

Economic Contributions of the Florida Environmental Horticulture Industry in 2010

Sponsored Project Report to the Florida Nursery Growers and Landscape Association

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Executive Summary

The economic impacts of the environmental horticulture industry in Florida in 2010 were evaluated and compared with results from previous studies done for 1997, 2000 and 2005. Telephone and internet surveys were conducted with over 1,600 industry firms, including wholesale nurseries, landscape services, horticultural retailers, and allied horticultural suppliers. Based on expanded survey results, total industry sales in 2010 were estimated at \$12.33 billion, including \$6.04 billion for landscape services, \$4.27 billion for wholesale nurseries, \$1.47 billion for horticultural retailers, and \$558 million for allied horticultural suppliers. Sales for horticultural retailers were independently estimated at \$4.49 billion based on gross sales reported to the Florida Department of Revenue. Estimated total direct employment in the industry was 204,762 jobs, including 157,102 fulltime/permanent jobs and 47,660 temporary, part-time or seasonal jobs, with over half (54%) of all jobs in the landscape sector. Nursery sales to markets outside of Florida were about \$2.36 billion, or 55 percent, and 66 percent of allied supplier sales were exported from the state, while only 2 percent of landscape service sales and 8 percent of retailer sales occurred out of state.

The largest plant product types for nursery growers were tropical foliage plants, representing 35 percent of total sales, followed by potted flowering/bedding plants (22%), and shrubs (10%). Florida native plants represented about 7.8 percent of nursery sales. In the landscape services sector 44 percent of sales were for landscape maintenance, 23 percent for landscape installation, and 8 percent for design (landscape designers and architects). In the horticultural retailing sector, over half (51%) of sales were for live plants, 14 percent were for horticultural supplies, 7 percent were for hard goods, and 29 percent were for miscellaneous other goods.

Total economic impacts of the environmental horticulture industry were estimated using multipliers from a regional input-output model for Florida constructed with the *IMPLAN* software (MIG, Inc.). Economic multipliers estimate the economic activity that occurs in other sectors of Florida's economy through the industry supply chain (indirect effects) and spending by employee households and governments (induced impacts). Total 2010 employment impacts in the Florida economy, including regional multiplier effects, were estimated at 244,188 fulltime and part-time or seasonal jobs, including 98,439 for nurseries, 112,726 for landscape services, 28,800 for horticultural retailers and 4,223 for allied horticultural suppliers (Figure ES1). Total output (revenue) impacts for the State were estimated at \$16.29 billion. Total value added impacts were \$9.90 billion, including \$6.93 billion in labor income (employee wages, salaries, and proprietor income), \$2.30 billion in other property type income (rents, interest, royalties, dividends, etc.), and indirect business taxes of \$668 million paid to local, state, and federal governments. Since the previous study for 2005, total output impacts increased by over \$2 billion, while employment impacts decreased by nearly 80 thousand jobs.

Economic impact estimates were also developed for the environmental horticulture industry in all of Florida's 67 counties, based on each county's share of total statewide direct employment. The top six counties for employment impacts in 2010 (excluding allied suppliers), were Miami-Dade (38,508), Orange

(23,947), Palm Beach (18,453), Hillsborough (15,887), Broward (15,411) and Volusia (11,419), followed by Lee, Duval, Lake and Pinellas, as shown in Figure ES2.

Finally, the study evaluated the impacts on the horticulture industry from major freeze events that occurred in January and December, 2010. Some 69 percent of surveyed nurseries, 43 percent of landscape businesses and 36 percent of retailers were impacted by these freezes, and total freeze damages were estimated at \$472 million.

Figure ES1. Total employment impacts of environmental horticulture industry sectors in Florida in 2010.

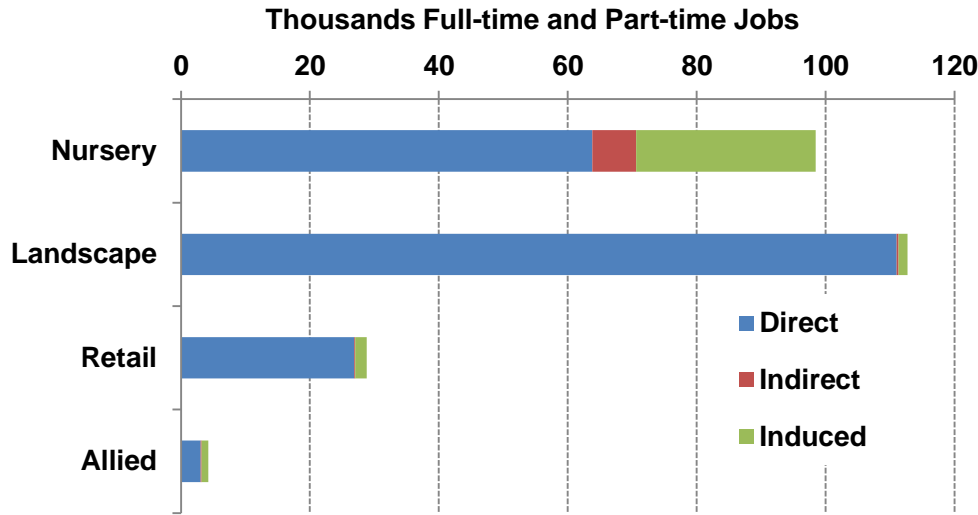
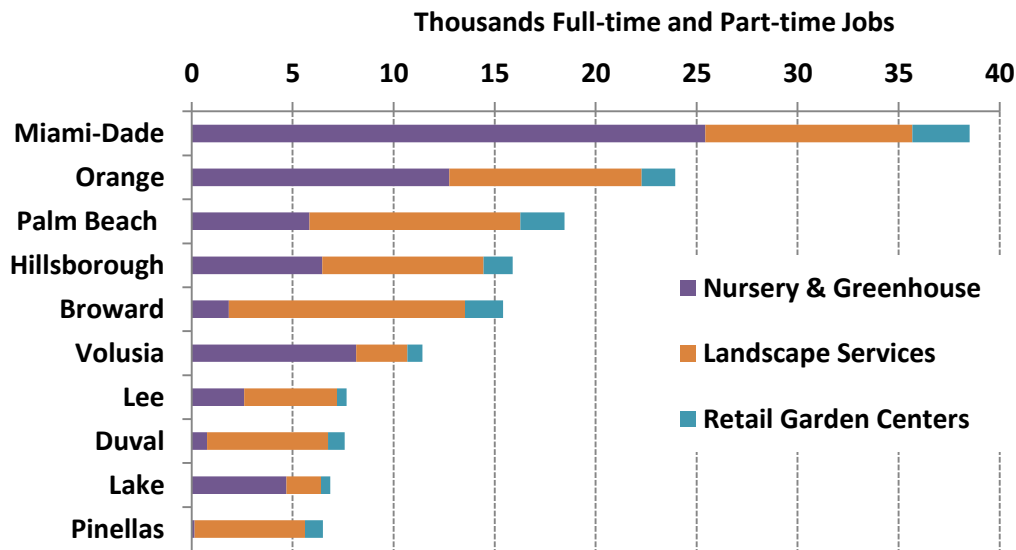


Figure ES2. Total employment impacts of the environmental horticulture industry in the top-ten Florida counties in 2010.



Acknowledgments

This research project was sponsored by the Florida Nursery, Growers and Landscape Association (FNGLA), Orlando, Florida, under the leadership of the FNGLA Board of Directors. The telephone surveys were conducted by the University of Florida, Florida Survey Research Center, under supervision of Dr. Michael Scicchitano. Finally, this study was made possible by the hundreds of business owners and professional managers in the Florida environmental horticulture and allied industries who responded to the surveys and shared their company information.

Introduction

The environmental horticulture or “Green” industry encompasses a wide range of businesses, including wholesale nursery and greenhouse producers, lawn and garden supplies and equipment manufacturing and wholesale trade, landscape design, installation and maintenance services, lawn and garden stores, and other retail establishments selling plants and related lawn and garden goods. In terms of overall industry value, Florida is a leading state, ranked second only to California in the U.S. According to a recent study¹ for 2007-08, Florida’s Green industry had total employment impacts of 147,795 jobs, output impacts of \$10.0 billion and value added impacts of \$7.1 billion. These results represented significant increases in Florida since previous studies done for 2005².

Nursery plants are one of the largest agricultural commodity groups in Florida, along with fruits, vegetables and forest products³. According to the Census of Agriculture for 2007, the state of Florida had over 4,700 commercial nursery and greenhouse farms, with production area of 141,724 acres in the open, and 338 million square feet under glass or other protective cover, total sales of \$2.116 billion, and capital assets in land, buildings and equipment averaging \$1.18 million per farm⁴. Between January 2001 and December 2010, employment by Florida’s horticulture industry grew by 11.15 percent, or at an average annual rate of 0.88 percent (Figure 1).

The present study was undertaken to evaluate the economic impacts of the environmental horticulture industry in Florida for 2010. The analysis used methods similar to those employed in previous studies in order to facilitate comparisons of growth over time.

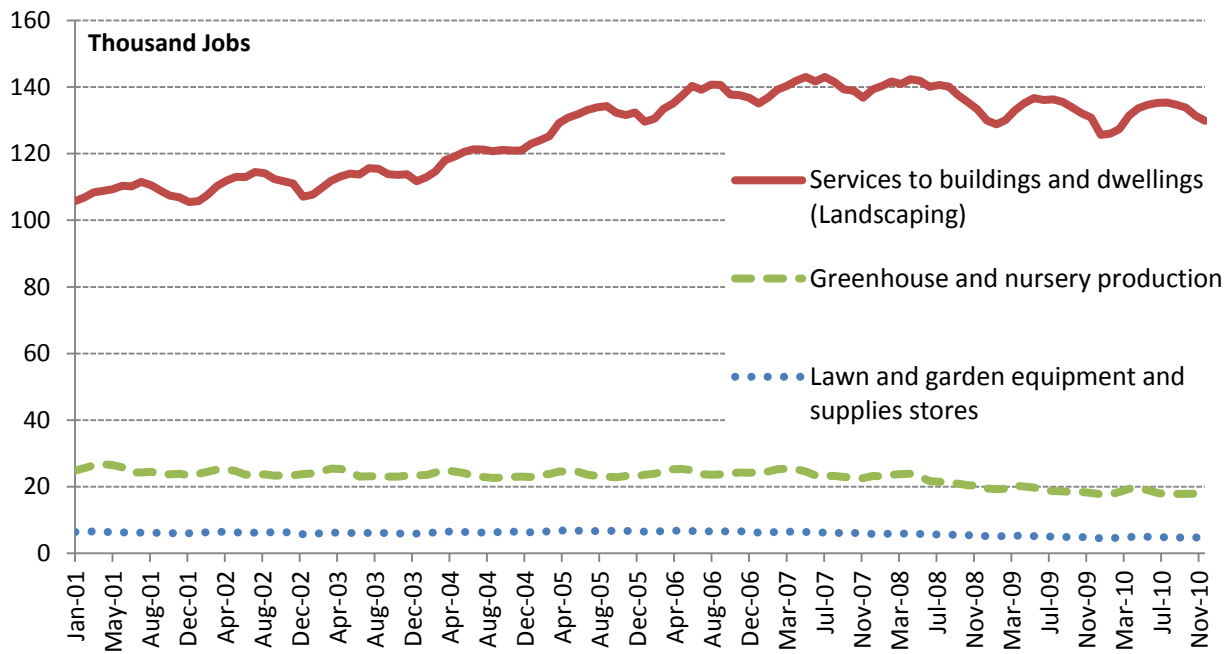
¹ Economic Impacts of the Green Industry in the United States in 2007-08. A.W. Hodges, C. R. Hall and M.A. Palma; available at <http://www.fred.ifas.ufl.edu/economic-impact-analysis/pdf/US-green-industry-in-2007.pdf>

² Economic Impacts of the Florida Environmental Horticulture Industry, 2005. A.W. Hodges and J.J. Haydu, University of Florida/IFAS, Food & Resource Economics Department, Gainesville, Sept. 2006; available at <http://www.fred.ifas.ufl.edu/economic-impact-analysis/pdf/FE67500.pdf>

³ Economic Contributions of Agriculture, Natural Resources, Food and Kindred Product Manufacturing, Distribution and Service Industries in 2008. A.W. Hodges and M.Rahmani. University of Florida/IFAS, Gainesville, 2010; available at <http://www.fred.ifas.ufl.edu/economic-impact-analysis/pdf/FE82900.pdf>

⁴ U.S. Department of Agriculture, National Agricultural Statistics Service. 2007 *Census of Agriculture*. Florida State and County Data, vol. 1, Geographic Area Series, Part 9, AC-07-A-9, Washington, D.C., 2009.

Figure 1. Florida environmental horticulture industry direct employment, 2001–2010.



Source: Florida Agency for Workforce Innovation, Quarterly Census of Employment and Wages.

Methods

Estimation of the economic value of Florida’s environmental horticultural industry was based upon information obtained from telephone and internet surveys of nursery producers, landscape service firms, horticultural retailers and allied horticultural suppliers conducted during April-June, 2011. Information was collected on annual sales, employment, types of goods or services offered, production or retail area, state and regional trade, types of customers or market outlets, marketing practices used, opportunities for growth, threats to the industry, and losses to freeze events in January and December of 2010. All survey information represented business results for 2010. Information on annual sales was collected as either a specific value or as a range of values. In addition, an open-ended question solicited statements by respondents regarding the impacts of their business and general issues in the industry.

A telephone survey of the business population of nurseries, landscape services firms and horticultural retailers was conducted during April-June, 2011. The telephone interviews were done under subcontract by the Florida Survey Research Center of the University of Florida-Department of Sociology, using a computer-assisted system to dial telephone numbers, generate questions in the proper sequence, and record respondents’ answers, as well as information on interview time/date and the disposition of all calls. Firms contacted for this survey were drawn in random order from the population lists. A copy of the telephone survey questionnaire for wholesale nurseries is provided in the Appendix. All firms participating in the survey were qualified as having produced or sold horticultural products or services in 2010, and the individual respondent was qualified as being knowledgeable about the general business practices and

management of the company. In cases where a qualified respondent was not immediately available, the interviewers arranged to call back at another time.

A separate internet survey was conducted with firms for whom email addresses were available. Surveyed firms were contacted by email, and provided with an electronic link to the online survey at the *SurveyMonkey* website (www.SurveyMonkey.com). Reminder messages were sent to firms that had not responded to the survey two, four and six weeks after the initial contact. Every effort was made to avoid contacting firms via both the telephone and internet surveys.

