

Florida Nursery Crops and Landscaping Industry Economic Outlook

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Industry at a Glance

Summary of Economic Contributions

Florida's environmental horticulture industry is affected by a number of external factors such as housing market dynamics, unemployment rate, consumer demand for discretionary goods, transportation fuel prices, combined with intra-industry competition and overall slow recovery from economic recession. However, considering overall industry value, Florida is one of the leading states producing environmental horticulture products, ranked second only to California in the United States. Florida's 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.

According to a recent study of economic impacts for 2010, 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 1 (Hodges et al., 2011). 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. These results represented significant increases in Florida since previous studies done for 2005 (Hodges and Haydu, 2006).

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.

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.

The overall age of firms in the industry in 2010 was 18.3 years (Hodges et al., 2011). The average years in business for nursery, landscape, and retail firms are comparable with average ages of 18.1, 17.3, and 18.3 years in 2010, respectively. In contrast, responding allied supplier firms had been in business for an average of over 27 years.

Table 1. 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>244,187</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>

Industry Employment Characteristics

Direct employment provided by the industry 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 2). 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.

Table 2. Reported and expanded employment by Florida’s environmental horticulture industry in 2010.¹

Industry Sector	Employment Reported by			Total Industry		
	Survey Respondents (Jobs)			Employment (Jobs) ²		
	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 ³	229 ³	3,030 ³
Total	19,683	5,453	25,136	157,102	47,660	204,762

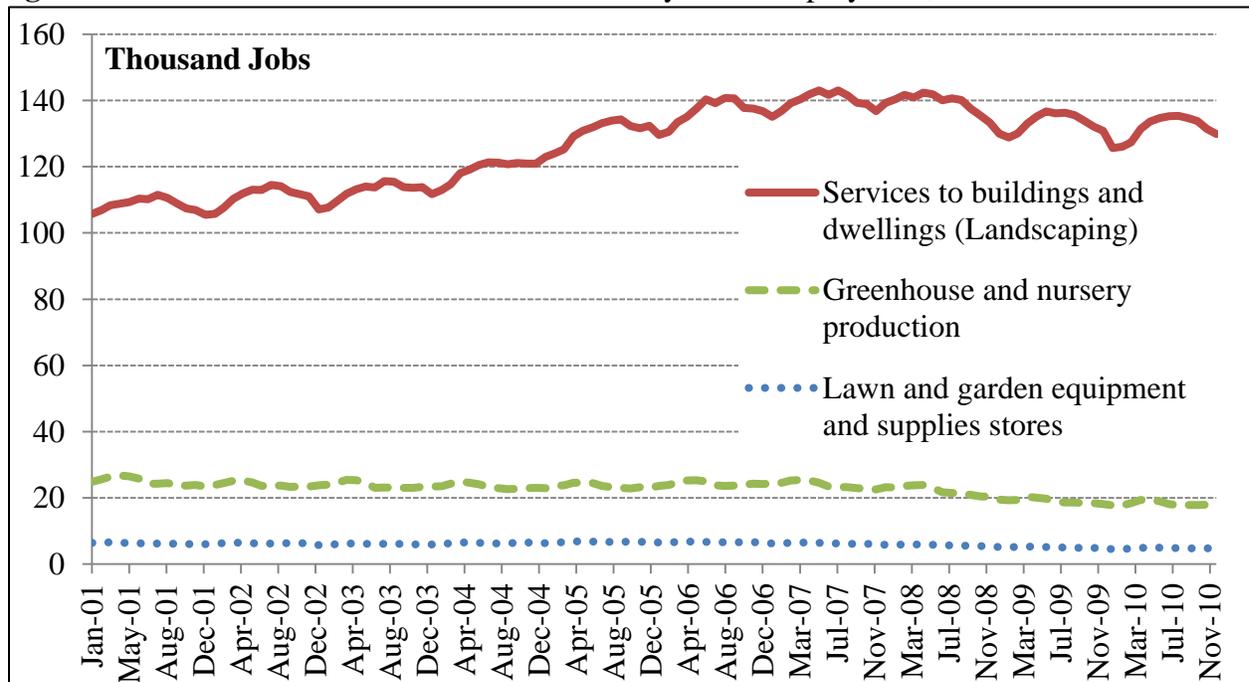
¹ The results in this table are based on Florida environmental horticulture industry survey conducted in 2011.

² Estimated based on survey expansion factors (see methods).

³ Not expanded.

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 2). Note that employment for allied suppliers was not expanded and represents only employees reported by survey respondents. 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).

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



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

Production Area

Nursery plants are one of the largest agricultural commodity groups in Florida, along with fruits, vegetables and forest products (Hodges and Rahmani, 2008). 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 farm (USDA, 2009). The average production area reported by a recent 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 3) (Hodges et al., 2011). 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 3).

Table 3. 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

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).

