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Economic Impacts of the Green Industry in the United States[1]

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The following is the abstract of a much larger report, which is only available in pdf format. To access the complete report, please click here or go to (http://edis.ifas.ufl.edu/media/fe566/FE56600.pdf).

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Introduction

The environmental horticulture industry is comprised of a diverse mix of production, service, and trade-type businesses, including wholesale nursery and sod growers, landscape contractors and maintenance firms, retail garden centers, home centers and mass merchandisers with lawn and garden departments, brokers, and horticultural distribution centers. The industry is one of the fastest growing segments of the nation's agricultural economy, often experiencing growth and expansion even during recessionary periods. The industry contributes significantly to personal income and job growth in local and regional economies. Numerous studies have been conducted to document the industry's economic impacts in individual states or regions; however, the present study represents the first attempt to evaluate economic impacts of the industry for the entire United States.

Methods

Economic impacts of the environmental horticulture industry were estimated using a variety of statistical information sources: output and employment by sector in the North American Industry Classification System (NAICS) from the US Economic Census for 2002 (United States Census Bureau 2004/05) and Census of Agriculture (USDA/NASS 2004); state-level data on employment from County Business Patterns (United States Census Bureau, 2004); and market channel surveys by horticulture economics researchers (National Nursery Survey 2004). Regional economic models and Social Accounting Matrices for each state in the United States were constructed using the *Implan Pro*™ software and associated state databases (MIG, Inc. 1999). These models account for regional differences in industry structure, income levels, consumer spending, trade flows, taxes, capital investment, and transfer payments (Miller and Blair 1985). The models allow derivation of economic multipliers that capture the secondary impacts of industry purchases (indirect effects) and employee household spending (induced effects), as well as direct impacts

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for industry output or revenues, value added, employment, labor income, and indirect business taxes. Output of the wholesale and retail trade sectors was taken as the gross margin on sales, ranging from 23 to 29 percent. Impact estimates for 2002 were expressed in 2004 dollars using the GDP Implicit Price Deflator (United States Department of Commerce, 2005).

Results and Discussion

Economic impacts for the US environmental horticulture industry in 2002 were estimated at $147.8 billion (Bn) in output, 1,964,339 jobs, $95.1 Bn in value added, $64.3 Bn in labor income, and $6.9 Bn in indirect business taxes (Table 1). For the production and manufacturing sectors, including nurseries/greenhouses, lawn and garden equipment manufacturers, and greenhouse manufacturers, total output impacts were $34.6 Bn, employment impacts were 300,677 jobs, and value added impacts were $20.8 Bn. For the horticultural services sectors of landscape services and landscape architects, total output impacts were $57.8 Bn, employment impacts were 753,557 jobs, and value added impacts were $39.0 Bn. For the wholesale/retail trade sectors, total output impacts were $55.5 Bn, employment impacts were 910,104 jobs, and value added impacts were $35.3 Bn. The largest individual sectors in terms of employment and value added impacts were landscaping services (704,875 jobs, $35.6 Bn), lawn and garden stores (347,916 jobs, $14.8 Bn), nursery and greenhouses (261,408 jobs, $18.1 Bn), florists (200,451 jobs, $4.0 Bn), and building material supply stores (123,591 jobs, $6.5 Bn). Other sectors with large value-added impacts were general merchandise stores ($4.0 Bn); landscape architects ($3.5 Bn); lawn and garden equipment manufacturers ($2.6 Bn); lawn and garden equipment wholesalers ($2.7 Bn); wholesale flower, nursery stock, and florist supplies ($1.9 Bn); and food & beverage stores ($1.4 Bn).

Economic impact results are reported by state and region in Table 2. Total value-added impacts were largest in the Midwest region ($19.2 Bn), followed by the Pacific region ($18.4 Bn), Northeast region ($17.9 Bn), and Southeast region ($13.5 Bn). The largest individual states in terms of value added impacts, all exceeding $3 Bn, were California ($13.7 Bn), Florida ($7.1 Bn), Texas ($6.1 Bn), Illinois ($4.3 Bn), Pennsylvania ($3.7 Bn), New York ($3.5 Bn), and Ohio ($3.5 Bn).

In addition to these monetary and employment impacts of commercial activity in the environmental horticulture industry, various studies have shown that well-landscaped homes, with appropriate tree canopy, may have a 7 to 11 percent premium in value compared to similar properties without such landscaping. Furthermore, urban forests have other non-monetary or non-market economic and environmental impacts, including energy savings for building heating and cooling, reduction of atmospheric carbon dioxide, improved air quality, reduction of stormwater runoff , and other aesthetic benefits.