Lists of nursery and retailer firms for the telephone survey were obtained from the Florida Department of Agriculture, Division of Plant Industry. All firms in Florida that produce or sell plant products are legally required to register with this agency. The eligible population of nursery firms was considered to be those firms classified as “wholesale” or “wholesale and retail” operations, and having an inventory of at least 1,000 plants. A list of Florida landscape services businesses was obtained from the *OneSource* database. A list of allied supplier firms was obtained from the membership rolls of the Florida Nursery Growers and Landscape Association (FNGLA). The assembled lists included 6,114 wholesale nurseries, 11,051 landscape services firms, 3,180 horticultural retailers (stock dealers), and 297 allied suppliers as shown in Table 1.

Table 1. Business population, number of survey respondents, response rate, and percentage of qualified businesses in the Florida environmental horticulture industry in 2010.

	Wholesale Nurseries	Landscapers	Retailers	Allied Suppliers	All Groups
Business population	6,114	11,051	3,180	297	20,642
Survey respondents	730	462	414	71	1,677
Internet	325	63	99	71	558
Telephone	405	399	315		1,119
Overall response rate	11.9%	5.9%	11.2%	24.1%	9.3%
Telephone survey sample (numbers called)	4,520	7,649	2,816	0	14,985
Number disqualified businesses*	1,884	2,524	927	na	5,335
Percent disqualified	41.7%	33.0%	32.9%	na	35.6%
Email survey sample	1,599	196	869	295	2,959
Number of respondent inactive (disqualified)*	107	4	45	9	165
Percent inactive	24.8%	6.0%	31.0%	11.0%	22.8%
Total number qualified businesses	3,835	7,479	2,147	263	13,724
Percent qualified businesses	62.7%	67.7%	67.5%	88.4%	66.5%
Respondents reporting sales	616	390	327	48	1,381
Respondents reporting fulltime employment	663	452	384	60	1,559
Respondents reporting part-time/seasonal employment	577	431	369	37	1,414

* Businesses disqualified due to non-working number, wrong number, no answer, or inactive (no sales) in 2010.

A total of 14,985 firms were contacted for the telephone survey and 2,959 firms for the internet survey. For telephone survey calls attempted, 36 percent (5,335) of telephone numbers were disqualified for the survey because of wrong or non-working number, no answer, or did not have sales in 2010. A total of 1,677 firms provided valid responses to the surveys, including 730 nurseries, 462 landscape service firms,

414 horticultural retailers, and 71 allied suppliers, with 558 firms responded to the internet survey and 1,119 firms responded to the telephone survey (Table 1). The overall response rate was 9.3 percent, but was higher for allied firms (24.1%) and lower for landscape firms (5.9%).

Descriptive statistics were computed for each survey variable, including the mean (average), standard error, number of respondents, and sum of sample values using *Microsoft Excel* software. The annual sales for each firm was estimated at the midpoint value of the range selected, unless a specific value was reported. Sales of specific products or services and sales by market segment or region, were estimated as a percentage of total sales for each industry sector. The total value of sales and employment in each industry sector were estimated based on the following formula: $O_i = M_i * P_i * Q_i$, where O_i is estimated sales or employment in sector i (nursery, landscape, or retail), M_i is the mean survey sample sales or employment reported, P_i is the population of firms, and Q_i is the percentage of firms qualified (Table 1).

For the horticultural retailer sector, sales of horticultural products were estimated independently based on gross sales in 2010 reported to the Florida Department of Revenue for sales tax purposes, together with information developed from the 2007 Economic Census, as shown in Table 2. Total gross sales for five selected retail sectors were \$159.7 billion, and the estimated sales of horticulture products was \$4.49 billion. This was the value used for the regional economic impact analysis because sales reported by retailers surveyed were judged to be unreasonably low in comparison to previous surveys and other studies.

Table 2. Gross sales by selected retail sectors in Florida, and estimated sales of horticulture products in 2010.

Kind Code	Sector (NAICS)	Gross Sales 2010	Horticulture Product Sales Share*	Estimated Horticulture Sales
1	Food and beverage stores (445)	48,604,737,550	0.54%	261,540,031
17	Feed & Seed Stores, Retail Nurseries	1,127,073,760	90.90%	1,024,510,048
20	General merchandise stores (452)	95,212,058,367	1.04%	994,369,165
38	Lumber and Other Building Materials Dealers	14,095,417,005	10.96%	1,545,220,574
44	Florists	663,558,187	99.90%	662,894,629
Total All retail sectors		<u>159,702,844,869</u>		<u>4,488,534,448</u>

*Horticulture product sales share and employment ratio estimated based on relationships in 2007 Economic Census data

Source for gross sales: Florida Department of Revenue

Economic impacts were estimated using a regional input-out model developed with the *IMPLAN* software and the associated 2009 database for Florida.⁵ The *IMPLAN* databases consist of a set of socioeconomic accounts which describe the structure of the U.S. economy in terms of transactions between households, governments, and 440 industry sectors classified on the basis of the primary commodity or service produced, according to the North American Industry Classification System (NAICS). The *IMPLAN*

⁵ *IMPLAN* Social Accounting and Impact Analysis Software and Florida state-county data package (2009), MIG, Inc., Hudson, WI; <http://www.implan.com>.

databases also describe local or regional economies in terms of industry output, value added, employment, imports and exports. A variety of statistical sources are used to construct these databases, including annual surveys and 5-year economic censuses conducted by the U.S. Commerce Department and U.S. 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 output or employment for any given industrial sector. 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. *IMPLAN* models were constructed for Florida with all social accounts included. Separate models were developed for each industry group evaluated, and were adjusted by setting the regional purchase coefficients to zero for nurseries and allied suppliers, in order to avoid double-counting of commodity purchases between industry sectors.

Direct sales and employment estimated for each of the four environmental horticulture sectors evaluated were assigned to the appropriate *IMPLAN* industry sectors for estimation of total regional impacts. The *IMPLAN* sectors used were Nursery and Greenhouse Production (Nurseries), Retail Lawn and Garden Equipment and Supplies Stores (Horticultural Retailers), Services to Buildings (Landscape Services), and Wholesale Trade (Allied Horticultural Suppliers).

Economic multipliers for output (revenue), employment, value added, labor income, and indirect business taxes for each sector of the horticulture industry in Florida are shown in Table 3. The multipliers capture overall effects of economic activity in the horticulture industry, including activity in the supply chain by vendors selling inputs to the industry (indirect effects), and the spending by industry employees (induced effects). The magnitude of the multipliers represents the strength of linkages in the regional economy to other sectors and institutions, and the share of total inputs provided to industry firms by other businesses within the region. Economic impacts of each sector of the horticultural industry were calculated using the direct effects multiplier on local or in-state sales, and the indirect and induced effects multipliers on non-local or out-of-state sales according to the formula: $I_{ij} = S_i \times G_i \times [A_{ij} + E_i \times (B_{ij} + C_{ij})]$, where I_{ij} is total impact for measures (j) of output, employment, value added, labor income, property income or indirect business taxes in each sector (i), nursery, landscape, retail, or allied; S_i is 2010 industry sales in sector i, E_i is the proportion of industry sales exported or shipped outside Florida by sector i, A_{ij} is the direct effects multiplier for measure j in sector i, B_{ij} is the indirect effects multiplier for measure j in sector i, C_{ij} is the induced effects multiplier for measure j in sector i, and G_i is the gross margin on sales for retailers (retail sector only; value equals one for all other sectors). Non-local (export) sales were treated differently because they bring “new” money into the local economy to expand economic activity⁶. Total employment impacts were estimated from survey data for the direct effects, and from multipliers for the indirect and induced effects. Output of the retail sector was

⁶ Mulkey, W. David and Alan W. Hodges. *Using Implan to Assess Local Economic Impacts*. UF/IFAS Extension Fact Sheet, 10 pages, 2000; available at <http://edis.ifas.ufl.edu/FE168>.

taken as the gross margin on sales estimated using margins in *IMPLAN* derived from the *Annual Benchmark Report for Retail Trade* (U.S. Dept. of Commerce).

County and regional economic impacts were estimated from totals for the state of Florida, based on the share of statewide direct employment reported to the Florida Department of Labor in 2010. In some cases where employment was not reported for small counties due to nondisclosure rules, these amounts were estimated at the statewide average employment per firm.

Table 3. Regional economic multipliers for the environmental horticultural industry sectors in Florida.

Multiplier	Effect	Greenhouse and nursery production	Building material and garden supply stores (Retailers)	Services to buildings and dwellings (Landscape)	Allied Suppliers (Wholesale trade)
Output (sales revenue or gross margin on sales)	Direct	1.000	1.000	1.000	1.000
	Indirect	0.263	0.139	0.257	0.325
	Induced	1.374	1.801	1.223	1.656
Employment (jobs per million dollars output)	Direct	14.963	56.113	18.381	28.713
	Indirect	2.886	1.056	2.087	2.507
	Induced	11.799	15.945	10.551	14.631
Value Added (personal and business net income)	Direct	1.000	1.000	1.000	1.000
	Indirect	0.252	0.100	0.286	0.291
	Induced	1.437	1.362	1.478	1.577
Labor Income (employee salaries and wages, business owner profits)	Direct	1.000	1.000	1.000	1.000
	Indirect	0.238	0.086	0.239	0.316
	Induced	1.168	1.377	1.268	1.752
Indirect Business Taxes	Direct	1.000	1.000	1.000	1.000
	Indirect	0.650	0.038	0.502	0.107
	Induced	7.679	0.492	2.932	0.560

Source: *IMPLAN* state data for Florida, 2009 (MIG, Inc., Hudson, WI, Sept. 2010).

Survey Results

Longevity of Industry Firms

Most horticultural firms surveyed were generally mature businesses. In 2010, the overall age of surveyed firms in the industry was 18.3 years. Nursery, landscape, and retail firms did not differ much in average years in business, with average ages of 18.1, 17.3, and 18.3 years, respectively. In contrast, responding allied supplier firms had been in business for an average of over 27 years.

Production Area Managed

The average production area reported by survey respondents for greenhouse or shadehouse production was 96,127 square feet (2.2 acres), while the average area for container and field production was 15.5 and 13.2 acres, respectively (Table 4). Over 38 percent of growers with greenhouse or shadehouse facilities had less than 10,000 square feet devoted to this type of production, while 0.7 percent had very large areas over 1 million square feet (Figure 2). For container and field production areas, 2.3 and 4.2 percent of respondents, respectively, reported having more than 100 acres, while 52.1 and 41.4 percent, respectively, had less than 5 acres of production area (Figure 3). Total production area reported was estimated at 118,458 acres, including 59,487 acres for container production, 50,508 acres for field production, and 8,463 acres (369 million square feet) for greenhouses or shadehouses (Table 4).

Figure 2. Distribution of Florida greenhouse or shadehouse production area reported by survey respondents for 2010.

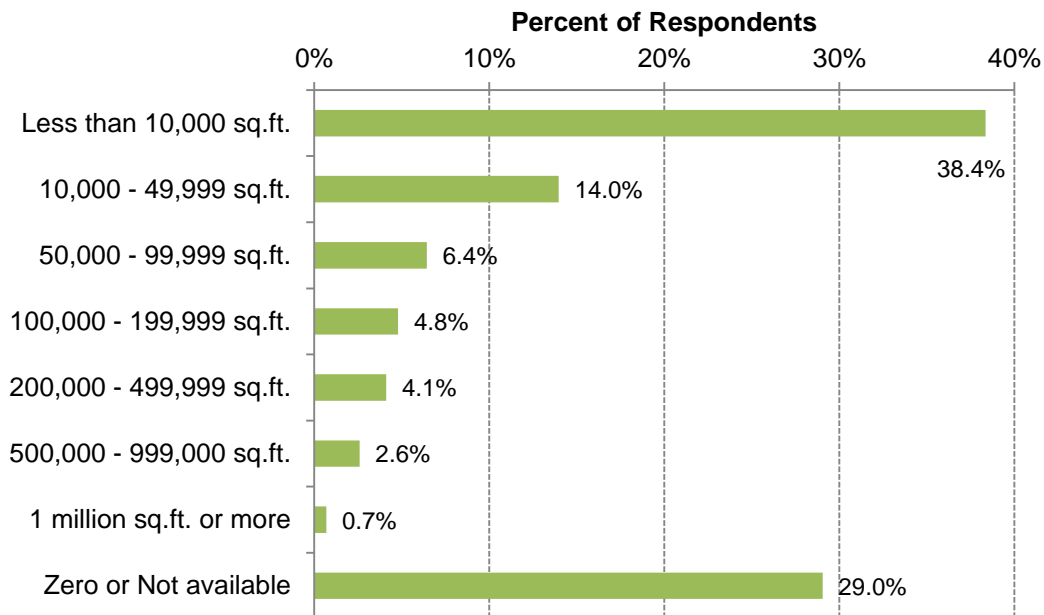


Figure 3. Distribution of Florida container and field nursery area reported by survey respondents for 2010.

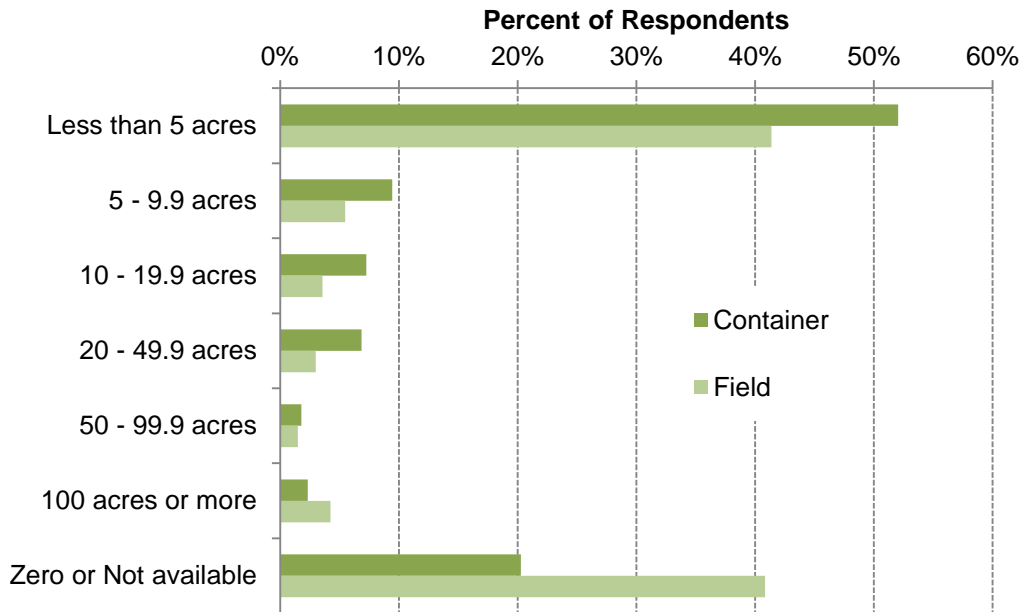


Table 4. Reported and estimated total area for Florida greenhouse and nursery production in 2010.

