



Minnesota Landscape and Nursery Industry Economic Impact Study



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By:

Minnesota Landscape and Nursery Association

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Table of Contents:

1. Introduction
2. Survey
3. Gross Volume of Sales
4. Business Activities
5. Regional Activities
6. Production of landscape and nursery products
7. Employment
8. Output per Worker
9. Trends
10. Taxes
11. Conclusion

Introduction

The Minnesota Landscape and Nursery Association (MNLA) is an industry group of firms focusing on landscape and nursery services. This study has been commissioned by MNLA to quantify the contributions of the landscape and nursery industry on Minnesota's economy. To this end, researchers from St. Cloud State University estimated industry values.

This report begins by describing the survey and procedures used to derive industry value estimates. A breakdown of specific industry activities (e.g. landscape contracting and installation, retail trees, etc.) provides a more detailed understanding of industry members' business activities. Employment data provides detail on availability of skilled labor and labor output. In addition, a section of the survey is dedicated to obtaining trends within business activities.

Survey:

An electronic survey was created using Survey Monkey and was emailed to MNLA members and perspective members, who are owners of independent Landscape and Nursery businesses. In total the survey was sent to 2136 participants. It was an updated survey created by MNLA in 2002. The survey consisted of 20 unique questions with up to 117 potential data points from each response. Results were used to estimate industry characteristics of gross volume of sales (GVS), type of business activities, regional activities, land use in production of landscape and nursery products, employment, trends, and taxes.

With any survey it is important to note potential biases that can cause the survey responses to misrepresent the population. One issue facing this survey was that of non-response bias, where firms may chose not to respond. In this case, small firms (sales less than 5 million) had a lower response rate than large firms (sales in excess of 5 million). A statistical test was performed to determine whether non-response bias existed between large firms and small firms. The test showed there is a statistically significant difference between reporting by large firms and small firms. As such, the survey disproportionately represents larger firms. To address this issue survey responses were separated into two groups, small and large firms, and responses were weighted. Since the number of member firms with GVS in excess of 5 million per year is known, based on MNLA memberships, responses were broken into two groups based on GVS. Firms with 5 million or more in GVS were categorized as large firms, while those with fewer than 5 million in sales were labeled as small firms. Of the 41 MNLA members with GVS of 5 million or more per year, according to their membership information, 20 responded. This corresponds to a 48.78% response rate for large firms. Responses were analyzed by firm size and results were weighted by multiplying the mean of each group by the number of members in each group. This means the mean GVS for large firms was multiplied by 41 to get the total large firm contribution to industry GVS. The same method was used to estimate small firms' contributions to total GVS. The weighted values were aggregated to arrive at total industry estimates.

The survey was sent in early February, 2014 with a deadline of completion by March 15th, 2014. 227 responses were obtained, which is a 10.6% response rate. About a third of the responses were not comparable to others for the reasons listed below. After removing responses with issues, the survey was reduced to 157 responses, which represents a 7.35% response rate. The chart below documents how responses were selected.

Response Removal	
227	Initial Responses
-69	no gross volume of sales information
-1	provided extreme values of acres and sq. ft. with very low gross volume of sales
157	total left

GVS data were provided for retail, service, and wholesale business activities. 34 members indicated they were involved in some type of wholesale business activities with 4 exclusively engaged in wholesale business. A majority of reporting members were engaged in retail and/or service activities.

It is important to note that big box retailers (e.g. Walmart, Target, Home Depot, Shopko, Cub Foods, Rainbow Foods, etc.) were not part of the survey. These firms sell a substantial quantity of nursery products which will lead to an underestimation of total industry sales, particularly in retail. Since none of these firms are members, or participate with MNLA, they did not participate in the survey.

Survey Questions and Responses

Gross Volume of Sales:

Questions 1 and 2 directed participants to the portion of the survey that corresponded to their most recent fiscal year and whether they were in business in 2013.

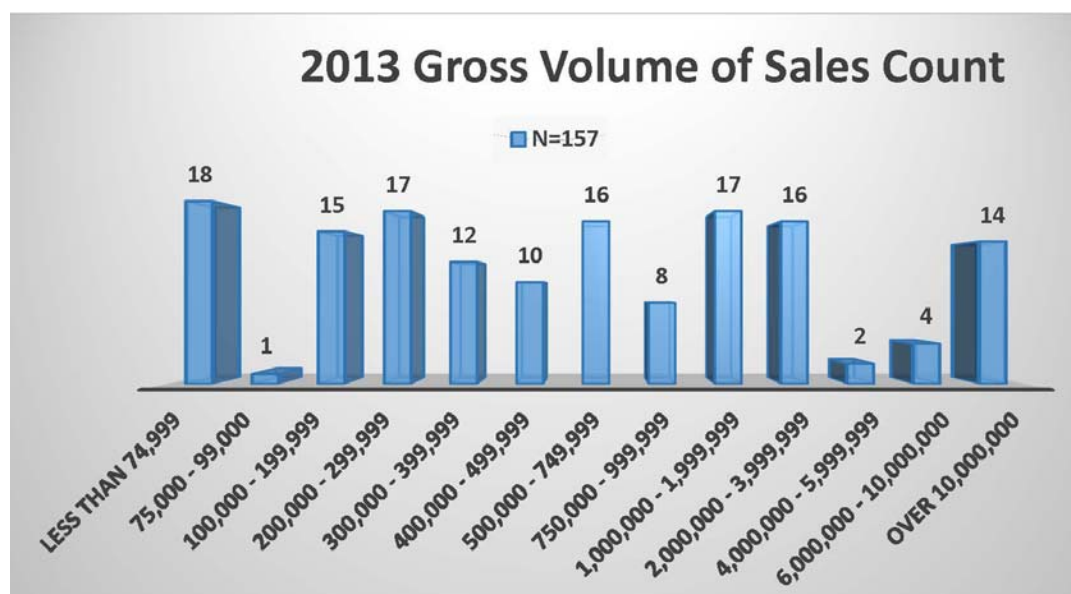
Question 1 asks if they were in business in 2013. If they were, they advanced to question 2. If not, they were directed to question 27 at the end of the survey that asked for details about observed past and expected future trends. Question 2 asked for their most recent fiscal year, with 2013 and 2012 as possible options. Both 2012 and 2013 survey sections contained identical questions with the exception of their corresponding fiscal year. After survey results were tallied and examined, all 2012 responses were adjusted for inflation based on the Consumer Price Index (CPI) and were considered 2013 responses.

