

Economic Impacts of The Connecticut Green Industry in 2017

Prepared for the Connecticut Nursery and Landscape Association

Prepared by:

Chris Laughton

M.S. Candidate, Department of Agricultural and Resource Economics,
University of Connecticut
Director of Knowledge Exchange, Farm Credit East

Rigoberto A. Lopez, Ph.D.
Richard DelFavero Professor of Agricultural Economics, University of Connecticut

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Summary and Major Findings

- The Connecticut green industry contributed \$4.7 billion to the state's economy in 2017 (see Table 2). This represents a 27% increase from 2012.
- The industry directly employed approximately 32,000 people and supported more than 43,000 jobs in Connecticut (Table 3).
- The industry also made a significant contribution to local, state, and federal tax receipts: nearly \$263 million in state and local taxes, and approximately \$467 million in federal taxes.
- Nursery, greenhouse, floriculture and sod production accounted for 51% of total agricultural production (measured by gross sales) in Connecticut in 2017.
- The economic impact multiplier for the green industry in Connecticut was 1.7, meaning that for every dollar in green industry sales, an additional 70 cents were generated in the state economy.
- The jobs multiplier for the green industry in Connecticut was 1.4, meaning that for every 10 jobs in the green industry, four additional jobs were supported in the state economy.

Introduction

The "green industry," defined here as the ornamental horticulture industry in Connecticut, comprises a diverse group of business enterprises involved in producing ornamental plants as well as constructing and maintaining the lawns and gardens of residential, commercial, and public landscapes. Specifically, the industry comprises wholesale and retail nursery, greenhouse, turfgrass and sod producers; landscape architecture, design, construction, and maintenance firms; distributors of lawn and garden products at wholesale and retail, including landscape distribution centers, garden centers, home improvement stores, and suppliers of inputs and equipment to these industry sectors.

Because its business activities are so diverse and widespread, the green industry is often underestimated in the public eye as a driver of the economy. Particularly in a northeastern, relatively urban state, such as Connecticut, the contributions of the green industry are often overlooked. As shown in Figure 1, ornamental horticulture is, by far, the leading agricultural sector in the state, comprising 51% of total farm sales (dairy is a distant second at 14%) (USDA NASS 2019). Moreover, nursery and greenhouse production are not even the largest sectors within the green industry, being surpassed by landscape construction and maintenance services (IMPLAN 2019). All together, the green industry represents a major contributor to the economy

and employment base of the state, providing a significant economic contribution, a wide range of employment opportunities at a number of skill and experience levels, and a significant contribution to the local and state tax base.

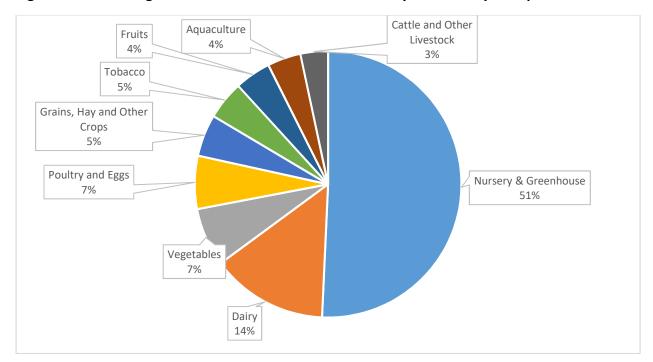


Figure 1: Value of Agricultural Production in Connecticut by Commodity Groups

Source: USDA 2017 Census of Agriculture. The sales of Poultry and Eggs were estimated.

Table 1: Nursery, Greenhouse, Floriculture and Sod Production by County:

| County | 2017 Sales (\$1,000s) | 2012 Sales (\$1,000s) | Growth Rate, 2012-2017 |
|-------------|--------------------------|--------------------------|---------------------------|
| Fairfield | \$16,603 | \$14,252 | 16% |
| Hartford | \$37,274 | \$51,125 | -27% |
| Litchfield* | \$11,132 | \$15,415 | -28% |
| Middlesex | \$51,538 | \$45,528 | 13% |
| New Haven | \$94,229 | \$63,002 | 50% |
| New London | \$65,734 | \$39,308 | 67% |
| Tolland* | \$13,605 | \$19,193 | -29% |
| Windham | \$8,317 | \$5,101 | 63% |
| Totals | \$298,432 | \$252,923 | 18% |

Source: USDA 2017, 2012 Census of Agriculture

^{*}Sales for Litchfield and Tolland counties were not disclosed in the 2017 census, so the values are estimated based on the total sales for the state of Connecticut.