Type of Production Area	Average Area (acres)	Estimated Total Area (acres)
Greenhouse	2.2	8,463
Container	15.5	59,487
Field	13.2	50,508
Total		118,458

Direct Employment

Direct employment in 2010 reported by surveyed firms totaled 25,136 persons, including 10,725 employees at nurseries, 6,644 in landscape services, 4,737 at horticultural retailers, and 3,030 with allied suppliers (Table 5). These employment figures are significantly higher than the number of employees reported to the Florida Department of Labor, Quarterly Census of Employment and Wages. Some 19,683 reported employees (78%) worked full time, and 5,453 (22%) were part-time, temporary or seasonal. Part-time employment was reported by 79 percent of nurseries, 93 percent of landscape firms, 89 percent of retailers, and 52 percent of allied suppliers. The employment figures reported by survey respondents were used to estimate state-level total employment in the industry according to the expansion factors discussed in the Methods section. Total industry employment was estimated at 204,762 jobs in 2010, including 157,102 fulltime and 47,660 part-time, with 63,822 employees for nurseries, 111,006 employees for landscape services, 26,903 employees for retailers, and 3,030 employees for allied suppliers (Table 5). Note that employment for allied suppliers was not expanded and represents only employees reported by survey respondents.

Table 5. Reported and expanded employment by Florida’s environmental horticulture industry in 2010

Industry Sector	Employment Reported by Survey Respondents (Jobs)			Total Industry Employment (Jobs)*		
	Fulltime	Part-time	Total	Fulltime	Part-time	Total
Nursery production	8,652	2,073	10,725	50,045	13,778	63,822
Landscape services	5,316	1,328	6,644	87,961	23,044	111,006
Horticultural retailing	2,914	1,823	4,737	16,295	10,609	26,903
Allied Suppliers	2,801	229	3,030	2,801 [^]	229 [^]	3,030 [^]
Total	19,683	5,453	25,136	157,102	47,660	204,762

* Estimated based on survey expansion factors (see methods).

[^] Not expanded.

Sales of Environmental Horticultural Products and Services

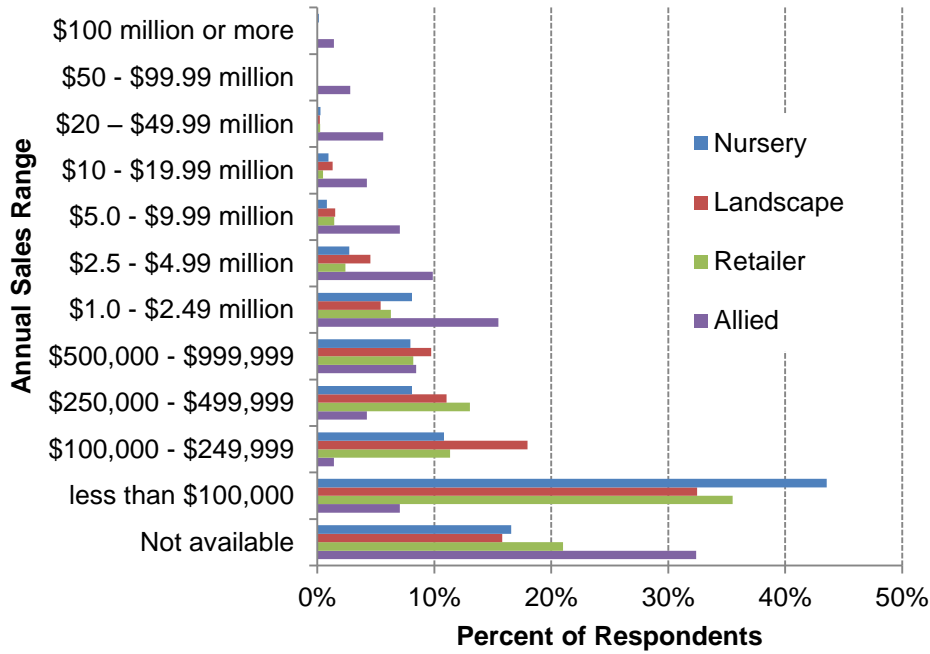
Information on annual sales was reported by 84 percent of nurseries and landscape firms, 79 percent of retailers, and 68 percent of allied suppliers that were surveyed. Total annual sales for each industry sector were estimated based on the number of respondents reporting annual sales in each class together with expansion factors, as discussed under Methods. Sales reported by survey respondents averaged \$1.29 million (Table 6). Total industry sales were estimated from the survey were \$12.33 billion, including \$4.27 billion by nurseries, \$6.04 billion by landscape service firms, \$1.47 billion by horticultural retailers, and \$558 million by allied suppliers. However, sales of horticultural products by Florida retailers were estimated at \$4.49 billion based on data from Florida Department of Revenue.

Respondents who reported annual sales of \$10 million or greater comprised 1.4 percent of nurseries, 1.5 percent of landscape firms, 0.72 percent of retailers, and 14.1 percent of allied suppliers, while respondents with annual sales of less than \$100,000 represented 44 percent of nurseries, 32 percent of landscape firms, 36 percent of retailers, and 7 percent of allied suppliers surveyed (Figure 4).

Table 6. Reported and estimated sales of Florida environmental horticulture firms in 2010.

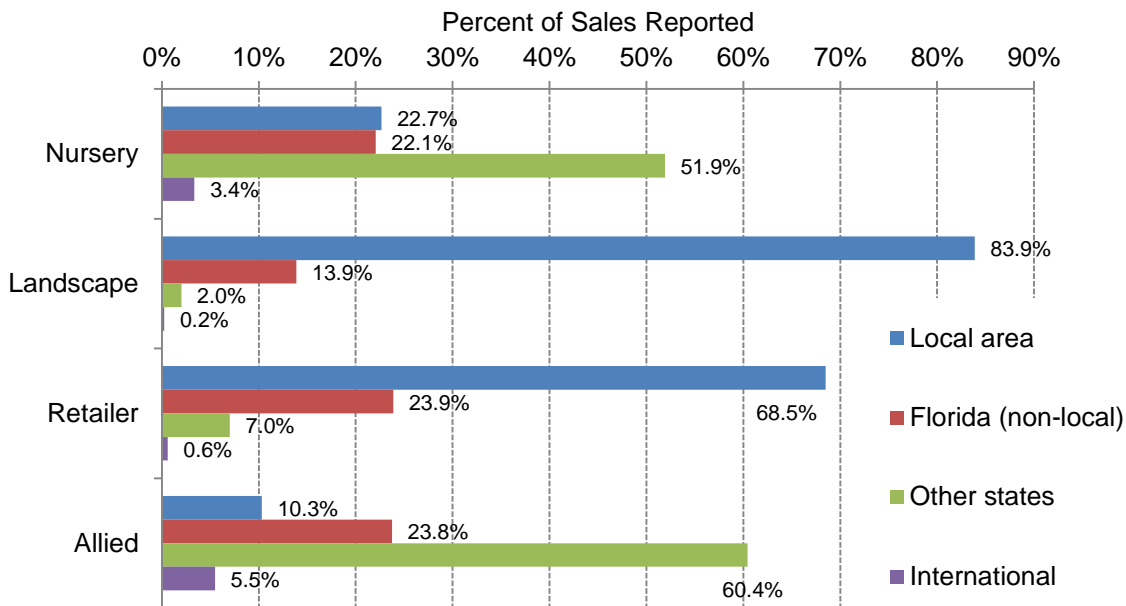
Metric	Industry Group				Total/Avg.
	Nursery	Landscape	Retailer	Allied	
Respondents reporting sales	616	390	327	48	1,381
	----- Million \$ -----				
Sum of reported sales	\$685.1	\$314.9	\$223.9	\$558.4	\$1,782.4
Average of reported sales per firm	\$1.11	\$0.81	\$0.68	\$11.63	\$1.29
Estimated total sales	\$4,265.3	\$6,039.1	\$1,470.5	\$558.4	\$12,333.4
-outside Florida	\$2,357.2	\$136.1	\$112.1	\$368.2	\$2,973.6
-inside Florida	\$1,908.1	\$5,903.0	\$1,358.4	\$190.3	\$9,359.8

Figure 4. Distribution of survey respondents by annual sales range.



Industry sales were reported by market region, including international, national, state, and local, with the local area defined as the city or county in which the business was located, or within a 50 mile radius. For nurseries, 23 percent of total sales were to local markets, 22 percent were to other areas within Florida, 52 percent were to other states, and 3.4 percent to other countries (Figure 5). Thus, roughly 55 percent, or \$2.36 billion, of nursery sales were to markets outside the State (Table 6). Nearly two-thirds (66%) of allied supplier sales were to out-of-state markets. For retailers and landscapers, most sales were within the state, 98 percent and 92 percent, respectively

Figure 5. Distribution of Florida nursery, landscaper, retailer, and allied supplier sales by market region in 2010.



Sales of specific types of horticultural products and services are detailed in Figures 6 through 8. For the nursery and greenhouse sector, the largest-selling product type in 2010 was tropical foliage plants, with sales of \$1.48 billion, representing about 35 percent of total sales, followed by potted flowering or bedding plants (\$916 million, 22 %), shrubs (\$431 million, 10%), palms (\$404 million, 10%), and, miscellaneous “other” types of plants (\$237 million, 6%) as shown in Figure 6.

For the landscape services sector, landscape maintenance (lawn care) comprised \$2.65 billion or approximately 44 percent of total industry sales (Figure 7). The second largest revenue generating activity for this sector was landscape installation (\$1.38 billion, 23%), followed by the sale of live plants (\$712 million, 12%), and landscape design (\$498 million, 8%).

Sales by horticultural retailers were comprised of live plants generating \$744 million, or just over 50 percent of total sales, followed by “other” horticultural goods (\$424 million, 29%), lawn and garden supplies such as fertilizers and chemicals (\$202 million, 14%), and horticultural hard goods such as tools and equipment (\$101 million 7%), as shown in Figure 8.

For allied horticultural suppliers in Florida, chemicals constituted the most important type of product sold during 2010, at \$211 million or nearly 38 percent of total sales, which was more than twice as large a share as any other product types (Figure 9). Other significant types of goods and services sold by allied suppliers were nursery containers (\$74 million, 13%), fertilizer (\$81 million, 15%), finance and insurance services (\$82 million, 15%), and miscellaneous “other” types (\$89 million, 16%).

Figure 6. Distribution of plant type sales by Florida nurseries and greenhouses in 2010.

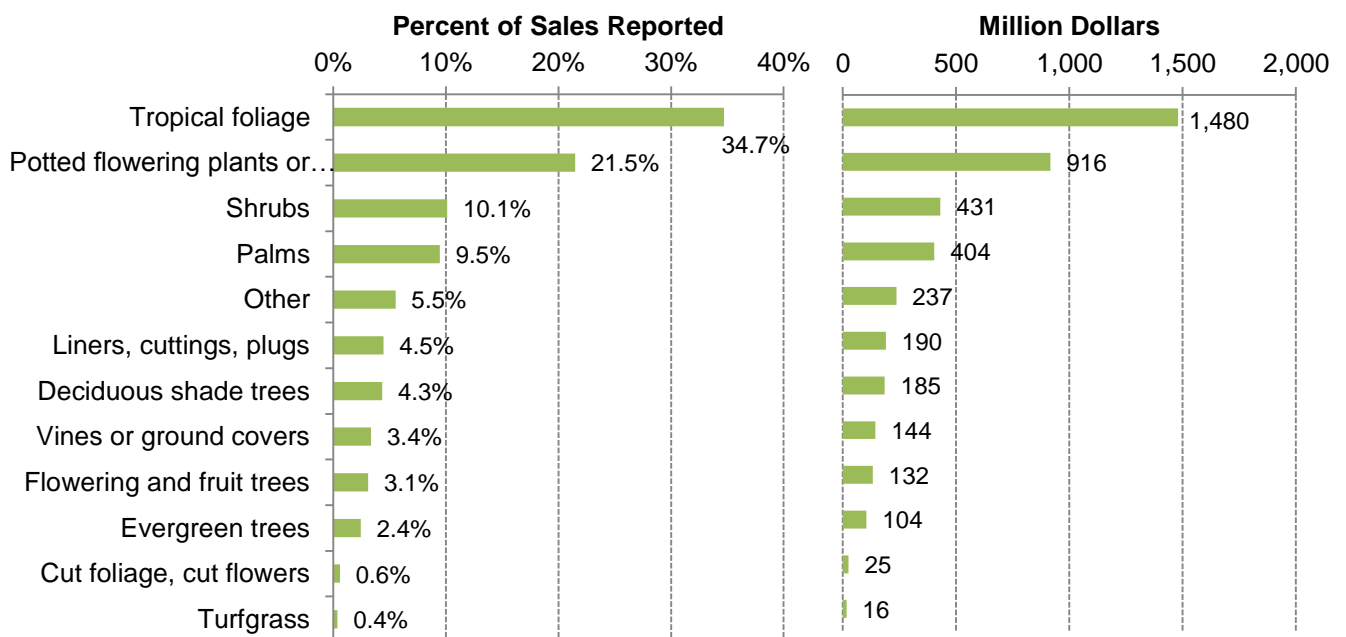


Figure 7. Distribution of sales by service and product type for Florida landscape firms in 2010.

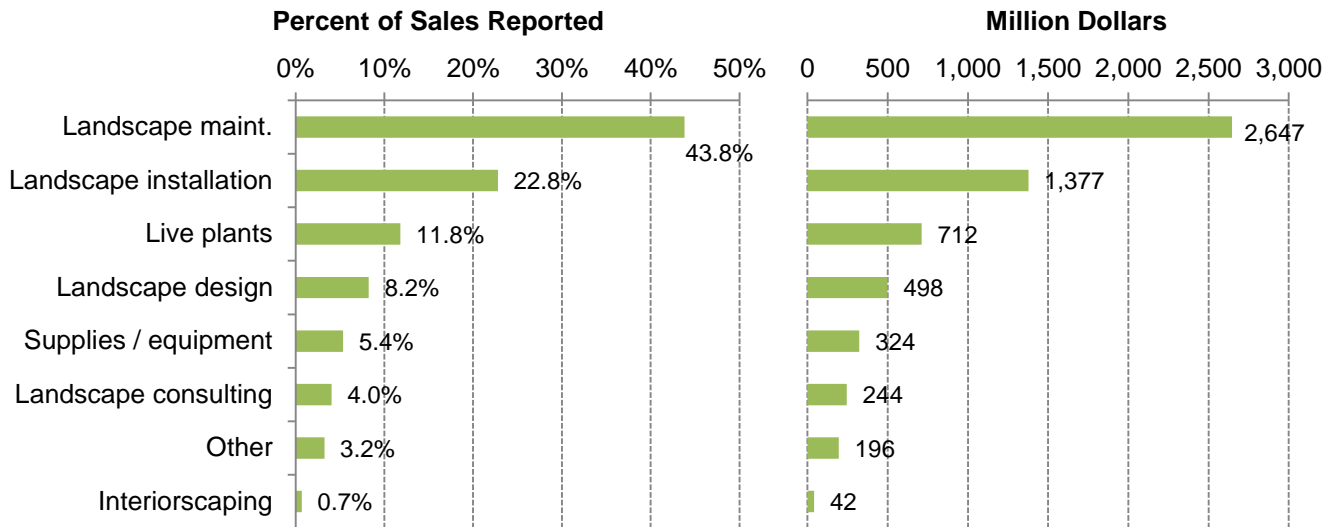


Figure 8. Distribution of product type sales by Florida horticultural retailers in 2010.

