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Economic Impacts of the Florida Environmental Horticulture Industry, 2000[1]

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Introduction

Florida is one of the leading states in the nursery and greenhouse industry, ranked second behind California, and ornamental plants are one of the largest agricultural commodity groups in Florida, together with citrus and winter vegetables. Florida has a comparative advantage for production of ornamental plants by virtue of the moderate climate and year-round growing conditions. According to the US Census of Agriculture, in 1997 the Florida greenhouse and nursery industry had over 5,000 commercial producers, a production area of 126,000 acres, and plant sales of $1.45 billion (Bn). Ornamental plant sales increased 10.7 percent in inflation-adjusted terms during the period 1991-98, representing an annual growth of 1.3 percent. The present study was undertaken to update a previous economic impact study of the Florida environmental horticulture industry for 1997 (Hodges and Haydu, 1999).

Methods

Estimation of the economic values in this study was based primarily upon information obtained from telephone surveys conducted with five different groups: wholesale nurseries, horticultural retailers, landscape service providers, residential households, and institutional/commercial consumers. Telephone surveys were conducted during the period of July to October, 2001. Nurseries, retailers and landscape firms interviewed were qualified as having sold horticultural products or services last year, while households and commercial/institutional consumers were qualified as being knowledgeable about landscape management. A total of nearly 18,000 telephone calls were made for the survey, with 12 percent of the interviews totally completed and 66 percent of the firms or households determined ineligible for the survey. A secondary, abbreviated survey was conducted by fax to provide adequate

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sampling in some counties. The survey was designed as a simple random sampling plan within 10 selected Florida counties. A total of nearly 2,200 completed surveys included 668 nurseries, 409 landscape service firms, 333 horticultural retailers, 452 institutions, and 321 households (Table 1). Estimates of the total value of sales or purchases for the entire population of firms or households were based on expansion factors that represent the ratio of the population to the number sampled and adjusted for ineligible contacts (Table 1).

Information was collected on Florida sod farms, using a separate survey instrument similar to a previous study (Haydu, Satterthwaite, and Cisar, 1998). Non-survey information was also added on the value of cut flowers and cut cultivated greens from the USDA/NASS *Floriculture Crops Report*, and the value of imported fresh cut flowers shipped through the port of Miami were obtained from the *Association of Floral Importers of Florida* (Miami), whose members represent approximately 85 percent of the floral import industry in Florida. Output of the retail and trade sectors was taken as the gross margin on sales.

Regional impacts and economic multipliers were developed with an input-output model and the social accounting matrix *IMPLAN Pro*™ software licensed from MIG, Inc. and the associated databases for Florida (1999). The economic multipliers reflect the direct, indirect, and induced impacts of specified changes in final demand or employment for any given industrial sector. Indirect impacts result from changes in economic activity of other industrial sectors that supply goods or services to a given sector, while induced impacts are the result of personal consumption expenditures by industry employees. Economic impacts of each sector and subregion of the horticultural industry were calculated for each type of impact, using the direct multiplier multiplied against local or state sales and the total effects multiplier multiplied against sales outside the region.

Results and Discussion

Sales of Horticultural Products and Services

Total sales by Florida producers, service providers, and retail and trade businesses in 2000 were estimated at $9.91 billion, as summarized in Table 2. Sales (Bn = billion dollars and Mn = million dollars) for the producer sector amounted to $2.251Bn, including nurseries ($1.75Bn), sod farms ($307Mn), and cut flowers and cultivated greens ($199Mn); sales for landscape firms were estimated at $3.11Bn; sales for retailers were $3.64Bn; and sales were $904Mn for floral importers. Sales have increased significantly in all sectors since 1997. The increase in total industry sales from $7.09Bn in 1997 represented a growth of approximately 33 percent, or 10.9 percent annually in inflation-adjusted terms. The large increase in sales for the retail sector may represent an underestimate for this group surveyed in 1997 due to a small sample size.