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

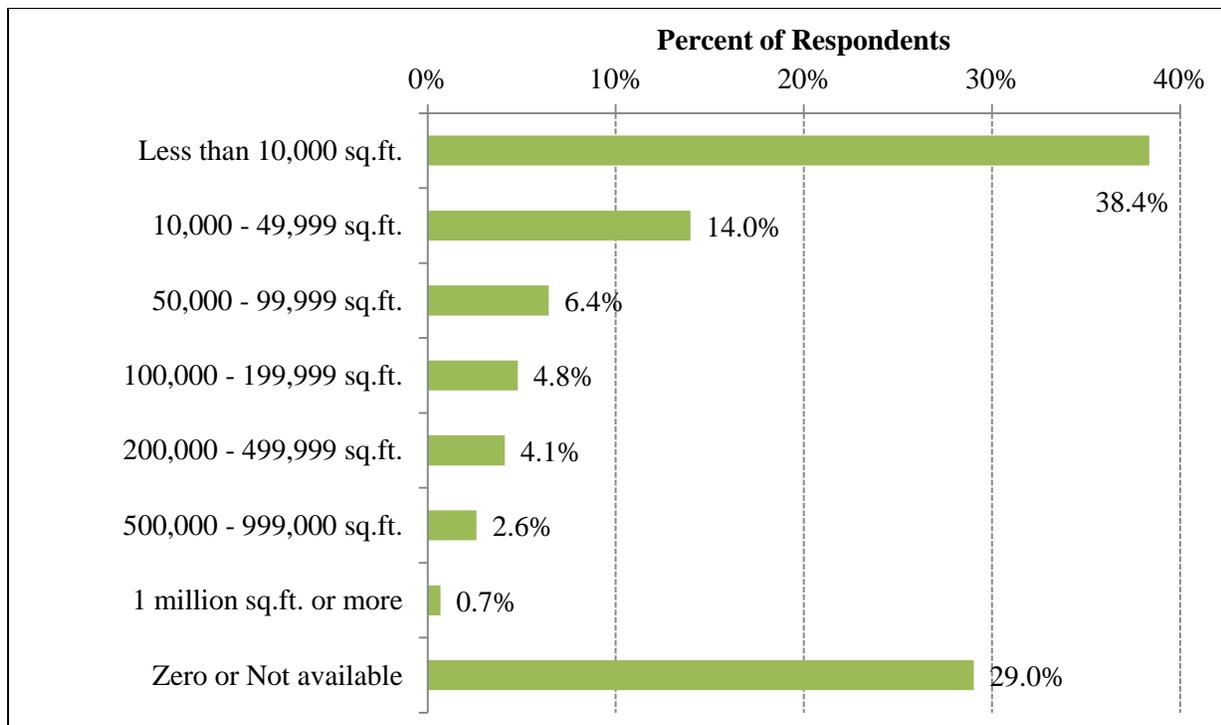
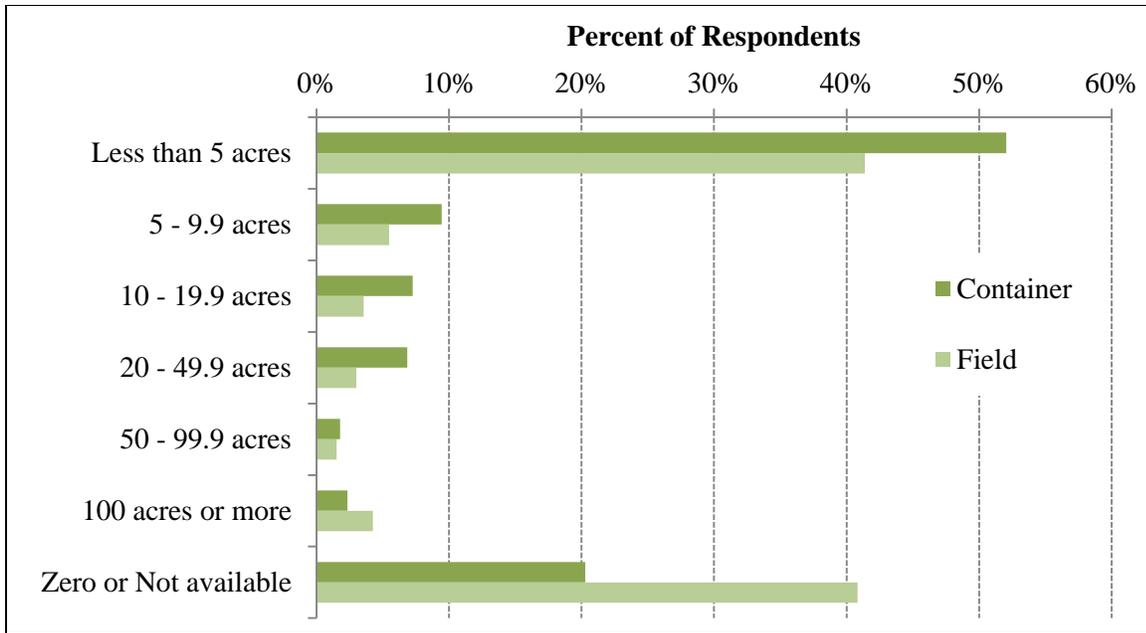


Figure 3. Distribution of Florida container and field nursery area reported by survey respondents for 2010.



Total Sales Summary by Sector

Information on annual sales of environmental horticultural products and services 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 4). 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.

Table 4. Reported and estimated sales of Florida environmental horticulture firms in 2010.

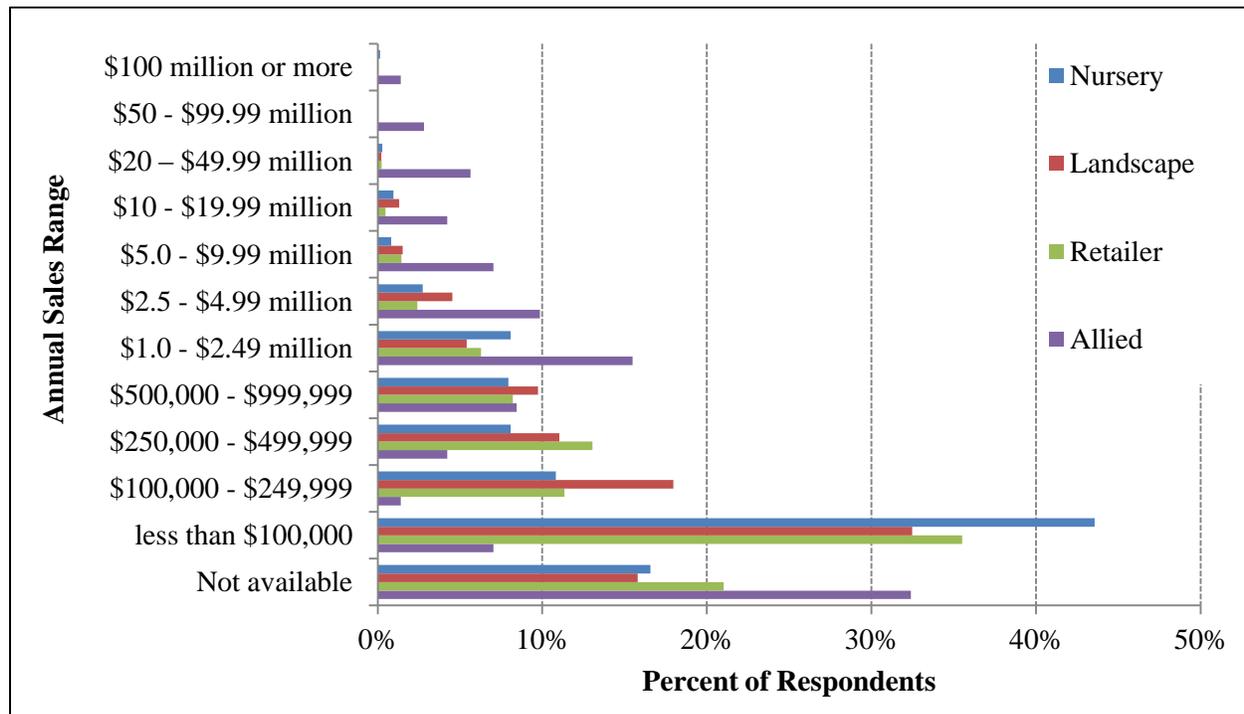
Metric	Industry Group				Total/Avg.
	Nursery	Landscape	Retailer	Allied	
Respondents reporting sales	616	390	327	48	1,381
	----- Million \$ -----				
Sum of reported sales	\$685.1	\$314.9	\$223.9	\$558.4	\$1,782.4
Average of reported sales per firm	\$1.11	\$0.81	\$0.68	\$11.63	\$1.29
Estimated total sales	\$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

Industry Situation

Sales Breakdown by Annual Sales Range and Market Region

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).