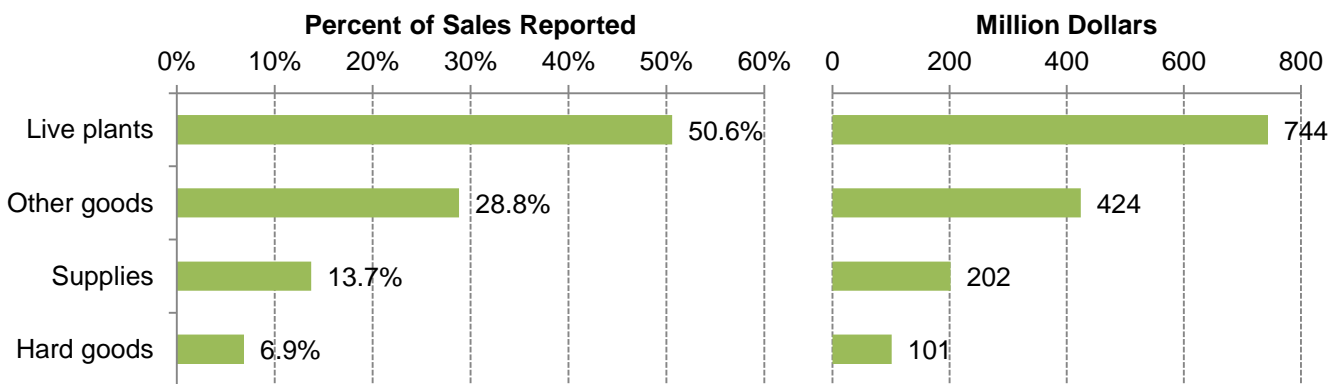
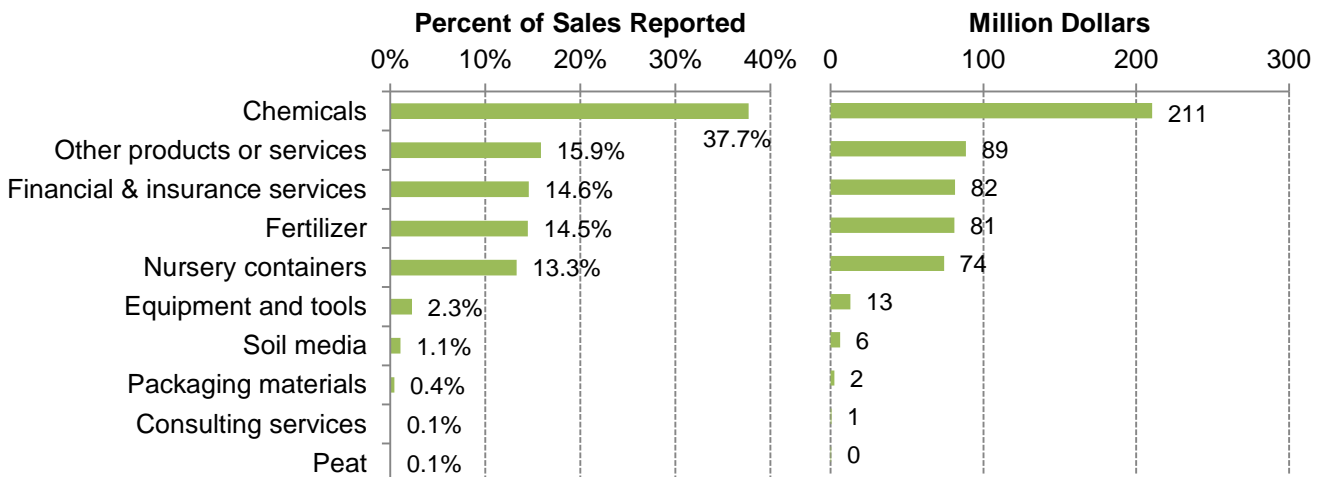


Figure 9. Distribution of product type sales and services by Florida allied-supplier firms in 2010.



Market Channels for Horticultural Products

Sales of Florida horticultural products and services to different types of customers are summarized in Figures 10 through 13. For the nursery/greenhouse sector, sales to home improvement stores was the largest market segment, representing \$1.59 billion or 37 percent of total sales, followed by landscapers and interiorscapers (\$612 million, 14%), mass merchandise stores (\$543 million, 13%), re-wholesalers and brokers (\$471 million, 11%), other growers (\$369 million, 9%), homeowners (\$157 million, 4%), developers and property managers (\$72 million, 2%), and miscellaneous “other” customers (\$55 million, 1%) (Figure 10).

The most important customer segment for landscape firms in the survey was homeowners, accounting for \$2.17 billion or nearly 36 percent of total sales, followed by apartments and condominiums (\$1.32 billion, 22%), commercial establishments (\$934 million, 16%), builders and developers (\$651 million, 11%), other landscape firms (\$531 million, 9%) and government (\$328 million, 5%) as shown in Figure 11.

For horticultural retailers, the largest customer segment was sales to homeowners of \$751 million represented over half (51%) of total sales, followed by commercial establishments (\$285 million, 19%), apartments and condominiums (\$151 million, 10%), landscape contractors (\$111 million, 8%), “other” customer types (\$80 million, 6%), other retailers (\$55 million, 4%) and governments (\$36 million, 3%), as shown in Figure 12.

Allied suppliers are generally wholesale businesses that sell goods and services to other commercial establishments rather than final consumers. The largest customer segment was growers, with \$214 million or 38 percent of total sales, followed by retailers (\$198 million, 35%), unspecified “other” types of customers (\$95 million, 17%), and landscapers (\$52 million, 9%) as shown in Figure 13.

Figure 10. Distribution of Florida nurseries and greenhouse sales by customer type in 2010.

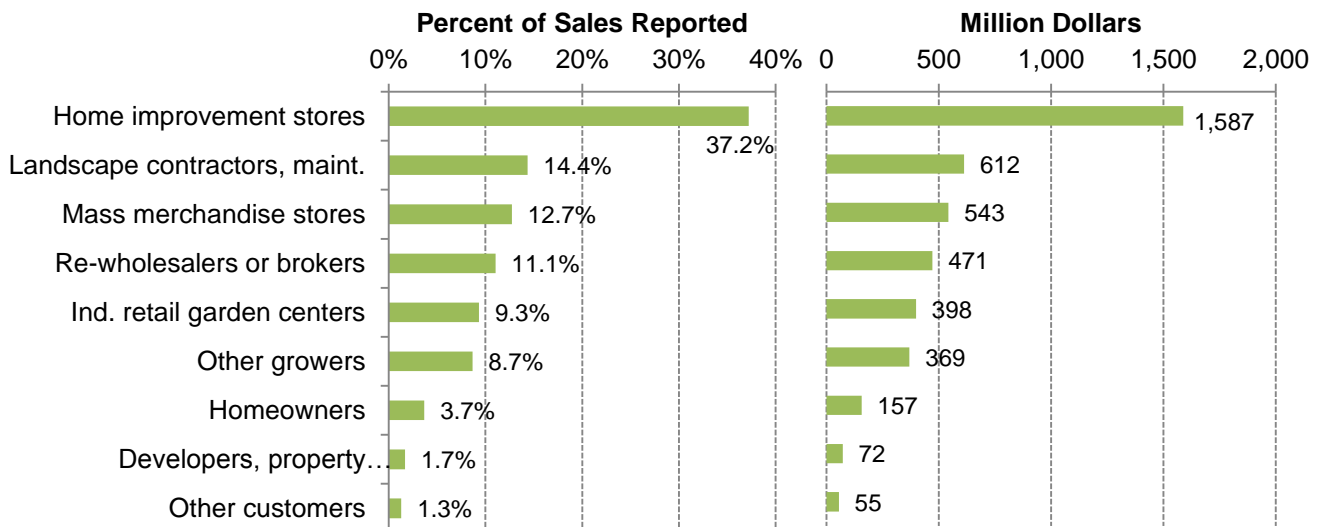


Figure 11. Distribution of Florida landscape service sales by customer type in 2010.

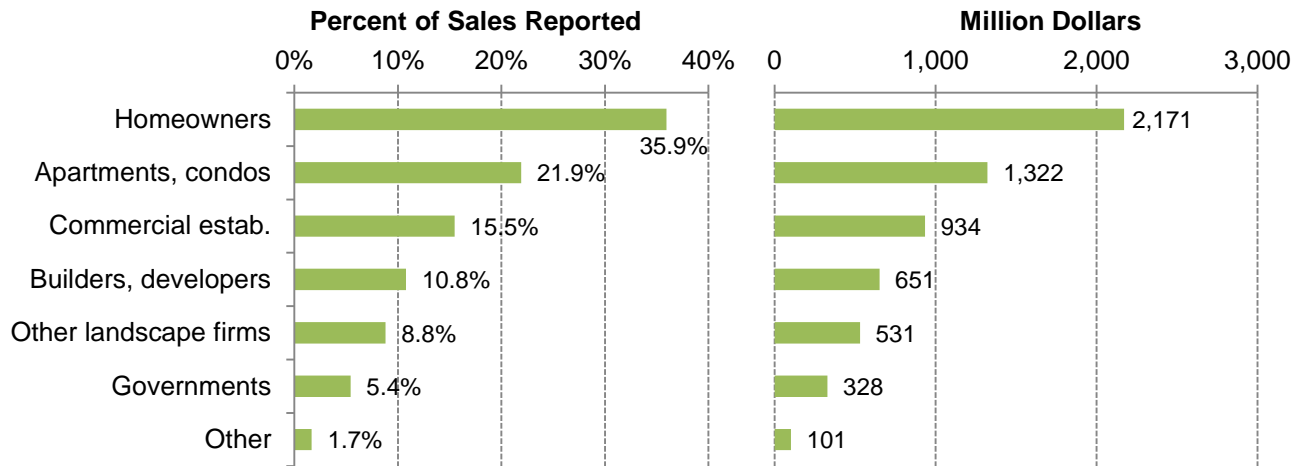


Figure 12. Distribution of Florida retail horticultural product sales by customer type in 2010.

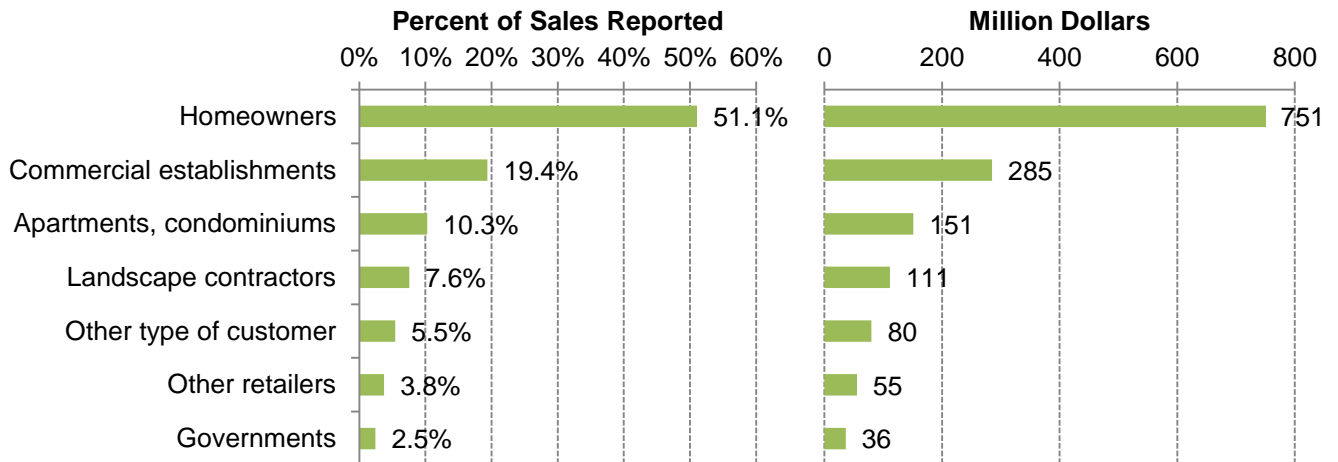
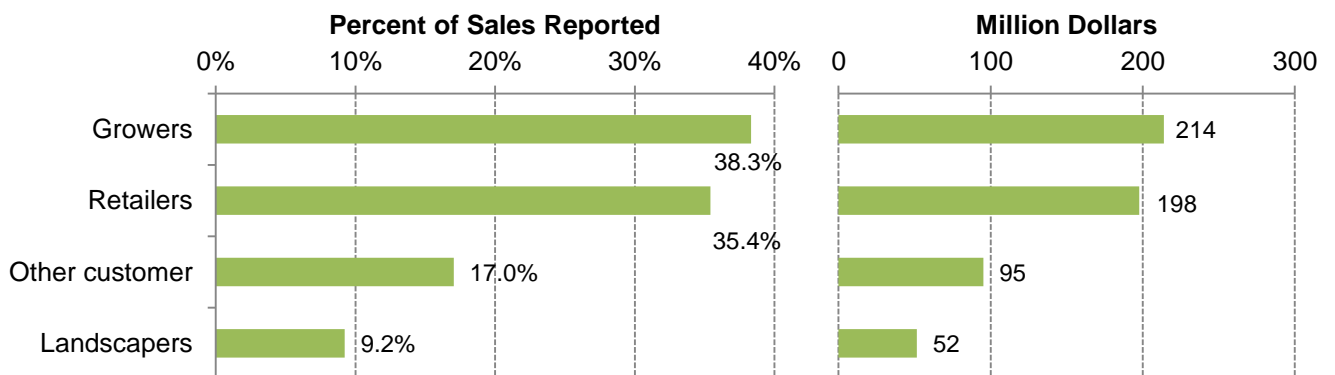