Sales per firm of businesses surveyed averaged $928,000 for nurseries, $3.55 million for sod farms, $935,000 for retailers, and $1.14Mn for landscape businesses. For all groups, about half of the firms had annual sales of less than $250,000, while 17 percent of nurseries, 12 percent of retailers, and 17 percent of landscaper firms had annual sales of at least $1Mn. Firms with sales exceeding $10Mn accounted for 28 percent of nursery sales, 44 percent of retail sales, and 42 percent of landscape sales.

Among nurseries, shrubs and tropical foliage plants were produced by over 40 percent of firms, while flowering plants, deciduous trees, evergreen trees, palm trees, and vines or ground covers were produced by at least 30 percent of respondents (Table 3). Groups of ornamental plants that represented at least 10 percent of the total market were shrubs ($356Mn, or 16 percent), tropical foliage plants ($339Mn, or 15 percent), potted flowering or bedding plants ($313Mn, or 14 percent), and turfgrass ($307Mn, or 14 percent). Native plants, defined as plant species present in Florida prior to European settlement, were sold by 58 percent of the surveyed nurseries. However, sales of native plants were estimated at $101Mn in 2000, which was down slightly from the $106Mn estimated for 1997.

Retail sales of plant products and related horticultural goods in Florida included $1.18Bn (32 percent) for plants, $799Mn (22 percent) for horticultural supplies, $359Mn (10 percent) for lawn and garden hard goods, and $1.30Bn (36 percent) for other types of goods. Live plant sales were reported by 45 percent of retailers surveyed, while horticultural supplies and hard goods were reported by 18 and 14 percent, respectively. Sales by Florida landscape services firms included landscape installation services ($1.19Bn, or 38 percent), landscape maintenance services ($1.08Bn, or 35 percent), landscape design services ($394Mn, or 13 percent), and plants and other lawn and garden goods ($449Mn, or 14 percent).

For purposes of economic impact analysis, it is important to determine where economic activity takes place as well as its magnitude. Market areas were defined as international, national, state, or local, with the local area specified as the city or county, or within a five-mile radius. For nurseries, $995Mn (56 percent) of sales were state or local markets, while $749Mn (43 percent) of sales were national and international markets. For retailers and landscapers, sales were largely to local or state markets (87 percent and 92 percent, respectively). Total industry output, including sales by sod farms, cut flowers/greens, and floral importers amounted to $6.89Bn, of which $5.21Bn (76 percent) was within Florida and $1.67Bn (24 percent) was outside the state.

Employment

Direct employment in the Florida horticulture industry in 2000 was estimated at nearly 158,000 persons, including 35,622 employees in nurseries, 2,410 on sod farms, 60,637 in landscape services, 53,202 by horticultural retailers, and 6,100 by floral importers (Table 4). Overall, 68 percent of employees were full-time and 32 percent were part-time, temporary or seasonal.

Purchases by Florida Consumers

The value of horticultural goods and services purchased by households and selected commercial/institutional consumers in 2000 was estimated at $3.24Bn (Table 5). Purchases by institutions averaged $7,800 and totaled $69Mn, including $23Mn (33 percent) for plants, $21Mn (31 percent) for horticultural equipment, and $26Mn (37 percent) for horticultural services. Purchases by Florida households averaged $1,122 and totaled $3.17Bn annually, with $1.01Bn (32 percent) for plants, $1.19Bn (38 percent) for horticultural equipment, and $974Mn (31 percent) for horticultural services.

Total Economic Impacts

The total output impact of the Florida environmental horticulture industry in year 2000 was estimated at $9.16Bn, including $6.89Bn in direct output impact from industry sales, plus $363Mn in indirect impacts from allied firms that supply inputs to the industry and $1.91Bn in induced impacts associated with consumer spending by industry employees (Table 6). The estimated total output impact increased $1.19Bn between 1997 and 2000, representing a 26 percent increase, or 8.5 percent annually in inflation-adjusted terms.

