being evaluated. Induced impacts are the result of personal consumption expenditures by industry employees. The total economic impact is the sum of direct, indirect and induced impacts. Multipliers are available from IMPLAN for economic output, value added, employment, employee compensation, personal income, other proprietary income, and indirect business taxes. The total impacts for nursery sector were adjusted to account for nursery products exported by retailers and landscape services sectors.

Regional models of the Florida economy were constructed with IMPLAN for the state as a whole, and for 7 sub-regions (Table 2.4). Multipliers for the nursery, retail and landscape services industry sectors are given in Table 2.9, and for each subregion of the nursery sector in Table 2.10. The total output multipliers ranged from 1.65 for retailers to 1.78 for landscape services, reflecting the relatively labor intensive nature of the horticulture industries. Economic impacts of each sector and subregion of the horticultural industry were calculated for each type of impact using the direct multiplier multiplied against local/state sales, and the total multiplier multiplied against the value of goods or services exported from the region. Export sales were treated differently than local/state sales because exports bring “new” money into the local economy and expand its economic activity through the multiplier effect.

Table 2.9. Statewide Economic Impact Multipliers for Florida's Horticultural Industry. Values represent dollars per dollar of output, except employment which is number of jobs per million dollars output.

Multiplier Type	Nurseries	Retailers	Landscape Services
Total Output	1.6980	1.6541	1.7782
Direct Value Added	0.7177	0.9317	0.9091
Total Value Added	1.1669	1.3462	1.4061
Direct Employment (jobs/M$)	17.6124	25.4716	40.7723
Total Employment (jobs/M$)	28.1265	34.8884	52.2124
Direct Personal Income	0.3787	0.5867	0.6858
Total Personal Income	0.6364	0.8296	0.9774
Direct Employee Compensation	0.2296	0.5639	0.5657
Total Employee Compensation	0.4531	0.7834	0.8246
Direct Indirect Business Taxes	0.0113	0.1924	0.0429
Total Indirect Business Taxes	0.0587	0.2396	0.0970

[5] *Implan Professional Social Accounting and Impact Analysis Software, User's Guide, Analysis Guide and Data Guide*, 2nd ed., 1997, MIG, Inc., Stillwater, MN, 378 p.

Table 2.10. Economic Impact Multipliers for Nurseries in Florida Regions. Units are dollars per dollar output, except employment which is jobs per million dollars output.

	Florida Region	Output	Employment (jobs/M$)	Value Added	Personal Income	Employee Compen-sation	Indirect Business Taxes
Direct Multipliers							
1	Northwest	1.0000	19.1974	0.9125	0.4562	0.3111	0.0123
2	Northeast	1.0000	15.3232	0.7600	0.3772	0.2613	0.0098
3	Central	1.0000	19.7130	0.7260	0.3898	0.2267	0.0126
4	Tampa Bay	1.0000	16.9451	0.7814	0.4241	0.2428	0.0108
5	Southwest	1.0000	23.7925	0.9019	0.4813	0.2840	0.0152
6	Lower East Coast	1.0000	9.4461	0.4767	0.2417	0.1604	0.0060
7	Dade County	1.0000	17.5406	0.5809	0.3102	0.1818	0.0112
Total Multipliers							
1	Northwest	1.4603	27.1563	1.2050	0.6172	0.4525	0.0513
2	Northeast	1.5624	24.1422	1.1177	0.5805	0.4408	0.0494
3	Central	1.6695	30.1813	1.1569	0.6350	0.4367	0.0587
4	Tampa Bay	1.6497	26.9825	1.1990	0.6658	0.4532	0.0567
5	Southwest	1.4910	31.6777	1.2279	0.6673	0.4468	0.0529
6	Lower East Coast	1.6865	18.2307	0.9071	0.4833	0.3727	0.0518
7	Dade County	1.7401	27.3575	1.0501	0.5742	0.4094	0.0601

3: Overall Results

This section presents the study's cumulative findings for all five groups surveyed. Separate results for each specific group surveyed are presented subsequently in sections four through nine of this report.

General Characteristics of Industry Firms and Households

Results on the age of companies surveyed indicated that most firms were generally mature businesses. The average age of businesses ranged from 17 years for nurseries and landscapers to nearly 30 years for horticultural retailers and commercial/institutional consumers (Table 3.1). Many firms had more than one business location. The average number of locations for nurseries, retailers and landscapers ranged from 1.2 to 1.4 (Table 3.1). The average household size of surveyed households was 2.93 persons.

Table 3.1. Age and Number of Separate Locations of Florida Horticultural Businesses Surveyed 1997.

Survey Group	Years in Business (Avg)	Number of Locations (Avg)
Nurseries	16.7	1.2
Horticultural Retailers	29.7	1.4
Landscape Services	17.1	1.3
Commercial/Institutional Consumers	29.4	

Sales by Industry Firms

Sales of horticultural products and services by nurseries, retailers and landscapers in 1997 were estimated at $1.462 billion (B) for nurseries, $1.751 billion for retailers, and $2.704 billion for landscapers, as summarized in Table 3.2. Sales per firm averaged $362 thousand for nurseries, $1.19 million for retailers and $581 thousand for landscapers.

Table 3.2. Sales by Florida Nurseries, Retailers and Landscapers, 1997.

Group	Number of Firms Reporting Sales	Average Per Firm (thousand $)	Estimated Total (billion $)
Nurseries	511 (88%)	362	1.462
Retailers	125 (56%)	1,185	1.751
Landscape Services	182 (92%)	581	2.704

Purchases by Consumers

The total value of purchases of horticultural goods and services by Florida's single family households and commercial/institutional consumers in 1997 was estimated at $3.086 billion. The value of purchases by all institutions was $195 million, averaging $4,363 per firm, while the total value of horticultural purchases by all Florida households was estimated at $2.890 billion, averaging $715 per household annually (Table 3.3).

Table 3.3. Value of Purchases of Horticultural Goods and Services by Florida Households and Commercial/Institutional Consumers, 1997.

Survey Group	Number and Percent of Respondents	Average Per Respondent ($)	Estimated Total* (million $)
Institutions	573 (92%)	4,363	195
Households (single family)	510 (87%)	715	2,890
Total	1,083		3,086

Employment by Industry Firms

Employment by Florida's nurseries and landscape service firms in 1997 totaled an estimated 120 thousand persons, as summarized in Table 3.4. Surveyed nurseries employed an average of 11.5 full-time and 6.4 part-time employees, representing an estimated 33 thousand persons industry wide. Landscape service firms employed an average of 26.3 full-time and 13.3 part-time persons, representing an estimated 88 thousand employees in total. These employment figures are significantly higher than the number of employees reported to the Florida Department of Labor for payroll taxes (nurseries, 23,556; retailers, 4,376; landscape services, 36,534) due to different classification of industry groups and the fact that only firms with five or more employees are required to report their payroll to the State.

Table 3.4. Employment by Florida Nurseries and Landscapers, 1997.

Survey Group	Averages Per Firm			Estimated Totals		
	Full-time	Part-time	Total	Full-time	Part-time	Total
Nurseries	11.5	6.4	17.9	25,917	7,073	32,989
Landscape Services	26.3	13.3	39.6	67,299	20,229	87,528
Total All Groups				93,216	27,302	120,517

Geographic Distribution of Sales

Sales of products and services by industry firms were compiled according to the economic region in which they were made, for purposes of evaluating the economic impacts of exports. Sales were classified as international, national, state or local. The local area was defined as the city or county in which the business was located, or within a 50 mile radius. For nurseries, $499M or 34 percent of total sales were to national and international markets, while $964M (66%) of sales were to state or local markets (Table 3.5). For retailers and landscapers, over 96 percent of sales were to local or state markets, and total sales outside of Florida amounted to $57M and $103M, respectively.

Table 3.5. Geographic Distribution of Sales by Florida Nurseries, Horticultural Retailers and Landscapers, 1997.

Geographic Area	Nurseries		Retailers		Landscape Services	
	Total (million $)	Percent of Total	Total (million $)	Percent of Total	Total (million $)	Percent of Total
Local (city, county)	572	39	1,569	90	2,141	79
State (within Florida)	392	27	125	7	459	17
National	427	29	57	3	103	4
International	71	5	na	na	na	na
Total	1,462	100	1,751	100	2,704	100

Economic Impacts

Economic impacts of the horticulture industry's exports were calculated using the IMPLAN input-output model (see Methods). The economic output impact of the horticulture industry totaled $6.363 billion (B), including a $1.125B output impact from the $675M in export sales to customers outside Florida (Table 3.6). The output impact of exports included indirect output impacts associated with activity in other industries providing inputs to the horticulture industry, and induced impacts attributed to spending by industry employees. The total impacts for nursery sector were adjusted to account for nursery products exported by retailers and landscape services sectors.

Economic value added is perhaps the single most important measure of an industry's contribution to the economy. It represents the difference between sales revenues and the cost of purchased inputs, and includes the value of employee wages and benefits, owner's compensation, dividends, capital outlays and business taxes paid. Economic value added by the three sectors of Florida's horticulture industry totaled $5.424 billion, including $804 million in impacts of exports (Table 3.6). Value added by nurseries, retailers and landscape services were $1.259B, $1.655B and $2.509B, respectively. The employee compensation impact of the horticulture industry amounted to $2.999 billion, including $356 million from export activities. Indirect business taxes paid to governments by the horticulture industry and allied firms were estimated at $501 million.