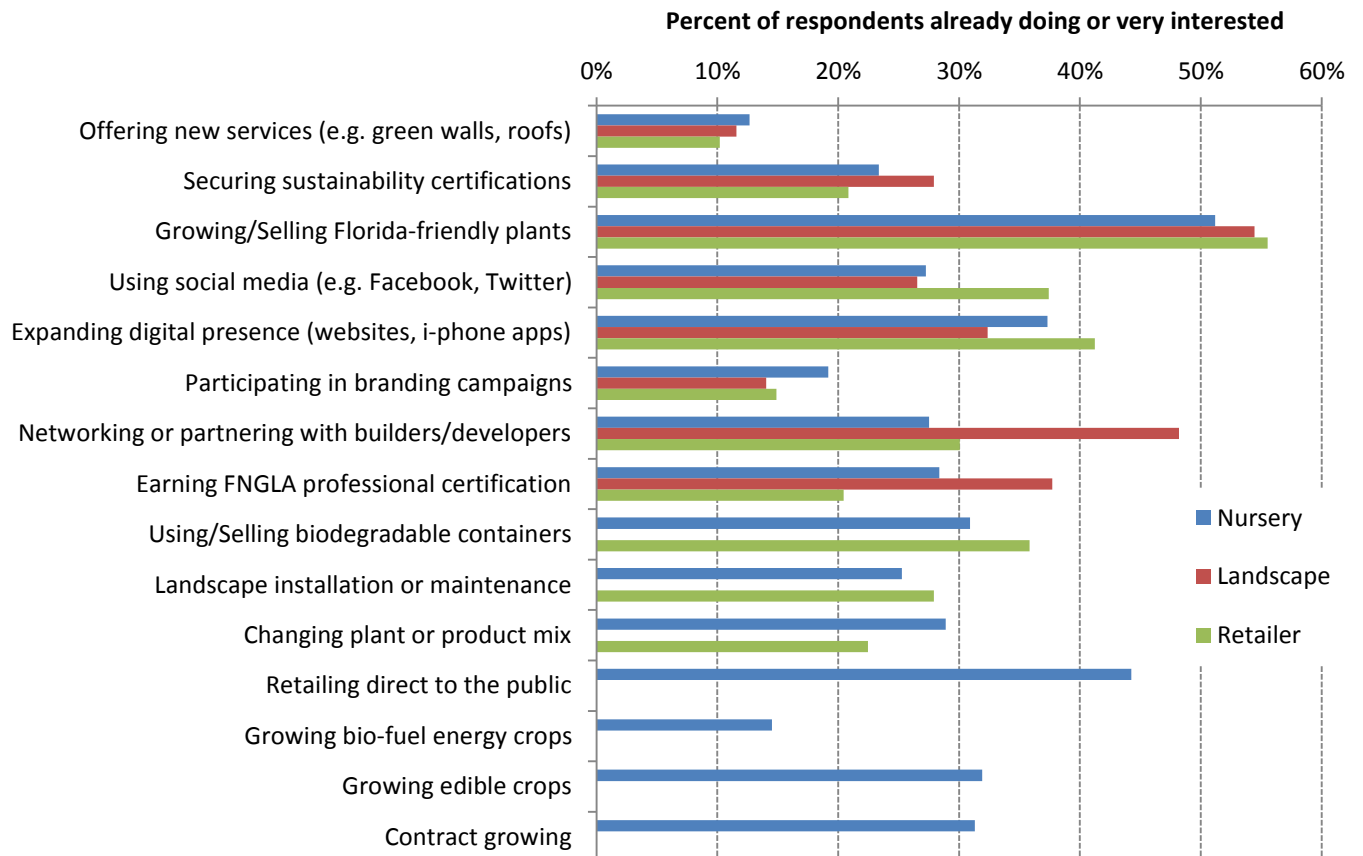
Figure 13. Distribution of Florida allied supplier sales by customer type in 2010.



Opportunities for Growth in the Industry

Nursery/greenhouse, landscape services, and horticulture retailer industry survey respondents were asked about their level of interest in a variety of potential business development opportunities. Responses to this question are summarized in Figure 14. Some opportunities applied only to particular sectors. The most popular opportunity for all three horticulture sectors was “growing/selling Florida Friendly™ plants”, with at least 50 percent of respondents in all groups indicating they were either already engaged in this practice or “very interested” in doing so. The next most popular opportunity overall was “expanding digital presence”, with 41 percent of retailers indicating high interest or current engagement, followed by nurseries/greenhouses (37%) and landscape services (32%). A similar type of opportunity, “using social media”, was also popular, at 37 percent for retailers and 27 percent for nurseries and landscapers. “Networking or partnering with builders/developers”, was a decidedly more popular opportunity for landscape services (48%), than it was for nurseries (27%) or retailers (30%). Landscapers were also more interested in “earning FNGLA professional certification” (38%), compared to nurseries (28%) or retailers (20%). “Using/selling biodegradable containers” had a fairly high level of interest or engagement for nurseries (31%) and retailers (36%). For opportunities only relevant to nurseries, 44 percent were very interested or currently doing “retailing directly to the public” (Figure 14).

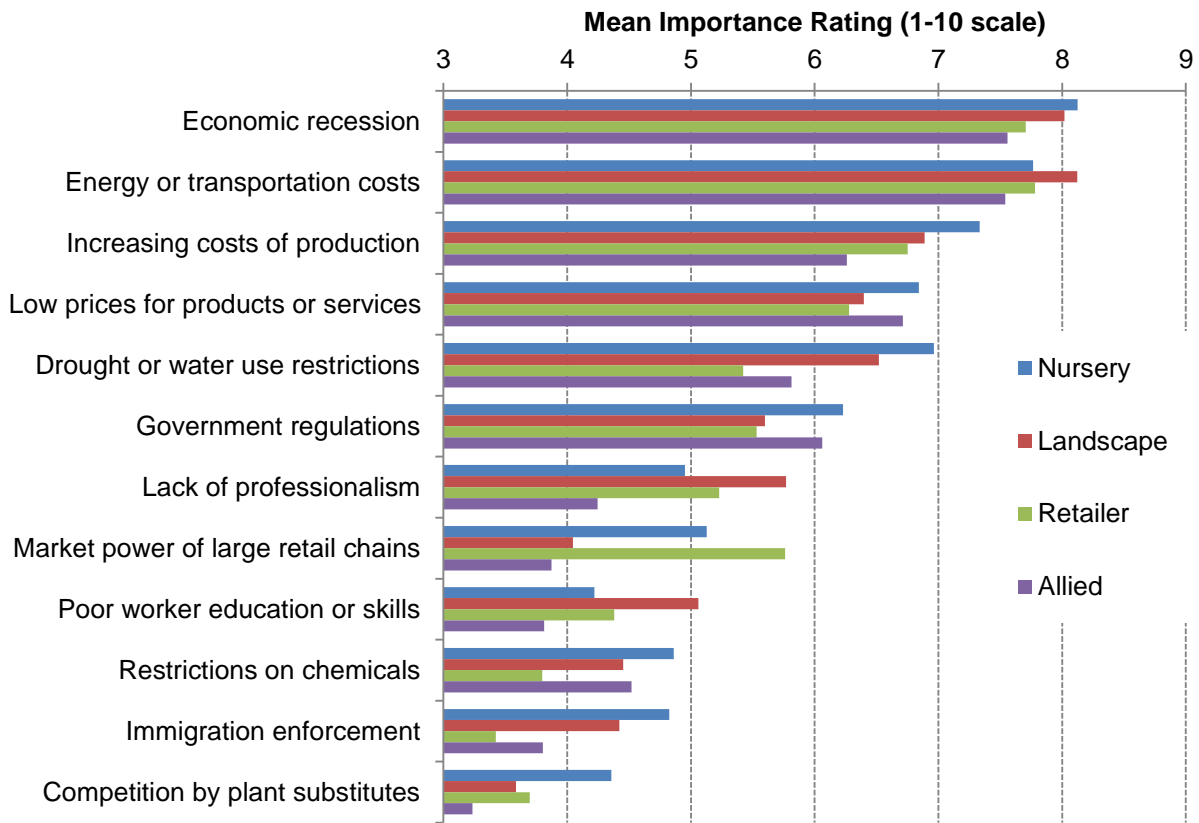
Figure 14. Opportunities for growth by Florida horticulture businesses in 2010.



Issues or Threats to the Environmental Horticulture Industry

Survey respondents were asked to rate possible issues or threats facing the environmental horticulture industry in Florida on a scale of 1 to 10, with 1 represent “not important” and 10 representing “very important”. Threats that were on average rated above a level of 7 on this scale by all four industry sectors were “energy or transportation costs” and “economic recession” (Figure 15). “Increasing costs of production” and “low prices for products or services” were the next two most highly rated threats to the industry, with average ratings above 6 by all four sectors. “Drought or water use restrictions” was rated above 6 on the importance scale by the landscape and nursery sectors, but between 5 and 6 for allied suppliers and retailers, while “government regulations” was rated above 6 for allied and nursery respondents and between 5 and 6 by retailers and landscapers. “Lack of professionalism” had an average rating above 5 by retailers and landscapers, and “Market power of large retail chains” was rated above 5 by retailers and nurseries.

Figure 15. Importance ratings of industry threats by Florida horticulture sectors in 2010.



Impacts of 2010 Freeze Events on the Environmental Horticulture Industry

The state of Florida was struck by extended freezing temperatures during the months of January and December 2010, and these weather events caused extensive damage to many agricultural crops and ornamental plants. Nearly 53 percent of surveyed firms in the environmental horticulture industry indicated that they were impacted by at least one of these freezes, including approximately 69 percent of nurseries, 43 percent of landscape firms, and 36 percent of horticultural retailers (Table 7). Actual losses incurred were reported as point values by some respondents or estimated at the midpoint of a range. Losses for individual firms ranged as high as \$12 million. Among those firms that reported losses, average losses were valued at \$40,974, and nursery/greenhouse firms reported the highest losses, averaging \$66,714. Total damages for the entire population of industry firms were estimated at nearly \$472 million.

Table 7. Impacts to Florida environmental horticulture industry by freeze events in January and December, 2010.

Metric	Industry Group			Total/All
	Nursery	Landscape	Retailer	
Firms experiencing losses due to freeze events	69.2%	42.7%	35.8%	52.8%
Count of estimated value of freeze losses (#)	730	462	414	1,606
Average of estimated value of freeze losses (\$)	\$66,714	\$25,072	\$13,334	\$40,974
Sum of estimated value of freeze losses (million \$)	\$48.70	\$11.58	\$5.52	\$65.80
Expanded value of freeze losses (million \$)	\$255.84	\$187.51	\$28.63	\$471.99

Economic Impact Results

Statewide Impacts

The economic impacts of the environmental horticulture industry in Florida were estimated using the *IMPLAN* input-output regional modeling system, together with survey results for sales, employment, and regional market flows or gross taxable sales reported to Florida Department of Revenue (see Methods). For the nursery and landscape sectors, direct output represents industry sales, but for the retail sector, output was calculated as the gross margin on sales (32.6%). Multiplier effects of supply chain activity and employee household spending arising from nonlocal output (export sales) were calculated from a regional model for Florida using the *IMPLAN* software.

The total output or revenue impacts of Florida's environmental horticulture industry in 2010 were estimated at \$16.29 billion, including \$11.87 billion in direct output impacts of industry sales, \$692 million in indirect output impacts from firms that supply inputs to the horticulture sectors, and \$3.72 billion in induced impacts associated with spending by industry employee and proprietor households, as summarized in Table 8. Total output impacts were \$8.12 billion for nurseries, \$6.24 billion for landscape services, \$1.68 billion for horticultural retailers, and \$243 million for allied horticultural suppliers. Of the four environmental horticulture sectors, nurseries and greenhouses generated the largest share of indirect and induced multiplier impacts due to their much larger exports to domestic and international markets.

The total employment impact of the environmental horticulture industry in Florida in 2010 was estimated at 244,188 jobs (fulltime and part-time/seasonal positions), with 98,439 jobs generated by the nursery/greenhouse sector, 112,726 jobs from landscape services, 28,800 from horticultural retailers, and 4,223 jobs for allied suppliers (Figure 16, Table 8).

Value added impacts are an important measure of an industry's contribution to a regional economy, representing the difference between sales revenues and the cost of purchased inputs. Value added is comparable to Gross Domestic Product (GDP) and includes the value of employee wages and benefits, owner's compensation, dividends, capital outlays and business taxes paid. Total value added impacts of Florida's horticulture industry in 2010 were estimated at \$9.90 billion, comprised of \$5.04 billion generated by the nursery/greenhouse sector, \$3.30 billion by landscape services, \$1.40 billion by retailers and \$160 million by allied suppliers. Total labor income impacts, which are a subset of value added, were estimated at \$6.93 billion for all sectors combined. Other property type income impacts, which includes corporate profits, rents, dividends, royalties, and interest payments received were estimated at \$2.30 billion. Impacts on indirect business taxes paid to state and local governments in Florida, such as sales tax, property tax, fuel taxes, excise taxes, etc., were estimated at \$668 million (Table 8).

Figure 16. Total employment impacts of environmental horticulture industry sectors in Florida in 2010.

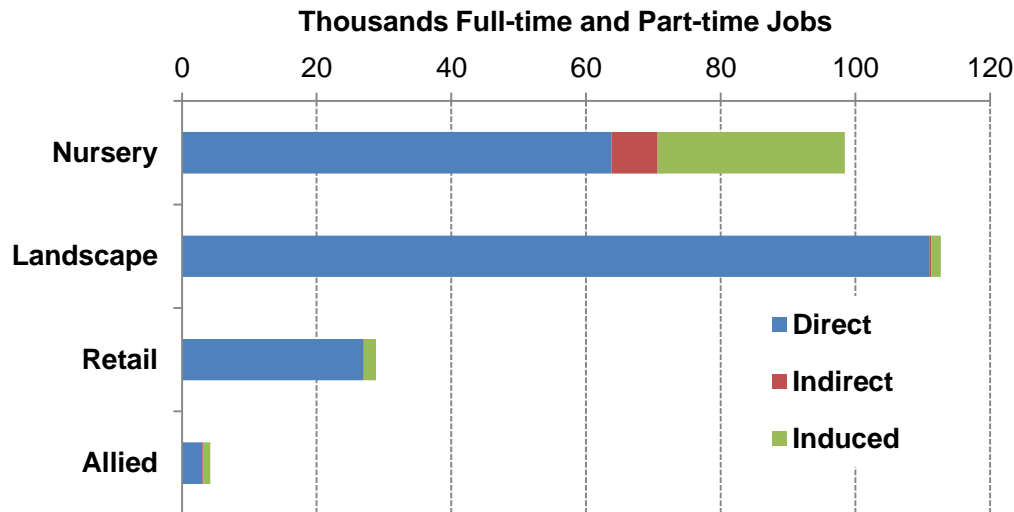


Table 8. Summary of economic impacts of the environmental horticulture industry in Florida in 2010.

Sector	Employment	Output	Value Added	Labor Income	Other Property Income	Indirect Business Taxes
	Jobs	----- Million Dollars -----				
Nursery	98,439	8,122.3	5,038.7	3,546.3	1,265.8	226.6
Landscape	112,726	6,240.6	3,302.0	2,395.4	765.2	141.4
Retail	28,800	1,679.8	1,396.4	887.4	231.2	277.8
Allied	4,223	243.4	160.3	98.1	39.7	22.4
Total All Sectors	<u>244,188</u>	<u>16,286.1</u>	<u>9,897.3</u>	<u>6,927.1</u>	<u>2,302.0</u>	<u>668.2</u>
Direct	204,761	11,873.2	7,134.5	5,169.1	1,510.5	454.9
Indirect	7,380	692.3	402.6	285.9	98.8	17.8
Induced	32,046	3,720.5	2,360.2	1,472.1	692.6	195.5

Note: All monetary values are reported in 2010 dollars; employment impacts represent both full-time and part-time jobs.