Value added is an important measure of an industry's contribution to a regional economy, representing the difference between sales revenues and the cost of purchased inputs, and includes the value of employee wages and benefits, owner's compensation, dividends, capital outlays, and business taxes paid. The total value added impact by Florida's horticulture industry was $6.40Bn, including $4.12Bn in labor income. Value added by the horticultural production, service, retail, and trade sectors were $2.52Bn, $2.13Bn, $1.08Bn, and $673 million, respectively. Total value added by allied industries (indirect effects) amounted to $230 million, and value added by employee spending was $1.23Bn. Indirect business taxes paid to governments by the horticulture industry and allied firms were estimated at $462Mn. The total value added impact grew 6.7 percent annually between 1997 and 2000.

Total employment associated with the horticulture industry exceeded 192,000 jobs, including 158,000 jobs directly in the commercial horticulture sectors, plus an additional 5,000 jobs in the allied supply businesses and 25,000 jobs as a result of employee personal consumption expenditures. The employment impacts associated

with the horticultural production, service, retail, and trade sectors were 54,000, 64,000, 56,000, and 13,000 jobs, respectively. Total industry employment increased 13 percent, or 4.4 percent annually since 1997.

Economic impacts in 13 individual counties are summarized in Table 7. Total output impacts were highest in Miami-Dade ($902Mn), followed by Orange ($911Mn), Palm Beach ($867Mn), Hillsborough ($538Mn), Broward ($510Mn), Duval ($296Mn), Volusia ($293Mn), Lee ($266Mn), Lake ($234Mn), Manatee ($146Mn), Gadsden ($121Mn), Alachua ($73Mn), and Marion ($69Mn). Sales in each country were proportional to direct employment, but total output and value added impacts differed based on the makeup of the industry and its export base. Nursery sales were highest in the counties of Miami-Dade ($316Mn), Orange ($240Mn), Palm Beach ($164Mn), Volusia ($124Mn) and Hillsborough ($118Mn). Note that these figures do not include sod farms or cut flower/greens producers. Retail sales were highest in Hillsborough ($424Mn), Palm Beach ($279Mn), Miami-Dade ($264Mn), and Broward ($192Mn). Landscape sales were highest in Palm Beach ($450Mn), Orange ($298Mn), Broward ($270Mn), Miami-Dade ($210Mn), and Hillsborough ($185Mn).

Economic Impacts of Drought on the Florida Horticulture Society

Drought and water use issues are of special concern in the horticulture industry. During the past four years, many areas of Florida have experienced significantly below-normal rainfall. Anecdotal evidence indicated that many horticulture businesses have suffered severely in this situation due to limited availability of water for irrigation, water use restrictions, and loss of sales resulting from lower demand. However, drought could potentially benefit some horticultural business as a result of demand for replacement plants and water conserving equipment or supplies. As part of this study, we attempted to document the economic impact by asking survey respondents whether the drought had affected their sales or purchases of plants. A majority of nurseries, landscape firms, and institutional consumers indicated that indeed their sales or purchases had been affected by the drought, while somewhat less than 50 percent of retailers and households expressed this opinion. Among those respondents who indicated that they had been affected, over 75 percent said that their sales or purchases were decreased rather than increased. Moreover, for every group, the magnitude of change was greater in the negative direction than in the positive direction. The net change in total sales or purchases due to drought were estimated from these percentage changes, weighted by the sales or purchases for each respondent. The net impact for all groups was negative, except for retailers. Nurseries and landscapers were estimated to have suffered a net decrease in sales of $61Mn and $184Mn, respectively, while households and institutions reduced purchases by $109Mn and $3Mn, respectively. The retail sector had a somewhat different outcome, with a net increase in sales of $80Mn, due mainly to sales growth reported by large volume retail chains.