Employment associated with the horticulture industry was over 187 thousand jobs, including 21,415 thousand jobs related to export activities, and 166 thousand jobs related to local/state sales, with 30,650 jobs for nurseries, 45,140 for retailers, and 111,413 for landscape services (Table 3.6).

Impacts of Florida's horticulture industry on other standardized industry sectors are presented in Table 3.7 for industries with output impacts of at least $1 million. The impacts represent induced effects of exports sales plus indirect effects of local state sales. Some of the industry sectors most impacted, all of which had over $10 million in total output impacts, included Wholesale Trade, Real Estate, Electric Services, Maintenance and Repair Other Facilities, Agricultural, Forestry, Fishery Services, Owner-occupied Dwellings, Banking, Motor Freight Transport and Warehousing, Doctors and Dentists, Insurance Carriers, Eating and Drinking Establishments, Hospitals, Legal Services, Other Business Services, Communications (except radio and TV), Air Transportation, Computer and Data Processing Services, Automotive Dealers & Service Stations, and State and Local Electric Utilities.

Table 3.6. Economic Impacts of Florida's Horticultural Industries, 1997.

Type Impact*	Nurseries	Retailers	Landscape Services	All Sectors
	Horticulture Industry Sector			
Sales (million $)				
Export Sales	498.6	57.5	103.1	659.2
Local/State Sales	964.0	1,693.4	2,600.5	5,257.9
Total Sales	1,462.6	1,750.9	2,703.6	5,917.1
Output (M$)				
Impact of Exports	846.7	95.1	183.4	1,125.1
Total Impact	1,790.6	1,788.5	2,783.9	6,363.0
Value Added (M$)				
Impact of Exports	581.8	77.4	145.0	804.2
Total Impact	1,259.3	1,655.1	2,509.1	5,423.6
Employment (jobs)				
Impact of Exports	14,025	2,005	5,385	21,415
Total Impact	30,650	45,140	111,413	187,203
Personal Income (M$)				
Impact of Exports	317.3	47.7	100.8	465.8
Total Impact	674.8	1,041.2	1,884.1	3,600.1
Employee Compensation (M$)				
Impact of Exports	225.9	45.0	85.0	356.0
Total Impact	442.7	999.9	1,556.2	2,998.7
Indirect Business Taxes (M$)				
Impact of Exports	29.2	13.8	10.0	53.0
Total Impact	39.9	339.6	121.6	501.1

* Impact of exports represents direct, indirect, and induced impacts of export sales; total impact represents impact of exports plus direct impacts of local/state sales.

Table 3.7. Statewide Economic Impacts of Florida's Horticulture Industry on Other Industries, 1997. Industries listed which have at least $1 million in output impact. Impacts represent induced effects of exports sales plus indirect effect of local state sales.

	Output Impact (thousand $)	Value-Added Impact (thousand $)	Employment Impact (jobs)
Wholesale Trade	78,769	51,803	731
Real Estate	66,625	44,913	296
Electric Services	50,811	39,545	119
Maintenance and Repair Other Facilities	35,661	19,556	527
Agricultural, Forestry, Fishery Services	32,519	25,737	1,747
Owner-occupied Dwellings	28,528	22,785	0
Banking	24,408	18,825	160
Motor Freight Transport and Warehousing	21,894	9,553	257
Doctors and Dentists	21,048	13,385	217
Insurance Carriers	20,227	11,785	147
Eating & Drinking	20,134	10,372	544
Hospitals	18,431	11,890	319
Legal Services	18,385	14,321	218
Other Business Services	15,451	7,991	214
Communications, Except Radio and TV	15,442	11,528	67
Air Transportation	10,984	4,993	79
Computer and Data Processing Services	10,733	6,294	111
Automotive Dealers & Service Stations	10,657	8,120	157
State and Local Electric Utilities	10,136	6,557	42
Miscellaneous Retail	9,867	7,234	327
Automobile Rental and Leasing	9,673	5,254	98
Hotels and Lodging Places	9,297	5,371	156
Nitrogenous and Phosphatic Fertilizers	9,174	2,024	17
Credit Agencies	8,622	4,142	202
Automobile Repair and Services	8,420	3,054	76
Food Stores	8,389	7,178	291
Management and Consulting Services	7,984	4,373	112
Other State and Local Govt Enterprises	7,388	2,927	40
Personnel Supply Services	7,343	6,615	353
Radio and TV Broadcasting	7,191	3,659	45
Accounting, Auditing and Bookkeeping	6,515	4,503	162
Newspapers	6,432	3,562	80
General Merchandise Stores	6,407	5,383	200
Other Medical and Health Services	5,776	3,077	98
U.S. Postal Service	5,635	3,850	79
Security and Commodity Brokers	4,899	4,045	49
Miscellaneous Repair Shops	4,883	2,238	66
Insurance Agents and Brokers	4,527	3,083	93
Nursing and Protective Care	4,208	2,855	123
Maintenance and Repair, Residential	4,141	1,597	49

Table 3.7. Statewide Economic Impacts of Florida's Horticulture Industry on Other Industries, 1997. Industries listed which have at least $1 million in output impact. Impacts represent induced effects of exports sales plus indirect effect of local state sales.

	Output Impact (thousand $)	Value-Added Impact (thousand $)	Employment Impact (jobs)
Commercial Printing	4,054	1,510	40
Advertising	3,750	2,129	48
Motion Pictures	3,687	1,233	39
Furniture & Home Furnishings Stores	3,377	2,854	75
Apparel & Accessory Stores	3,294	2,215	95
Water Transportation	3,189	783	15
Equipment Rental and Leasing	3,176	1,545	28
Amusement and Recreation Services, nec	2,741	1,733	57
Farm Machinery and Equipment	2,704	1,036	17
Building Materials & Gardening	2,671	2,489	67
Sanitary Services and Steam Supply	2,607	1,594	18
Laundry, Cleaning and Shoe Repair	2,606	1,755	98
Services To Buildings	2,483	1,662	93
Periodicals	2,271	819	16
Railroads and Related Services	2,228	1,434	13
Engineering, Architectural Services	2,010	1,055	28
Colleges, Universities, Schools	1,870	1,133	48
Transportation Services	1,853	893	24
Gas Production and Distribution	1,826	485	3
Business Associations	1,764	1,430	33
Miscellaneous Publishing	1,752	881	13
Lubricating Oils and Greases	1,697	255	4
Storage Batteries	1,677	735	12
Photofinishing, Commercial Photography	1,677	859	25
Social Services, N.E.C.	1,631	972	44
Beauty and Barber Shops	1,604	924	63
Religious Organizations	1,598	232	13
Elementary and Secondary Schools	1,530	699	39
Detective and Protective Services	1,432	1,168	66
Theatrical Producers, Bands Etc.	1,428	534	14
Child Day Care Services	1,428	617	42
Miscellaneous Personal Services	1,414	475	24
Paperboard Containers and Boxes	1,332	382	7
Electrical Repair Service	1,309	535	17
Other Nonprofit Organizations	1,210	514	20
Residential Care	1,198	919	48
Local, Interurban Passenger Transit	1,130	760	28

Marketing Practices of Industry Firms

Marketing practices of horticulture industry firms are summarized in Table 3.8. Participation in civic events and charitable contributions was the most commonly cited marketing practice, used by over 60 percent of nurseries, retailers and landscapers. Personal selling was the next most common practice for nurseries (48%) and landscapers (51%), while printed advertising was the second most common practice for retailers (75%). Retailers generally used a greater number of different marketing practices than the other industry groups, and over 45 percent of firms indicated that they used promotions, direct mail, and radio or television advertising. A rapidly growing medium for marketing is the Internet, and a substantial number of firms reported that they have a website.

Table 3.8. Marketing Practices of Florida Nurseries, Retailers and Landscapers, 1997.

Marketing Practice	Nurseries	Retailers	Landscapers
	Percentage of Firms Surveyed		
Participation in civic events and charitable contributions	63	85	67
Personal selling by telephone/personal visit	48	23	51
Trade magazine advertising	36	11	13
Promotions	33	64	22
Trade shows	33	18	17
Direct mail advertising	26	45	18
Printed advertising media	25	75	38
Internet website	16	41	13
Commissioned salespersons	10	8	20
Radio or television advertising	4	48	9

Business Outlook

Information on trends in business volume and the outlook for the next five years is presented in Table 3.9. Over the past five years, most firms have experienced increased sales. Among these firms, the amount of sales increased by an average of 77 percent for nurseries, 31 percent for retailers and 44 percent for landscapers, which translates into annual growth rates of 15, 6 and 9 percent, respectively. Among the minority of firms which experienced a decrease in overall sales, the average decrease was 15 to 50 percent. A smaller percentage of firms experienced increased prices over the past 5 years, and the magnitude of price increases was less than the increase in sales volume. Over the next 5 years, over two-thirds of firms in all groups expect sales to increase. Among this group, sales are expected to increase by an average of 26 to 53 percent, or 5 to 10 percent annually. Among the minority of pessimistic firms who expected sales to fall over the next 5 years, price declines of up to 36 percent were anticipated.