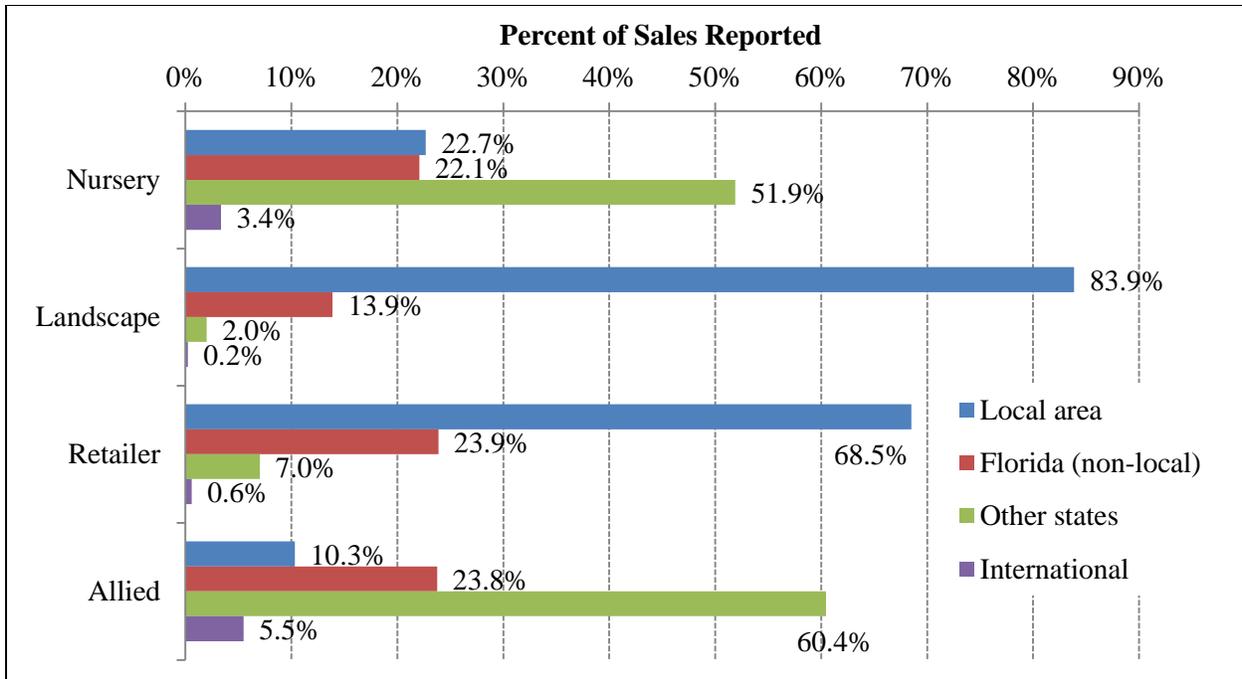
Figure 4. Distribution of survey respondents by annual sales range.



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 4). 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.

The following four subsections provide sales figures and percentage distribution of specific types of horticultural products and services in 2010, i.e., sales by plant type for the nursery and greenhouse sector, sales by service and product type for the landscape firms sector, sales by product type for the retail sector, and sales by product type for the allied-supplier sector.

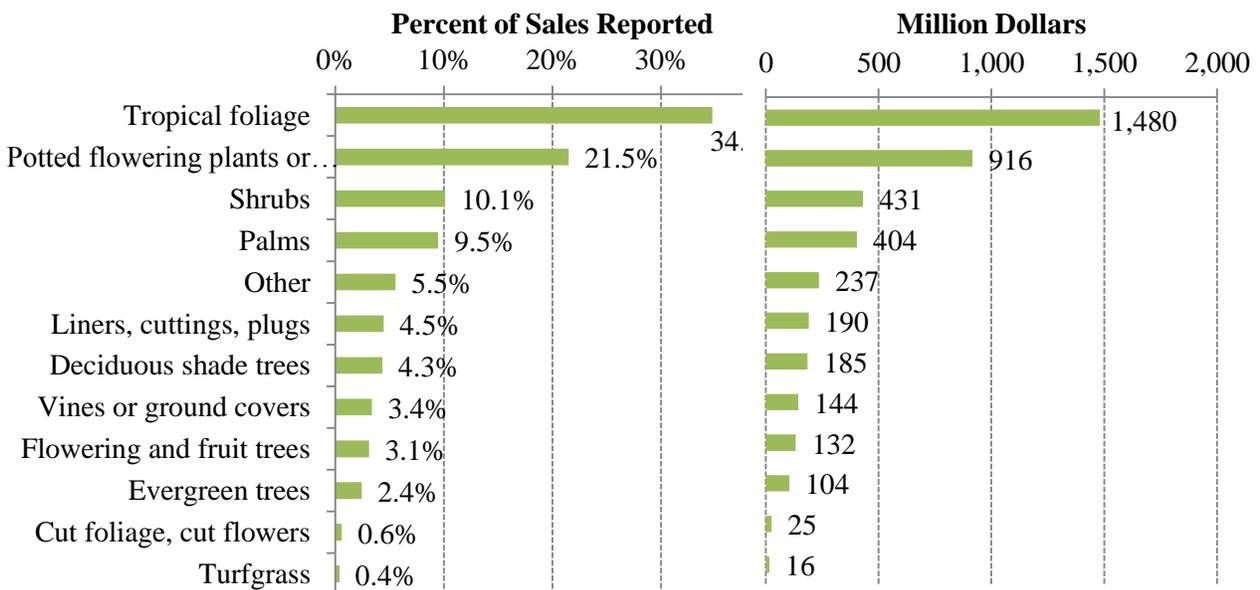
Figure 5. Distribution of Florida nursery, landscaper, retailer, and allied supplier sales by market region in 2010.



Nursery and Greenhouse Sector Sales by Plant Types

Sales of specific types of horticultural products and services are detailed in Figure 6 through Figure 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.

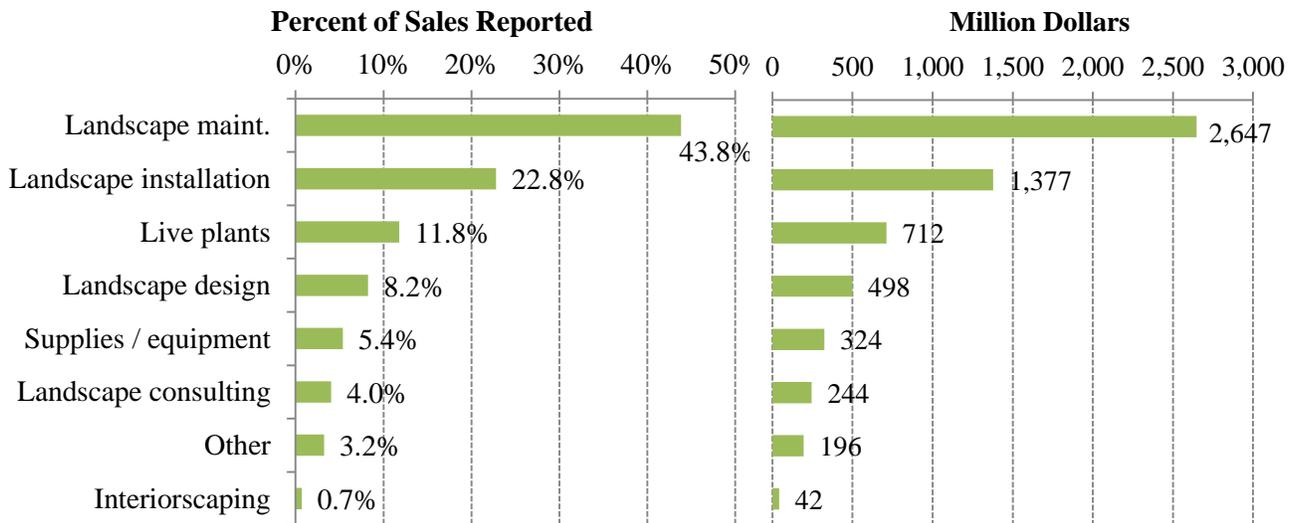
Figure 6. Distribution of plant type sales by Florida nurseries and greenhouses in 2010.