The net change in sales of horticultural products due to drought and their economic impacts on the horticulture industry were estimated separately for the five Water Management Districts of Florida, which have varying water supply conditions and policies for water use restrictions. The St. Johns, South Florida, and Southwest Florida Water Management Districts all had horticulture industry sales exceeding $2Bn. The net change in horticulture industry sales was negative in all of the Water Management Districts. The largest change in sales due to drought occurred in the Southwest Florida Water Management District, with a loss of $155 million, which represented approximately seven percent of total industry sales. Horticulture businesses in the South Florida Water Management District and St. Johns River Water Management District also experienced significant losses in the nursery and landscape sectors, but these were partly offset by positive net changes for retailers.

Significance

This study showed that the environmental horticulture industry in Florida continues to grow rapidly and to have a major impact on the regional economy, in terms of jobs, income generated, and total sales approaching $10 billion. Growth in the

horticulture industry was significantly greater than for other agriculture sectors, and for the regional economy as a whole, and has accelerated since the early to mid 1990s. The large export base of the plant production and floral import sectors in Florida are associated with significant indirect and induced economic multiplier effects. The horticultural retailing and landscape services sectors have greater total sales than the plant production sector, but primarily serve local markets. Economic activity in the Florida horticulture industry is rather concentrated in several large urbanized counties. The extended drought in Florida has had a mixed impact on the horticulture industry, but has had a net negative effect on sales and purchases of horticultural products and services.

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Table 1. Survey sample and expansion factors, Florida horticulture industry survey, 2000.

Survey Group	Sample Number	Population	Ineligible Contacts	Respondents Reporting Sales or Purchases	Expansion Factor for Sales or Purchases
Nurseries	668	3,888	51.6%	621	3.0
Retailers	333	8,113	52.0%	273	14.3
Landscapers	400	8,467	67.8%	373	7.3
Institutions	452	19,887	55.3%	416	21.4
Households	321	5,881,000	52.0%	309	9136
Total	2,174			1,992	

Table 2. Sales by Florida commercial horticulture industry, 2000 and 1997, and percent growth.

Sector	Sales 2000 ($Mn)	Sales 1997 ($Mn)	Annual Growth 1997-2000*
Production	2,251	1,837	5.5%
Nursery	1,745	1,463	4.5%
Sod Farms	307	199**	11.6%**
Cut Flowers and Greens	199	175	2.6%
Landscape	3,110	2,704	3.1%
Retail	3,643	1,751	32.6%
Trade (floral importers)	904	800	2.5%
Total	9,908	7,092	10.9%

* Adjusted for inflation using the *GDP Implicit Price Deflator*.
** Data for 1996 and annual growth rate reflects four years.

Table 3. Products and services sold by Florida horticulture firms, 2000.

Product or Service	Firms Selling	Share of Sales	Estimated Total Sales ($million)
Plant Producers (nurseries, sod farms, cut flowers/greens growers)			
Shrubs	45%	16%	356
Tropical Foliage Plants	44%	15%	339
Potted Flowing Plants or Bedding Plants	31%	14%	313
Turfgrass	10%	14%	307
Cut Foliage or Flowers	5%	9%	216
Deciduous Shade, Flowering or Fruit Trees	31%	9%	191
Evergreen Trees	31%	8%	176
Palm Trees	38%	5%	123
Propagating Linrs, Cuttings, or Plugs	28%	4%	88
Other Types of Ornamental Plants	9%	3%	65
Vines or Ground Covers	33%	3%	65
Total Sales		100%	2,251
Retailers			
Live Plants	45.2%	32.4%	1,182
Horticultural Supplies	17.5%	21.9%	799
Lawn and Garden Hard Goods	13.6%	9.9%	359
Other Goods	25.9%	35.8%	1,303
Total		100.0%	3,643
Landscape Firms			
Landscape Installation Services	58%	38.3%	1,193
Landscape Maintenance Services	59%	34.5%	1,075
Landscape Design/Consulting Services	48%	12.7%	394
Live Plants	30%	12.2%	380
Lawn and Garden Supplies	18%	2.2%	69
Total		100.0%	3,110

Table 4. Employment in the Florida horticulture industry, 2000.