Table 3.9. Historical and Expected Changes in Sales and Prices for Florida Nurseries, Retailers and Landscapers, 1997.

	Nurseries	Retailers	Landscapers
	Last Five (5) Years		
Firms with sales increased	63%	77%	81%
Amount sales increased (avg)	77%	31%	44%
Firms with sales decreased	15%	8%	7%
Amount sales decreased (avg)	50%	15%	26%
Firms with prices increased	32%	51%	59%
Amount price increased (avg)	14%	13%	14%
Firms with prices decreased	13%	8%	6%
Amount price decreased (avg)	23%	39%	11%
	Expected Next Five years		
Firms that expect sales to increase	71%	88%	84%
Amount sales will increase	53%	26%	35%
Firms that expect sales to decrease	17%	3%	3%
Amount sales will decrease	36%	na	32%

4: Results for Wholesale Nurseries

Nurseries are the primary producers of products for the ornamental plant industry. According to the Florida Department of Plant industry, there were 4042 commercial wholesale or wholesale and retail nursery firms in Florida in 1997. Of the 2,157 firms contacted for the survey, 560 nursery firms were interviewed, and 29 percent were ineligible.

Sales Revenues

Florida's wholesale ornamental plant nurseries had an estimated total sales of $1.463 billion in 1997. This figure closely matches the estimated $1.450 billion for Florida greenhouse and nursery crops in the 1997 Census of Agriculture (http://www.nass.usda.gov/census/census97/volume1/vol1pubs.htm).

The distribution of sales by sales size class is presented in Table 4.1, and by firm inventory size class in Table 4.2. Over half of nursery firms reported sales in the smallest class of less than $250 thousand, and an additional 26 percent of firms reported sales of less than $1 million. About 10 percent of firms had sales of $1 to 6 million, and several higher sales categories had a single firm reported sales. In terms of plant inventory size classes, about 58 percent of total industry sales were accounted for by firms having less than 100,000 plant units in inventory according to Florida Department of Plant Industry annual inspections (Table 4.2).

Table 4.1. Distribution of Annual Sales for Florida Nurseries Surveyed, 1997.

Annual Sales Category*	Percent of Firms
Less than $250K	52
$250 to $499K	14
$500 to $999K	12
$1.0 to $1.9M	6
$2.0 to $3.9M	3
$4.0 to $5.9M	1
$6.0 to $7.9M	<1
$8.0 to $9.9M	<1
$10 to $14.9M	<1
$15 to $19.9M	<1
$20 to $25M	0
Over $25M	<1
Don't Know or Not Available	11

* "K" indicates thousands, "M" indicates millions dollars

Table 4.2. Florida Nursery Sales by Firm Inventory Size Class, 1997.

Plant Inventory Units*	Firms Sampled	Sample Sum (million $)	Estimated Total (million $)
500 to 10,000	271	46.1	222
10,001 to 100,000	175	87.3	421
Over 100,000	114	170.0	820
Total	560	303.4	1,463

* Florida Division of Plant Industry inventory classes.

Production Area

Production area managed by Florida's wholesale nurseries in 1997 is summarized in Table 4.3. Production area reported by sampled firms was over 8 thousand acres and the estimated total area statewide was over 38 thousand acres. The average production area per firm was 27 acres. Field production systems, i.e. growing plants in native soils, amounted to over 19 thousand acres, and represented 45 percent of the total growing area. Open containerized production systems amounted to 14 thousand acres, field production of woody ornamentals occupied over 17 thousand acres, and greenhouse and shade house production systems occupied 6705 acres.

Table 4.3. Production Area Managed by Florida Nurseries, 1997.

Type of Production Area	Percent of Firms Reporting	Estimated Total Area (acres)	Percent of Total Area
Field	46	17,273	45
Open Container	65	14,048	37
Greenhouse or Shade house	67	6,705	18
Total		38,026	100

Sales of Plant Product Types

Types of plant products sold by Florida nurseries are presented in Table 4.4. Tropical foliage plants or palms was the largest single category of plants sold at $503 million or 34 percent of total nursery sales. Landscape woody ornamentals, including woody shrubs, deciduous shade, flowering, or fruit trees, and evergreen trees, together accounted for $420 million in sales. Potted flowering plants or bedding plants and cut foliage or flowers accounted for $265 million or 21 percent of industry sales. Propagating liners, vines or ground covers, turfgrass and other types of ornamental plants together accounted for $255 million in sales.

Ornamental plants that are native species to Florida are an increasingly important type of plant product, with many local governments now requiring minimum percentages of native plants in new landscape construction. Some 57 percent of growers surveyed reported that at least some of their product sold was Florida native plants. Total sales of native plants in Florida were estimated at $101 million. The distribution of native plant sales by growers as a percentage of total firm sales is indicated in Table 4.5.

Table 4.4. Sales of Plant Product Types by Florida Nurseries, 1997.

Type of Plant	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Tropical foliage plants or palms	60	503	34
Woody shrubs	47	236	16
Deciduous shade, flowering or fruit trees	36	130	9
Evergreen trees	28	54	4
Potted flowering plants or bedding plants	34	251	17
Propagating liners, cuttings, or plugs	21	133	10
Vines or ground covers	31	60	4
Cut foliage or flowers	6	14	1
Turfgrass	3	7	<1
Other types of ornamental plants	15	55	4
Total		1,463	100

Table 4.5. Sales of Native Plants by Florida Nurseries, 1997.

Percentage Category of Total Firm Sales	Percentage of Firms
None	28
1% to 5%	15
6% to 10%	9
11% to 20%	5
More than 20%	27
Don't Know or Not Available	15

Regional Sales, Employment and Production Area

Information on wholesale nurseries was collected at the regional level to better understand the distribution of economic impacts within the state. Sales and employment by nurseries within seven different regions of the state are presented in Table 4.6. Estimated total sales were greatest for the lower east coast region (Palm Beach, Broward, Martin, St. Lucie counties) at $433 million, followed by the Tampa Bay region at $277 million and the central region at $251 million. Employment and production area were also highest in these three regions, although not in the same order. The Tampa Bay region had the largest number of employees (9,372) and the largest production area (12,286 acres). The lower east coast region was second in employment (7,582) and production area (8,674 acres), and the central Florida region was third (5,5291 employees, 4,868 acres).

Table 4.6. Regional Sales, Employment and Production Area for Florida Nurseries, 1997.

Region*	Total Sales (million $)	Employ-ment (persons)	Production Area (acres)			
			Field	Open Container	Greenhouse Shade house	Total
Northwest	40	1,730	776	1,074	268	2,117
Northeast	99	1,620	788	1,708	232	2,728
Central	251	5,529	2,186	1,607	1,075	4,868
Tampa Bay	277	9,372	7,204	3,487	1,594	12,286
Southwest	194	3,995	1,298	1,195	447	2,941
Lower East Coast	433	7,582	2,890	3,410	2,374	8,674
Dade County	170	3,161	2,131	1,566	714	4,411
All	1,463	32,989	17,273	14,048	6,705	38,026

* See Table 2.4 and Figure 2.1 for definition of regions.

Economic Impacts

The economic impacts of Florida's nurseries in 1997 are summarized in Table 4.7. These results are repeated here from Table 3.6. Economic output amounted to $1.791 billion, including $847 million in direct, indirect and induced impacts associated with export sales. Total value added was $1.259 billion, which included personal income of $675 million, employee compensation of $442 million and indirect business taxes paid of $40 million. The total employment impact was 30,650 jobs.

Table 4.7. Economic Impacts of Florida's Nurseries, 1997.

Type Impact*	Impact of Exports	Total Impact

Output (M$)	846.7	1,790.6
Value Added (M$)	581.8	1,259.3
Employment (jobs)	14,025	30,650
Personal Income (M$)	317.3	674.8
Employee Compensation (M$)	225.9	442.7
Indirect Business Taxes (M$)	29.2	39.9

* Impact of exports represents direct, indirect, and induced impacts of export sales; total impact represents impact of exports plus direct impacts of local/state sales.

Economic impacts of nurseries were estimated separately by sub-region within Florida, as summarized in Table 4.8. For this analysis, the total multiplier effect was applied to non-local sales within Florida as well as exports to national and international markets, and the direct multiplier was applied to local sales. The sum of impacts for these subregions were somewhat greater than for the state as a whole because a larger share of nursery sales were non-local, i.e. exported from the region to other markets within Florida. In a few cases the computed impact for a region were anomalously lower than that estimated directly from survey data, and these are indicated in the table. Output impacts were highest in the lower east coast region ($435M), closely followed by Tampa Bay ($425M), then Southwest Florida ($364M) and Central Florida ($329M). Value added, personal income and employee compensation impacts were highest in the Tampa Bay area and Southwest Florida.

Table 4.8. Regional Economic Impacts of the Florida Nursery Industry, 1997.

	Region	Non-Local Sales (million $)	Total Output Impact (M$)	Employment Impact (jobs)	Value Added Impact (M$)	Personal Income Impact (M$)	Employee Compen-sation Impact (M$)	Indirect Business Tax Impact (M$)
1	Northwest	12	36(40)*	686(1730)*	32	16	11	1
2	Northeast	53	127	1,952	93	47	35	3
3	Central	122	329	6,162	232	126	82	9
4	Tampa Bay	208	425	7,002	313	173	114	13
5	Southwest	216	364	7,852	303	165	109	12
6	Lower East Coast	130	435	4,408(7582)*	221	115	83	8
7	Dade County	150	304	4,859	183	100	69	10
	All	891	2,021	32,922	1,377	742	503	55

* Impact estimated directly from survey data where higher than computed from multiplier.