Landscaping Sector Sales by Service and Product Type

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%).

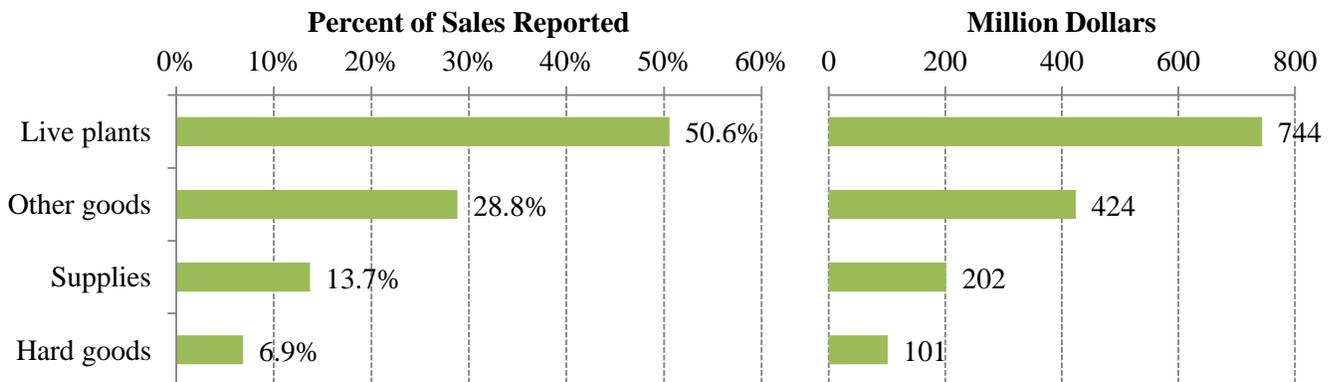
Figure 7. Distribution of sales by service and product type for Florida landscape firms in 2010.



Retail Sector Sales by Product Type

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.

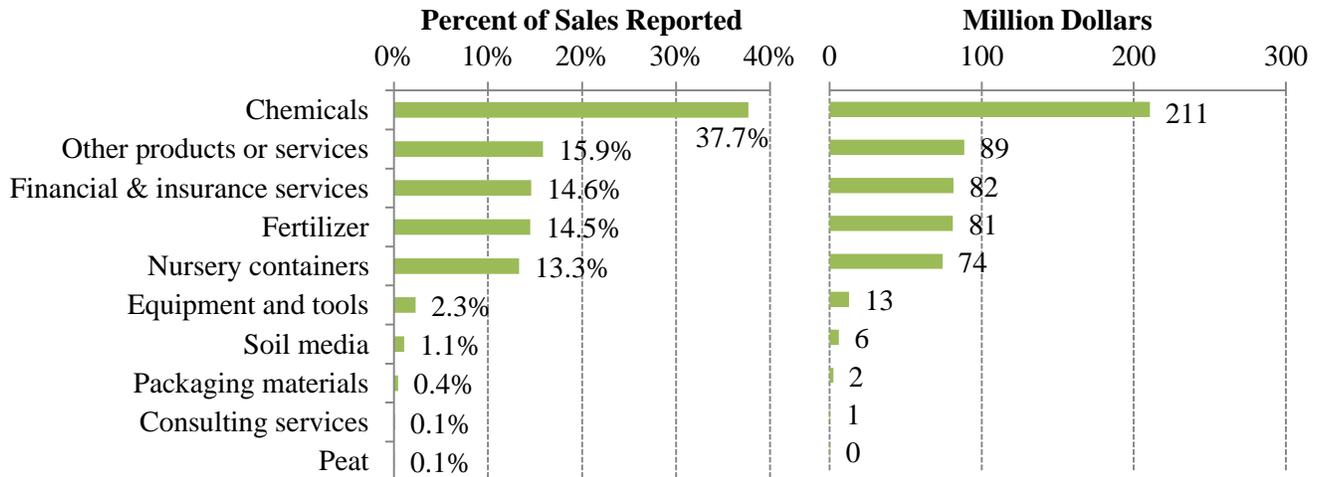
Figure 8. Distribution of product type sales by Florida horticultural retailers in 2010.



Allied Supplier Sales by Product Type

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%).

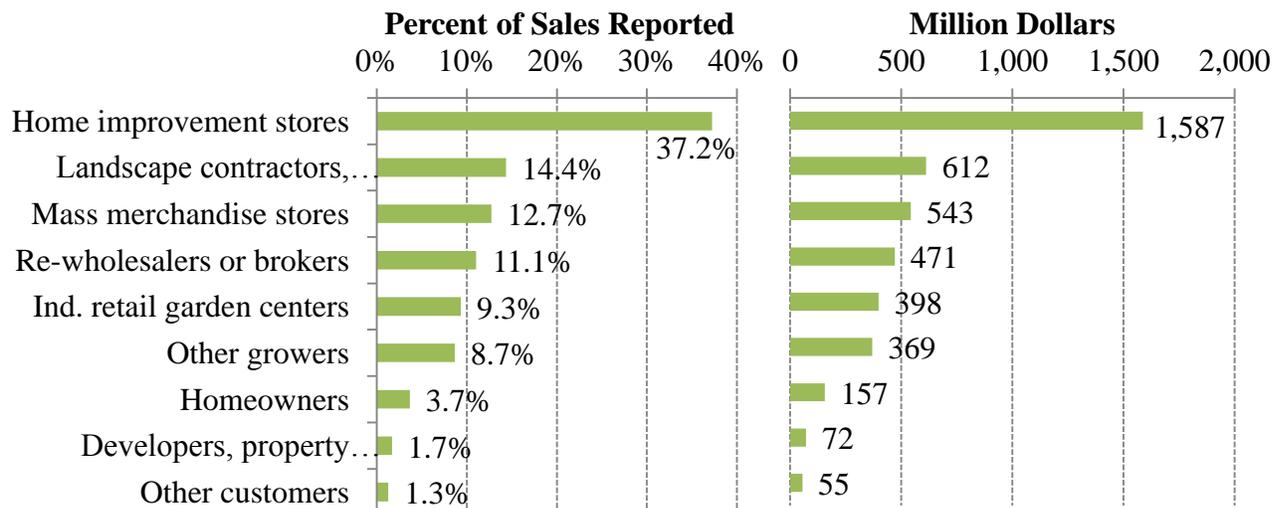
Figure 9. Distribution of product type sales and services by Florida allied-supplier firms in 2010.



