



# RESULTS OF THE LAKE COUNTY NURSERY INDUSTRY SURVEY



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## December 2009

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This survey was done in partnership with  
Ohio State University Extension, Lake County and  
Lake County Soil & Water Conservation District (SWCD),  
to provide an accurate assessment of the status, characteristics  
and economic impacts of the Nursery Industry in Lake County, Ohio.

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## SUMMARY

Total Lake County Nursery Industry (LCNI) employment is estimated at 1327 jobs, a payroll of over \$30 million and total annual estimated sales of \$87.5 million. The average LCNI firm has sales of \$605,000 of container grown crops and \$488,000 of field grown crops. The typical firm has been in business almost 35 years, is headed by an owner over 50 years of age, and employs about 2 family members, 11 permanent full time employees and about 23 seasonal employees.

To generate these sales, the LCNI invests in goods and services from a variety of economic sectors such as insurance, trucking and automotive repair; to plastics, foam, fertilizer, and chemical manufacturing. The dollars injected into the local and regional economies are spent and re-spent, circulating throughout a myriad of other economic sectors supporting jobs and income well beyond those of the LCNI.

In Lake County alone, the industry supports an estimated 76 additional jobs, half of which are in the Agriculture and Forestry Support Activities sector and an estimated 7 more as automotive mechanics and service technician positions (*Table 6*). The existence of these 76 jobs creates wealth in Lake County which originates from a variety of other economic sectors such as Agriculture and Forestry Support Activities, Automotive Repair and Maintenance, and more.

The LCNI's estimated sales of \$29.8 million within the state of Ohio supports an estimated 465 additional jobs in Ohio, 100 of them in the related Agriculture, Forestry, Fishing and Hunting sector (*Table 8*). This reflects the sector's strong ties to LCNI-related spending. Other sectors closely impacted by the LCNI-related spending in Ohio are Retail Trade (69 estimated positions) and Health and Social Services (60 estimated positions). These positions create wealth in Ohio and generate additional spending throughout the state. Sales of LCNI products in Ohio support the additional sales of goods and services in the state valued at an estimated \$161.9 million (*Table 9*). The most-impacted sectors include Manufacturing and Real Estate and Rental with \$9.4 million and \$7.7 million of estimated sales, respectively.

The LCNI has a presence in the U.S. economy as it accounts for an estimated \$57.8 million in sales nationwide. Similar to its effect in Lake County, and the state of Ohio, these sales contribute to jobs and income throughout the U.S., supporting an estimated 1212 jobs throughout the U.S. economy (including Ohio). An estimated 354 jobs are supported in the related Agriculture, Forestry, Fishing and Hunting sector. An estimated 115 jobs are supported in the nation's Retail Trade sector and 108 jobs are supported in the Health and Social Services sector as a result of the LCNI. Other sectors impacted include: Accommodation and Food Service, Other Services, Real Estate and Rental, Finance and Insurance, Manufacturing, and Administrative and Waste Services. These jobs create goods and services that contribute \$106 million toward the U.S. Gross Domestic Product (GDP) from a variety of economic sectors including those previously identified.

The 1327 LCNI jobs support an estimated additional 1212 jobs throughout the U.S. economy. The LCNI's \$87.5 million sales generate an estimated additional economic output of \$205 million. Pursuing strategies that increase the proportion of goods and services necessary for nursery production that are purchased in Lake County can maximize the benefits of this impact for Lake County.

## INTRODUCTION AND SURVEY PROCEDURE

The Nursery Industry comprises the largest portion of the agricultural economy of Lake County. The unique soils and micro-climate of Lake County make it a prime spot for growing nursery stock. The nursery industry is facing increased costs of doing business, rising land prices, workforce shortages, development pressures and a decline in consumer purchasing trends.

The conversion of agricultural (nursery) land to residential and commercial purposes has a long history in Lake County. Up until 2008 the pressure for development of agricultural lands in this suburban county to the Cleveland metropolitan area was intense. This development pressure has lessened somewhat but still remains a threat to the nursery industry. Additionally, the nature of the diverse ownership of numerous family owned nursery enterprises allows for the gradual loss of parts of the industry until one day it may be gone entirely. There has been no quantification as to how the loss of the nursery industry in Lake County would impact the county economy.

In its ongoing effort to help protect and preserve Lake County agriculture, Lake County Soil & Water District (SWCD) obtained a grant from the Lake-Geauga Fund of The Cleveland Foundation to study the nature of and document the scope of the Nursery Industry in Lake County. To that end Lake SWCD subcontracted with Ohio State University Extension, Lake County to assist in the design, implementation and analysis of a confidential survey of the local nursery industry. The purpose of the survey is to aid Lake SWCD in its efforts to protect the farmland and natural resources of Lake County.

In the late fall of 2008, Ohio State University Extension, Lake SWCD, and the Nursery Growers of Lake County, Inc. worked to develop a survey instrument designed to provide an accurate assessment of the status, characteristics and economic impacts of the nursery industry in Lake County. Extensive outreach to leaders of the local commercial nursery community helped to increase awareness of the nature and purpose of the survey prior to survey distribution.

On January 26, 2009 OSU Extension, Lake County mailed surveys to a list of 89 Lake County nurseries. A reminder postcard was mailed to non-respondents on February 9<sup>th</sup>. Non-respondents were mailed a second copy of the survey on February 23<sup>rd</sup> and a final reminder was sent on March 9<sup>th</sup>. Six of the surveys were returned as the nurseries were out of business and three were returned as not being commercial nurseries. A total of 52 usable returns were received from the remaining 80 Lake County commercial nurseries for a 65 percent rate of return. The respondents were asked to report average sales in the past five years and expense data for 2007 to avoid extremes that occurred in the 2008 economy.