The distribution of impacts by the environmental horticulture industry across major sectors of the Florida economy is presented in Tables 9 and 10. These industry groups represent two-digit aggregations of the North American Industrial Classification System (NAICS), which classifies businesses based on the types of goods and services produced and how they are produced. The four environmental horticultural sectors evaluated fall into the following NAICS groups: Nursery/greenhouse – Agriculture/forestry/fisheries; Horticultural retailers – Retail trade; Landscape services – Administrative/waste services; Allied suppliers – Wholesale trade. Three of these four industry groups experienced the largest economic impacts among all industry groups. Impacts were largest in Administrative & waste services, with \$6.14 billion in output, \$3.24

billion in value added, and 112,590 jobs (Table 9). Agriculture/forestry/fisheries had the next highest impacts, with \$4.65 billion in output, \$2.87 billion in value added, and 69,333 jobs. Retail trade was the third largest impacted group at \$1.75 billion in output, \$1.50 billion in value added, and 32,739 jobs. Other industry groups with notable impacts were Health/Social Services, Government and Wholesale trade (which represents Allied suppliers).

The distribution of employment impacts for the four horticulture sectors across the NAICS industry groups is presented in Table 10. The Administrative & waste services industry group experienced the largest job impacts among the 20 groups, with 112,590 jobs for all four horticulture sectors, and 111,144 jobs from landscape services alone. The second largest employment impacts were experienced by the Agriculture group, due to activities by the Nursery sector. Retail trade was the third most impacted industry group with 32,739 jobs, including 28,232 jobs attributable to horticultural retailers.

Table 9. Summary of economic impacts of environmental horticulture in Florida in 2010, by industry group and impact type.

Industry Group (NAICS)	Employment	Output	Value Added	Labor Income	Other Property Income	Indirect Business Taxes
	Jobs					
Agriculture, Forestry, Fisheries	69,333	4,646.1	2,869.3	2,213.6	610.7	45.1
Mining	48	12.2	2.2	0.9	1.1	0.2
Utilities	132	84.4	52.4	15.4	28.1	8.9
Construction	1,775	224.2	99.2	84.1	13.7	1.3
Manufacturing	622	276.4	76.7	41.3	30.7	4.7
Wholesale Trade	3,933	277.8	188.9	109.3	38.8	40.9
Retail Trade	32,739	1,749.4	1,500.6	949.7	233.0	317.8
Transportation & Warehousing	888	110.2	54.0	39.4	11.9	2.7
Information	375	110.6	57.8	29.2	24.0	4.6
Finance & Insurance	1,751	368.6	194.5	97.4	87.1	10.0
Real Estate & Rental	1,626	616.9	438.8	30.4	336.8	71.5
Prof., Scientific & Tech. Services	2,050	242.4	162.8	126.8	31.1	4.9
Management of Companies	179	36.4	22.2	18.2	3.6	0.4
Administrative & Waste Services	112,590	6,141.7	3,239.1	2,366.5	739.6	133.0
Educational Services	778	52.6	31.5	28.9	2.2	0.4
Health & Social Services	4,912	504.7	286.0	264.0	18.1	3.9
Arts, Entertainment & Recreation	648	50.6	31.5	20.1	7.1	4.4
Accommodation & Food Services	2,583	183.5	100.0	69.0	20.0	11.1
Other Services	2,519	143.7	83.8	75.9	1.2	6.7
Government & non-classified	4,706	453.6	405.9	347.1	63.1	-4.3
Total All Sectors	244,188	16,286.1	9,897.3	6,927.1	2,302.0	668.2

NAICS is the North American Industry Classification System (U.S. Department of Commerce, Census Bureau (<http://www.census.gov/eos/www/naics/>); the 20 groups presented here represent the two digit-level aggregation of this system. All monetary values are reported in 2010 dollars. Employment impacts represent both full and part-time jobs.

Table 10. Employment impacts of environmental horticulture sectors in Florida in 2010, by industry group.

Industry Group (NAICS)	Nursery	Landscape	Retail	Allied	Total
	- - - - Full-time and Part-time Jobs - - - -				
Agriculture, Forestry, Fisheries	69,320	6	3	4	69,333
Mining	44	3	0	1	48
Utilities	122	5	2	4	132
Construction	1,602	82	33	58	1,775
Manufacturing	560	30	11	22	622
Wholesale Trade	802	42	17	3,072	3,933
Retail Trade	4,157	213	28,232	138	32,739
Transportation & Warehousing	784	39	17	47	888
Information	319	29	8	18	375
Finance & Insurance	1,573	90	31	57	1,751
Real Estate & Rental	1,450	94	30	52	1,626
Prof., Scientific & Tech. Services	1,787	139	39	85	2,050
Management of Companies	151	12	4	13	179
Administrative & Waste Services	1,336	111,144	33	77	112,590
Educational Services	705	36	14	23	778
Health & Social Services	4,448	226	89	149	4,912
Arts, Entertainment & Recreation	583	32	12	21	648
Accommodation & Food Services	2,324	130	47	82	2,583
Other Services	2,248	145	46	81	2,519
Government & non-classified	4,125	231	131	219	4,706
Total All Sectors	<u>98,439</u>	<u>112,726</u>	<u>28,800</u>	<u>4,223</u>	<u>244,188</u>

Regional and County Economic Impacts

Economic impacts of the environmental horticulture industry in 2010 were estimated for individual counties in Florida based on each county's share of statewide employment for 2010 reported by the Florida Department of Labor as shown in Table 11. For some smaller counties, employment was not reported due to nondisclosure rules, but these missing values were estimated by multiplying the number of reported firms in those counties by the statewide average employment per firm, and adjusted to match statewide control totals. County level impacts were not estimated for allied suppliers, because representative employment statistics could not be obtained. The top five counties for direct employment by horticulture sector firms in 2010 (excluding allied suppliers), were Miami-Dade (17,159), Broward (14,306), Orange (13,752), Palm Beach (13,626) and Hillsborough (10,752).

Table 11. Employment and wages in the environmental horticulture industry in Florida counties in 2010.

Florida County	Nursery and Greenhouse (1114)			Landscape Services (5617)			Retail Garden Centers (4442)			All Horticulture Sectors Combined		
	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment
Alachua	18	3,743	162	17	1,708	73	230	38,050	1,880	265	43,502	2,115
Baker	2	576	24	1	215	5	16	915	60	19	1,706	89
Bay	1	288	12	4	619	21	154	21,342	998	159	22,249	1,031
Bradford	1	288	12	1	215	5	24	1,951	75	26	2,453	92
Brevard	12	1,424	49	34	6,548	260	580	50,748	2,426	626	58,720	2,735
Broward	51	7,033	340	53	9,811	313	1,757	309,325	13,653	1,861	326,168	14,306
Calhoun	3	863	36	2	430	11	4	255	11	9	1,548	58
Charlotte	4	1,151	47	10	1,635	46	206	16,724	722	220	19,510	815
Citrus	10	595	33	11	549	34	110	11,813	468	131	12,957	535
Clay	3	1,375	29	13	1,716	57	172	12,109	629	188	15,200	715
Collier	25	10,273	328	21	5,251	145	661	113,579	4,136	707	129,104	4,609
Columbia	3	863	36	6	1,120	31	37	4,625	176	46	6,608	243
Desoto	8	4,309	148	5	735	30	30	3,544	135	43	8,588	313
Dixie	2	576	24	2	430	11	2	2,852	93	6	3,858	128
Duval	10	4,054	140	28	4,671	137	881	171,094	6,992	919	179,819	7,269
Escambia	1	288	12	18	2,659	118	215	25,987	1,353	234	28,934	1,483
Flagler	2	576	24	7	986	20	135	21,534	904	144	23,095	948
Franklin		0			0		12	375	22	12	375	22
Gadsden	12	12,963	612	3	644	16	23	4,608	170	38	18,216	798
Gilchrist	1	288	12	3	426	17	13	765	34	17	1,479	63
Glades	4	162	9		0		1	1,426	47	5	1,588	56
Gulf		0			0		9	951	36	9	951	36
Hamilton		0		0	0		2	2,852	93	2	2,852	93
Hardee	17	3,836	165	6	3,740	47	13	2,125	92	36	9,701	304
Hendry	7	2,408	110	2	145	7	30	2,367	107	39	4,920	224
Hernando	6	1,284	60	10	276	15	148	13,864	613	164	15,425	688
Highlands	42	13,874	620	13	1,670	65	94	7,169	364	149	22,712	1,049
Hillsborough	84	29,780	1,199	45	6,068	240	1,130	203,471	9,313	1,259	239,318	10,752
Holmes		0		2	430	11	8	546	39	10	975	50
Indian River	2	576	24	7	966	38	255	36,652	1,502	264	38,194	1,564
Jackson	2	576	24	3	644	16	26	1,515	84	31	2,735	124
Jefferson	6	1,727	71	3	644	16	10	360	19	19	2,731	107
Lafayette	2	576	24	2	430	11	2	2,852	93	6	3,858	128
Lake	75	23,171	870	27	1,709	78	389	44,164	1,988	491	69,044	2,936
Lee	26	12,441	482	27	2,118	79	967	139,864	5,373	1,020	154,423	5,934
Leon	4	323	14	12	4,924	188	244	44,910	2,382	260	50,157	2,584
Levy	9	1,709	71	2	430	11	23	1,932	91	34	4,071	173
Liberty		0			0		2	2,852	93	2	2,852	93
Madison	2	576	24	6	687	32	3	4,279	140	11	5,541	195
Manatee	26	8,253	366	20	3,188	98	437	51,307	2,073	483	62,749	2,537
Marion	17	2,214	104	27	3,391	140	311	30,472	1,354	355	36,076	1,598
Martin	21	4,587	199	12	807	39	254	39,424	1,490	287	44,819	1,728
Miami-Dade	234	120,249	4,714	120	14,510	470	1,349	241,612	11,975	1,703	376,371	17,159
Monroe	1	288	12	4	302	14	135	19,277	610	140	19,866	636

Florida County	Nursery and Greenhouse (1114)			Landscape Services (5617)			Retail Garden Centers (4442)			All Horticulture Sectors Combined		
	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment	Units	Total Wages (\$1,000)	Avg. Monthly Employment
Nassau	3	863	36	6	324	13	78	9,823	414	87	11,011	463
Okaloosa	2	576	24	11	1,604	65	222	27,928	1,332	235	30,107	1,421
Okeechobee	7	2,962	123	8	691	30	43	3,445	174	58	7,098	327
Orange	132	62,691	2,366	39	9,322	278	1,094	260,739	11,108	1,265	332,752	13,752
Osceola	12	2,396	87	10	826	37	287	34,219	1,698	309	37,441	1,822
Palm Beach	104	24,176	1,082	73	11,172	363	1,829	289,260	12,181	2,006	324,608	13,626
Pasco	14	5,888	227	20	1,983	90	454	66,938	2,509	488	74,809	2,826
Pinellas	10	711	28	35	4,692	148	1,019	147,886	6,377	1,064	153,289	6,553
Polk	35	8,091	348	32	4,307	149	481	70,520	2,815	548	82,918	3,312
Putnam	15	3,349	204	5	609	21	48	4,259	205	68	8,218	430
Santa Rosa	10	1,361	61	11	1,586	69	111	14,833	707	132	17,780	837
Sarasota	13	1,990	88	18	1,786	77	722	105,651	3,977	753	109,427	4,142
Seminole	18	2,950	136	23	2,693	92	533	122,435	5,071	574	128,078	5,299
St Johns	10	2,414	101	15	3,066	95	225	27,428	1,060	250	32,908	1,256
St Lucie	9	5,144	202	14	1,043	30	269	29,154	1,213	292	35,341	1,445
Sumter	13	4,011	176	6	466	17	54	6,694	279	73	11,170	472
Suwannee	10	1,868	103	9	1,968	64	25	2,025	97	44	5,861	264
Taylor	2	576	24	5	239	13	8	473	29	15	1,288	66
Union	1	288	12	2	430	11	5	225	11	8	942	34
Volusia	92	22,799	1,511	35	4,595	124	589	65,238	2,945	716	92,631	4,580
Wakulla	2	576	24	1	215	5	15	1,669	71	18	2,459	100
Walton	3	863	36	5	460	15	81	14,518	548	89	15,842	599
Washington	7	374	15	3	644	16	68	52,518	1,875	78	53,536	1,906
Total All Counties	1,280	437,049	18,251	975	142,167	4,790	19,364	3,066,317	131,603	21,619	3,645,533	154,644

Source: Florida Agency for Workforce Innovation, Labor Market Statistics Center, Quarterly Census of Employment and Wages Program (QCEW), released June 2011.

County level total economic impacts, including multiplier effects, were estimated from the proportional share of direct employment in each county, together with estimated statewide impacts, as summarized in Table 12. Total output impacts in 2010 from the combined horticulture sectors (excluding allied suppliers) were highest in the six counties of Miami-Dade (\$2.83 billion), Orange (\$1.68 billion), Palm Beach (\$1.19 billion), Hillsborough (\$1.06 billion), Broward (\$908 million), and Volusia (\$856 million). Combined employment and value added impacts of the horticulture sectors were highest in these same counties. For employment, Miami-Dade county had 38,508 jobs, followed by Orange (23,947 jobs), Palm Beach (18,453 jobs), Hillsborough (15,887 jobs), Broward (15,411 jobs), and Volusia (11,419 jobs), then Lee, Duval, Lake and Pinellas, as shown in Figure 17. For value added impacts Miami-Dade county had \$1.74 billion, followed by Orange (\$1.01 billion), Palm Beach (\$710 million), Hillsborough (\$635 million), Broward (\$528 million) and Volusia (\$527 million).

In four out of the six counties experiencing the largest combined impacts, the Nursery/greenhouse sector was largest contributor to those impacts, however, Landscape services was the largest contributor to

the horticulture industry’s economic importance in Broward and Palm Beach counties (Table 12). County level employment impacts by the nursery sector were greatest in Miami-Dade (25,425 jobs), Orange (12,761 jobs), Volusia (8,150 jobs), Hillsborough (6,467 jobs), and Palm Beach (5,836 jobs) as shown in Table 12. For the landscape services sector, county level employment impacts were highest in Broward (11,695 jobs), Palm Beach (10,434 jobs), Miami-Dade (10,257 jobs), Orange (9,515 jobs), and Hillsborough (7,977 jobs). Florida counties with the largest employment impacts generated by retail lawn and garden centers were Miami-Dade (2,826 jobs), Palm Beach (2,183 jobs), Broward (1,882 jobs), Orange (1,671 jobs), and Brevard (1,563 jobs) (Table 12).