Sector	Full-time	Part-time, Temporary, Seasonal	Total	Share Full-time
Nursey	27,463	8,159	35,622	77%
Sod Farms	1,889	521	2,410	78%
Landscape	47,433	13,204	60,637	78%
Retail	29,975	23,226	53,202	56%
Floral Imports	N/A	N/A	6,100	N/A
Total	106,760	45,110	157,970	68%

Table 5. Value of purchases of horticultural products and services by Florida institutions and households surveyed, 2000.

Group/Type	Respondents Purchasing	Average Value ($)	Share of Purchases	Total Value Purchased ($Mn)
Institutions				
Plants	92%	2,615	32.7%	22.6
Equipment	87%	2,574	30.5%	21.1
Services	86%	3,166	36.9%	25.6
Total	94%	7,800	100.0%	69.3
Households				
Plants	96%	364	31.7%	1,005.0
Equipment	97%	428	37.5%	1,189.0
Services	95%	356	30.7%	974.2
Total	98%	1,122	100.0%	3,168.1

Table 6. Total economic impacts of the Florida horticulture industry, 2000 and change from 1997.

Type/Sector	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Annual Change Total Impact 1997-2000*
Output ($Mn)					
Production (nursery, sod, cut flowers/greens)	2,251	179	1,046	3,476	7.9%
Landscape Services	3,110	67	218	3,395	4.5%
Retail	1,093	18	185	1,296	41.5%
Trade (floral imports)	438	99	460	997	2.7%
Total	6,892	363	1,909	9,164	8.5%
Value Added ($Mn)					
Production (nursery, sod, cut flowers/greens)	1,740	115	664	2,518	8.7%
Landscape Services	1,946	44	140	2,130	-1.5%
Retail	948	11	122	1,080	41.9%
Trade (floral imports)	311	60	302	673	2.7%
Total	4,944	230	1,227	6,401	6.7%
Labor Income ($Mn)					
Production (nursery, sod, cut flowers/greens)	1,108	71	430	1,608	16.3%
Landscape Services	1,298	29	91	1,418	-5.9%
Retail	581	7	81	669	38.7%
Trade (floral imports)	181	41	202	424	2.2%
Total	3,167	148	803	4,118	5.8%
Indirect Business Taxes ($Mn)					
Production (nursery, sod, cut flowers/greens)	26	10	54	90	16.3%
Landscape Services	80	3	11	94	5.7%
Retail	177	1	9	187	35.3%
Trade (floral imports)	64	4	22	91	1.7%
Total	348	17	96	462	15.1%
Employment (jobs)					
Production (nursery, sod, cut flowers/greens	38,032	2,780	13,477	54,288	5.9%
Landscape Services	60,637	808	2,837	64,282	0.9%
Retail	53,202	199	2,473	55,874	32.0%
Trade (floral imports)	6,100	1,169	6,146	13,416	1.3%
Total	157,970	4,957	24,933	187,859	4.4%

* Adjusted for inflation using *GDP Implicit Price Deflator*.

Table 7. Economic impacts in selected Florida counties by nurseries, horticultural retailers, and landscape services sectors, 2000.

County	Sales ($Mn)				Employ-ment Impacts (Jobs)	Output Impacts ($Mn)	Value Added Impacts ($Mn)	Labor Income Impacts ($Mn)
	Nurseries	Retail	Landscape	Total				
Palm Beach	164	279	450	893	18,157	867	558	362
Miami-Dade	316	264	210	790	18,354	902	601	389
Orange	118	424	185	653	16,303	911	587	382
Hillsborough	240	115	298	727	13,793	538	400	257
Broward	46	192	270	507	10,596	510	341	223
Duval	38	136	144	318	6,739	296	209	136
Lee	64	132	118	314	6,187	266	192	124
Volusia	124	96	46	266	6,225	293	219	140
Lake	89	132	40	261	5,790	234	162	103
Manatee	45	59	57	161	3,350	146	102	65
Marion	9	98	26	133	2,180	69	52	33
Gadsden	81	2	8	91	2,433	121	103	67
Alachua	16	45	30	91	1,792	73	55	36