OSU Extension determined that the non-respondents were a mixture of small, medium and large enterprises similar to the responding enterprises. We believe that the non-response errors are minimal. Thus the sample respondents were deemed to be representative of the Lake County Nursery Industry as a whole.

## DESCRIPTIVE INFORMATION

### **Business Ownership and Employment**

Less than 4% (3) of the 82 owners included in response data were in the 30 to 39 year old age bracket. Over 25 % (21) were over 69 years old. Almost 15% (12) were 40 to 49 years old; almost 37% (30) were 50 to 59 years old and just under 20% (16) were 60 to 69 years old.

Fifty-one responding firms were in business from 0 to 88 years and averaged 34.5 years +/-24.4 years. Over 47% (24) of the 51 responding firms were organized as a sole proprietorship. Just under 10% each (5) were either partnerships or limited liability corporations. Over 31 % (16) were corporations and 2% (1) were some other type of business organization.

Over 21% (11) of 52 respondents reported no family members employed in the nursery operation. Almost 27% (14) reported one family member employed in the nursery operation. Almost 31% (16) reported two family members in business. About 12% (6) reported three, 4% (2) reported four, 2% (1) reported five and 4% (2) reported six family members employed in the nursery operation.

Forty firms reported an average of 11 permanent full time (year round 40 or more hours per week) employees with the range going from zero to 150 full time employees. Thirty-eight firms reported less than 1 permanent part time year round employee.

Forty firms reported an average of 17.5 seasonal full time (employed part of the year at 40 or more hours per week) non H2A employees with a range going from 0 to 150 employees. These same 40 firms also reported an average of 2.8 seasonal part time (less than 40 hours per week) employees. An H2A employee is a seasonal foreign worker brought to the USA under specific Immigration and Naturalization Service (INS) rules to work in the nursery industry. They have temporary 9 to 12 month work visas and the employer has specific contract obligations to the employee and strict reporting requirements to the INS. Thirty-five firms reported an average of 2.5 seasonal H2A employees employed part of the time at 40 or more hours per week.

Forty-five firms reported on the benefits offered to their employees. Almost 36% offered medical insurance, 18% offered dental insurance, 11% offered vision insurance. Over 22% offered a retirement plan and just 2% offered stock or ownership options. Sixty percent did not provide any benefits. Employees paid an average of 9.3% of their salary & wages for the benefits offered.

### **Nursery Production**

Forty-seven firms reported an average of 15.5 acres of container crops (flats, trays, pots) in above ground propagation. Sales per firm over the past five years averaged \$604,834 annually.

Forty-eight firms reported an average of 55 acres of field crops (including production and in-ground propagation). Average sales per firm of field crops over the past five years was \$488,285 annually.



Survey data indicated that a third (33%) of all sales were made within Ohio. See Table 1 below. Neighboring states of NY, PA, WV, KY, IN and IL accounted for more than 38% of remaining sales. Over 27% went to other states and just over one percent of sales went to Canada and other countries.

**Table 1. Sales destination reported by 51 Lake County nursery firms**

Sales Destination	Percent of All Sales by Dollar Value
Ohio	33.3
NY	9.7
PA	9.4
WV	4.1
KY	2.6
IN	5.1
IL	7.4
Other USA	27.4
Canada	1.0
<b>Total Sales</b>	<b>100%</b>

Nineteen percent of 52 respondents have a greenhouse operation producing annual flowering plants. About one quarter of the 52 respondents have a retail nursery operation and it generated almost 56% of their total nursery sales. Less than 4% of 52 respondents have nursery production outside of Lake County.

### **Business Expenses**

A total of 47 LCNI firms provided information on their payroll for all of their nursery employees in 2007. These firms' payroll averaged \$377,773. If we multiply this average across all 80 LCNI firms we get an estimated total LCNI payroll of \$30.2 million. This is quite close to the 2007 IMPLAN Database salary and wages estimate of over \$29 million reported to the Bureau of Labor Statistics by the LCNI firms.

The costs to operate a nursery in Lake County exclusive of payroll are reported in Table 2 below and are estimated to be a total of \$389,582 per firm. The payroll is by far the largest expense of operating a typical Lake County Nursery at about 49.2% of the total \$767,355 estimated cost of operating a nursery in Lake County. The next highest expenditure is for miscellaneous costs at 7.7% of the total, then pots, media, liners at 7.5% of the total and then shipping and delivery at 7.0% of total costs.