Figure 17. Total employment impacts of the environmental horticulture industry in the top-ten Florida counties in 2010.

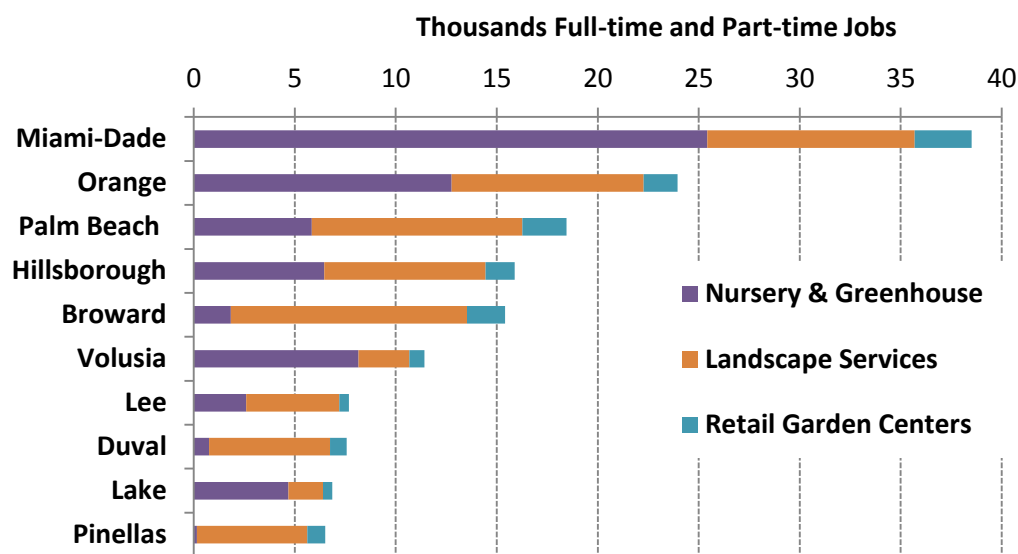


Table 12. Economic impacts of environmental horticulture industry sectors in Florida Counties in 2010.

Florida County	Nursery & Greenhouse				Retail Garden Centers				Landscape Services				All Horticulture Sectors Combined			
	Output (M\$)	Employment (jobs)	Value Added (M\$)	Labor Income (M\$)	Output (M\$)	Employment (jobs)	Value Added (M\$)	Labor Income (M\$)	Output (M\$)	Employment (jobs)	Value Added (M\$)	Labor Income (M\$)	Output (M\$)	Employment (jobs)	Value Added (M\$)	Labor Income (M\$)
Alachua	72.1	874	44.72	31.48	25.61	438	21.27	13.52	89.15	1,610	47.17	34.22	186.86	2,922	113.16	79.22
Baker	10.55	128	6.55	4.61	1.92	32	1.59	1.01	2.85	51	1.51	1.09	15.32	211	9.65	6.71
Bay	5.28	64	3.27	2.3	7.36	127	6.14	3.88	47.32	855	25.04	18.16	59.96	1,046	34.45	24.34
Bradford	5.28	64	3.27	2.3	1.92	32	1.59	1.01	3.56	64	1.88	1.37	10.76	160	6.74	4.68
Brevard	21.81	264	13.53	9.52	91.17	1563	75.79	48.17	115.04	2,078	60.87	44.16	228.02	3,905	150.19	101.85
Broward	151.31	1,834	93.87	66.06	109.76	1882	91.23	57.99	647.42	11,695	342.56	248.5	908.49	15,411	527.66	372.55
Calhoun	15.83	192	9.82	6.91	3.85	66	3.20	2.05	0.52	9	0.28	0.2	20.20	267	13.30	9.16
Charlotte	21.1	256	13.09	9.21	16.15	276	13.40	8.52	34.24	618	18.12	13.14	71.49	1,150	44.61	30.87
Citrus	14.69	178	9.11	6.41	11.93	204	9.92	6.29	22.19	401	11.74	8.52	48.81	783	30.77	21.22
Clay	12.91	156	8.01	5.63	19.99	343	16.60	10.56	29.83	539	15.78	11.45	62.73	1,038	40.39	27.64
Collier	145.97	1,769	90.55	63.73	50.85	872	42.27	26.86	196.13	3,543	103.77	75.28	392.95	6,184	236.59	165.87
Columbia	15.83	192	9.82	6.91	10.87	186	9.03	5.74	8.35	151	4.42	3.2	35.05	529	23.27	15.85
Desoto	65.87	798	40.86	28.76	10.53	180	8.76	5.56	6.4	116	3.39	2.46	82.80	1,094	53.01	36.78
Dixie	10.55	128	6.55	4.61	3.85	66	3.20	2.05	4.41	80	2.33	1.69	18.81	274	12.08	8.35
Duval	62.3	755	38.65	27.2	48.04	823	39.92	25.36	331.56	5,989	175.43	127.26	441.90	7,567	254.00	179.82
Escambia	5.28	64	3.27	2.3	41.39	709	34.40	21.85	64.16	1,159	33.95	24.63	110.83	1,932	71.62	48.78
Flagler	10.55	128	6.55	4.61	7.02	120	5.83	3.69	42.87	774	22.68	16.45	60.44	1,022	35.06	24.75
Franklin	0	0	0	0	0.00	0	0.00	0.00	1.04	19	0.55	0.4	1.04	19	0.55	0.40
Gadsden	272.36	3,301	168.96	118.92	5.77	98	4.79	3.05	8.06	146	4.27	3.09	286.19	3,545	178.02	125.06
Gilchrist	5.28	64	3.27	2.3	5.95	103	4.94	3.14	1.61	29	0.85	0.62	12.84	196	9.06	6.06
Glades	4.01	49	2.48	1.75	0.00	0	0.00	0.00	2.21	40	1.17	0.85	6.22	89	3.65	2.60
Gulf	0	0	0	0	0.00	0	0.00	0.00	1.71	31	0.9	0.66	1.71	31	0.90	0.66
Hamilton	0	0	0	0	0.00	0	0.00	0.00	4.41	80	2.33	1.69	4.41	80	2.33	1.69
Hardee	73.43	890	45.55	32.06	16.48	283	13.70	8.70	4.36	79	2.31	1.67	94.27	1,252	61.56	42.43
Hendry	48.95	593	30.37	21.37	2.44	42	2.05	1.28	5.07	92	2.68	1.95	56.46	727	35.10	24.60
Hernando	26.7	324	16.56	11.66	5.25	90	4.36	2.78	29.07	525	15.38	11.16	61.02	939	36.30	25.60
Highlands	275.92	3,344	171.17	120.47	22.80	391	18.95	12.06	17.26	312	9.13	6.63	315.98	4,047	199.25	139.16
Hillsborough	533.6	6,467	331.02	232.97	84.15	1443	69.96	44.47	441.62	7,977	233.67	169.51	1,059.37	15,887	634.65	446.95
Holmes	0	0	0	0	3.85	66	3.20	2.05	1.85	33	0.98	0.71	5.70	99	4.18	2.76
Indian River	10.55	128	6.55	4.61	13.34	228	11.08	7.05	71.22	1,287	37.69	27.34	95.11	1,643	55.32	39.00
Jackson	10.55	128	6.55	4.61	5.77	98	4.79	3.05	3.98	72	2.11	1.53	20.30	298	13.45	9.19
Jefferson	31.65	384	19.64	13.82	5.77	98	4.79	3.05	0.9	16	0.48	0.35	38.32	498	24.91	17.22

Lafayette	10.55	128	6.55	4.61	3.85	66	3.20	2.05	4.41	80	2.33	1.69	18.81	274	12.08	8.35
Lake	387.18	4,692	240.19	169.05	27.35	469	22.74	14.44	94.27	1,703	49.88	36.18	508.80	6,864	312.81	219.67
Lee	214.51	2,600	133.07	93.66	27.72	475	23.04	14.62	254.79	4,602	134.81	97.8	497.02	7,677	290.92	206.08
Leon	6.23	76	3.87	2.72	65.93	1130	54.82	34.83	112.95	2,040	59.77	43.36	185.11	3,246	118.46	80.91
Levy	31.6	383	19.6	13.8	3.85	66	3.20	2.05	4.32	78	2.28	1.66	39.77	527	25.08	17.51
Liberty	0	0	0	0	0.00	0	0.00	0.00	4.41	80	2.33	1.69	4.41	80	2.33	1.69
Madison	10.55	128	6.55	4.61	11.23	193	9.34	5.92	6.62	119	3.5	2.54	28.40	440	19.39	13.07
Manatee	162.88	1,974	101.04	71.12	34.37	589	28.57	18.16	98.3	1,776	52.01	37.73	295.55	4,339	181.62	127.01
Marion	46.28	561	28.71	20.21	49.08	841	40.81	25.94	64.21	1,160	33.97	24.64	159.57	2,562	103.49	70.79
Martin	88.56	1,073	54.94	38.67	13.67	234	11.35	7.23	70.66	1,276	37.39	27.12	172.89	2,583	103.68	73.02
Miami-Dade	2,097.89	25,425	1,301.43	915.96	164.82	2826	137.02	87.08	567.85	10,257	300.46	217.96	2,830.56	38,508	1738.91	1221.00
Monroe	5.28	64	3.27	2.3	4.91	84	4.09	2.59	28.93	523	15.31	11.1	39.12	671	22.67	15.99
Nassau	15.83	192	9.82	6.91	4.55	78	3.78	2.41	19.63	355	10.39	7.54	40.01	625	23.99	16.86
Okaloosa	10.55	128	6.55	4.61	22.80	391	18.95	12.06	63.16	1,141	33.42	24.24	96.51	1,660	58.92	40.91
Okeechobee	54.74	663	33.96	23.9	10.53	180	8.76	5.56	8.25	149	4.37	3.17	73.52	992	47.09	32.63
Orange	1,052.95	12,761	653.2	459.73	97.49	1671	81.04	51.49	526.74	9,515	278.71	202.18	1,677.18	23,947	1012.95	713.40
Osceola	38.72	469	24.02	16.9	12.97	223	10.77	6.87	80.52	1,454	42.6	30.91	132.21	2,146	77.39	54.68
Palm Beach	481.53	5,836	298.72	210.24	127.31	2183	105.82	67.24	577.62	10,434	305.63	221.71	1,186.46	18,453	710.17	499.19
Pasco	101.02	1,224	62.67	44.11	31.56	541	26.25	16.67	118.98	2,149	62.95	45.67	251.56	3,914	151.87	106.45
Pinellas	12.46	151	7.73	5.44	51.89	889	43.16	27.41	302.4	5,462	160	116.07	366.75	6,502	210.89	148.92
Polk	154.87	1,877	96.07	67.62	52.26	896	43.43	27.59	133.49	2,411	70.63	51.24	340.62	5,184	210.13	146.45
Putnam	90.79	1,100	56.32	39.64	7.36	127	6.14	3.88	9.72	176	5.14	3.73	107.87	1,403	67.60	47.25
Santa Rosa	27.15	329	16.84	11.85	24.20	414	20.11	12.79	33.53	606	17.74	12.87	84.88	1,349	54.69	37.51
Sarasota	39.16	475	24.29	17.1	27.01	462	22.43	14.25	188.59	3,407	99.79	72.39	254.76	4,344	146.51	103.74
Seminole	60.52	734	37.55	26.43	32.26	554	26.83	17.03	240.47	4,344	127.23	92.3	333.25	5,632	191.61	135.76
St Johns	44.95	545	27.88	19.62	33.30	571	27.68	17.61	50.26	908	26.6	19.29	128.51	2,024	82.16	56.52
St Lucie	89.9	1,090	55.77	39.25	10.53	180	8.76	5.56	57.52	1,039	30.43	22.08	157.95	2,309	94.96	66.89
Sumter	78.33	949	48.59	34.2	5.95	103	4.94	3.14	13.23	239	7	5.08	97.51	1,291	60.53	42.42
Suwannee	45.84	556	28.44	20.01	22.43	385	18.65	11.84	4.6	83	2.43	1.77	72.87	1,024	49.52	33.62
Taylor	10.55	128	6.55	4.61	4.55	78	3.78	2.41	1.38	25	0.73	0.53	16.48	231	11.06	7.55
Union	5.28	64	3.27	2.3	3.85	66	3.20	2.05	0.52	9	0.28	0.2	9.65	139	6.75	4.55
Volusia	672.45	8,150	417.15	293.6	43.50	746	36.14	22.98	139.65	2,523	73.89	53.6	855.60	11,419	527.18	370.18
Wakulla	10.55	128	6.55	4.61	1.92	32	1.59	1.01	3.37	61	1.78	1.29	15.84	221	9.92	6.91
Walton	15.83	192	9.82	6.91	5.25	90	4.36	2.78	25.99	469	13.75	9.97	47.07	751	27.93	19.66
Washington	6.68	81	4.14	2.91	5.77	98	4.79	3.05	88.91	1,606	47.04	34.13	101.36	1,785	55.97	40.09
Grand Total	8,122.33	98,439	5,038.69	3,546.28	1679.78	28,800	1,396.38	887.36	6,240.57	112,726	3,302.00	2,395.36	16,042.68	239,965	9737.07	6829.00

Note: county impact totals are smaller than the state totals because the impacts from allied suppliers were not included. Impacts include regional multiplier effects.

Comparison with Previous Studies

In this section, the economic impacts of the Florida environmental horticulture industry in 2010 are compared with results from previous studies for 1997, 2000 and 2005. The previous studies were all conducted using similar, though not identical methods. This latest study included additional data and estimated impacts for allied horticultural suppliers, but these numbers were not included in this part of the analysis in order to make the results comparable. In addition, all values were adjusted to 2010 dollars to remove the effects of inflation.

Total industry sales for nurseries, landscape services and horticultural retailers increased from \$9.30 billion in 1997 to \$14.79 billion in 2010, an increase of 59 percent over the 13 year period, representing an average annual compound growth rate of 3.6 percent, as shown in Table 13. Total industry sales actually declined between 2005 and 2010 due to the lingering effects of the economic recession of 2007-08. Comparing inflation adjusted numbers from 2010 to 1997, sales increased substantially for the nursery sector (77 %) and landscape sector (70%), but declined for the retail sector (-34%).

The combined output impacts by the horticulture sector increased from \$9.10 billion in 1997 to \$16.04 billion in 2010, representing an average annual growth rate of 4.5 percent. Total employment impacts increased from 157,950 jobs in 1997 to 318,573 jobs in 2005, then declined to 239,965 jobs (-25%) in 2010. Total value added impacts increased from \$6.65 billion in 1997 to \$9.74 billion in 2010, an increase of 46 percent, of 3.0 percent annually. Value added impacts increased the most between 1997 and 2010 for the nursery sector (102%) and the landscape sector (19%). Value added impacts for retail sector grew steadily from 1997 to 2005, but then dropped by over 78 percent between 2005 and 2010 (Figure 18).