Question 3: Asked if their previous year sales had stayed about the same. 42.7% responded theirs stayed the same while 56.7% indicated it had changed. One response was left blank. If sales had changed, they were not asked in what direction.

Question 4: Asked for gross volume of nursery and landscape sales in 2013. If exact value was unknown, they were instructed to proceed to question 5.

Question 5: Asked for gross volume of nursery and landscape sales in 2013 as a range.

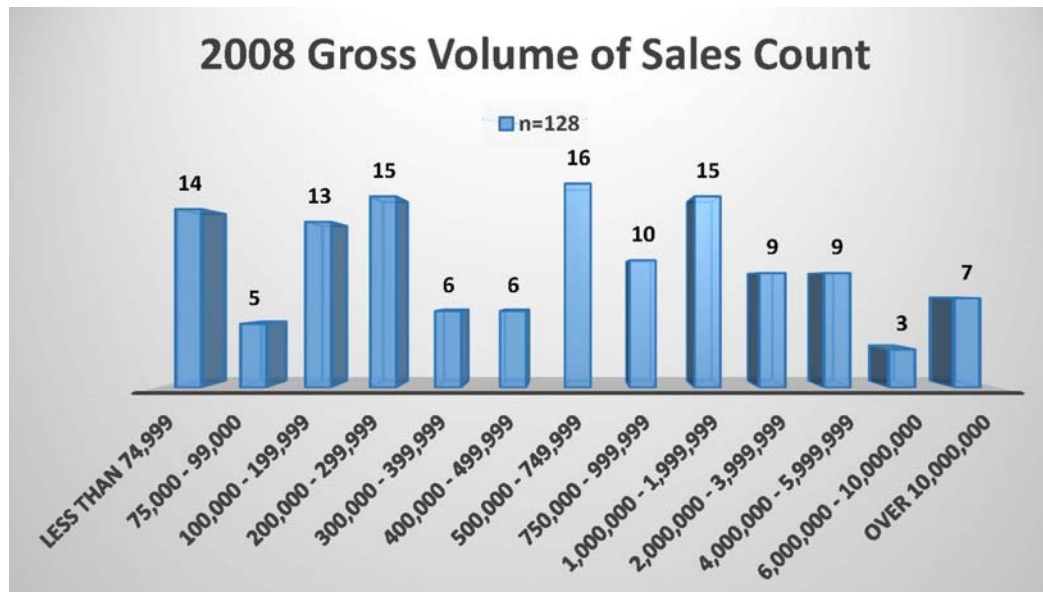
Responses from questions 4 & 5 were merged to create a new column that was used to estimate 2013 GVS. The mean of the range from question 5 was used, with a value of 15 million for any response in excess of 6 million per year. A total of 157 responses were included in the merged column. Based on the merged responses, the average business generated \$ 1,212,245.16 per year from nursery and landscape sales, with a median GVS of \$ 625,000.00. This indicates that the industry is made up primarily of smaller firms with a number of large members that bring up the overall average.



Question 6: Asked for gross volume of nursery and landscape sales in 2008.

Question 7: Asked for gross volume of nursery and landscape sales in 2008 as a range.

Responses from questions 6 and 7 were merged to create a new column that was used to estimate 2008 industry GVS. The mean of the range from question 5 was used, with a value of 15 million imputed for any who indicated GVS in excess of 6 million. A total of 128 responses were included in the merged column. 2008 values were adjusted for inflation using the Consumer Price Index (CPI) for retail sales, and Producer Price Index (PPI) for service and wholesale activities. All values were adjusted to 2013 dollars. Based on the merged responses Landscape and Nursery businesses had an inflation adjusted average GVS of \$ 1,254,686.26 in 2008 with an inflation adjusted median GVS of \$ 694,593.46.



From 2008 to 2013 Landscape and Nursery members experienced nominal growth of 8.81%, but a decrease in real growth of -3.4%. Large firms grew 4% while small firms shrunk 7%. During the same period, median GVS decreased 1.9%, from \$694,593.46 to \$625,000, which is less than the overall industry change in growth. Small firms have decreased in size while large firms have experience small growth. During hard economic times, like the recent Great Recession, consolidation and mergers are common as less profitable firms go out of business or are purchased by other firms. This is evidenced by the fact that the total number of Minnesota Landscape and Nursery companies decreased from over 3000 in 2002 to 2136 in 2013.

The average firm is substantially larger in 2013 than 2002. The inflation adjusted median in 2002 was \$198,150. This indicates that the average firm is now over 3 times as large as they were in 2002. The Great Recession took a toll on the housing industry and since the Landscape and Nursery industry is closely tied to housing its growth has been low.

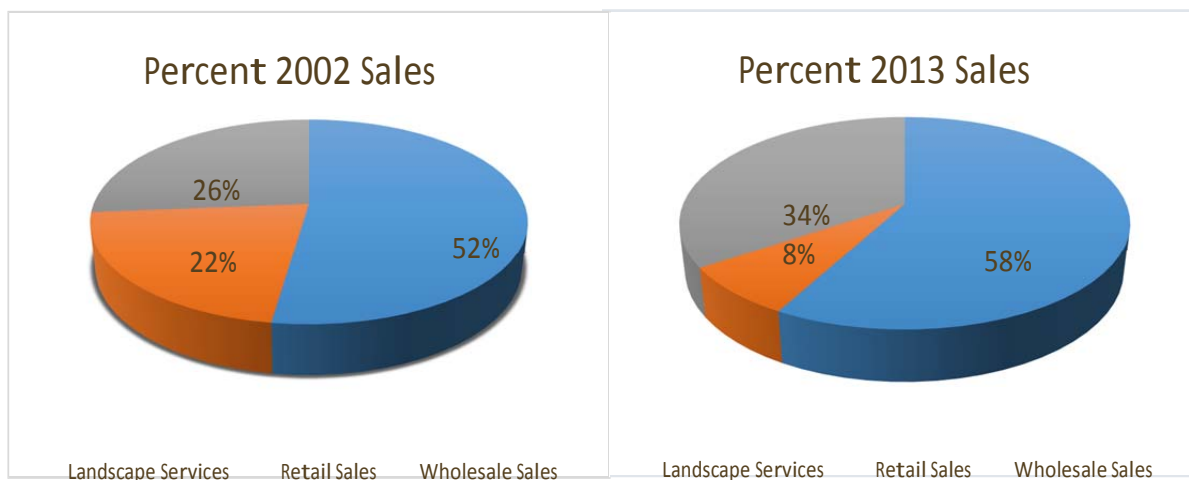
Business Activities:

Question 8: allows for the GVS to be broken down by the following business activities:

Business Activity	\$ Gross Volume of Sales	% Total
<u>Landscape Services</u>		
landscape contracting/installation	\$ 724,753,518.60	27.99%
Garden maintenance, installation, design	\$ 91,082,166.13	3.52%
Landscape design / architecture	\$ 29,649,941.22	1.15%
Landscape irrigation design, installation, and maintenance	\$ 218,156,248.04	8.43%
Lawn mowing, fertilization and pesticide application or other landscape management	\$ 136,381,974.82	5.27%
Tree care / maintenance or arboriculture	\$ 49,369,547.50	1.91%
Snow Removal	\$ 137,330,053.43	5.30%
Other	\$ 112,529,665.30	4.35%
Subtotal Landscape Services	\$ 1,499,253,115.05	57.90%
<u>Retail Sales</u>		
Trees and shrubs	\$ 38,857,038.39	1.50%
Annuals	\$ 48,746,224.20	1.88%
Perennials, groundcovers and herbs	\$ 28,895,314.70	1.12%
Potted flowering plants	\$ 10,534,619.18	0.41%
Turfgrass (sod and/or grass seed)	\$ 5,908,341.54	0.23%
Hard goods (include fertilizers & other chemicals, tools, mulch, outdoor statuary)	\$ 23,685,266.89	0.91%
Hardscapes, retaining wall and walkway materials, landscape lighting, and ponds	\$ 40,969,329.26	1.58%
Subtotal Retail Sales	\$ 197,596,134.18	7.63%
<u>Wholesale Sales</u>		
Trees and shrubs	\$ 459,472,688.39	17.74%
Annuals	\$ 33,473,108.03	1.29%
Perennials, groundcovers and herbs	\$ 49,651,368.22	1.92%
Potted flowering plants and cut flowers	\$ 14,887,450.12	0.57%
Turfgrass (sod and/or grass seed)	\$ 46,738,534.08	1.81%
Hard goods (include fertilizers & other chemicals, tools, mulch, outdoor statuary)	\$ 103,816,645.28	4.01%
Hardscapes, retaining wall and walkway materials, landscape lighting, and ponds	\$ 184,466,614.95	7.12%
Subtotal Wholesale	\$ 892,506,409.07	34.47%
Total Activity	\$ 2,589,355,658.30	100.00%

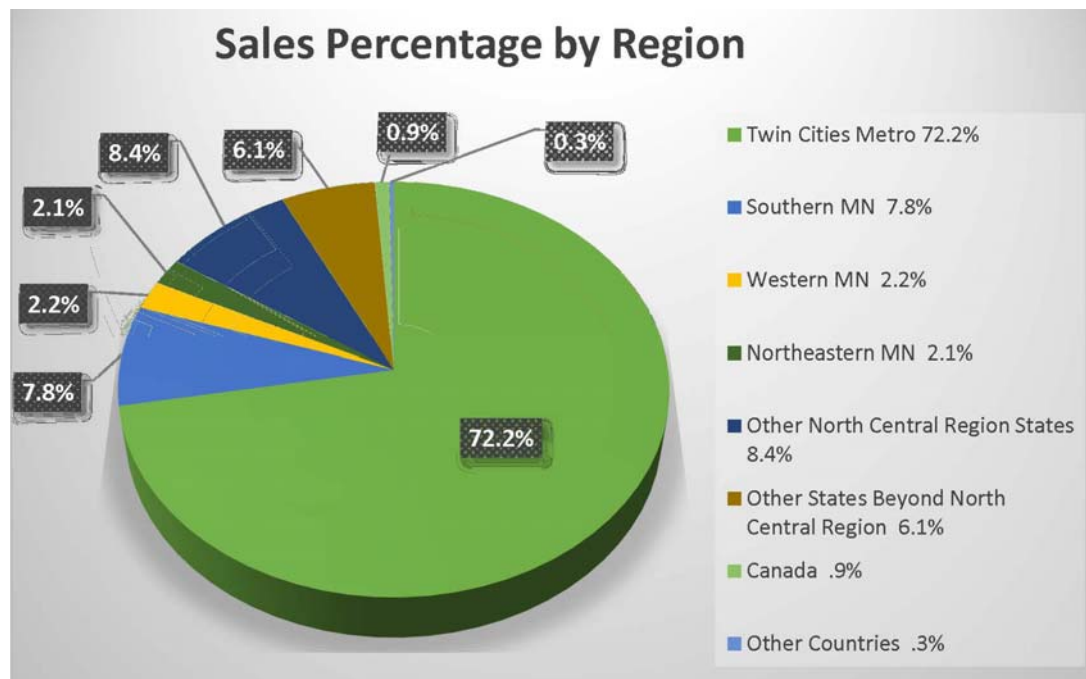
The breakdown of sales above is grouped into retail, service, and wholesale business activities. The first group represents Landscape Services and makes up 57.90% of the total industry sales with \$1,499,253,115.05 in GVS. The second group is retail sales of landscape and nursery goods which accounts for 7.63% of GVS or \$197,596,134.18 in annual sales. The last group shows the breakdown of wholesale activities. Wholesale business activities make up 34.47% of industry sales and contribute \$892,506,409.07 to annual sales. Of the \$892 million in wholesale activity, approximately \$687 million were sold to other Landscape and Nursery businesses for use in final demand, while \$205 million was exported to other states and/or countries. After removing the value of the intermediate wholesale goods, Minnesota Landscape and Nursery businesses provided \$1,902,525,762.37 in GVS. The largest share of sales came from services, with wholesale activities closely following. These numbers are conservative estimates since big box retailers are not part of the survey and sell substantial quantities of retail landscape and nursery goods.

An important change in the distribution of GVS is worth noting. Since 2002 there has been a large change in the proportion of Landscape and Nursery business activities away from retail and toward wholesale. In 2002 21.42% of all Landscape and nursery business activities consisted of retail sales. In 2013 that number decreased to 7.63%. The substantial change may be in part to more landscape and nursery goods being sold by big box retailers that are not MNLA members. During the same period, service and wholesale sectors sales increased from 52.28% to 57.90% for services, and 26.3% to 34.47% for wholesale. It appears that MNLA members are increasingly specializing in wholesale and service activities. Many of these activities supply products for large retailers who are not MNLA members.