*Photos from Lake SWCD files unless noted.*

**Table 2. Lake County Nursery Operations Average Expenses in 2007**

N = number of responding firms; % = percentage of total expenses

Item	Average Expense	N	%
Salary & Wages	\$377,773	47	49.2
Other Miscellaneous Costs	\$59,727	42	7.8
Pots, Media, Liners, Burlap etc.	\$57,583	46	7.5
Outgoing Shipping and Delivery	\$53,776	44	7.0
Production Supplies	\$28,183	44	3.7
Chemicals (Insecticides, Fungicides, Herbicides)	\$24,814	48	3.2
Advertising and marketing (Ads, Catalogues, Flyers, Tradeshow, Etc.)	\$24,057	46	3.1
Utilities (Heat, Electricity, Water)	\$ 23,885	45	3.1
Repairs / Maintenance	\$22,956	46	3.0
Fringe Benefits (Medical, etc.)	\$21,754	42	2.8
Gasoline, Fuel, Oil (for Vehicles, Tractors, Equipment)	\$18,754	47	2.4
Farm Insurance for Nursery and Nursery Vehicles	\$15,840	47	2.1
Fertilizers	\$15,716	46	2.1
Unemployment Compensation	\$ 9,652	44	1.3
Workman's Compensation	\$ 9,639	46	1.3
Property Taxes	\$ 3,246	46	0.4
<b>Total Expenses</b>	<b>\$767,355</b>		<b>100</b>

**Future Operational Issues and Concerns**

Only 12 of 50 respondents (24%) have a written succession plan for their firms. When asked what could be done to help nurseries put a transition plan together over 40% would like to have a recommendation of a professional transition planner. Over 19% would like to have explained what happens if no plan exists. About 6% would like to have their options for transition explained. And almost 12% have other needs for transition information.

Seven of 50 respondents (14%) plan to sell or transfer their nursery operation within the next five years. Fifty-two percent do not plan to sell or transfer their nursery operation and 34% do not know if they will sell or transfer their nursery operation within the next five years. Almost 12% of 52 respondents have sold some of their land to residential or commercial developers during the past five years.

Twenty of 52 firms (38.5%) have planted an average of 27.2 acres of new nursery ground within the past five years and 30% of 50 respondents anticipate planting an average of 13.4 acres of new nursery ground.

The top three issues identified by the LCNI survey respondents are the overall economy, rising costs, and government regulation. See Table 3 below.

**Table 3. Percent of 52 Respondents Identifying Top Three Priority Issues for Their Operation**

Item or Concern	Percent of Firms Identifying the Issue as a Priority
Overall Economy	63.5
Rising Costs	44.2
Government Regulation	34.6
Labor Availability	26.9
Industry Pricing	23.1
Labor Costs	17.3
Industry Competition	13.5
Other Concerns	13.5
Local Development	11.5
Changing Customer Tastes	11.5
Industry Oversupply	9.6
Succession Plans	9.6
Big Box Stores	7.7
Proposed Vrooman Road Bridge	5.8
Lack of Trained Agri-Business Managers for Your Business	3.8



Photos courtesy of OSU Extension



## ESTIMATED ECONOMIC IMPACT OF THE LAKE COUNTY NURSERY INDUSTRY

### Overview

To produce the nursery products that the Lake County Nursery Industry sells, inputs are necessary. These inputs take the form of goods and services such as chemicals, fertilizer, petroleum products, supplies, and natural gas, for example, as well as labor (or employees).

The industry's purchase of good and services, and employment payroll injects dollars into the economy. The sale of the industry's products injects dollars into the economy as well. The dollars associated with this spending circulate locally (and beyond) and stimulate additional economic activity well beyond the Lake County nurseries.

The purpose of this analysis is to estimate the overall impact of the dollars injected into the economy by the Lake County nursery industry. The analysis considers the spending ripples experienced in Lake County, in Ohio, and in the U.S. economy overall.

### Understanding Nursery Industry Impact

It is estimated that in 2007 the LCNI spent over \$5 million for goods and services necessary for production. In addition, according to Bureau of Labor Statistics data (data reported to the BLS by LCNI operators) the LCNI employed more than 1300 salaried and wage staff in Lake County in 2007 at a cost of over \$29 million (IMPLAN Database, 2007).

The 'consumers' of the industry's production are located in Lake County, the state of Ohio, and beyond and are responsible for an estimated \$ 87.5 million in annual sales. An estimated two-thirds of sales (\$57.75 million) are to consumers beyond the borders of Ohio.

The Lake County nursery industry (LCNI) contributes dollars to the Lake County economy, the Ohio economy, and the U.S. economy in a variety of ways. Simply put:

1. The industry in Lake County purchases needed supplies and services from businesses.
2. Employees of the industry in Lake County spend a portion of their income on goods and services provided by other businesses.
3. LCNI products are purchased by consumers.

The result of this spending is jobs and income. How? The dollars associated with this spending described above circulate throughout the economy. Some of the LCNI spending goes toward the purchase of goods and services produced within the region. Additionally, some of the LCNI spending goes toward the payment of nursery industry employee wages and benefits. These dollars represent the **direct effect** of the nursery industry, or the effects of the first round of spending. Assuming our level of analysis is Lake County only, other nursery industry-related spending has no additional impact beyond the initial round of spending because those dollars do not stay within Lake County. Such spending 'leaks' from the Lake County economy in order to purchase goods and services produced elsewhere. However, if our level of analysis is Ohio, or the U.S. economy, the 'leaked' dollars can be captured in our impact estimates and provide a much richer picture of how the LCNI supports jobs and income in the larger economy.

As local businesses supply goods and services to the nursery industry, and when these businesses, in turn, make additional local purchases we are able to estimate then what is referred to as the **indirect effect**. For example, increased sales of inputs used by fertilizer suppliers who supply the LCNI would represent indirect effects. Similarly, the increased sales of automotive parts used by the automotive repair shops that maintain LCNI machinery and equipment would represent indirect effects.

The **induced effect** occurs as workers in the directly and indirectly affected local industries receive income that they then use to purchase consumer goods and services. These purchases generate sales, income, and employment. For example, employees of the fertilizer supplier and automotive repair shops spend a portion of their earnings on housing, food, health care, etc. This spending circulates LCNI-related dollars throughout the economy, further supporting those and other businesses and their employees, and so on.