Market Channels for Horticultural Products

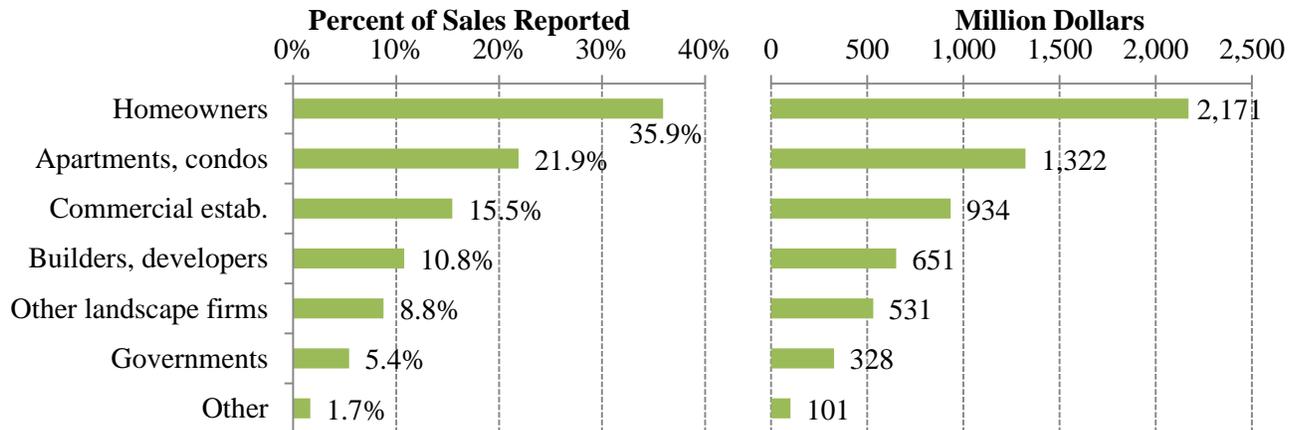
Sales of Florida horticultural products and services to different types of customers are summarized in Figures 10 through 13. For the nursery/greenhouse sector, sales to home improvement stores was the largest market segment, representing \$1.59 billion or 37 percent of total sales, followed by landscapers 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).

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



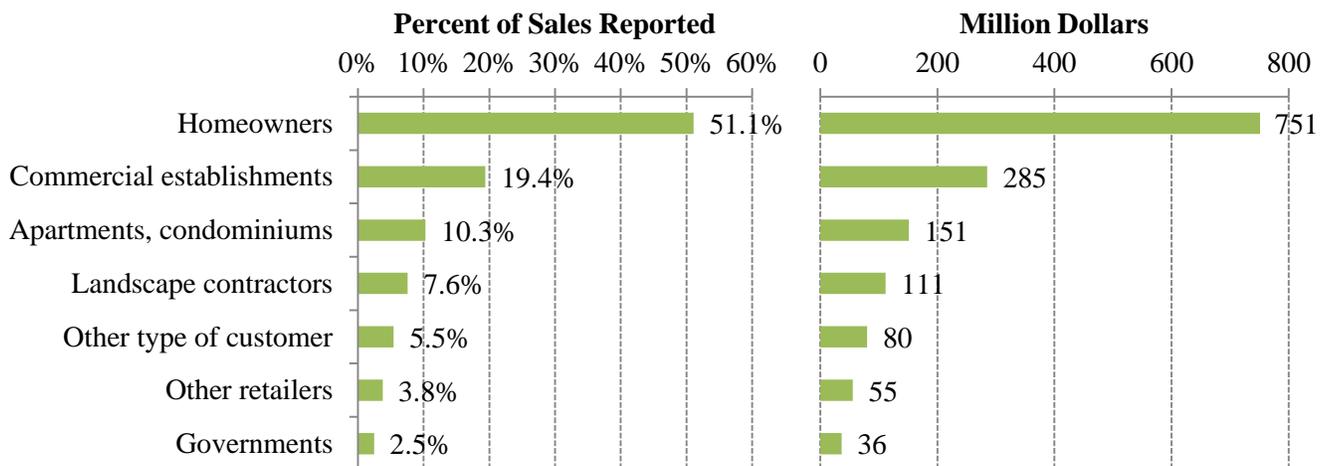
The most important customer segment for landscape firms in the survey was homeowners, accounting for \$2.17 billion or nearly 36 percent of total sales, followed by apartments and condominiums (\$1.32 billion, 22%), commercial establishments (\$934 million, 16%), builders and developers (\$651 million,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

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



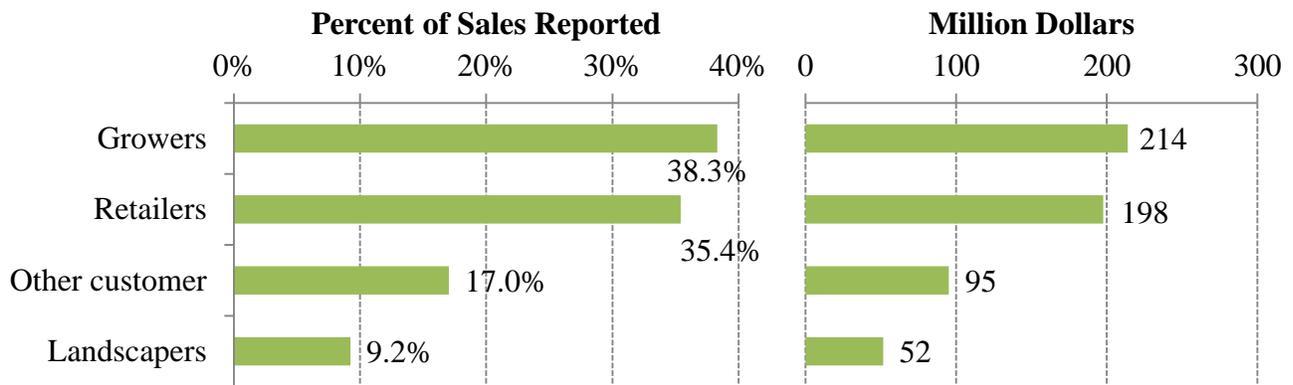
For horticultural retailers, the largest customer segment was sales to homeowners of \$751 million represented over half (51%) of total sales, followed by commercial establishments (\$285 million, 19%), apartments and condominiums (\$151 million, 10%), landscape contractors (\$111 million, 8%), “other”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

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



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.