Literature and Information Sources Cited

MIG, Inc. 1999. *Implan* Professional, version 2.0, *Social Accounting & Impact Analysis Software: User's Guide, Analysis Guide and Data Guide*. Stillwater, MN: MIG, Inc..

Miller, R.E. and P.D. Blair. 1985. *Input-output analysis: Foundations and extensions*. Englewood Cliffs, NJ: Prentice Hall.

National Nursery Survey. S-290 Multi-state project USDA/CSREES. Unpublished data analyzed by Alan Hodges, University of Florida, 2005.

U.S. Census Bureau. 2004. *2002 County Business Patterns, EPCD, County & State Database on NAICS Basis.* United States Department of Commerce, Washington, D.C. (December).

U.S. Census Bureau. 2004. *Annual Benchmark Report for Retail Trade and Food Services: January 1992 through February 2004.* Current Business Reports BR/03-A, United States Department of Commerce, Washington, D.C. (March).

U.S. Census Bureau. 2004. *Annual Benchmark Report for Wholesale Trade: January 1992 through December 2003.* Current Business Reports BW/03-A, United States Department of Commerce, Washington, D.C. (March).

U.S. Census Bureau. 2004 & 2005. *2002 Economic Census,* United States Department of Commerce, Washington, D.C., various reports as follows:

- *Architectural, Engineering and Related Services, EC02-541-03* (October 2004).
- *Building Material and Supplies Dealers, EC02-441-1* (November 2004).
- *Farm, Floral and Nursery Supplies, EC02-421-15* (November 2004).
- *Florists, EC02-441-16* (August 2004).
- *Food and Beverage Stores, EC02-441-07* (September 2004).

- *General Merchandise Stores, EC02-441-11* (October 2004).
- *Lawn and Garden Equipment & Supplies Stores, EC02-441-08* (September 2004).
- *Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing, EC02-311-333112 (RV)* (December 2004).
- *Machinery, Equipment and Supplies, EC02-421-09* (September 2004).
- *Prefabricated Metal Building and Component Manufacturing, EC02-311-332311 (RV)* (January 2005).
- *Services to Buildings and Dwellings, EC02-561-07* (June 2004).

U.S. Department of Agriculture, National Agricultural Statistics Service (USDA/NASS). 2004. *2002 Census of Agriculture. United States Summary and State Data, Volume 1, Geographic Area Series, Part 51, AC-02-A-51*. United States Department of Agriculture, Washington, D.C. (June).

U.S. Department of Commerce. Gross Domestic Product Implicit Price Deflators (quarterly). 2004. Bureau of Economic Analysis, Washington, D.C. (December 22). http://research.stlouisfed.org/fred2/data/GDPDEF.txt.

Table 1. Summary of economic impacts of U.S. environmental horticulture industry by sector, 2002.

Industry Group/Sector (NAICS)	Output	Employment	Value Added	Labor Income	Indirect Taxes
	($Mn)*	(jobs)	($Mn)*	($Mn)*	($Mn)*
Production & Manufacturing	**34,578**	**300,677**	**20,796**	**11,037**	**784**
Nursery & Greenhouse (1114)	26,053	261,408	18,076	9,612	647
Lawn & Garden Equipment Mfg (333112)	8,281	37,343	2,610	1,346	129
Greenhouse Mfg (332311)	244	1,927	110	78	7
Horticultural Services	**57,774**	**753,557**	**39,013**	**30,269**	**1,387**
Landscaping Services (56173)	52,971	704,875	35,564	27,719	1,312
Landscape Architecture (54132)	4,803	48,683	3,449	2,549	74
Wholesale & Retail Trade	**55,475**	**910,104**	**35,275**	**23,044**	**4,701**
Wholesale Flowers, Nursery Stock, and Florist Supplies (42293)	2,879	68,969	1,907	1,130	440
Garden Equipment Wholesale (421820)	4,146	40,617	2,737	1,601	657
Lawn & Garden Stores (4442)	22,859	347,916	14,806	9,747	1,810
Building Material Supply Stores (4441)	9,982	123,591	6,491	4,258	789
Florists (4531)	7,195	200,451	3,977	2,725	401
Food & Beverage Stores (445)	2,263	35,117	1,385	944	156
General Merchandise Stores (452)	6,150	93,443	3,973	2,639	488
Total	**147,828**	**1,964,339**	**95,084**	**64,349**	**6,872**

* Values expressed in 2004 dollars (GDP Implicit Deflator, United States Department of Commerce)

Table 2. Economic impacts of the U.S. environmental horticulture industry by region and state, 2002.