Marketing of Nursery Products

Sales of nursery products to different types of customers were assessed in the survey and results are summarized in Table 4.9. The largest customer group was, surprisingly, other growers, with over two-thirds of respondents indicating some sales to other growers, which totaled $411 million and represented 28 percent of total sales. Landscapers, interiorscapers or lawn maintenance firms were the next largest customer type, with total sales of $341 million (23%). Retail mass merchandisers, which have come to dominate the horticultural goods retailing, accounted for $215 million, and independent retail garden centers accounted for an additional $143 million. Re-wholesalers or brokers accounted for $170 million of nursery product sales. About $131 million in sales were made by nurseries directly to the public, and $51 million were to developers or property managers.

Table 4.9. Sales to Different Types of Customer by Florida Nurseries, 1997.

Type of Customer	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Landscape service firms	68	341	23
Other growers	66	411	28
Retail mass merchandisers	22	215	15
Re-wholesalers or brokers	47	170	12
Garden centers and other retailers	38	143	10
Directly to the public (homeowners)	41	131	9
Developers or property managers	24	51	3
Total		1,463	100

Nursery firms offer many other services to their customers together with their plant products as summarized in Table 4.10. The most commonly cited service was product delivery, which was offered by 63 percent of growers. Labeling of the product with identification/care tags was offered by 45 percent of firms. Horticultural consulting is an important service for many firms selling premium products to commercial customers, and was offered by 33 percent of firms. Packaging is a common practice for floricultural crops, and was offered by 28 percent of respondents overall. Landscape design and installation was offered by about one fourth of firms, but landscape maintenance was offered by only 10 percent of grower firms.

Table 4.10. Services Offered by Florida Nurseries, 1997.

Service	Percent of Firms Offering
Delivery	63
Plant identification, care tagging	45
Contract growing	33
Horticultural consulting	33
Packaging	28
Landscape design	25
Landscape installation	23
Decorative containers	20
Mail order	11
Landscape maintenance services	10

Financial Borrowing Characteristics and Needs

The financial needs of wholesale nurseries was assessed at the request of the funding partners. The importance of several factors possibly considered by managers for choosing a financial lender were scored on a scale of 1 to 10, as summarized in Table 4.11. The most important single factor indicated by respondents was the convenience or flexibility of repayment terms. The next most important factors were having competitive interest rates and a long term or personal relationship with the lender. Somewhat less important were the knowledge of the lender about the client’s business and the analytical services offered by the lender. Other factors mentioned by respondents include convenience, particularly in relation to the lender's location, hours of operation and speed of service, personal and friendly service, accessibility to decision makers, business ethnics, and banking fees, and knowledge about agriculture.

Table 4.11. Factors Considered for Choosing Financial Lenders by Florida Nurseries, 1997.

Factor	Average Score*
Other factor	9.0
Convenient or flexible repayment terms	8.1
Competitive interest rates	7.9
Long term or personal relationship	7.6
Knowledge about your business	6.6
Analytical services provided by lender	5.6

* Importance scored on scale of 1 to 10.

Grower respondents were asked about their anticipated credit needs over the next year. A majority of firms (52%) expected their credit needs to remain the same as the previous year (Table 4.12). Some 13 percent of firms expected an increased need for credit by an average amount of 2.8 percent, while similar number of firms expected a decreased need for credit, averaging a 3.2 percent decrease.

Table 4.12. Expectations for Credit Needs Next Year by Florida Nurseries, 1997.

Firms expecting credit needs to increase	77 (13%)
Percentage credit needs to increase (avg)	2.8%
Firms expecting credit needs to decrease	52 (9%)
Percentage credit needs to decrease (avg)	3.2%
Firms expecting credit needs to remain the same	300 (52%)

5: Results for Horticultural Retailers

This section summarizes results for horticultural retailers in Florida. The population of 1,478 retailer firms was taken from the Florida Division of Plant Industry, which licenses all plant product dealers in the state. A total of 225 retail firms were interviewed for the survey, of which 125 provided complete information on sales. Of the 1030 firms contacted, 31 percent were ineligible for the survey.

Product Sales

Total retail sales of plant products and related horticultural goods in Florida in 1997 were estimated at \$1.751 billion, including \$417 million for plants (24%), \$212 million for lawn and garden supplies (12%), \$125 million for lawn and garden hard goods (7%), and \$996 million for other goods (57%) (Table 5.1). Evidently, horticultural retailers are becoming more diversified in their product offerings, reflected by the large percentage of “other” unclassified goods, such as crafts and home decorating items. However, live plants were the most commonly sold type of item, reported by 72 percent of retailers surveyed, followed by other goods (42%), lawn and garden supplies (35%) and lawn and garden hard goods (29%).

Table 5.1. Sales by Horticultural Retailers in Florida, 1997.

Type of Good	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Plants	72	417	24
Lawn and garden supplies	35	212	12
Lawn and garden hard goods	29	125	7
Other goods	42	996	57
Total		1,751	100

Sales of different types of plant products by retailers are presented in Table 5.2. Woody ornamentals, including shrubs, deciduous and evergreen trees were the largest category of plants, representing 46 percent of sales. Tropical foliage and potted flowering plants together amounted to 37 percent of sales. Potted flowering plants or bedding plants were the most commonly sold type of item, reported by 85 percent of firms surveyed, followed by tropical foliage (73%), cut foliage or flowers (66%) and woody shrubs (50%). Native Florida plants were sold by 48 percent of retailers, and total retail sales were estimated at \$104 million. The distribution of native plant sales by retailers is given in table 5.3.

Table 5.2. Sales of Types of Plants by Florida Horticultural Retailers, 1997.

Type of Plant	Percent of Firms Selling	Estimated Total (million $)	Percent of Total
Shrubs	50	129	31
Potted flowering plants or bedding plants	85	86	21
Tropical foliage plants or palms	73	68	16
Cut foliage or flowers	66	51	12
Deciduous shade, flowering or fruit trees	43	49	12
Evergreen trees	43	13	3
Vines or ground covers	47	9	2
Propagating liners, cuttings, or plugs	18	6	1
Other types of ornamental plants	16	4	1
Turfgrass	23	3	1
Total		417	100

Table 5.3. Sales of Native Plants by Florida Horticultural Retailers, 1997 .

Percentage Category of Total Firm Sales	Percentage of Firms
None	10
1% to 5%	10
6% to 10%	8
11% to 20%	3
More than 20%	18
Don't know or Not available	32

Retail Sales Area

Sales area managed by horticultural retailers in Florida totaled 25.4 million square feet, including 4 million for live plants (16%), 5.6 million for lawn and garden supplies (22%), 1.2 million for lawn and garden hard goods (5%), and 14.7 million for other goods (58%) (Table 5.4).

Table 5.4. Sales Area Managed by Florida Horticultural Retailers, 1997.

Type of Retail Area	Percent of Firms Having	Average Per Firm (thousand sq.ft.)	Estimated Total Area (million sq.ft.)	Percent of Total Area
Live Plants	75	2.70	3.99	16
Lawn and garden supplies	47	3.79	5.60	22
Lawn and garden hard goods	39	0.79	1.17	5
Other goods	39	9.93	14.68	58
Total Retail Area		17.21	25.44	100

Retail Markets

Sales by horticultural retailers to different types of customers are indicated in Table 5.5. As would be expected for retailers, sales directly to the public dominated their business, representing 86 percent of total sales. However, over half of retailers also sold to commercial establishments (e.g restaurants, hotels, and offices) and to apartments and condominiums, and sales were significant to landscape services firms (landscapers, interiorscapers, lawn maintenance firms).

Services and product features offered by retailers to their customers are summarized in Table 5.6. A majority of retailers offered decorative containers (80%), plant identification or care tags (72%), and horticultural consulting (54%). Packaging, delivery or mail order was also offered by nearly half (47%) of firms. A small percentage of firms offered landscape design, installation or maintenance services.

Table 5.5. Sales for Florida Horticultural Retailers by Type of Customer, 1997.

Type of Customer	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Directly to the public (homeowners)	95	1,509	86
Commercial establishments	56	76	4
Garden centers and other retailers	19	24	1
Landscape service firms	30	61	3
Apartments and condominiums	51	71	4
Government organizations	36	10	1
Total		1,751	100

Table 5.6. Services and Product Features Offered by Florida Horticultural Retailers, 1997.

Service	Percent of Firms Offering
Decorative containers	80
Plant identification or care tags	72
Horticultural consulting	54
Packaging, Delivery or Mail order	47
Landscape design	14
Landscape installation	9
Landscape maintenance services	4

Geographic Sales

Regional sales by Florida retailers are indicated in Table 5.7. Nearly 90 percent of sales were within the local area, and another 7 percent were within Florida, so only 3 percent of sales were national ($57 million).

Table 5.7. Geographic Sales for Florida Horticultural Retailers, 1997.