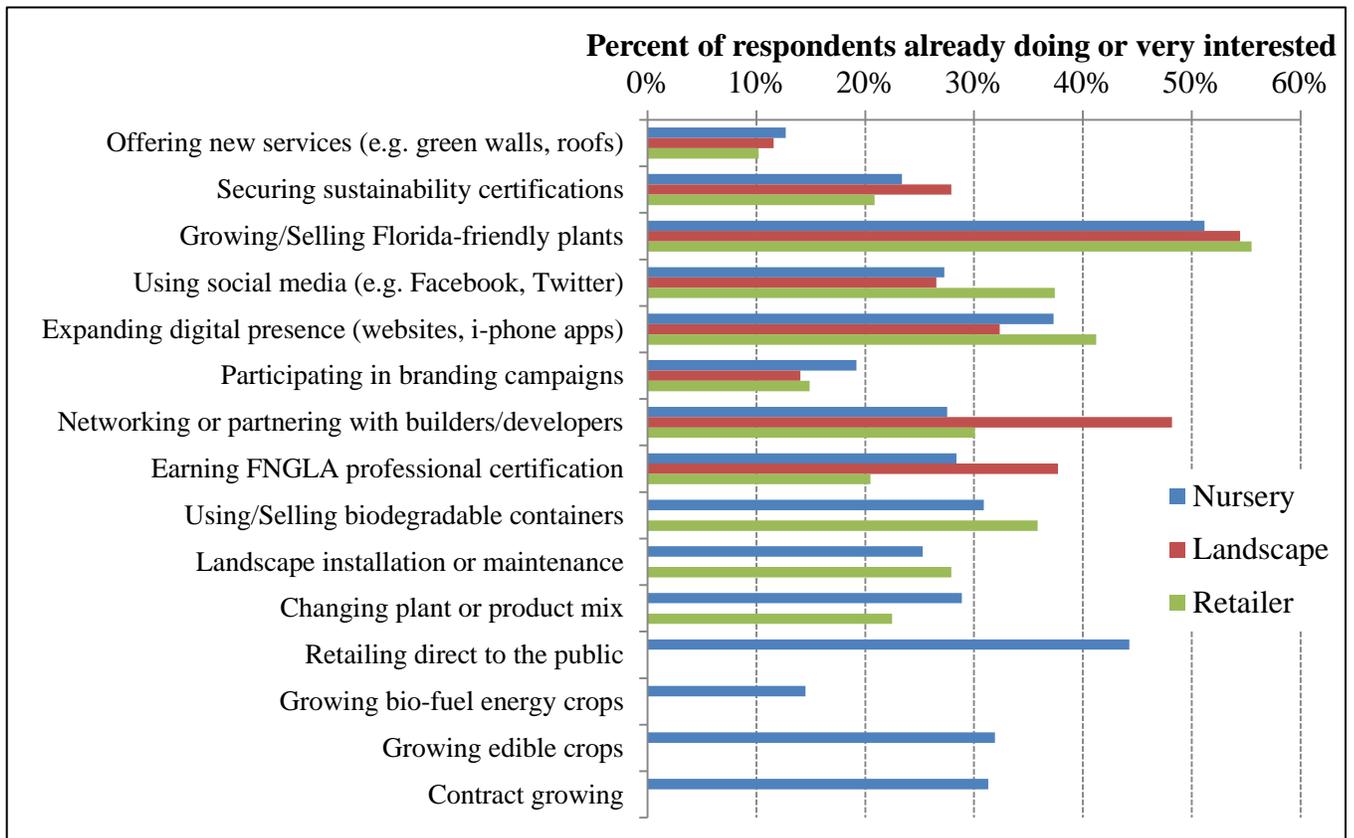
Figure 13. Distribution of Florida allied supplier sales by customer type in 2010.



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).

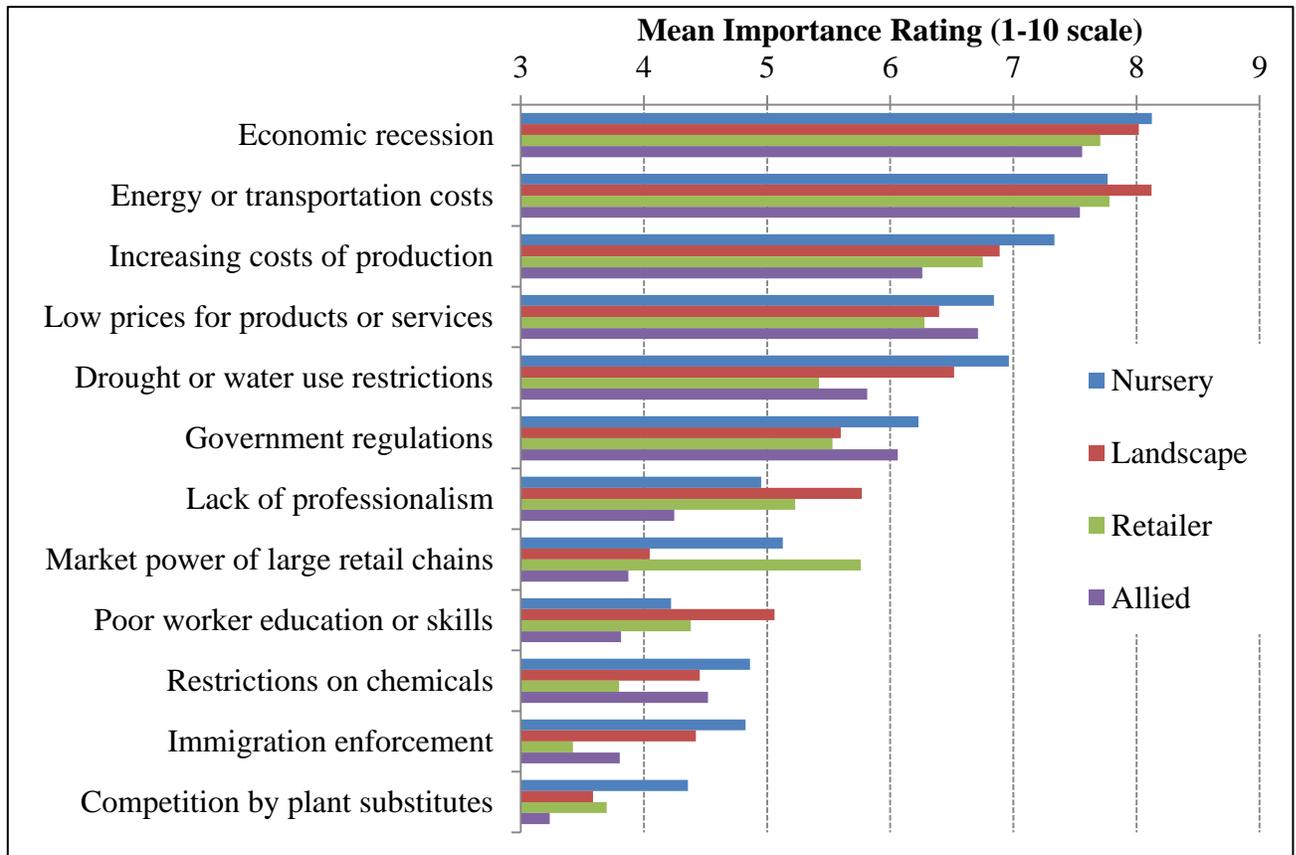
Figure 14. Opportunities for growth by Florida horticulture businesses in 2010.



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.



Industry Outlook

Strong import competition, low level of technological change, and limited product development opportunities, which are typical to industries in maturation stage, will continue affecting nursery and greenhouse businesses in the next five years. According to a recent floriculture crops report by USDA National Agricultural Statistics Service, Florida’s floriculture crops wholesale value, however, increased 1.1 percent to \$835.2 million (M) from 2010 to 2011. In contrast, the wholesale value in California decreased by 0.4 percent to \$1.01 billion (B). Considering the 1.6 percent decrease in 15-states total wholesale values (see Table 5), Florida is positioned relatively well. Although consolidation is foreseeable to continue in the next five years, from 2010 to 2011 fewer numbers of growers exited the industry in Florida (6.3 percent) compared to California (9.2 percent) and the 15-states total (6.5 percent). Despite the small advances in technologies such as irrigation, disease resistant varieties development, this trend is expected to continue throughout the next year.