Business activity by Region

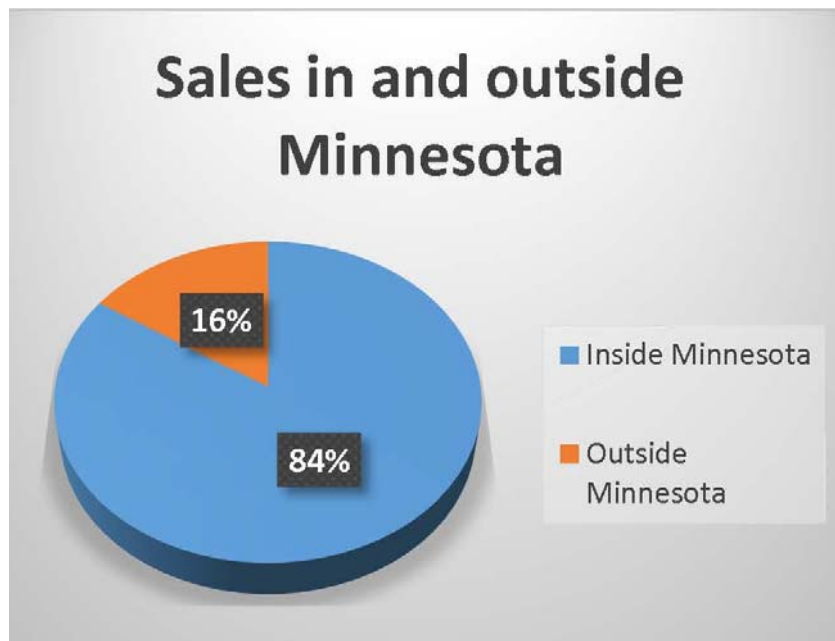
Question 9: Asked respondents to break down their sales by region. The following are the results of those responses.



Percentage Location

72.25%	Twin Cities Metro ((Counties included: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, Sherburne, Washington, Wright)
7.76%	Southern MN (Counties included: Blue Earth, Brown, Chippewa, Cottonwood, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Houston, Jackson, Kandiyohi, Lac Qui Parle, LeSueur, Lincoln, Lyon, McLeod, Martin, Meeker, Mower, Murray, Nobles, Nicollet, Olmsted, Pipestone, Redwood, Renville, Rice, Rock, Sibley, Steele, Wabasha, Waseca, Watonwan, Winona, Yellow Medicine)
2.22%	Western MN (Counties included: Becker, Beltrami, Big Stone, Clay, Clearwater, Douglas, Grant, Hubbard, Kittson, Lake of the Woods, Mahnommen, Marshall, Norman, Otter Tail, Pennington, Polk, Pope, Roseau, Red Lake, Stearns, Stevens, Swift, Todd, Traverse, Wadena, Wilkin)
2.08%	Northeastern MN (Counties included: Aitkin, Benton, Cass, Carlton, Chisago, Cook, Crow Wing, Isanti, Itasca, Kanabec, Koochiching, Lake, Mille Lacs, Morrison, Pine, St. Louis)
8.43%	Other North Central Region States (Iowa, North Dakota, South Dakota, Wisconsin)
6.07%	Other States Beyond North Central Region
0.91%	Canada
0.29%	Other Countries

The population distribution indicates the largest share of landscape and nursery sales take place in the Twin Cities Metro areas. Given the population density of the counties included in the Twin Cities Metro area, it is no surprise they make up the largest share of sales. Three points need to be considered in comparing 2013 results to 2002 results. First, sales outside Minnesota have decreased from 17.5% in 2002 to 15.70% in 2013. Second, of the sales outside Minnesota, large firms, export 34.36% of their GVS while small firms only provide 6.58%. Large firms increasingly specialize in wholesale production which may explain the larger proportion of exports over small firms. Third, the proportion of sales taking place in the Twin Cities Metro area have more than doubled from 31.28% in 2002 to 72.25% in 2013. There seems to be a consolidation in sales toward the Twin Cities Metro areas. This may partly be explained by the increase in wholesale activities that supply big box retailers. Another explanation is that small firms, who are outside the Twin Cities Metro Area, are buying from large firms and using those goods to provide services within the Twin Cities Metro Area. Small firms disproportionately provide more services and sell more in the Twin Cities than Large firms. Another explanation is the self-selection bias discussed in the survey section of this report. Large firms may be over represented.



Production of Landscape and Nursery Products:

Question 12: asked for the breakdown of land used for production of woody plants and field grown perennials in acres, and annuals, perennials, and potted plants grown in greenhouses in sq. feet.

There was one assumption that was made in determining total land use. If a response was left blank but they provided more information than just GVS, I imputed a zero for missing responses. If a firm in fact did not use any land and they left it blank the average would be higher than the actual average. This was done to prevent the numbers from being over inflated.

Land Use Type	Total
Production of woody plants and field grown perennials (in acres)	35,961.92
Production of annuals, perennials, and potted plants in greenhouses (in sq. feet)	13,420,428.54

Land used in the production of woody plants and field grown perennials, and greenhouse plants has increased from 2000. Land used for production of woody plants and field grown perennials increased from 22,105 acres in 2000 (based on results from 2002 survey) to 35,961.92 in 2013. Production of annuals, perennials, and potted plants in greenhouses also increased slightly from 13,044,559 sq. ft. in 2000 (based on results from 2002 survey) to 13,420,428.54 sq. ft. in 2013.