Region	Percent of Firms Selling in Region	Estimated Total Sales (million $)	Percent of Total Sales
Local area	73	1,569	90
Florida	27	125	7
National	15	57	3
Total		1,751	100

Economic Impacts

Economic impacts of Florida's horticultural retailers in 1997 are summarized in Table 5.8. The total output impact was $1.789 billion, including $95 million associated with export activities. The total value added impact of $1.655B included $1.041B in personal income, $1.00B in employee compensation and $340M in indirect business taxes paid. The employment impact was 45 thousand jobs, including 2000 jobs associated with exports (Table 5.8).

Table 5.8. Economic Impacts of Florida Horticultural Retailers, 1997.

Type Impact*	Export Impact	Total Impact
Output (M$)	95.1	1,788.5
Value Added (M$)	77.4	1,655.1
Employment (jobs)	2,005	45,140
Personal Income (M$)	47.7	1,041.2
Employee Compensation (M$)	45.0	999.9
Indirect Business Taxes (M$)	13.8	339.6

* Impact of exports represents direct, indirect, and induced impacts of export sales; total impact represents impact of exports plus direct impacts of local/state sales.

6: Results for Landscape Service Firms

Florida's population of landscape service firms was estimated at 4665, based on the 5970 location units reporting to the Florida Department of Labor, divided by an average of 1.3 locations per firm. A total of 202 landscape service firms were interviewed for the survey, of which 182 provided complete information on sales. Of the 704 firms contacted for the survey, 16 percent were classified as ineligible.

Sales by Landscape Service Firms

Total sales by Florida landscape services firms in 1997 was estimated at $2.70 billion. This estimate is 2.2 times higher than the $1.23 billion value given for 1995 by the US Commerce Dept. (MIG Inc, 1998), possibly due to the large number of small firms which are overlooked by standard industry surveys. The distribution of sales by firm size class is presented in Table 6.1. Over half of total sales were accounted for by firms with under $500 thousand in annual sales.

Table 6.1. Florida Landscape Service Firm Sales and Employment by Firm Size, 1997.

Annual Sales Size Class*	Number Firms Surveyed	Total Sales (million $)	Percent of Total Sales
Under $500 thousand	127	1,419	52
$500 to $999 thousand	40	418	15
$1 to $2.4 million	22	592	22
$2.5 to $4.9 million	9	201	7
$5 to $9.9 million	4	73	3
Total	202	2,703	100**

* Classifications from ABI, Inc.; **Does not sum to 100% due to rounding.

Product and Service Sales

Sales of goods and services by landscape service firms are detailed in Table 6.2. Landscape installation services were the largest sales item at $1.129 billion or 42 percent of total sales, followed by landscape maintenance services at $632 million (23%) and landscape design services at $384 million (14%). Sales of live plants and other lawn and garden supplies together amounted to $558 million or 21 percent of total sales.

Table 6.2. Sales of Goods and Services by Florida Landscape Service Firms, 1997.

Type of Good/Service	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Live Plants	56	475	18
Lawn and garden supplies	25	83	3
Landscape maintenance services	61	632	23
Landscape design services	57	384	14
Landscape installation services	82	1,129	42
Total		2,704	100

Types of plants sold by landscape service firms are summarized in Table 6.3. Woody ornamental shrubs, deciduous and evergreen trees were the most commonly sold types of plants, together representing 64 percent of total sales. Tropical foliage or palms, vines or ground covers, turfgrass, and potted flowering or bedding plants were also sold in lesser amounts. All of these items except turfgrass were sold by a majority of firms. Native plants were sold by 78 percent of landscape services firms, and sales of native plants represented over 20 percent of total sales for 38 percent of firms surveyed (Table 6.4). Total sales of native plants by landscapers amounted to $84 million.

Table 6.3. Sales of Types of Plants by Florida Landscape Service Firms, 1997.

Type of Plant	Percent of Firms Selling	Estimated Total Sales (million $)	Percent of Total Sales
Shrubs	77	125	26
Deciduous shade, flowering or fruit trees	65	101	21
Evergreen trees	56	79	17
Tropical foliage plants or palms	66	64	13
Vines or ground covers	60	34	7
Turfgrass	42	31	7
Potted flowering plants or bedding plants	59	24	5
Cut foliage or flowers	7	9	2
Propagating liners, cuttings, or plugs	9	4	1
Other types of ornamental plants	7	3	1
Total		475	100

Table 6.4. Sales of Native Plants by Florida Landscapers, 1997.

Percentage Category of Total Firm Sales	Percent of Firms
None	13
1% to 5%	19
6% to 10%	10
11% to 20%	11
More than 20%	38
Don't know or Not available	11

Markets for Landscape Services

Sales by landscape service firms to different types of customers are presented in Table 6.5. Commercial establishments, homeowners, and developers/property managers were the largest customer groups, each representing over $600 million or 23 to 25 percent of total sales. Apartments and condominiums were also important customers, representing 17 percent of sales. Governments and other landscape service firms were smaller customers, with 6 percent and 4 percent of total sales, respectively.

Table 6.5. Sales for Florida Landscape Service Firms by Type of Customer, 1997.

Type of Customer	Percent of Firms Selling	Estimated Sales (million $)	Percent of Total Sales
Commercial establishments	73	683	25
Directly to the public (homeowners)	91	666	25
Developers or property managers	55	617	23
Apartments and condominiums	63	463	17
Government organizations	37	175	6
Other landscapers service firms	32	100	4
Total		2,704	100

Geographic Sales

Regional sales by landscape service firms are summarized in Table 6.6. Most sales (79%) were within the local area, while a lesser share (17%) were at the state level, and only 4 percent or $103 million in sales were national (outside of Florida).

Table 6.6. Geographic Sales by Florida Landscape Service Firms, 1997.

Region	Percent of Firms Selling	Estimated Sales (million $)	Percent of Total Sales
Local Area	98	2,141	79
Florida	43	459	17
National	7	103	4
Total		2,704	100

Economic Impacts

Economic impacts of Florida's landscape service industry in 1997 are summarized in Table 6.7. The output impact was estimated at $2.784 billion, including $183 million associated with export activities. The total value added impact was $2.509B, including $1.884B in personal income, $1.556B in employee compensation, and $122 million in indirect business taxes. The employment impact was 111 thousand jobs, including 5 thousand for export sales.

Table 6.7. Economic Impacts of Florida Landscape Service Firms, 1997.

Type Impact*	Impact of Exports	Total Impact
Output (M$)	183.4	2,783.9
Value Added (M$)	145.0	2,509.1
Employment (jobs)	5,385	111,413
Personal Income (M$)	100.8	1,884.1
Employee Compensation (M$)	85.0	1,556.2
Indirect Business Taxes (M$)	10.0	121.6

* Impact of exports represents direct, indirect, and induced impacts of export sales; total impact represents impact of exports plus direct impacts of local/state sales.

7: Results for Households Consumers

According to US Census figures for 1990, and projections by the University of Florida Bureau of Economic and Business Research, there were an estimated 4.04 million detached single family households in Florida in 1997. A total of 589 households were interviewed for the survey. The number of survey respondents is given by income level in Table 7.1. A total of 4,843 households were contacted for the survey, of which 30 percent were ineligible.

Table 7.1. Number of survey respondent households by income level.

Annual Household Income	Number Respondents	Percent Respondents
Less than $10,000	18	3
$10,000 to $19,999	35	6
$20,000 to $39,999	104	18
$40,000 to $59,999	110	19
$60,000 to $79,999	53	9
$80,000 or more	77	19
Don't know	37	6
Not Available	155	26
Total	589	100

Purchases of Horticultural Goods and Services

Households are by far the largest consumers of horticultural products and services. In 1997, Florida households were estimated to have purchased a total of $2.890 billion in horticultural goods and services, including $1.098 billion (38%) for live plants, $995 million (34%) for lawn and garden hard goods and equipment, and $797 million (28%) for landscape services (Table 7.2). Households spent an average of $646 per household annually on horticultural goods and services. These results were calculated to represent all households in Florida, not only survey respondent households. About three quarters of households purchased live plants and lawn and garden hard goods, while 39 percent purchased landscape services (Table 7.1). Complete lawn and garden maintenance services were purchased by 27 percent of households, and limited lawn and maintenance (mowing and trimming only) were purchased by 24 percent of households (Table 7.3). Landscape design, installation, and other services were purchased by 12 percent, 8 percent and 7 percent of households, respectively. The distribution of purchases of plants, equipment and horticultural services by households in presented in Table 7.4. Half of households purchased no or less than $100 in live plants or equipment, while approximately on third purchased $100 to $499 each of plants and equipment. Over half of households purchased no landscape services. About 6 or 7 percent of households purchased $1000 or more each of plants, equipment and services.

Table 7.2. Purchases of Horticultural Goods and Services by Florida Households, 1997.

Type of Good/Service	Percent of Households Purchasing	Average Per Household ($)	Estimated Total Purchases (million $)	Percent of Total Purchases
Live Plants	77	233	1,098	38
Lawn and garden supplies, equipment	71	211	995	34
Landscape services	39	169	797	28
Total		646	2,890	100

Table 7.3. Horticultural Services Purchased by Florida Households, 1997.