Estimating impact of the spending associated with the LCNI takes into account these effects in total using IMPLAN, input-output modeling software developed by the Minnesota IMPLAN Group in 1979. IMPLAN enables the estimation of multipliers using data compiled annually from the following sources: Bureau of Labor Statistics Covered Wages, Bureau of Economic Analysis Regional Economic Information System, US Census of Agriculture, US Census of Construction, Census Annual Survey of Government Finances, and the Federal Data Procurement Center.

IMPLAN data are compiled annually, with the most current database released in February 2009 (includes data for 2007). The software enables the estimation of impact resulting from changes in sales, employment, income and value added.

Using data collected from the Lake County Nursery Industry Survey, an IMPLAN model was designed to estimate the impact of this LCNI spending. Table 4 identifies spending by sector, for the inputs needed by the LCNI, which provide the foundation for the Lake County IMPLAN model. Specific descriptions of the economic sectors, may be found in the Appendix under the North American Industry Classification System (NAICS) definitions.

**Table 4. LCNI-Related Spending in Lake County**

<b>Estimated Amount- \$000's</b>	<b>Sector Title</b>	<b>NAICS Code</b>	<b>IMPLAN Sector</b>
\$547	Support activities for agriculture and forestry	115	19
\$664	Natural gas distribution	2212	32
\$255	Fertilizer manufacturing	325311	130
\$455	All other chemical product and preparation manufacturing	32592	141
\$954	Laminated plastics plate, sheet, and shape manufacturing	32613	145
\$660	Urethane and other foam product manufacturing	32615	147
\$417	Truck transportation	484	335
\$286	Insurance carriers	5241	357
\$189	Advertising and related services	5418	377
\$604	Automotive repair and maintenance, except car washes	81111	414

The purchase (sales) of these goods and services by the LCNI supports additional employment, sales, and income in a multitude of economic sectors throughout Lake County. In addition to the jobs directly supported by the LCNI (the 1327 LCNI employees themselves), it is estimated that such spending supports 76 additional jobs and contributes \$3.1 million to Lake County's Gross County Product (GCP). For perspective, there were approximately 120,800 jobs in Lake County and the GCP in 2007 was \$8.6 billion (IMPLAN Database, 2007).

Table 5 identifies the 15 economic sectors most impacted by the LCNI spending in terms of their contribution to Lake County's GCP. This table helps illustrate the relative magnitude of the relationships between the LCNI and the economic sectors which support it. For example, the LCNI spending supports the '115 Support activities for agriculture and forestry' sector to the extent that sector 115 contributes an estimated \$449,011 of the total estimated \$3.1 million of additional GCP. The absence of the LCNI would remove this contribution to the GCP as well as the other sectors' contributions. (NOTE: See the Appendix for detailed descriptions of the economic sectors listed in the tables below.)

**Table 5. Contribution to Lake County Gross County Product - 15 Most-Impacted Sectors**

NAICS	Economic Sector	Estimated \$ Contribution to GCP
115	Support activities for agriculture and forestry	\$449,011
8111	Automotive repair and maintenance (except car washes)	\$327,824
3261	Laminated plastics plate, sheet (except packaging), and shape manufacturing	\$267,711
484	Transport by truck	\$208,425
3261	Urethane and other foam product (except polystyrene) manufacturing	\$184,102
2212	Natural gas distribution	\$157,960
3259	All other chemical product and preparation materials	\$157,523
211	Extraction of oil and natural gas	\$127,653
5241	Insurance carriers	\$ 98,964
5418	Advertising and related services	\$ 96,712
N.A.	Rental activity for owner-occupied dwellings	\$ 93,639
3253-1, 2, 4	Fertilizer manufacturing	\$ 79,473
531	Real estate establishments	\$ 74,138
2211	Electric power generation, transmission and distribution	\$ 51,684
55	Management of companies and enterprises	\$ 37,700



Table 6 identifies the 15 economic sectors most impacted by the LCNI in terms of jobs supported in Lake County as a result of LCNI spending in Lake County. Similar to Table 5, this table helps illustrate the relative magnitude of the relationships between the LCNI and the economic sectors which support it in terms of employment. For example, the LCNI spending supports an estimated 38.6 jobs in the '115 Support activities for agriculture and forestry' sector and 7.1 jobs in the '8111 Automotive repair and maintenance' sector, and so on. These jobs would not be possible were it not for the LCNI.

**Table 6. Contribution to Lake County Employment - 15 Most-Impacted Sectors**

NAICS	Economic Sector	Jobs Supported
115	Support activities for agriculture and forestry	38.6
8111	Automotive repair and maintenance (except car washes)	7.1
3261	Laminated plastics plate, sheet (except packaging), and shape manufacturing	3.9
484	Transport by truck	3.5
5418	Advertising and related services	2.0
3261	Urethane and other foam product (except polystyrene) manufacturing	2.0
722	Food services and drinking places	1.6
5241	Insurance carriers	1.4
3259	All other chemical product and preparation materials	0.9
531	Real estate establishments	0.8
2212	Natural gas distribution	0.8
5613	Employment services	0.7
211	Extraction of oil and natural gas	0.7
6211-3	Offices of physicians, dentists and other health professions	0.5
452	Retail - General merchandise stores	0.5

The Lake County Nursery Industry Survey enabled us to generate an estimated LCNI sales figure of \$87.5 million. Table 7 illustrates the degree to which these sales occur in Ohio and the U.S. (NOTE: We can use this sales figure to estimate the overall economic impact of the LCNI production to the Ohio economy and U.S. economy.) For perspective, in 2007 there were approximately \$18.08 billion in Greenhouse, Nursery, and Floriculture Production sales in the U.S. and \$550.4 million in sales in Ohio. Estimated sales in this economic sector in Lake County according to the IMPLAN Database (2007) totaled \$97.2 million.