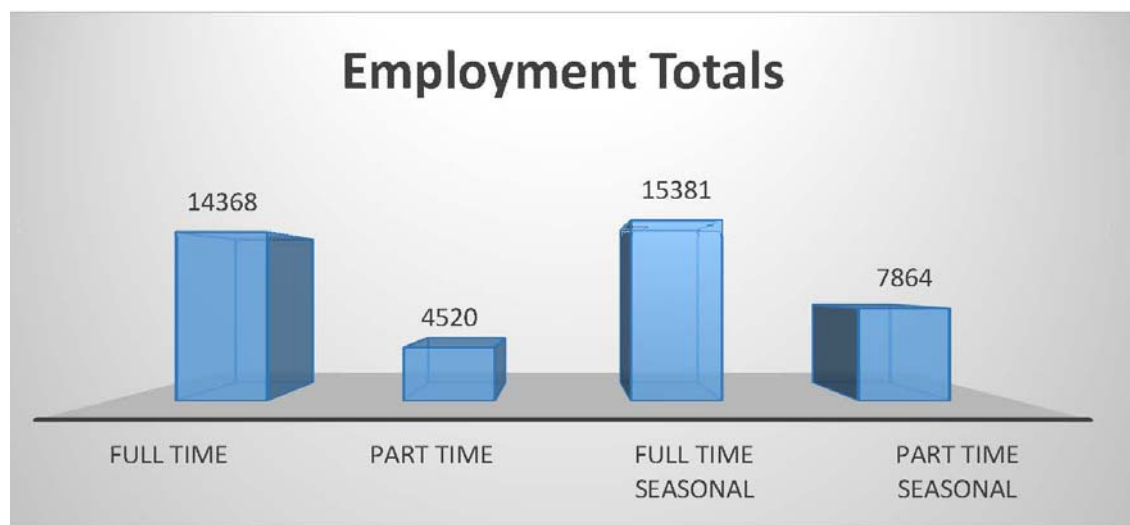
Employment:

Questions 10-11 asked for the total employment payroll as either an exact figure or a range. Payroll includes all wages, salaries, employee taxes, and benefits. Independent business owners included their pay in this total.

Questions 13 asked the respondent to provide the number of full time, part time, and seasonal employees that had in 2013. The numbers below have been rounded.

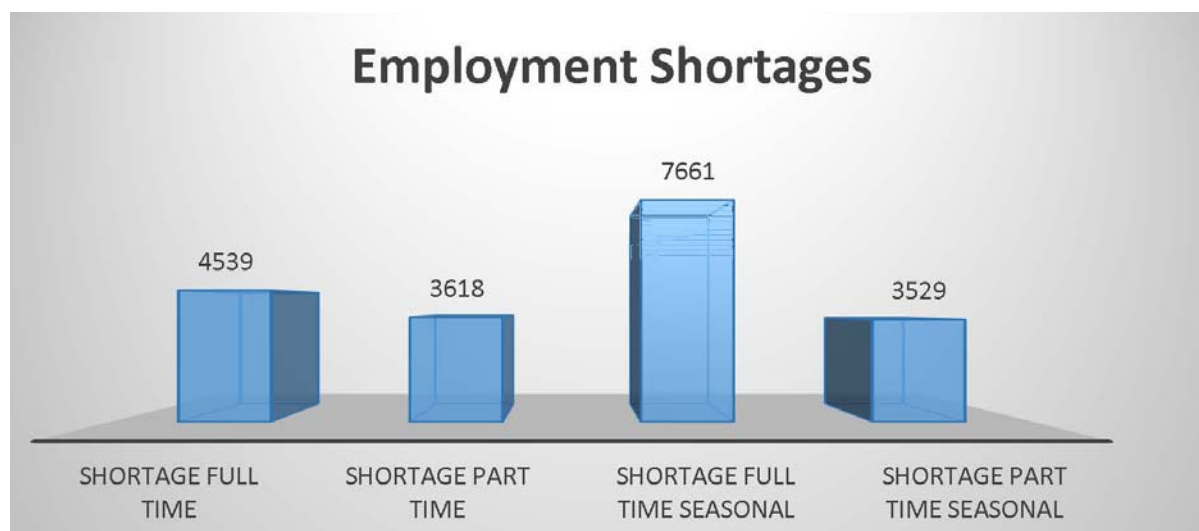
Total Employment Type

14368	Full Time (Worked 30 hours or more per week, and worked for 9 months or more during the year)
4520	Part Time (Worked less than 30 hours per week, and worked for 9 months or more during the year)
15381	Seasonal, Full Time (worked 30 hours or more per week, and worked less than 9 months of the year)
7864	Seasonal, Part Time (worked less than 30 hours per week, and worked for less than 9 months of the year)



Question 14 asked how many more employees they would have hired in each of the above categories if they could have found qualified workers. The numbers below have been rounded.

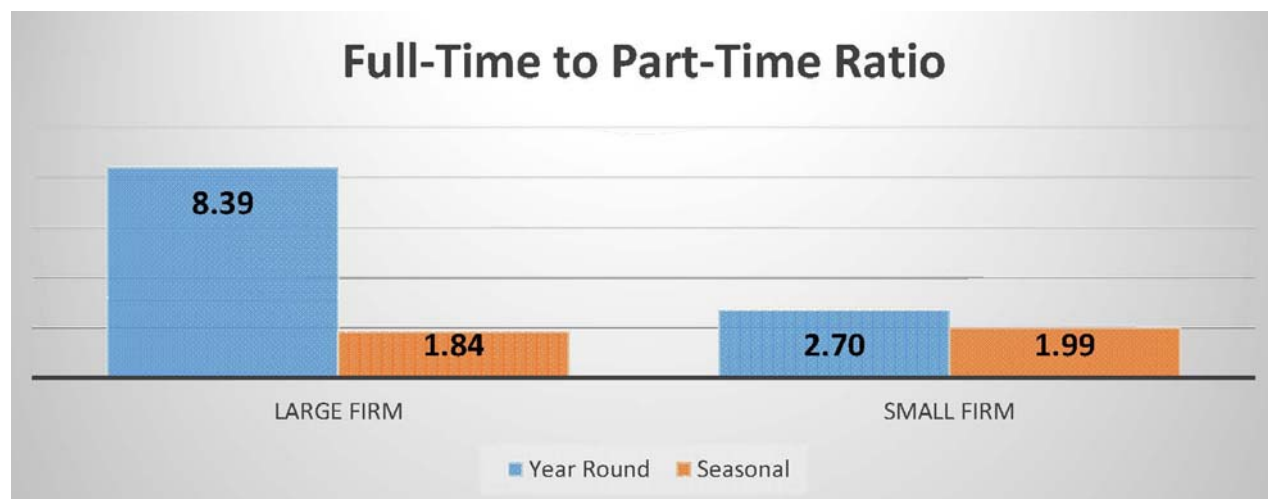
Total	Employment Type
4539	Shortage Full Time
3618	Shortage Part Time
7661	Shortage Full Time Seasonal
3529	Shortage Part Time Seasonal



In total, industry members employed an estimated 42,132 employees in 2013 between full-time, part-time, and seasonal employment. This contributed \$ 1,266,507,821.74 in annual payroll. An additional 19347.6 estimated employees would have been hired if qualified workers were available, according to the survey results. The shortage of qualified workers may be over-estimated due to possible double counting of full time and seasonal full time employee shortages. Firms may have double counted full time and seasonal full time shortages. Another explanation may come from the ambiguity in the wording of the survey question. It could be understood that any time throughout the year that you had an employee shortage it counts toward the annual total. A rewording of the question to ask “how many more yearly employees they would have hired” might resolve the large shortage indicated by the 2013 survey results.