Type of Service	Percentage Households Purchasing
Landscape design services	8
Landscape installation services	12
Complete lawn and garden maintenance	27
Limited lawn and garden maintenance	24
Other type of landscape service	7

Table 7.4. Distribution of Florida Households by Value of Annual Purchases of Plants, Equipment and Horticultural Services, 1997.

Annual Purchases Category	Plants	Equipment	Services
		Percent of Households	
None	18	23	53
Less than $100	32	28	14
$100 to $499	31	29	11
$500 to $999	8	7	8
$1000 to $1999	3	4	4
$2000 to $4999	1	2	2
$5000 or Over	2	0	1
Don't Know or Not Available	5	7	8

Types of Plant Products Purchased

Purchases of different types of plants by households are summarized in Table 7.5. Potted flowering plants or cut flowers were the most commonly purchased item, bought by 62 percent of households, and represented 25 percent of the total value of purchases ($270 million). However, woody ornamental shrubs had the highest value of plant products purchased, at $315 million or 29 percent of the total. Ground covers, landscape trees, tropical foliage or palms each were purchased by 20 to 26 percent of households and represented 11 to 17 percent of total value. Native plants were purchased by 56 percent of households, and the total value of these purchases was estimated at $256 million. Native plants made up more than 20 percent of the annual plant purchases for 35 percent of households, however, 44 percent of households purchased none or weren't aware of native plants, as indicated in Table 7.6.

Table 7.5. Purchases of Types of Plants by Florida Households, 1997.

Type of Plant	Percent of Households Purchasing	Average Per Household ($)	Estimated Total Purchases (million $)	Percent of Total Purchases
Shrubs	38	70	315	29
Potted flowering plants or cut flowers	62	60	270	25
Ground covers or turfgrass	20	43	191	17
Landscape trees	25	37	170	15
Tropical foliage plants or palms	26	28	124	11
Other types of ornamental plants	10	6	28	3
Total		245	1,098	100

Table 7.6. Distribution of Purchases of Native Plants by Florida Households, 1997.

Percentage Category of Annual Plant Purchases	Percent of Households
None	13
1% to 5%	5
6% to 10%	3
11% to 20%	2
More than 20%	35
Don't know or Not available	31

Vendors for Horticultural Goods and Services

Types of vendors from whom households purchased horticultural goods and services are summarized in Table 7.7. Chain stores were the most common type of vendors, patronized by 73 percent of households, and representing $1.428 billion or 49 percent of total purchases. Independent retailers were patronized by 45 percent of respondents, and represented $957 million or 33 percent of total purchases. Landscape service firms and other outlets had smaller market shares.

Table 7.7. Purchases of Horticultural Goods and Services by Florida Households from Different Types of Vendors, 1997.

Type of Vendor	Percent of Households Purchasing	Estimated Total Purchases (million $)	Percent of Total Purchases
Garden department of chain stores	73	1,428	49
Independent retail lawn and garden centers	45	957	33
Landscapers or lawn maintenance firms	11	351	12
Other type of outlet	9	155	5
Total		2,890	100

Factors for Purchasing

Survey respondents were asked to rate the importance of various factors that might be considered for purchasing of plants on a scale of 1 to 10, with 10 being "extremely important" and 1 being "not at all important". These results are presented in Table 7.8. Durability was the most important factor, receiving an average score of 8.5, followed by maintenance requirements (7.7), product size or shape (7.3), color (7.8) and price (7.2). Whether a plant is native to Florida was rated significantly lower in importance (5.8). These results suggests that consumers are less sensitive to price than quality factors. Numerous other factors were also mentioned by household respondents, including fertilization and water requirements, overall health of the plant, tolerance to insects, disease, freezes, salt water and shade, perennial nature, toxicity and allergens, fruiting for wildlife food, invasiveness and smell.

Respondents were also asked about factors considered for selecting a vendor for purchase of horticultural goods or services, using a similar rating scheme, and these results are presented in Table 7.9. The top-rated factor was whether the vendor offered a quality assurance or satisfaction guarantee.

Table 7.8. Factors Considered for Purchasing Plants by Florida Institutions and Households, 1997.

Factor	Average Score*
Durability	8.49
Maintenance requirements	7.74
Product size or shape	7.31
Color	7.82
Price	7.20
Native plant	5.79

* Scaled 1 to 10.

Table 7.9. Factors Considered for Selecting a Vendor for Purchase of Horticultural Goods or Services by Florida Households, 1997.

Factor	Average Score*
Quality assurance or satisfaction guarantee	8.51
Service quality	8.31
Convenience	8.09
Product selection and variety	8.04
Consistent availability	7.98

* Scaled 1 to 10.

8: Results for Commercial and Institutional Consumers

This section presents survey results and analysis of the commercial and institutional consumers of horticultural products and services in Florida. This diverse group includes the businesses and organizations listed in Table 8.1. There was a total of nearly 45 thousand firms in these standard industrial categories in Florida. A total of 622 firms were sampled for the survey, of which 573 provided complete information on value of purchases. Of 3786 firms contacted for the survey, 30 percent were ineligible.

Table 8.1. Commercial/Institutional Consumer Firms Sampled.

Industry Group	Standard Industrial Code	Number Firms Sampled
Eating and drinking Places	581000	44
Cemetery subdividers and developers	655302	40
Hotels and motels	701101	100
Building maintenance services	734911	3
Public golf courses	799201	116
Elementary and secondary schools	821103	97
Colleges and Universities	822101	55
Museums, galleries and botanical gardens	840000	55
Religious organizations	866110	19
General government	910000	93
Total		622

Table 8.2. Employment by Florida Institutions Surveyed, 1997.

Number Employees	Number of Firms	Percent of Firms
1 to 4	100	16
5 to 9	88	14
10-19	137	22
20-49	127	20
50-99	76	12
100 or more	85	14
Not available or Don't know	13	2

Value of Purchases

Commercial and institutional consumers in Florida purchased an estimated $195 million in horticultural goods and services in 1997, including $66 million for live plants (34%) , $72 million for lawn and garden hard goods (37%), and $57 million for landscape services (29%) (Table 8.3). Firms purchased an average of $4,355 annually in horticultural goods and services. Eighty two percent of firms purchased live plants, 72 percent purchased lawn and garden hard goods, and 54 percent purchased landscape services. Among landscape services, nearly half of firms (48%) purchased complete lawn and garden maintenance services, while a somewhat lesser proportion (41%) purchased landscape installation services, and about one-quarter of firms purchased landscape design services (23%), limited lawn and garden maintenance (24%) and other types of landscape services (19%) (Table 8.4).

Table 8.3. Purchases of Horticultural Goods and Services by Florida Institutions, 1997.

Type of Good/Service	Percent of Firms Purchasing	Average Purchases Per Firm ($)	Estimated Total Purchases (million $)	Percent of Total Purchases
Live Plants	82	1,474	66	34
Lawn and garden hard goods	72	1,608	72	37
Landscape services	54	1,273	57	29
Total		4,355	195	100

Table 8.4. Services Purchased by Florida Commercial/Institutional Consumers, 1997.

Type of Service	Number Firms	Percentage Firms
Landscape design services	146	23
Landscape installation services	256	41
Complete lawn and garden maintenance	301	48
Limited lawn and garden maintenance	149	24
Other type of landscape service	119	19

The distribution of annual purchases of plants, equipment and horticultural services by institutions is indicated in Table 8.5. Half of firms purchased between $100 and $4999 in live plants, while 38 percent of firms purchased this volume of equipment, and 31 percent purchased this much in services. The percentage of firms which did not make any purchases was 8 percent for plants, 15 percent for equipment and 33 percent for services, while the percentage of firms which purchased over $20,000 was 1 percent for plants, 3 percent for equipment and services.

Table 8.5. Distribution of Annual Purchases of Plants, Equipment and Horticultural Services by Florida Institutions, 1997.

Annual Purchases Category	Plants	Equipment	Services
		Percent of Firms	
None	8	15	33
Less than $100	5	7	9
$100 to $499	14	11	4
$500 to $999	13	7	3
$1000 to $1999	8	5	7
$2000 to $4999	15	8	8
$5000 or over	21	29	18
$5000 to $9,999	4	1	2
$10,000 to $14,999	1	0	1
$15,000 to $19,999	0	0	0
Over $20,000	1	3	3
Don't Know or Not Available	10	13	13

Purchases of horticultural goods and services by institutions and landscape area managed are detailed by firm size according to number of employees in Table 8.6. The bulk of purchases and landscape area was accounted for by firms having less than 20 employees.

Table 8.6. Purchases of Horticultural Goods/Services and Landscape Area of Florida Institutions, by Firm Size, 1997.

Number of Employees*	Percent of Firms	Value of Purchases (million $)	Landscape Area (thousand acres)
1 to 4	20	31.7	534
5 to 9	15	28.8	235
10 to 19	16	36.8	226
20 to 49	24	52.6	236
50 to 99	14	17.0	124
100 to 249	7	18.9	48
250 to 499	1	3.3	13
500 to 999	1	4.1	9
1,000 to 4,999	1	1.7	24
5,000 to 9,999	0	0.0	0
10,000 or more	<1	0.4	5
Total		195	1,455

* Firm size classification from ABI, Inc.