Photo courtesy of Lake County Nursery

**Table 7. LCNI Average Annual Sales 2004-2008 (millions of dollars)**

Container Sales	Field Crop Sales	Total Avg Sales	% of Sales to Ohio	Annual Sales in Ohio	Annual U.S. Sales (less Ohio)
\$48.12	\$39.37	\$87.50	34	\$29.75	\$57.75

The LCNI's estimated sales figures of \$29.8 million (Ohio) and \$57.8 million (U.S.) identified in Table 7 above support additional employment, sales, and income in a multitude of economic sectors throughout the Ohio and U.S. economies.

The estimated share of employment supported in Ohio and the U.S. as a result of the LCNI sales in Ohio is identified in Table 8 below. (NOTE: The employment in sector 11 Ag, Forestry, Fish & Hunting includes the existing employment (1327 positions) in the Nursery, Greenhouse and Floriculture Production sector in Lake County.) For ease in reporting, the impacts are illustrated by economic sector in 2-digit aggregated NAICS format. To provide context, total estimated employment by sector for the U.S. and Ohio are listed as well.

**Table 8. Employment by Sector: U.S. and Ohio (number of jobs)**

NAICS - Economic Sector	U.S. Existing Estimates	Estimated Nationwide Effects of LCNI	Ohio Existing Estimates	Estimated Statewide Effects of LCNI
11 Ag, Forestry, Fish & Hunting	3,771,606	1,681	108,462	1,424
21 Mining	907,940	8	18,665	3
22 Utilities	558,757	6	19,583	3
23 Construction	11,320,144	18	370,527	10
31-33 Manufacturing	13,870,286	57	742,103	15
42 Wholesale Trade	6,342,397	46	247,907	3
44-45 Retail trade	18,906,020	115	720,010	69
48-49 Transportation & Warehousing	5,669,436	39	240,504	17
51 Information	3,603,341	18	101,729	4
52 Finance & insurance	8,203,042	59	292,535	24
53 Real estate & rental	7,586,706	61	228,792	32
54 Profess. , scientific & tech services	12,070,573	55	384,191	18
55 Management of companies	1,866,533	11	103,256	2
56 Administrative & waste services	10,472,762	57	391,821	16
61 Educational services	3,502,840	23	124,961	10
62 Health & social services	17,605,350	108	761,191	60
71 Arts, entertainment & recreation	3,541,972	23	109,433	9
72 Accommodation & food services	11,984,404	75	449,809	36
81 Other services	10,110,014	63	370,941	30
92 Government & non NAICS	25,014,178	16	856,962	5
TOTAL EMPLOYMENT	176,908,300	2,539	6,643,383	1,792



As illustrated in Table 8, the LCNI supports the existence of an additional 97 jobs in the 11 Ag, Forestry, Fish & Hunting sector throughout Ohio (1424 less the LCNI 1327 jobs) and 354 in this sector throughout the U.S. (1681 less the LCNI 1327 jobs). More than 1200 jobs throughout the U.S. economy are supported by the LCNI employment (2539 less the LCNI 1327 jobs). In Ohio, 465 additional jobs are supported in Ohio by the LCNI employment (1792 less the LCNI 1327 jobs).

The majority of the additional employment supported by the LCNI at the state level and U.S. is in the 11 Ag, Forestry, Fish & Hunting sector. This is to be expected since the 11 Ag, Forestry, Fish & Hunting sector is comprised of a number of subsectors (including the Nursery, Greenhouse and Floriculture Production sector) that support each other. The nature of their economic relationship is such that changes to subsectors within that sector have a greater impact to the other subsectors in that sector than to subsectors in other less-related sectors.

Table 9 identifies the estimated output (sales) impact to Ohio and the U.S. as a result of the LCNI. Similar to the employment impacts in Table 8, the impacts are illustrated by economic sector in the 2-digit aggregated NAICS format. To provide context, employment by sector for the U.S. and Ohio are listed as well.

**Table 9. Output by Sector: U.S. and Ohio in Millions of Dollars**

NAICS - Economic Sector	U.S. Existing Estimates	Estimated Nationwide Effects of LCNI	Ohio Existing Estimates	Estimated Statewide Effects of LCNI
11 Ag, Forestry, Fish & Hunting	371,484	149.29	8,212	143.80
21 Mining	491,808	5.22	6,460	1.16
22 Utilities	467,862	5.55	13,603	2.37
23 Construction	1,617,010	2.07	49,834	1.00
31-33 Manufacturing	5,744,954	35.71	311,999	9.44
42 Wholesale Trade	1,180,510	8.51	42,711	0.45
44-45 Retail trade	1,263,834	7.69	43,379	4.06
48-49 Transportation & Warehousing	810,754	5.67	30,079	2.21
51 Information	1,255,140	6.38	27,914	1.22
52 Finance & insurance	2,030,984	14.80	58,938	4.48
53 Real estate & rental	2,361,551	17.16	65,196	7.68
54 Profess., scientific & tech services	1,637,143	7.64	46,161	2.11
55 Management of companies	432,689	2.61	23,491	0.45
56 Administrative & waste services	693,933	3.70	23,827	0.95
61 Educational services	213,522	1.40	6,423	0.56
62 Health & social services	1,534,497	9.47	63,174	4.93
71 Arts, entertainment & recreation	219,123	1.39	5,341	0.45
72 Accommodation & food services	716,833	4.45	23,674	1.86
81 Other services	632,751	3.89	22,508	1.66
92 Government & non NAICS	1,926,809	2.40	58,651	0.85
TOTAL SALES (in millions)	25,603,191	294.99	931,585	191.69