A large difference between the ratios of full-time to part-time employment levels exists between large firms and small firms. Large firms employ 8.39 full-time employees for every 1 part-time employee. Small firms employ 2.70 full-time for every 1 part-time employee. The difference

between large firms and small firms almost completely disappears when considering seasonal employment. Large firms have a seasonal full-time to part-time ratio of 1.84 to 1, while small firms have a 1.99 to 1 ratio of full-time to part-time seasonal works. Some of the difference may be attributed to the nature of the work, since large firms engage in more wholesale activities. Their size may also allow them to employ more full-time workers year round, while many small firms operate on a more seasonal basis.



The table below shows how many workers were employed from each category for every 1 shortage of worker. Large firms employ a greater proportion of the workers they need than small firms.

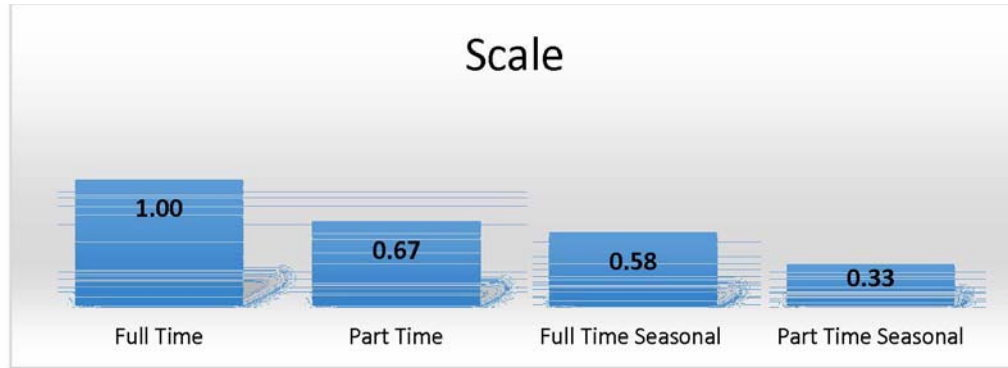


Output per worker

Output per worker was calculated using Input-Output analysis with Implan. To obtain the results below, GVS were entered for each business activity according to its appropriate (NAICS) codes and values were run through social accounts to estimate direct, indirect, and induced values. Output per worker is based on the Value Added estimates from Implan, which are often referred to a Gross Regional Product (GRP). GRP is the value added above the cost of the goods and services used in its production. GRP includes Labor Income, Indirect Business Taxes, and Other Property Type Income.

For my estimates I focused on Implan's Direct Output and Direct Value Added estimates, which were extremely close to calculations based on survey responses. Implan estimated a lower number of direct employees than those obtained from survey results. To correct for this I used the Implan estimates of Value Added for Direct Output, and used scaled down employment numbers from survey results. To capture only direct output employment I removed the portion of employees from wholesale activities whose goods were used as intermediate goods for final output. I did not remove the portion that was involved in exports since these are captured by Implan. The Direct Value Added was then divided by the scaled employment numbers to arrive at the average output per worker. Employment numbers were scaled into full-time equivalent values using the scale below to estimate the output per worker for each employment type. It is important to remember that these are only estimates and that the actual output may vary across business activities. Additionally, the scale I used to convert to full-time equivalent work status may not correctly reflect the actual conversion rates. Labors share of output is 76.8%, which is a higher than the national average. Landscape and Nursery activities are labor intensive, which lead to labor receiving a greater share of output.

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C
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Past and Future Sentiment Services Questions 27-28

Questions 27 and 28 appear at the end of the survey and were open for all responders. Question 27 asks the responder to identify past trends, on a range scale from large decrease to large increase, they observed in service business activities, while question 28 asks what they expect to see in the next three years.

Past and Future Sentiment Retail Questions 29-30

Questions 29 and 30 appear at the end of the survey and were open for all responders. Question 29 asks the responder to identify past trends, on a range scale from large decrease to large increase, they observed in retail business activities, while question 30 asks what they expect to see in the next three years.

Past and Future Sentiment Wholesale Questions 31-32

Questions 31 and 32 appear at the end of the survey and were open for all responders. Question 31 asks the responder to identify past trends, on a range scale from large decrease to large increase, they observed in wholesale business activities, while question 32 asks what they expect to see in the next three years.

Question 27 - 32 Results: Positive values indicate members expect growth in sales in the next three years. Negative values indicate members expect sales to decrease in the next three years. Values fall between -2 and 2 with 0 indicating no change.

Business Activity	Past 3 Years	Response Rate	Next 3 Years	Response Rate
<u>Landscape Services</u>				
landscape contracting/installation	.455	70.63%	.969	68.53%
Garden maintenance, installation, design	.446	64.34%	.837	64.34%
Landscape design / architecture	.046	60.84%	.674	60.14%
Landscape irrigation design, installation, and maintenance	.154	63.64%	.69	60.84%
Lawn mowing, fertilization and pesticide application or other landscape management	.321	56.64%	.519	56.64%
Tree care / maintenance or arboriculture	.45	55.94%	.679	56.64%
Snow Removal	.517	60.84%	.435	59.44%
<u>Retail Sales</u>				
Trees and shrubs	.114	55.24%	.636	53.85%
Annuals	0.013	53.85%	.427	52.45%
Perennials, groundcovers and herbs	.282	54.55%	.636	53.85%