Types of Plants Purchased

Institutions purchased a total of $66 million in plants in 1997. Of this total, 50 percent were for woody ornamental shrubs and deciduous and evergreen trees, 30 percent was for potted flowering plants, bedding plants, tropical foliage or palms, and cut foliage or flowers, and 19 percent was for turfgrass, vines or ground covers (Table 8.4). Shrubs and potted flowering plants or bedding plants were the most commonly purchased items, by over 60 percent of respondents, while all other items were purchased by less than half of respondents. Native plants were purchased by 65 percent of firms, at a total value of $12 million.

Table 8.5. Types of Plants Purchased by Florida Institutions, 1997.

Type of Plant	Percent of Firms Purchasing	Estimated Total (million $)	Percent of Total Purchases
Shrubs	62	16	24
Potted flowering plants or bedding plants	61	10	15
Deciduous shade, flowering or fruit trees	40	11	17
Turfgrass	43	8	13
Tropical foliage plants or palms	43	9	13
Evergreen trees	27	6	9
Vines or ground covers	34	4	6
Cut foliage or flowers	18	2	2
Other types of ornamental plants	8	1	1
Total		66	100

Vendors Purchased From

Purchases by institutions from different vendors are summarized in Table 8.6. Independent retail lawn and garden centers were the most common type of vendor purchased from, reported by 50 percent of firms, while all other types of vendors were used by less than 40 percent of firms. However, growers were the most important source in terms of value, accounting for 37 percent of total purchases, followed by independent retailers (25%), and landscapers (18%).

Table 8.6. Purchases for Florida Institutions, by Type of Vendor, 1997.

Type of Vendor	Percent of Firms Purchasing	EstimatedT otal Purchases (million $)	Percent of Total Purchases
Growers	38	73	37
Independent retail lawn and garden centers	50	48	25
Landscapers or lawn maintenance firms	27	34	18
Brokers or distributors	16	19	10
Garden department of chain stores	34	14	7
Other type of outlet	6	7	4
Total		195	100

Regional Purchases

Institutions purchased most (83%) of horticultural goods and services from local sources, and a much smaller portion from state-level (15%) or national (2%) sources (Table 8.7).

Table 8.7. Regional Purchases by Florida Institutions, 1997.

Region	Percent of Firms Purchasing	Estimated Total (million $)	Percent of Total Purchases
Local area	91	161	83
Florida	29	30	15
National	8	4	2
Total		195	100

Factors for Purchasing

Institutional consumers were asked to rate various factors that might be considered when purchasing plants, using a scale of 1 to 10, with 10 being "very important" and 1 being "not at all Important". The most important factor was durability of the plant, receiving an average score of 8.7 (Table 8.8). The next most important factors were maintenance requirements (8.4), product size or shape (7.8), price (7.8), color (7.5), and whether the plant is native (6.3). These results are very consistent with those for household consumers (Table 7.7). Numerous other miscellaneous considerations were mentioned by respondents, including availability, drought resistance, heat tolerance, disease and pest resistance, health, water requirements, safety, salt tolerance, wildlife value, cultural significance, fragrance, plant grade standards, and general hardiness.

Table 8.8. Factors Considered for Purchasing Plants by Florida Institutions, 1997

Factor	Average Score*
Durability	8.70
Maintenance requirements	8.44
Product size or shape	7.81
Price	7.76
Color	7.47
Native plant	6.28

* Importance scored on scale of 1 to 10

Business Outlook

It is expected that purchases of horticultural goods and services by the commercial consumer sector will be determined by general business conditions. Respondents were asked about their intentions for purchasing of horticultural goods and services over the next five years. A majority of firms (62%) indicated that they expected to increase their purchases, and that the amount of purchases would increase by 5 percent, or approximately 1 percent annually (Table 8.9). On the other hand, a significant minority of respondents (31%) said that they would purchase less, and that the amount of purchases would decrease by 10 percent.

Table 8.9. Expected Changes in Purchases of Horticultural Goods/Services Over Next Five Years by Florida Institutions, 1997.

Percentage of firms expecting purchases to increase	62
Percentage purchases will increase	5
Percentage of firms expecting purchases to decrease	10
Percentage purchases will decrease	31

Appendix-Questionnaire for Wholesale Nurseries

The text for the questionnaire used for wholesale nurseries and the coding for the computer-assisted telephone interview software is presented as follows. This is given as an example of the questionnaire format used for interviews with all other survey groups (horticultural retailers, landscape service providers, residential households, institutional/commercial consumers).

>q2< What is your position in this organization?
[return]
[loc 17/1]
________________ [allow 20]
===>

>q3< How many years has this company been in business? (1-99)
<1-99>
<-8> Don't know
<-9> Not available
===>

>q4a< How many separate locations does this company have for its production facilities?
INTERVIEWER: IF ONLY ONE LOCATION, ASK THEM, "What is the nearest city to your one location?" IF MORE THAN 5 LOCATIONS,
TYPE '9999'.
<1> [specify]
<2-5> [goto q4b]
<9999> More than 5 [goto q6a]
<-8> Don't know
<-9> Not available
===> [goto q6a]

>q4b< Please tell me the nearest cities to all of your locations.
<1> LOCATION ONE: [specify]
<-8> Don't know
<-9> Not available
===>

>q4c< (Please tell me the nearest cities to all of your locations.)
<1> LOCATION TWO: [specify]
<-8> Don't know
<-9> Not available
===>

>j1< [if q4a eq <2>][goto q6a][endif]

>q4d< (Please tell me the nearest cities to all of your locations.)
<1> LOCATION THREE: [specify]
<-8> Don't know
<-9> Not available
===>

>j2< [if q4a eq <3>][goto q6a][endif]

>q4e< (Please tell me the nearest cities to all of your locations.)
<1> LOCATION FOUR: [specify]
<-8> Don't know
<-9> Not available
===>

>j3< [if q4a eq <4>][goto q6a][endif]

>q4f< (Please tell me the nearest cities to all of your locations.)
<1> LOCATION FIVE: [specify]
<-8> Don't know
<-9> Not available
===>

>q6a< Now I need you to tell me about the area occupied for theproduction of ornamental crops by your business last year (calendar year 1997) for three kinds of production facilities...How many acres were occupied for Field (in ground) Production?
INTERVIEWER: IF LESS THAN ONE, PUT ONE.
<0-99999>
<-8> Don't know
<-9> Not available
===>

>q6b< How many acres were occupied for Open container Production? INTERVIEWER: IF LESS THAN ONE, PUT ONE.
<0-99999>
<-8> Don't know
<-9> Not available
===>

>q6c< How many acres were occupied for Greenhouse or shade house Production? INTERVIEWER: IF LESS THAN ONE, PUT ONE.
<0-99999>
<-8> Don't know
<-9> Not available
===>

>q7a< How many permanent full-time employees were employed by your business last year, including management and family members working in the business?
<0-99999>
<-8> Don't know
<-9> Not available
===>

>q7b<   How many additional temporary or part-time employees were employed by your business last year?
<0-99999>
<-8> Don't know
<-9> Not available
===>

>q8a1< Please tell me which of the following types of ornamental plant products were grown or marketed by your company last year. Did you grow or market Deciduous shade, flowering or fruit trees?
<1> Yes [goto q8a2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8b1]

>q8a2< And what was the percentage of your total sales for Deciduous shade, flowering and fruit trees?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8b1< Did you grow or market Evergreen trees?
<1> Yes [goto q8b2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8c1]

>q8b2< And what was the percentage of your total sales for Evergreen trees?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8c1< Did you grow or market Shrubs?
<1> Yes [goto q8c2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8d1]

>q8c2< And what was the percentage of your total sales for Shrubs?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8d1< Did you grow or market Tropical foliage plants or palms?
<1> Yes [goto q8d2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8e1]

>q8d2< And what was the percentage of your total sales for Tropical foliage plants or palms?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8e1< Did you grow or market Vines or ground covers?
<1> Yes [goto q8e2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8f1]

>q8e2< And what was the percentage of your total sales for Vines or ground covers?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8f1< Did you grow or market Potted flowering plants or bedding plants?
<1> Yes [goto q8f2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8g1]

>q8f2< And what was the percentage of your total sales for Potted flowering plants or bedding plants?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8g1<   Did you grow or market Cut foliage or flowers?
<1> Yes [goto q8g2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8h1]

>q8g2< And what was the percentage of your total sales for Cut foliage or flowers?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8h1< Did you grow or market Propagating liners, cuttings, or plugs?
<1> Yes [goto q8h2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8i1]

>q8h2< And what was the percentage of your total

sales for Propagating liners, cuttings, or plugs?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8i1< Did you grow or market Turfgrass?
<1> Yes [goto q8i2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q8j1]

>q8i2< And what was the percentage of your total sales for Turfgrass?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q8j1< Did you grow or market Any other type of ornamental plant product?
<1> Yes [specify][goto q8j2]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q9]

>q8j2< And what was its percentage of your total sales in 1997?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q9< What percentage of your total sales are considered native plants or plants which were present in Florida prior to European settlement? INTERVIEWER: READ LIST
<1> None
<2> 1% to 5%
<3> 6% to 10%
<4> 11% to 20%
<5> more than 20%
<-8> Don't know
<-9> Not available
===>

>q10a< Please tell me which of the following services or product features are offered by your company? Do you offer ...Packaging?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10b< Do you offer ...Delivery?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10c< Do you offer ...Mail order?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10d< Do you offer ...Plant identification/care tagging?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10e< Do you offer ... Decorative containers?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10f< Do you offer ... Contract growing?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10g< Do you offer ...Horticultural consulting?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10h< Do you offer ...Landscape design?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10i< Do you offer ...Landscape installation?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q10j< Do you offer ...Landscape maintenance services?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q11a< Now, please tell me which of the following types of customers your products are sold to. Do you sell to...Other growers?