As Table 9 indicates, the LCNI's estimated sales in Ohio (\$29.8 million) contribute an estimated additional \$114 million in output in the Ag, Forestry, Fish, and Hunting sector in Ohio (\$143.8-\$29.8 million). Overall, the LCNI's estimated sales in Ohio contribute to an estimated additional \$161.9 million in output across the Ohio economy (\$191.69-\$29.8 million).

The LCNI's estimated sales in the U.S. (\$57.8 million) contribute an estimated additional \$91.5 million in output in the Ag, Forestry, Fish, and Hunting sector throughout the U.S. (\$149.3-\$57.8 million). Overall, the LCNI's estimated sales contribute to an estimated additional \$237.2 million in output across the national economy (\$294.99-\$57.8 million).

Table 10 identifies the estimated value added (Gross State Product - GSP, and Gross Domestic Product - GDP) impact to Ohio and the U.S. (respectively), as a result of the LCNI. The impacts are illustrated by economic sector in the 2-digit aggregated NAICS format.

**Table 10. Gross Domestic (U.S.) Product and Gross State Product in Millions of Dollars**

NAICS - Economic Sector	U.S. Existing Estimates	Estimated Nationwide Effects of LCNI	Ohio Existing Estimates	Estimated Statewide Effects of LCNI
11 Ag, Forestry, Fish & Hunting	159,152	97.39	3,404	97.54
21 Mining	272,582	3.01	3,361	0.69
22 Utilities	289,095	3.15	7,504	1.27
23 Construction	688,847	1.03	19,201	0.46
31-33 Manufacturing	1,568,100	8.56	81,173	1.90
42 Wholesale Trade	768,377	5.54	27,026	0.29
44-45 Retail trade	877,758	5.34	29,216	2.79
48-49 Transportation & Warehousing	394,063	2.74	15,185	1.08
51 Information	623,812	3.13	13,019	0.56
52 Finance & insurance	1,087,844	8.32	27,556	2.45
53 Real estate & rental	1,688,865	12.40	44,602	5.45
54 Profess., scientific & tech services	1,036,277	4.79	27,855	1.29
55 Management of companies	252,553	1.52	13,396	0.26
56 Administrative & waste services	412,998	2.18	13,507	0.53
61 Educational services	119,751	0.78	3,304	0.29
62 Health & social services	955,989	5.90	37,729	3.01
71 Arts, entertainment & recreation	135,736	0.86	3,053	0.26
72 Accommodation & food services	364,408	2.25	10,711	0.86
81 Other services	332,608	2.05	11,122	0.83
92 Government & non NAICS	1,778,782	1.37	52,468	0.42
<b>TOTAL VALUE ADDED (in millions)</b>	<b>13,807,600</b>	<b>172.30</b>	<b>444,391</b>	<b>122.24</b>



Photo courtesy of Lake County Nursery



Photo courtesy of Lake County Nursery

The LCNI's contribution to Lake County's Gross County Product (value added- see appendix) was estimated at \$65.9 million (IMPLAN Database, 2007). Table 10 illustrates the estimated impact of the LCNI on GDP and GSP. The LCNI is responsible for an estimated additional \$31.6 million of Ohio's Gross State Product (\$97.5 million less the \$65.9 million contributed by the LCNI) in the 11 Ag, Forestry, Fish & Hunting sector. The LCNI is also responsible for estimated additional \$31.5 million of the U.S. Gross Domestic Product (\$97.4 million less the \$65.9 million contributed by the LCNI) in the 11 Ag, Forestry, Fish & Hunting sector. Overall, the LCNI contributes an estimated \$106.4 million (\$172.3-\$65.9 million contributed by the LCNI) to the GDP and \$56.3 million (\$122.2-\$65.9 million contributed by the LCNI) to Ohio's Gross State Product.

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## DISCUSSION

### **Estimated Impact in Lake County**

Spending associated with the LCNI in Lake County is distributed over a variety of economic sectors (*Table 4*). This nursery industry spending supports other agriculturally-related ventures in Lake County (NAICS sector 11), as well as ventures in the following economic sectors: Utilities (22); Manufacturing (31-33); Transportation and Warehousing (48-49); Finance and Insurance (52); Professional, Scientific, and Technical Services (54), and; Other Services (81). (For a description of each sector and associated subsectors listed in Table 1, go to <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2007>). The dollars injected into these sectors are spent and re-spent, circulating throughout a myriad of other economic sectors supporting jobs and income.

In Lake County, LCNI spending supports an estimated 76 additional jobs. Not surprisingly, one-half of those jobs are in the Agriculture and Forestry Support Activities sector (NAICS 115) and an estimated 7 more are automotive mechanics and service technician positions (*Table 6*). An estimated 30 other jobs are distributed throughout 73 other economic sectors in Lake County as a result of the Lake County-based LCNI spending.