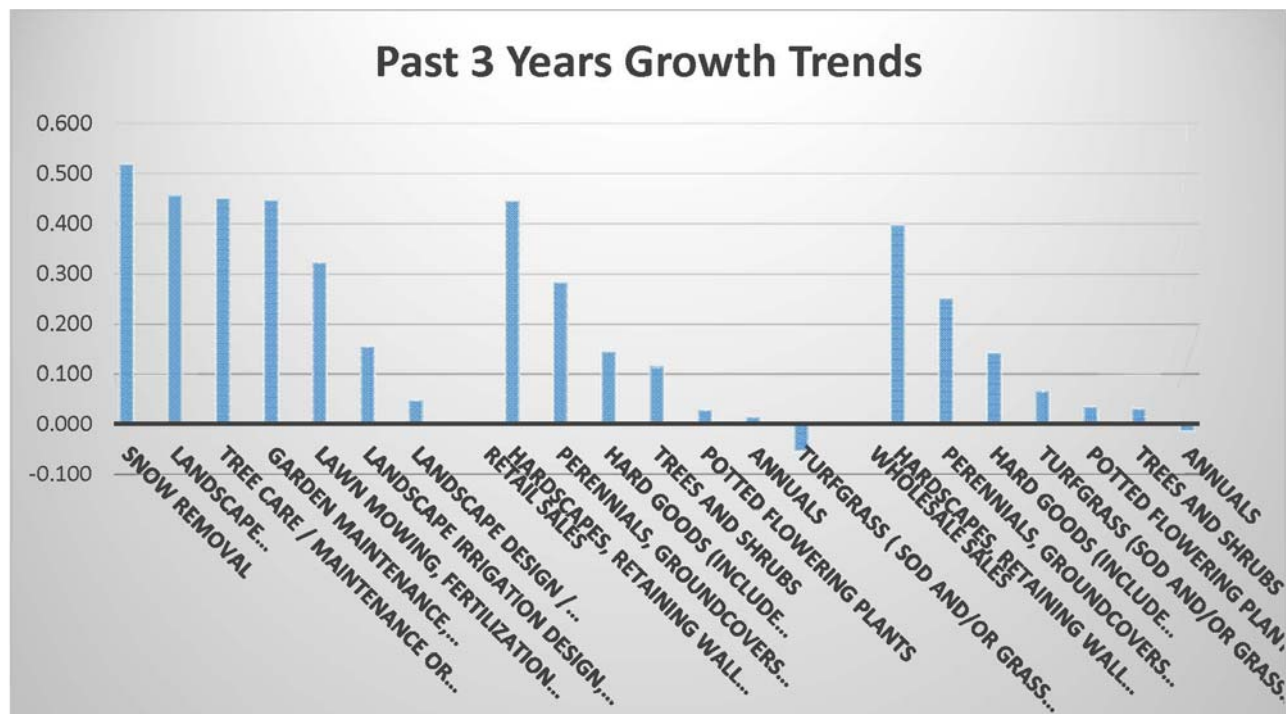
Potted flowering plants	0.026	53.85%	.446	51.75%
Turfgrass (sod and/or grass seed)	-0.05	51.05%	.288	51.05%
Hard goods (include fertilizers & other chemicals, tools, mulch, outdoor statuary)	.143	53.85%	.453	52.45%
Hardscapes, retaining wall and walkway materials, landscape lighting, and ponds	.444	50.35%	.662	47.55%