<1> Yes [goto q11b]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11c]

>q11b< What is the percentage of your sales that are to other growers?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11c< Do you sell to Landscapers, interiorscapers or lawn maintenance firms?

<1> Yes [goto q11d]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11e]

>q11d< What is the percentage of your sales that are to Landscapers, interiorscapers or lawn maintenance firms?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11e< Do you sell to Retail mass merchandisers?

<1> Yes [goto q11f]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11g]

>q11f< What is the percentage of your sales that are to Retail mass merchandisers?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11g< Do you sell to Retail garden centers and other retailers?

<1> Yes [goto q11h]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11i]

>q11h< What is the percentage of your sales that are to Retail garden centers and other retailers?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11i< Do you Retail directly to the public?

<1> Yes [goto q11j]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11k]

>q11j< What is the percentage of your sales that are retailed directly to the public?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11k< Do you sell to Re-wholesalers or brokers?

<1> Yes [goto q11l]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q11m]

>q11l< What is the percentage of your sales that are to Re-wholesalers
or brokers?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q11m< Do you sell to Developers or property managers?

<1> Yes [goto q11n]
<2> No
<-8> Don't know
<-9> Not available
===> [goto q12a]

>q11n< What is the percentage of your sales that are to Developers or property managers?

<1-100>
<-8> Don't know
<-9> Not available
===>

>q12a< Which of the following marketing practices does your company use to generate new business? Do you do... Personal selling by telephone or personal visits?

<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12b< Do you have... Commissioned salespersons?

<1> Yes
<2> No

<-8> Don't know
<-9> Not available
===>

>q12c< Do you use... Promotions such as price discounts or offer special services?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12d< Do you use...... Trade shows?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12e< Do you use...... Direct mail advertising?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12f< Do you use...... Trade magazine advertising?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12g< Do you use...... Printed advertising media for the public such as magazines, newspapers, brochures?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12h< Do you use...... Radio or television advertising?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12i< Do you have a... Computer website?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q12j< Do you use...... Participation in civic events and making charitable contributions?
<1> Yes
<2> No
<-8> Don't know
<-9> Not available
===>

>q13a< Next, I would like you to tell me the percentage of your total sales are to the following geographic regions? What is the percentage of sales within the Local area which includes the city or county, or within a radius of 50 miles
<0-100>
<-8> Don't know
<-9> Not available
===>

>q13b< What is the percentage of sales within Florida but outside local area?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q13c< What is the percentage of sales that are National meaning other US states besides Florida?
<0-100>
<-8> Don't know
<-9> Not available
===>

>q13d< What is the percentage of sales that are International or to foreign countries.
<0-100>
<-8> Don't know
<-9> Not available
===>

>q14a< Over the last 5 years, how have your business's sales changed? Have they increased or decreased? INTERVIEWER: DO *NOT* READ LIST. DON'T LET THEM KNOW THAT "STAY EXACTLY THE SAME IS AN OPTION", BUT IF THEY INSIST THAT THE PERCENTAGE STAYED EXACTLY THE SAME, TYPE 3.
<1> Increased [goto q14b]
<2> Decreased [goto q14c]
<3> Stayed exactly the same
<-8> Don't know
<-9> Not available
===> [goto q15a]

>q14b< What percentage have your business's sales increased?
<0> Less than 1 percent
<1-999>
<-8> Don't know
<-9> Not available
===> [goto q15a]

>q14c< What percentage have your business's sales decreased?
<0> Less than 1 percent
<1-999>

<-8> Don't know
<-9> Not available
===>

>q15a< Over the last 5 years, how have prices for your products changed? Have they increased or decreased? INTERVIEWER: DO *NOT* READ LIST. DON'T LET THEM KNOW THAT "STAY EXACTLY THE SAME IS AN OPTION", BUT IF THEY INSIST THAT THE PERCENTAGE STAYED EXACTLY THE SAME, TYPE 3.
<1> Increased [goto q15b]
<2> Decreased [goto q15c]
<3> Stayed exactly the same
<-8> Don't know
<-9> Not available
===> [goto q16a]

>q15b< What percentage have your products' prices increased?
<0> Less than 1 percent
<1-999>
<-8> Don't know
<-9> Not available
===> [goto q16a]

>q15c< What percentage have your products' prices decreased?
<0> Less than 1 percent
<1-999>
<-8> Don't know
<-9> Not available
===>

>q16a< Over the next 5 years, what is your expectation for sales for your business? Will they increase or decrease? INTERVIEWER: DO *NOT* READ LIST. DON'T LET THEM KNOW THAT "STAY EXACTLY THE SAME IS AN OPTION", BUT IF THEY INSIST THAT THE PERCENTAGE STAYED EXACTLY THE SAME, TYPE 3.
<1> Increased [goto q16b]
<2> Decreased [goto q16c]
<3> Stayed exactly the same
<-8> Don't know
<-9> Not available
===> [goto q17a]

>q16b< What percentage will your business's sales will increase?
<0> Less than 1 percent
<1-999>
<-8> Don't know
<-9> Not available
===> [goto q17a]

>q16c< What percentage will your business's sales will decrease?
<0> Less than 1 percent
<1-999>
<-8> Don't know
<-9> Not available
===>

>q17a< What is the name of the financial institution you currently use that is most important for borrowing money for your business?
<1> FIRST FINANCIAL INSTITUTION [specify]
<-8> Don't know
<-9> Not available
===>

>q17b< What is the second most important financial institution for your business?
<1> SECOND FINANCIAL INSTITUTION [specify]
<2> No others [goto q18a]
<-8> Don't know
<-9> Not available
===>

>q17c< What is the third most important financial institution for your business?
<1> THIRD FINANCIAL INSTITUTION [specify]
<2> No others [goto q18a]
<-8> Don't know
<-9> Not available
===>

>q17d< What is the fourth most important financial institution for your business?
<1> FOURTH FINANCIAL INSTITUTION [specify]
<2> No others
<-8> Don't know
<-9> Not available
===>

>q18a< Please rate the following reasons for choosing a financial institution on a scale of 1 to 10 with 10 being "extremely important" and 1 being "not at all important". How do you rate competitive interest rates?
<1-10>
<-8> Don't know
<-9> Not available
===>

>q18b< How would you rate knowldege that the lender has about your type of business? (10 is extremely important, 1 is not at all important)
<1-10>
<-8> Don't know
<-9> Not available
===>

>q18c< How would you rate a long term or personal relationship with lender representative? (10 is extremely important, 1 is not at all important)
<1-10>
<-8> Don't know
<-9> Not available

===>

>q18d< How would you rate Convenient or flexible repayment terms (10 is extremely important, 1 is not at all important)

<1-10>
<-8> Don't know
<-9> Not available
===>

>q18e< How would you rate Analytical services provided by lender (10 is extremely important, 1 is not at all important)

<1-10>
<-8> Don't know
<-9> Not available
===>

>q18f< Do you have anything else you consider important in choosing a financial institution?

<1> Yes [specify]
<2> No [goto q19]
<-8> Don't know
<-9> Not available
===>

>q18g< And how important do you consider that? (10 is extremely important, 1 is not at all important)

<1-10>
<-8> Don't know
<-9> Not available
===>

>q19< How satisfied are you with your primary financial lender? Please rate if on a scale of 1 to 10, with 10 being "very satisfied" and 1 being "very dissatisfied".

<1-10>
<-8> Don't know
<-9> Not available
===>

>q20< In the next year, do you expect your credit needs to increase, decrease or remain the same as the past year?

<1> Increase [goto q21a]
<2> Decrease [goto q21b]
<3> Remain the same
<4> Don't know
<-8> Don't know
<-9> Not available
===> [goto q22]

>q21a< By how much do you expect your credit needs to INCREASE? INTERVIEWER: READ LIST:

<1> 1% to 5%
<2> 6% to 10%
<3> 11% to 20%
<4> more than 20%
<-8> Don't know
<-9> Not available
===> [goto q22]

>q21b< By how much do you expect your credit needs to DECREASE? INTERVIEWER: READ LIST:

<1> 1% to 5%
<2> 6% to 10%
<3> 11% to 20%
<4> more than 20%
<-8> Don't know
<-9> Not available
===>

>q22< Which of the following categories represents your company's gross sales in 1997? INTERVIEWER: READ LIST:

<1> less than $250 thousand
<2> $250 to $499 thousand
<3> $500 to $999 thousand
<4> $1 to $1.99 million
<5> $2 to $3.99 million
<6> $4 to $5.99 million
<7> $6 to $7.99 million
<8> $8 to $9.99 million
<10> $10 to 14.9 million
<11> $15 to $19.9 million
<12> $20 to $25 million
<13> $25 million or over
<-8> Don't know
<-9> Not available
===>