These additional jobs create wealth in Lake County which originates from 21 economic sectors. Table 5 lists the 15 sectors which make the largest contribution to the Lake County Gross County Product. As we might expect, it is estimated that the largest contributor to GCP includes the ventures in the Agriculture and Forestry Support Activities sector (NAICS 115) followed by Automotive Repair and Maintenance (8111), Laminated Plastics (3261) and Truck Transport (484). Considering the inputs required by the LCNI to produce its 'product' this is not surprising. Contributions also originate from: Mining, Quarrying, and Oil and Gas Extraction (21); Utilities (22); Manufacturing (31-33); Transportation and Warehousing (48-49); Finance and Insurance (52); Real Estate and Rental Leasing (53); Professional, Scientific, and Technical Services (54); Management of Companies and Enterprises (55); and Other Services (81).

### **Estimated Impact in Ohio**

Spending associated with the LCNI in Ohio takes the form of LCNI sales (*Table 7*). LCNI spending (sales) in Ohio is estimated at \$29.8 million. This spending contributes to jobs and income in Ohio.

It is estimated that the LCNI supports an additional 465 jobs in Ohio, 100 of them in the related Agriculture, Forestry, Fishing and Hunting sector (11) (*Table 8*). Other sectors with a strong tie to the LCNI-related spending in Ohio are Retail Trade (44-45) with 69 estimated positions, and Health and Social Services (62) with 60 estimated positions.

These jobs create wealth in Ohio and generate additional spending throughout the state. Sales of LCNI products in Ohio support the additional sales of goods and services in the state valued at an estimated \$161.9 million (*Table 9*). The most-impacted sectors include Manufacturing (31-33), and Real Estate and Rental (53) with \$9.4 million and \$7.7 million of estimated sales, respectively.

### **Estimated Impact in the U.S.**

Spending associated with the LCNI in the U.S. takes the form of LCNI sales to consumers throughout the country (*Table 7*). LCNI spending (sales) in the U.S. is estimated at \$57.8 million. This spending contributes to jobs and income throughout the U.S.

It is estimated that more than 1200 jobs throughout the U.S. economy are supported by the existence of the LCNI. An estimated 354 jobs are supported in the related Agriculture, Forestry, Fishing and Hunting sector (11) (see Table 8). An estimated 115 jobs are supported in the nation's Retail Trade (44-45) sector and 108 jobs are supported in the Health and Social Services (62) sector as a result of the LCNI. Other sectors impacted include: Accommodation and Food Service (72) with 75 jobs; Other Services (81) with 63 jobs; Real Estate and Rental (53) with 61 jobs; Finance and Insurance (52) with 59 jobs, and; Manufacturing (31-33) and Administrative and Waste Services (56) with 57 jobs each.

These jobs create goods and services that contribute \$106 million toward the U.S. Gross Domestic Product (GDP). Most of this additional output comes from ventures in the LCNI-related Agriculture, Forestry, Fishing and Hunting sector (11). Other sectors contributing include Real Estate and Rental (53) with \$12.4 million; Manufacturing (31-33) with \$8.6 million; Finance and Insurance (52) with \$8.3 million, and; Health and Social Services (62) with \$5.9 million.

### CONCLUSIONS AND IMPLICATIONS

The existence of the LCNI supports additional jobs and income (beyond the LCNI itself) locally and throughout the larger Ohio and U.S. economies (*Table 11*). Locally, it directly contributes to ventures that provide the LCNI goods and services necessary to create the product that it sells. Beyond the local economy, the dollars injected into the state and national economies via the purchase of the LCNI products circulate and re-circulate generating additional spending, jobs, and income among a wide variety of economic sectors.

Any changes to sales and/or employment (either increase or decrease) would generate a change across all sectors in terms of employment, output and value added measures proportional to the change. For example, a 10% increase in LCNI employment would contribute to an estimated additional 10% increase in the figures shared in this analysis. A 10% decrease in LCNI employment would contribute to an estimated 10% decrease in the figures shared in this analysis.

How can the LCNI's economic impact be maximized in Lake County and the region? A straightforward approach to maximize impact is to pursue strategies that will help to capture the LCNI spending that is leaking beyond the region. The LCNI is investing in chemicals, fertilizers, supplies, and equipment, for example. A greater proportion of the impact associated with the contributions made by the LCNI could be realized within Lake County and the region if more of the suppliers to the industry, such as those listed above, were located within the county and region.



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**Table 11. Summary of Impact**

Estimated Impact of LCNI			
	Lake County	Ohio	U.S.
Jobs <sup>1</sup>	76	465	1200
Output or Sales <sup>2</sup>	\$57.7 million	\$237.2 million	\$91.5 million
Value Added <sup>3</sup>	\$65.9 million	\$56.3 million	\$106.4 million

<sup>1</sup>number of jobs including seasonal and part time positions (expressed in FTEs)

<sup>2</sup>dollar value of service or product sold

<sup>3</sup>sum of total income and indirect business taxes (most accurate measure as it avoids double counting associated with intermediate or 'business to business' sales captured in the output/sales measures)



Photo courtesy of Lake County Nursery

## APPENDIX

Glossary of terms below adapted from the IMPLAN Glossary at [http://implan.com/v3/index.php?option=com\\_glossary&Itemid=164](http://implan.com/v3/index.php?option=com_glossary&Itemid=164)

### **Employee Compensation**

Employee Compensation in IMPLAN is the total payroll cost of the employee paid by the employer. This includes, wage and salary, all benefits (e.g., health, retirement, etc) and employer-paid payroll taxes (e.g., employer side of social security, unemployment taxes, etc).