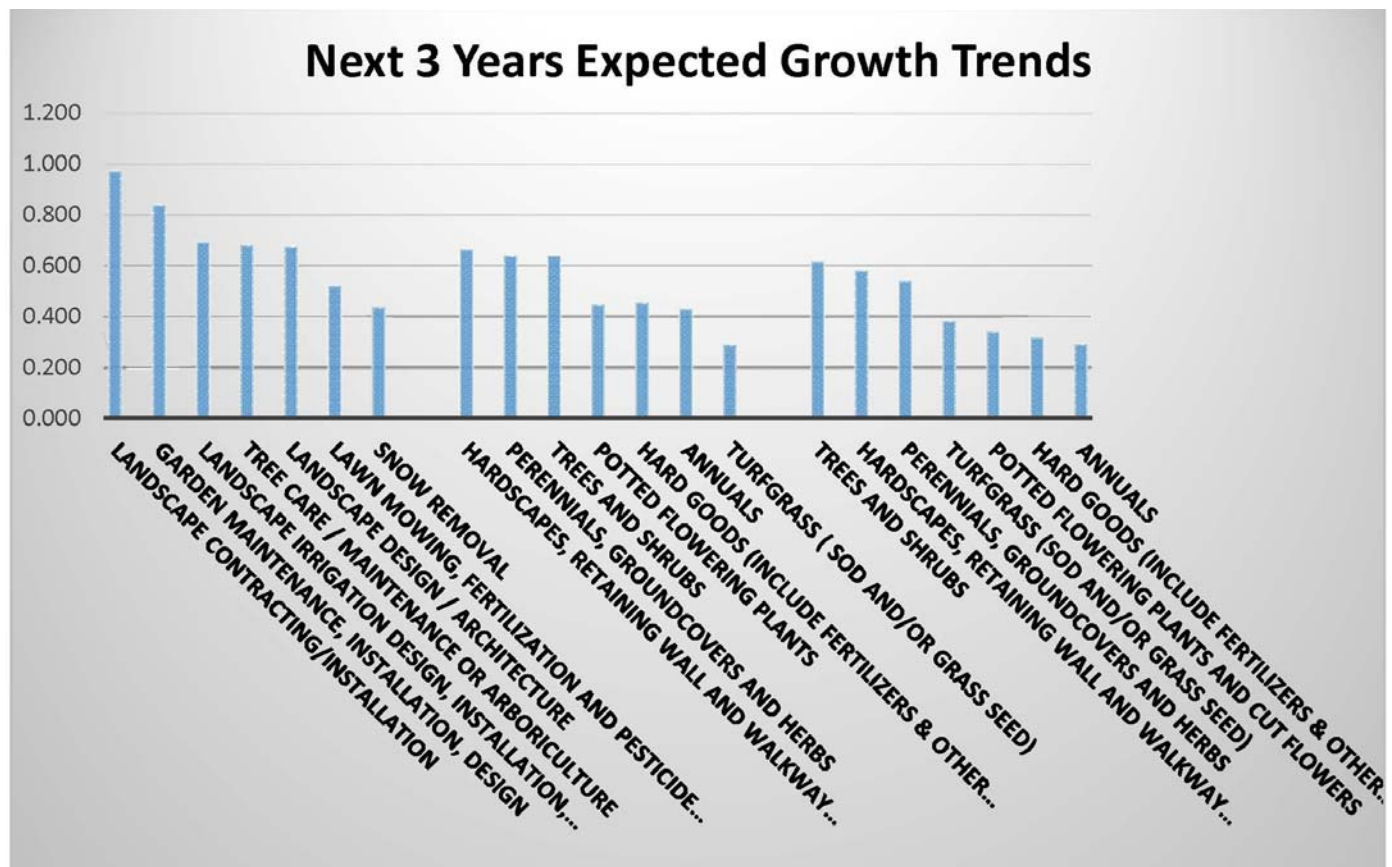
Wholesale Sales

Trees and shrubs	0.029	48.25%	.614	48.95%
Annuals	-0.02	44.76%	.290	43.36%
Perennials, groundcovers and herbs	.25	44.76%	.540	44.06%
Potted flowering plants and cut flowers	0.033	42.66%	.339	41.26%
Turfgrass (sod and/or grass seed)	0.065	43.36%	.381	44.06%
Hard goods (include fertilizers & other chemicals, tools, mulch, outdoor statuary)	0.141	44.76%	.317	44.06%
Hardscapes, retaining wall and walkway materials, landscape lighting, and ponds	0.397	44.06%	.581	43.36%

Overall, the past three years members have observed little growth. Future sentiment is positive with some growth expected in all business activities. The largest growth is expected in landscape contracting & installation, and garden installation, maintenance, and design services.

The Histogram below shows past and future sentiment.



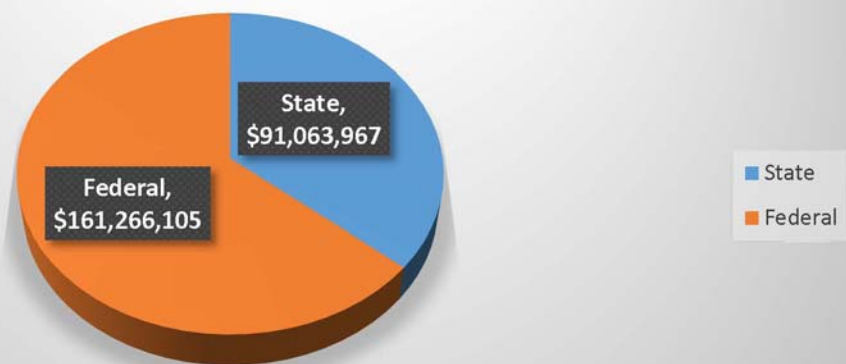


Taxes

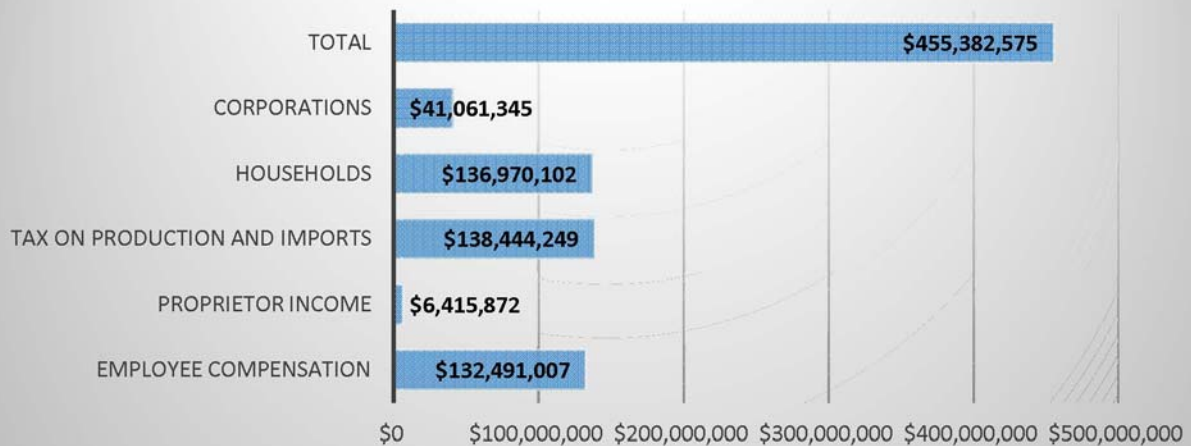
Tax values were determined using Implan based on GVS. Landscape and Nursery businesses were responsible for \$252,330,072 in State and Federal Taxes in 2013. State tax revenues include taxes on: dividends, social insurances, sales, property, motor vehicle licensing, severance, personal income, corporate profits, and other tax forms. Federal tax revenues include taxes on: social insurance, excise, custom duty, corporate, and personal income taxes. Through the multiplier effect, a total of \$455,382,575 is paid in federal, state and local taxes.

D

Direct State and Federal Taxes



Total State and Federal Taxes



Conclusion:

MNLA members have experienced substantial change in the last 5 to 10 years. A major economic recession hit the housing sector particularly hard, and with it a boom in retail nursery goods and landscaping services in the early part of the previous decade dissolved. The market for retail goods moved towards the larger number of big-box retailers and away from the neighborhood nurseries in Minnesota. More homeowners wish to do it themselves, and plants are now available in a far greater variety of locations than before. In this report we find members have transitioned to providing more wholesale goods and landscape services, with fewer retail sales. Total membership has decreased. Growth has been slow, which is expected due to the correlation between landscape and nursery business and the housing market, but members overall have positive outlooks for future growth. MNLA members create over 42,000 full-time, part-time, and seasonal jobs each year. Their activities led to over \$1.9 billion in direct sales.

In addition to their direct impact, it is important to note, that additional economic activity is created by their sales. This economic activity is referred to as indirect and induced effects. Indirect effects occur when members purchase other goods and services to provide their products. The induced effect results from employees spending from directly and indirectly affected industries. The indirect and induced effects contribute an additional \$1.582 billion in economic activity in the state of Minnesota. This extra economic activity created an additional 10,336 jobs and \$511 million in additional payroll. In addition, \$82.45 million in additional state taxes, and \$116.46 million in federal taxes were generated.

Landscape and Nursery businesses are an invaluable resource for Minnesota's economy. In addition to the beauty they add to Minnesota's landscape, the seasonal and full-time jobs they create provide opportunities for Minnesota workers. Exports to other states and countries provide additional economic activity while utilizing Minnesota's endowment of natural resources and technological expertise. In total, landscape and nursery business activities are responsible for over \$3.5 billion in total economic activity.