Table 5. Wholesale value and number of floriculture crop producers in the U.S.

	2010	2011	Percent Change 2010-11
Wholesale value (\$1000)			

U.S. (15 states) ¹	\$4,148,766	\$4,080,715	-1.6%
California	\$1,015,083	\$1,011,530	-0.4%
Florida	\$826,077	\$835,233	1.1%
Number producers			
U.S. (15 states)	6,164	5,763	-6.5%
California	696	632	-9.2%
Florida	749	702	-6.3%

¹Fifteen states include California, Florida, Hawaii, Illinois, Maryland, Michigan, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Texas, and Washington.

Consistent with previous reports (Hodges, 2009), tropical foliage plants dominate total wholesale category, accounting for more than half (53 percent) of the total sales reaching \$443M in 2011, followed by potted flower plants (14 percent; \$114M), propagative material (10 percent; \$82M), and bedding/garden plants (10 percent; \$74M) (Table 6). While herbaceous perennials, tropical foliage, and propagative materials wholesale sales increased by 14, 4.4 and 3.9 percent from 2010 to 2011, annual bedding/garden, cut cultivated greens and potted flower plants declined by 8.5, 7.9 and 1.1 percent, respectively.

Table 6. Florida wholesale floriculture sales by plant type.

	2010 (\$1000)	2011 (\$1000)	Percent Change 2010-2011
Annual bedding/garden plants	\$80,525	\$73,667	-8.5%
Herbaceous perennials	\$46,766	\$53,294	14.0%
Potted flower plants	\$115,421	\$114,162	-1.1%
Tropical foliage plants	\$424,103	\$442,650	4.4%
Cut flowers	NA	\$3,663	
Cut cultivated greens	\$59,394	\$54,684	-7.9%
Propagative material	\$78,642	\$81,713	3.9%
Total All Types	\$804,851	\$823,833	2.4%

Among tropical foliage and cut cultivated greens, the wholesale value leaders are potted foliage plants with 4.7 percent increase in sales, reaching \$402M in 2011, and foliage hanging baskets with 1.2 percent increase, reaching to \$41M. Leatherleaf ferns and other cut cultivated greens plummeted by 12.6 percent to \$25M, and 3.6 percent to \$30M, respectively.

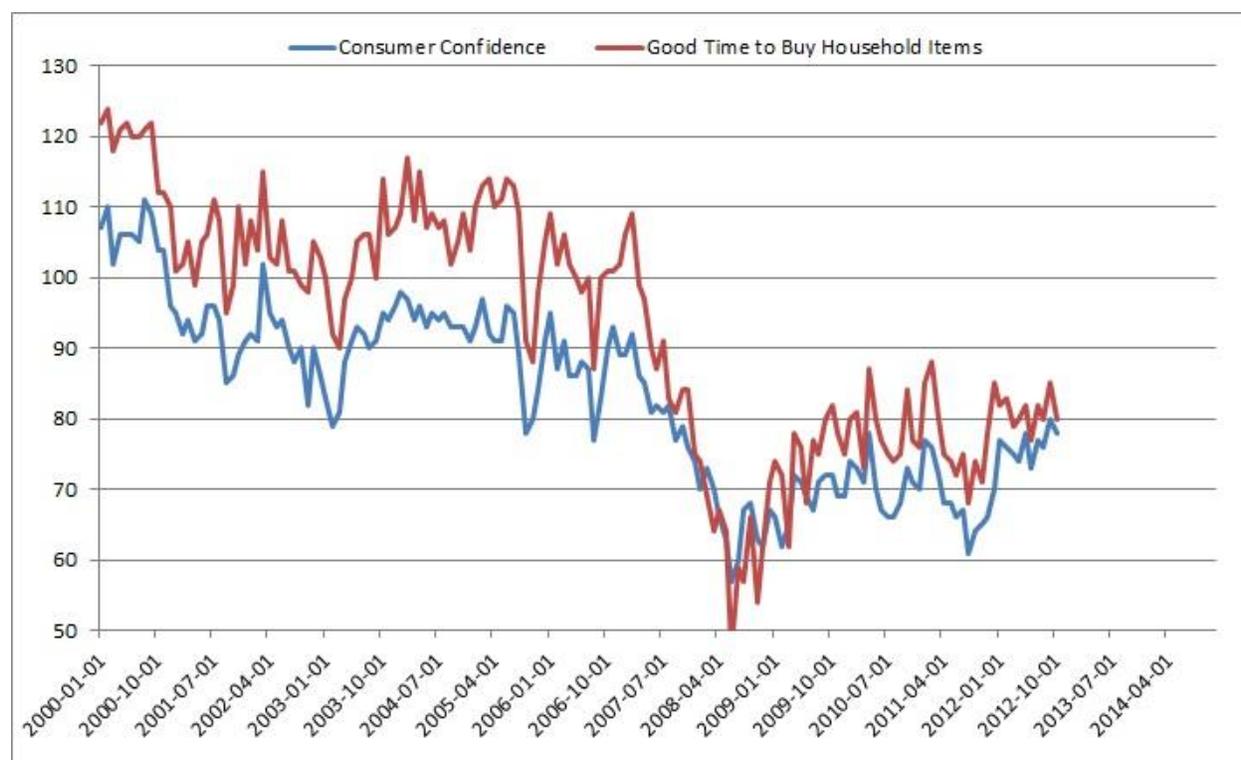
Table 7. Florida tropical foliage and cut cultivated greens sales quantity, price, and value.

	2010	2011	Percent Change 2010-11
Foliage hanging baskets			
Quantity sold (1000)	8,679	8,749	0.8%
Wholesale price (\$)	\$4.67	\$4.69	0.4%
Wholesale value (\$1000)	\$40,531	\$41,033	1.2%
Potted foliage plants			

Wholesale value (\$1000)	\$383,572	\$401,617	4.7%
Leatherleaf ferns			
Quantity sold (1000 bunches)	27,780	25,779	-7.2%
Wholesale price (\$/bunch)	\$1.03	\$0.97	-5.8%
Wholesale value (\$1000)	\$28,613	\$25,006	-12.6%
Other cut cultivated greens			
Wholesale value (\$1000)	\$30,781	\$29,678	-3.6%

Consumer Demand: Per capita consumption is one of the critical determinants of demand for floriculture products. Although the unemployment rate in Florida dropped from fluctuating around 10-11 percent range in 2009-2010, to around 9-10 percent in 2011-2012, it still stands above U.S. average rate, and adversely impacts consumer demand for highly discretionary products such as flowers/plants. A recent survey of consumer confidence by University of Florida's Bureau of Economic and Business Research (BEBR, 2012) showed that Floridians expect improvements in national economic conditions over the next five years. The survey respondents were not positive about the immediate changes, i.e., improvements in the next year. According to the same survey, questions regarding personal financial situations did not return any positive responses. Although consumer confidence towards improvements in national economic conditions is continually improving since early 2009, as shown in Figure 16, the index may stay volatile (see the rapid drops in 2011) throughout the next year.