### **Full Time Equivalent Employment (FTE)**

Full-time equivalent employment is the number of full-time equivalent jobs, as determined by total hours worked divided by average annual hours worked in fulltime jobs.

### **Gross Domestic Product (GDP) (or 'Value-added')**

Gross Domestic Product (GDP) or 'value added' is the contribution of each private industry and of government to the nation's output, or GDP. It represents total output of an industry or establishment (which consists of sales or receipts and other operating income, commodity taxes, and inventory change) less the cost of its intermediate inputs (which consist of energy, raw materials, semi-finished goods, and services that are purchased from domestic industries or from foreign sources).

### **Output**

Output represents the value of industry production. In IMPLAN these are annual production estimates for the year of the data set and are in producer prices.

Manufacturing	output = sales +/- change in inventory
Service Sector	output = sales
Retail and wholesale trade	output = gross margin (not gross sales)

### **North American Industry Classification System (NAICS)**

North American Industry Classification System (NAICS)- the standard used by Federal Statistical agencies in classifying business establishments for the purpose of collecting, analyzing and publishing statistical data related to the U.S. business economy.

NAICS Definitions – listed in order of most impacted sectors in Lake County (*Table 4*).

### **Nursery, Greenhouse and Floriculture Production (IMPLAN sector 6, NAICS sector 1114).**

This sector is comprised of establishments primarily engaged in growing nursery products, nursery stock, shrubbery, bulbs, fruit stock, sod, and so forth, under cover or in open fields and/or growing short rotation woody trees with a growth and harvest cycle of 10 years or less for pulp or tree stock. As a cross reference to other related industry sectors, establishments primarily engaged in producing seedling trees for planting for commercial timber production are classified under Forest Nurseries and Gathering of Forest Products (113210); establishments primarily engaged in retailing nursery, tree stock, and floriculture products primarily purchased from others are classified under Nursery, Garden Center, and Farm Supply Stores (NAICS 444220).

### **115 Support Activities for Agriculture and Forestry**

Industries in the Support Activities for Agriculture and Forestry subsector provide support services that are an essential part of agricultural and forestry production. These support activities may be performed by the agriculture or forestry producing establishment or conducted independently as an alternative source of inputs required for the production process for a given crop, animal, or forestry industry. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.

#### **8111 Automotive Repair and Maintenance**

This industry group comprises establishments involved in providing repair and maintenance services for automotive vehicles, such as passenger cars, trucks, and vans, and all trailers. Establishments in this industry group employ mechanics with specialized technical skills to diagnose and repair the mechanical and electrical systems for automotive vehicles, repair automotive interiors, and paint or repair automotive exteriors.

#### **3261 Plastics Product Manufacturing**

This industry group comprises establishments primarily engaged in processing new or spent (i.e., recycled) plastics resins into intermediate or final products, using such processes as compression molding; extrusion molding; injection molding; blow molding; and casting. Within most of these industries, the production process is such that a wide variety of products can be made.

#### **484 Truck Transportation**

Industries in the Truck Transportation subsector provide over-the-road transportation of cargo using motor vehicles, such as trucks and tractor trailers.

#### **3259 Other Chemical Product and Preparation Manufacturing**

This industry group comprises establishments primarily engaged in manufacturing chemical products (except basic chemicals; resins, synthetic rubber, cellulosic and non-cellulosic fibers and filaments; pesticides, fertilizers, and other agricultural chemicals; pharmaceuticals and medicines; paints, coatings, and adhesives; soaps and cleaning compounds; and toilet preparations).

#### **211 Oil and Gas Extraction**

Industries in the Oil and Gas Extraction subsector operate and/or develop oil and gas field properties. Such activities may include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operating separators, emulsion breakers, de-silting equipment, and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. This subsector includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids.

#### **5241 Insurance Carriers**

This industry group comprises establishments primarily engaged in underwriting (assuming the risk, assigning premiums, and so forth) annuities and insurance policies and investing premiums to build up a portfolio of financial assets to be used against future claims.

### **531 Real Estate**

Industries in the Real Estate subsector group establishments that are primarily engaged in renting or leasing real estate to others; managing real estate for others; selling, buying, or renting real estate for others; and providing other real estate related services, such as appraisal services. This subsector includes equity Real Estate Investment Trusts (REITs) that are primarily engaged in leasing buildings, dwellings, or other real estate property to others.

### **2211 Electric Power Generation, Transmission and Distribution**

This industry group comprises establishments primarily engaged in generating, transmitting, and/or distributing electric power. Establishments in this industry group may perform one or more of the following activities: (1) operate generation facilities that produce electric energy; (2) operate transmission systems that convey the electricity from the generation facility to the distribution system; and (3) operate distribution systems that convey electric power received from the generation facility or the transmission system to the final consumer.

### **Sector 55--Management of Companies and Enterprises**

The Management of Companies and Enterprises sector comprises (1) establishments that hold the securities of (or other equity interests in) companies and enterprises for the purpose of owning a controlling interest or influencing management decisions or (2) establishments (except government establishments) that administer, oversee, and manage establishments of the company or enterprise and that normally undertake the strategic or organizational planning and decision-making role of the company or enterprise. Establishments that administer, oversee, and manage may hold the securities of the company or enterprise.







Photo courtesy of Lake County Nursery



Photo courtesy of Lake County Nursery



Results of the Lake County  
Nursery Industry Study  
December 2009

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