Figure 18. Trend in value added impacts of the Florida environmental horticulture industry, 1997 to 2010.

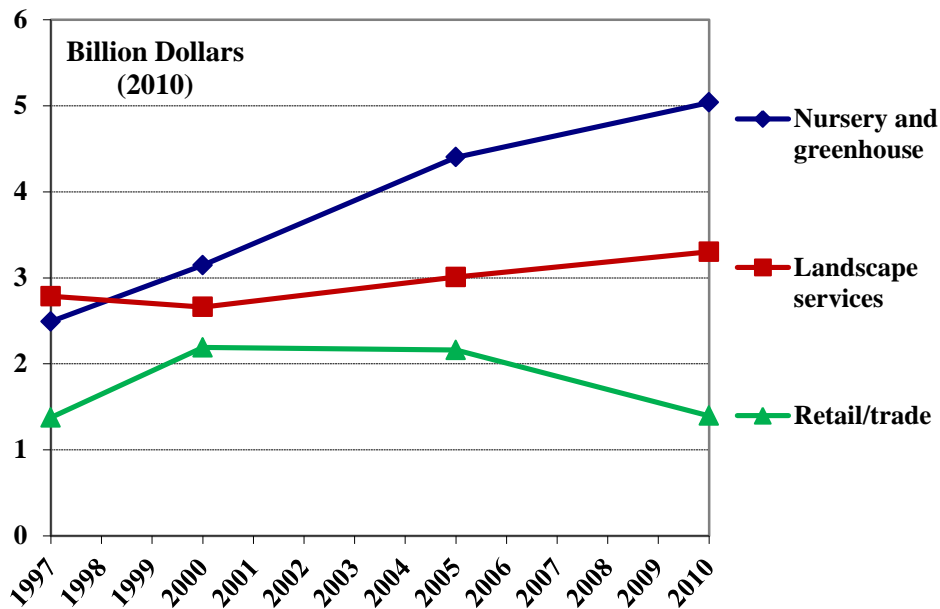


Table 13. Summary of economic impacts of the Florida environmental horticulture industry in 1997, 2000, 2005 and 2010.

Impact / Sector	1997	2000	2005	2010	Change 2005-10	Percent Change 1997-2010	Avg. Annual Compound Growth 1997-2010
	----- Million 2010 Dollars -----						
Sales	9,303	12,377	16,859	14,793	-2,066	59.0%	3.6%
Nursery and greenhouse	2,410	2,812	3,327	4,265	938	77.0%	4.5%
Landscape services	3,547	3,885	5,819	6,039	221	70.3%	4.2%
Retail/trade	3,346	5,680	7,713	4,489	-3,225	34.1%	2.3%
Direct Output	7,154	8,610	11,498	10,784	-715	50.7%	3.2%
Nursery and greenhouse	2,410	2,812	3,327	4,265	938	77.0%	4.5%
Landscape services	3,547	3,885	5,819	6,039	221	70.3%	4.2%
Retail/trade	1,198	1,913	2,353	479	-1,873	-60.0%	-6.8%
Output Impacts	9,102	11,448	13,983	16,043	2,060	76.3%	4.5%
Nursery and greenhouse	3,502	4,342	5,276	8,122	2,847	131.9%	6.7%
Landscape services	3,730	4,241	5,835	6,241	406	67.3%	4.0%
Retail/trade	1,869	2,865	2,872	1,680	-1,193	-10.1%	-0.8%
Value Added Impacts	6,652	7,996	9,569	9,737	168	46.4%	3.0%
Nursery and greenhouse	2,492	3,146	4,401	5,039	637	102.2%	5.6%
Landscape services	2,786	2,661	3,008	3,302	294	18.5%	1.3%
Retail/trade	1,375	2,190	2,160	1,396	-763	1.6%	0.1%
Labor Income Impacts	4,377	5,144	5,742	6,829	1,087	56.0%	3.5%
Nursery and greenhouse	1,346	2,009	2,045	3,546	1,502	163.5%	7.7%
Landscape services	2,150	1,771	2,391	2,395	4	11.4%	0.8%
Retail/trade	881	1,365	1,306	887	-419	0.7%	0.1%
Indirect Business Tax Impacts	396	577	607	646	39	63.0%	3.8%
Nursery and greenhouse	75	112	139	227	88	203.1%	8.9%
Landscape services	101	117	103	141	38	40.0%	2.6%
Retail/trade	220	347	365	278	-88	26.1%	1.8%
Employment Impacts (jobs)	157,950	187,860	318,573	239,965	-78,608	51.9%	3.3%
Nursery and greenhouse	44,892	54,288	53,551	98,439	44,887	119.3%	6.2%
Landscape services	89,517	64,282	88,073	112,726	24,654	25.9%	1.8%
Retail/trade	23,541	69,290	176,949	28,800	-148,149	22.3%	1.6%

All values are expressed in millions of dollars (2010) adjusted for inflation using the implicit GDP price deflator. Allied horticultural suppliers not shown because they were not included in studies for 1997, 200 and 2005.

Conclusions

This study used telephone and internet surveys to collect data on industry sales, employment, trade flows, market channels, and industry outlook data from Florida's environmental horticultural industry for the year 2010. From these data, averages and totals were computed and expanded to estimate state totals for industry sales and employment. A regional economic model was then used to estimate the total economic impacts of this industry, including multiplier effects, at both state and county levels. The results show that Florida's environmental horticulture industry grew rapidly during the period of 1997 through 2005, and continued during 2005-10, although at a slower pace. Growth during the latter period occurred in spite of the major recession and downturn in the housing market beginning in 2008, which was much worse in Florida than for the nation as a whole. Growth in the economic impacts of the environmental horticulture industry occurred in spite of the product losses from freezes in 2010. Total industry employment, however, declined between 2005 and 2010. Growth remained strongest for the nursery and greenhouse sector and the landscape sector, but was negative for the retail lawn and garden centers, primarily due to this recent downturn. Industry sales and employment estimated from survey data were significantly higher than published values based on secondary statistics, due to better coverage of many small and undocumented firms. The nursery and greenhouse production sector has significant indirect and induced impacts on other sectors of the state's economy due to sales of plant products to out-of-state markets. These sales bring new dollars into the state's economy, along with the associated multiplier effects. Total employment impacts of the environmental horticulture industry in Florida remain greater than for other major agricultural commodities in the state, such as forest products and fruits/vegetables, while total output and value added impacts were comparable, according to other studies. Unlike many other agricultural industries, economic activity in environmental horticulture sector in Florida tends to be concentrated in urban areas, close to the workforce and markets for landscape services and retail goods, with the largest impacts occurring in major metropolitan areas.

Appendix: Telephone Survey Questionnaire for Wholesale Nurseries

May I please speak with @name@? [Prompt for: Owner, Manager, Person in Charge of the Business]

Hello, my name is _____, and I'm calling from the Florida Survey Research Center at the University of Florida. In cooperation with the Florida Nursery Growers and Landscape Association, University of Florida researchers are conducting a brief survey of businesses in the environmental horticulture industry about the products and services you provide. The survey results will be used to evaluate the economic impacts of the industry on the whole. Your answers will be confidential, and you may stop the interview at any time. This interview should take less than 10 minutes to complete.

1. Did this business produce and sell ornamental plants in 2010? [YNDR]. **IF NO, DK, R: Terminate-delete, "Today we're only interviewing businesses that produced and sold ornamental plants in 2010. Thank you for your time. Have a nice day." IF YES: Continue**

First, we'd like to ask you a few general questions about you and your business.

2. How many years has this company been in business? [INT: Prompt if needed for chains, this location only. If less than one year, code as zero.] [#, DR]
3. And, what is your position in the business? [Owner, Manager, CEO/CFO/COO, Administrative Assistant or Company employee, Other (describe), Don't know, Refuse]
4. What was the average number of permanent, full-time employees, including management and family members, employed by your business in 2010? [#, DR]
5. And, what was the average number of temporary or part-time employees employed by your business in 2010? [#, DR]
6. What were your business's approximate gross sales, in dollars, in 2010? [\$, DR]
IF DK or R: Could you estimate which of the following ranges represents the value of your business's gross sales for 2010? [up to \$100,000; \$100,000 up to \$250,000; \$250,000 up to \$500,000; \$500,000 up to \$1 million; \$1 million up to \$2.5 million; \$2.5 million up to \$5 million; \$5 million up to \$10 million; \$10 million up to \$15 million; \$15 million up to \$20 million; \$20 million up to \$30 million; \$30 million up to \$40 million; \$40 million up to \$50 million; More than \$50 million; DK; R]
7. Did your business suffer any plant losses or damage in the freeze events that occurred in January and December of 2010? [YNDR]
IF YES: Could you please estimate, in dollars, the approximate value of plants lost or damaged during those freeze events? [\$, DR]. **IF DK or R:** A1. Could you please estimate the percentage of total annual sales lost to those freezes in 2010? [#, DR]
8. In which of the following geographic areas were your products sold in 2010? Were your products sold in...
The Local Area (the city or county)
The State of Florida, beyond the local area
Other states, beyond Florida
Other countries, outside the United States
Don't know
Refuse

We'd like to know what percentage each of the geographic regions you named made up your total sales in 2010.

*Your total percentage for all geographic types should total 100%. **IF "Local Area":** What percentage of your total sales were made in the local area (the city or county)? [#, DR]. **IF "Florida":** What percentage of your total sales*

were made in the State of Florida, outside your local area? [#, DR]. **IF “Other states”:** What percentage of your total sales were made in the United States, outside of Florida and your local area? [#, DR]. **IF “Other countries”:** What percentage of your total sales were made in other countries, outside the United States? [#, DR]

9. What was the net area, in square feet, used by your business in 2010 for greenhouse or shadehouse plant production? [INT: If asked for clarification, specify “excluding non-growing space.”] [#, DR]
10. What was the net area, in acres, used by your business in 2010 for open container plant production? [INT: If asked for clarification, specify “excluding non-growing space.”] [#, DR]
11. And, what was the net area, in acres, used by your business in 2010 for field (in-ground) plant production? [INT: If asked for clarification, specify “excluding non-growing space.”] [#, DR]
12. What percentage of your business’s total purchases of production inputs (e.g. fertilizers, chemicals, containers) were from vendors in the state of Florida? [#, DR]

Next, we’d like to know more about the products and services offered by your business.

13. Which of the following types of plant products were sold by your business in 2010?

Deciduous shade trees
Flowering or fruit trees (including citrus)
Evergreen trees
Palms
Shrubs
Tropical foliage
Vines or ground covers
Potted flowering plants or bedding plants
Cut foliage or flowers
Propagating liners, cuttings, or plugs
Turfgrass
Other plant types (describe)
Don’t know
Refuse]

For each sold: *Next, we’d like to know what percentage each of the plant products you named made up your total sales in 2010. Your total percentage for all plant product types should total 100%. What percentage of your total sales in 2010 were comprised of sales of [plant type]? [#, DR]*

14. What percentage of your total sales in 2010 were comprised of plants native to the state of Florida? [#, DR]
15. And, which of the following types of customers were your products sold to in 2010?

Landscaper contractors, lawn maintenance firms, or interiorscapers
Home Improvement Stores (e.g. Home Depot, Lowe’s)
Retail mass merchandisers (e.g. Walmart, Kmart)
Independent retail garden centers
Re-wholesalers or brokers
Developers or property managers
Other growers
Homeowners
Other customers (describe)
Don’t know

Refuse

For each customer type: *We'd like to know what percentage each of the customer types you named made up your total sales in 2010. Your total percentage for all customer types should total 100%. What percentage of your total sales in 2010 were comprised of sales to [customer type]? [#, DR]*

Now, we'd like to ask you about your opinions on some potential threats to your business.

16. I'll read you a list of things that some people might consider threats to their businesses. Please rate the importance of each of these potential threats to your business using a scale from 1 to 10, where 1 is not important at all and 10 is the highest importance. *How important is the threat from...*

- A. Drought or water use restrictions [1-10, DK, R]
- B. Low prices for products or services [1-10, DK, R]
- C. Restrictions on the use or reduced availability of chemicals [1-10, DK, R]
- D. Increasing costs of production [1-10, DK, R]
- E. Competition by plant substitutes [1-10, DK, R]
- F. Market power of large retail chains [1-10, DK, R]
- G. Government regulations [1-10, DK, R]
- H. Lack of professionalism [1-10, DK, R]
- I. Economic recession [1-10, DK, R]
- J. Immigration enforcement [1-10, DK, R]
- K. Poor worker education or skills [1-10, DK, R]
- L. Energy or transportation costs [1-10, DK, R]

Finally, we have a few questions about business development opportunities.

17. I'll read you a list of opportunities for business development. Please indicate your level of interest in each as either "not interested," "moderately interested," or "very interested." If your business is already participating in this business development, please indicate that you're "already doing" so.

- A. Landscape installation or maintenance [NI, MI, VI, DA, DK, R]
- B. Contract growing [NI, MI, VI, DA, DK, R]
- C. Offering new services such as green walls or rooftop gardens [NI, MI, VI, DA, DK, R]
- D. Retailing direct to the public [NI, MI, VI, DA, DK, R]
- E. Securing certifications for sustainable business practices (e.g. LEED, Florida Water Star, Green Building, Veriflora) [NI, MI, VI, DA, DK, R]
- F. Growing bio-fuel energy crops [NI, MI, VI, DA, DK, R]
- G. Growing edible crops [NI, MI, VI, DA, DK, R]
- H. Changing plant or product mix (e.g. growing more colorful plants, offering mixed containers, decorative containers, plant care tags) [NI, MI, VI, DA, DK, R]
- I. Growing Florida-friendly plants [NI, MI, VI, DA, DK, R]
- J. Using biodegradable containers [NI, MI, VI, DA, DK, R]
- K. Using social media such as Facebook or twitter to market or advertise [NI, MI, VI, DA, DK, R]
- L. Expanding digital presence through web sites or i-phone apps [NI, MI, VI, DA, DK, R]
- M. Participating in branding campaigns [NI, MI, VI, DA, DK, R]
- N. Networking or partnering with construction firms, realtors, building owners or managers [NI, MI, VI, DA, DK, R]
- O. Earning FNGLA professional certification [NI, MI, VI, DA, DK, R]

18. Would you like to add any other comments about the horticulture industry? [YNDR]

IF YES: [enter text]

19. Do you have any questions regarding this study or your rights as a research participant? [YNDR]

IF YES: For questions regarding this study, you may contact Dr. Michael Scicchitano at the Florida Survey Research Center toll-free at 866-392-3475. For questions regarding your rights as a research participant, you may contact the University of Florida Institutional Review Board at 352-392-0433.

That completes our survey. Thank you very much for your time and participation.