Region or State	Output Impacts	Employment Impacts	Value Added Impacts*			
			All Sectors	Production & Manufacturing	Horticultural Services	Wholesale & Retail
	($Mn)*	(jobs)	($Mn)	($Mn)	($Mn)	($Mn)
EAST	**41,118**	**540,496**	**27,033**	**5,494**	**11,749**	**9,790**
Northeast	**26,568**	**336,027**	**17,867**	**2,986**	**8,250**	**6,632**
Connecticut	2,350	27,026	1,659	375	787	496
Delaware	448	6,359	297	44	148	104
Maine	509	7,825	331	39	166	126
Maryland	3,524	46,725	2,440	478	1,230	732
Massachusetts	3,239	37,553	2,159	122	1,225	811
New Hampshire	729	10,153	465	63	208	194
New Jersey	4,210	52,929	2,875	436	1,459	980
New York	5,265	62,113	3,511	437	1,363	1,711
Pennsylvania	5,589	75,829	3,672	924	1,430	1,319
Rhode Island	403	5,289	262	41	156	65
Vermont	302	4,225	196	25	78	93
Appalachian	**14,550**	**204,469**	**9,166**	**2,508**	**3,500**	**3,159**
Kentucky	1,257	21,649	821	112	245	464
North Carolina	5,155	67,472	3,583	1,387	1,261	935
Tennessee	3,854	50,812	2,050	689	648	713
Virginia	3,914	56,905	2,493	308	1,249	936
West Virginia	371	7,631	220	13	96	111
CENTRAL	**34,825**	**439,955**	**21,070**	**3,142**	**7,958**	**9,970**
Midwest	**31,825**	**397,099**	**19,243**	**2,994**	**7,494**	**8,754**
Illinois	6,897	75,110	4,335	430	1,972	1,933
Indiana	3,010	41,714	1,804	229	745	830
Iowa	1,459	20,820	906	62	216	627
Michigan	4,845	58,745	2,991	564	1,221	1,205
Minnesota	3,099	37,696	1,864	237	616	1,010
Missouri	2,488	37,690	1,495	134	470	890
Ohio	5,855	79,841	3,532	607	1,556	1,369
Wisconsin	4,170	45,483	2,317	731	697	890
Great Plains	**2,999**	**42,855**	**1,827**	**147**	**463**	**1,216**
Kansas	1,362	19,316	813	93	274	446
Nebraska	961	13,383	596	32	141	424
North Dakota	307	4,500	189	9	21	160
South Dakota	369	5,657	228	13	28	187
SOUTH	**34,559**	**498,420**	**22,150**	**6,301**	**8,194**	**7,656**
Southcentral	**13,992**	**209,935**	**8,615**	**1,974**	**3,039**	**3,602**
Arkansas	1,395	16,680	675	195	166	315
Louisiana	1,069	19,617	679	100	173	406
New Mexico	520	8,739	353	72	137	145
Oklahoma	1,352	24,603	819	247	212	359
Texas	9,656	140,295	6,088	1,360	2,351	2,377

Region or State	Output Impacts	Employment Impacts	Value Added Impacts*			
			All Sectors	Production & Manufacturing	Horticultural Services	Wholesale & Retail
	($Mn)*	(jobs)	($Mn)	($Mn)	($Mn)	($Mn)
Southeast	**20,568**	**288,486**	**13,535**	**4,327**	**5,155**	**4,054**
Alabama	1,681	26,804	1,148	353	434	360
Florida	9,997	147,795	7,076	2,463	2,747	1,866
Georgia	4,726	62,493	3,020	644	1,213	1,162
Mississippi	977	14,236	548	120	122	306
South Carolina	3,187	37,157	1,745	747	638	359
WEST	**37,326**	**485,467**	**24,830**	**5,859**	**11,112**	**7,859**
Mountain	**9,824**	**132,982**	**6,449**	**954**	**3,185**	**2,309**
Arizona	3,206	43,882	2,081	506	1,013	563
Colorado	3,085	37,630	2,019	178	1,083	758
Idaho	853	12,000	576	91	164	320
Montana	357	5,988	219	31	43	145
Nevada	1,248	17,324	844	13	633	198
Utah	901	13,577	600	130	206	264
Wyoming	174	2,581	109	4	44	61
Pacific	**27,502**	**352,485**	**18,382**	**4,905**	**7,927**	**5,550**
Alaska	159	2,110	104	10	36	58
California	20,362	253,977	13,656	3,165	6,429	4,063
Hawaii	745	11,166	531	200	220	112
Oregon	3,173	43,980	2,010	1,048	448	515
Washington	3,064	41,251	2,080	482	795	803
TOTAL	**147,828**	**1,964,339**	**95,084**	**20,796**	**39,013**	**35,275**

* Values expressed in 2004 dollars (GDP Implicit Price Deflator, United States Department of Commerce)