Figure 16. Florida consumer confidence index for October 1 – 15, 2012.



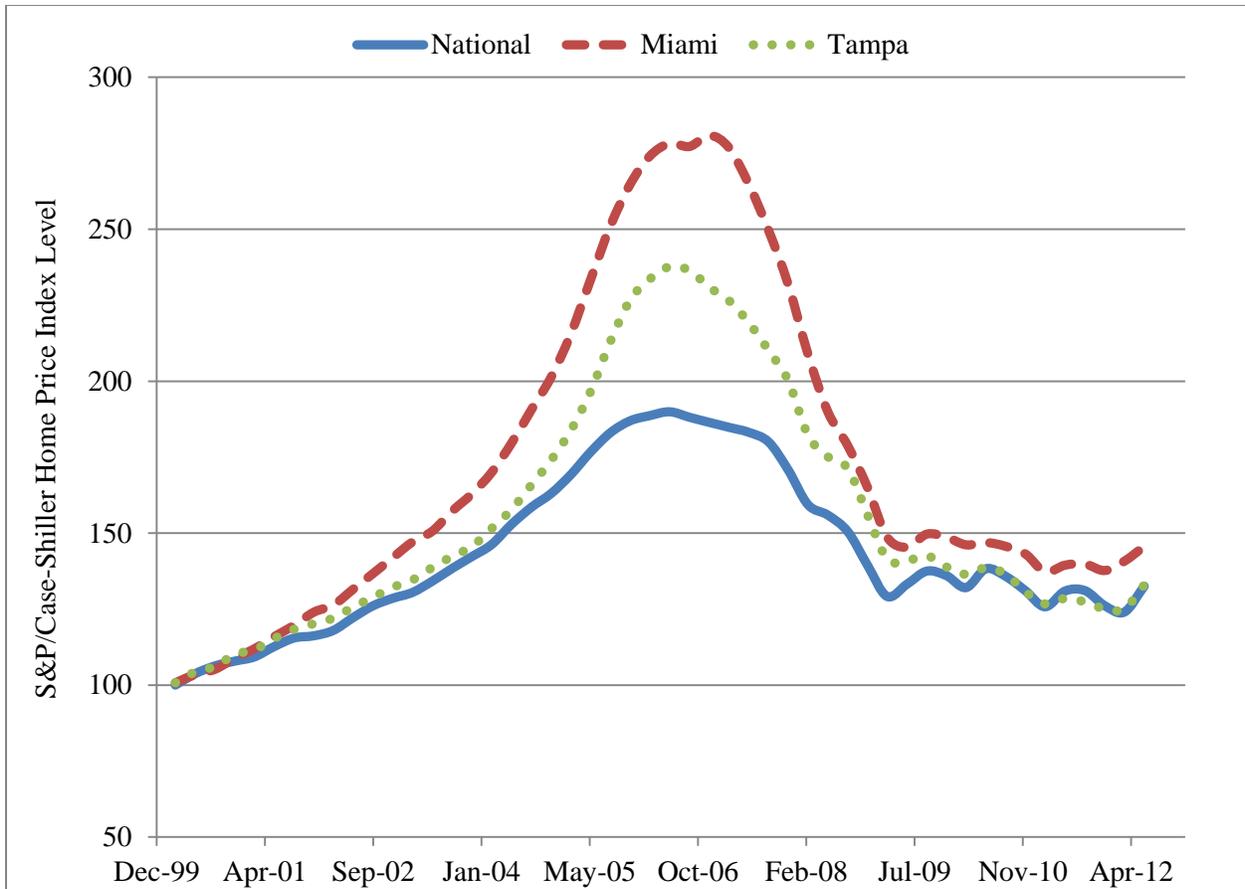
Source: University of Florida – Bureau of Economic and Business Research

For producers, emphasis on plant quality (e.g., increased flower-life for potted plants and vase-life for cut flowers) will continue to be one of the key priorities in order to meet increasingly demanding consumers' preferences. According to a recent national consumer survey plant quality was named as the most important factor influencing consumers' plant choice decisions (Khachatryan and Choi, 2012). Price was the second most important attribute, followed by color, flowering, guaranteed growth, light demand, plant size, drought tolerance, and air purification attributes/characteristics. For retail operations, it will be important to focus on 1) plant selection (i.e., varieties available at the outlet), 2) prices, and 3) plant quality, 4) convenient location, 5) knowledgeable staff, and 6) great customer service, which were mentioned as the most important factors for store choice decisions out of 11 factors included in the survey.

Housing Market: The nursery and greenhouse industry's economic performance is correlated with the housing market dynamics, including existing home sales and new construction starts. According to a recent report compiled by Florida Realtors® for August 2012 (Florida Realtors®, 2012), single-family closed sales have increased by 10.8 percent compared to 2011. The demand for ornamental plants and landscaping services may be increased due to this trend throughout the next year. One-year change in median sales price for single-family increased by 5.8 percent (\$147,000) for detached properties, and 13.2 percent (\$102,980) for attached properties. According to the same report, inventory declined significantly, by 32.3 percent, while new listings were decreased by 0.9 and 4.9 percent, for detached and attached properties, respectively. Pending sales increased considerably, by 40.2 and 27.6 percent for single-homes and townhouse/condo properties, respectively. As issues with unemployment and jobs creation (both associated with demand for homes), continue to receive more attention due to the election season, the last quarter in 2012 is expected to at least follow the pace observed in the third quarter.

According to the S&P/Case-Shiller home price index for Florida, which measures the average change in residential property values, Miami and Tampa indices increased by 5.35 and 3.58 percent for the last 12 months (Figure 17). After a number of small rebounds since 2009, it is not clear whether this positive momentum will sustain throughout the next five year. Compared to the change in the national average of 1.22 percent, Florida's position is relatively favorable. However, since Case-Shiller index tracks data only in two cities (Miami and Tampa), changes in property values may not fully encompass county-level dynamics in the state. Nevertheless, even small positive changes in the U.S. market create a window of opportunity for the industry as downstream sales will be stimulated by increased demand for landscaping or gardening.

Figure 17. Comparison of national, Miami and Tampa Case-Shiller home price indices (2000-2012)



Transportation Fuel Prices: Transportation industry is a critical component of the green industry, which provides freight transportation services to the industry for both inputs and (perishable) outputs shipments. Almost all modes of transportation, including ocean, coastal, rail, short- and long-haul freight tracking are used by the green industry to connect buyers and producers across the states and overseas. Recent advancements in transportation efficiency translated into productivity gains for a number of major firms in the industry, allowing faster shipments to cross-country and international buyers. However, world crude oil price, which is the largest cost component of diesel fuel, has been rising at an annualized rate of 8 percent (\$104/barrel as of August 2012). This normally translates into higher costs for transportation firms and other downstream users such as the green industry firms using those services. With slowly recovering economy, most economists predict that diesel prices will increase, which will adversely impact especially small players of the green industry.

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