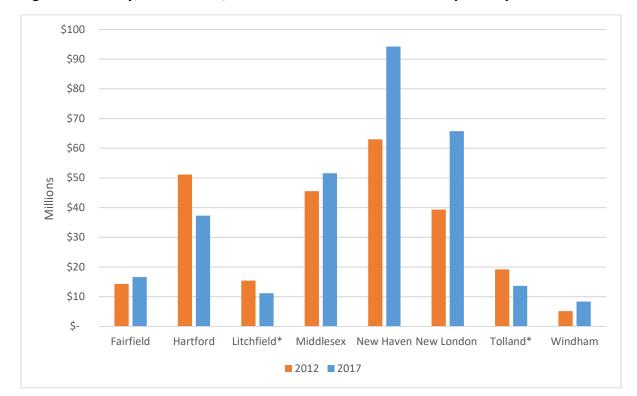


Figure 2: Nursery, Greenhouse, Floriculture and Sod Production by County

Source: USDA 2017, 2012 Census of Agriculture

Table 1 and Figure 2 show the breakdown of nursery, greenhouse, floriculture, and sod production by county in Connecticut. New Haven and New London counties were by far the leading counties in terms of production, and both showed significant growth from 2012 to 2017.

The green industry, while historically relatively fast-growing (Hall et.al. 2005), suffered a sharp decline ten years ago due to the Great Recession of 2008-09. The industry has been greatly influenced by the state of residential and commercial construction and real estate markets. Typically, when real estate markets are good, people and businesses invest in landscapes and gardens, and this boosts the fortunes of the industry. Consequently, it suffered a major setback with the housing crash and recession of 2008-09, from which it has only recently recovered (Hodges et al. 2015).

According to the USDA Agricultural Census, in 2017 total U.S. sales for the North American Industry Classification System (NAICS) category 1114: Greenhouse, nursery and floriculture production came to \$16,520,261,000, an increase of 12% since the 2012 census. Connecticut sales for this category were \$301,537,000 in 2017, an increase of 16% since the 2012 census (USDA NASS 2019).

^{*}Values for Litchfield and Tolland county 2017 sales are estimated.

Over time, the production portion of the industry has experienced consolidation as well as growth, with greater aggregate sales but fewer producers, as is the case with most other agricultural sectors in the United States (USDA NASS 2019).

Data, Scope and Methodology

This report quantifies the aggregate economic impact of the green industry in the state of Connecticut for 2017. Industry sectors within or contributing to the green industry were selected based on their definitions in the NAICS (U.S. Office of Management and Budget 2017). Production and manufacturing include the sectors for floriculture, nursery, and sod production (NAICS 1114), and lawn and garden equipment manufacturing (333112). Services include landscaping services (56173) and landscape architectural services (54132). The wholesale and retail trade sectors include lawn and garden equipment merchant wholesalers (423820); flower, nursery stock; and florist supply wholesalers (42493), lawn and garden equipment and supply retailing (4442), and florists (4531). The data used for each of these components are described in Appendix B.

Economic activity by end users, such as households, golf courses, and athletic facilities, was not included. Additionally, because many businesses and institutions, such as schools and universities, and state and municipal governments, have landscaped grounds that are managed internally, they are not included in the sales and employment data collected by the federal government (although their purchases of supplies from wholesalers and retailers would be included). Thus, this study may slightly understate the true economic and jobs contribution made by horticulture and landscaping.

The economic activity created by the green industry begins with the actual output of the firms, but goes far beyond that, as it cascades through the local economy. Green industry businesses spend money on labor, inputs, taxes, and other goods and services. In turn, their suppliers and employees spend money within their communities, magnifying the impact of the initial economic activity.

It should also be noted that the industry makes significant nonmonetary contributions to society and quality of life that are beyond the scope of this study. For example, urban forestry and parks management contribute significantly to property values and the quality of life in cities and suburbs, and provide ecosystem services, such as improved air quality, stormwater mitigation, and aesthetic values, to communities (Nowak, et.al. 2010). Landscapes, lawns and gardens provide aesthetic appeal and recreational opportunity that enhance the human experience. "Green" infrastructure also facilitates management of stormwater in a sustainable way. This is important because the cost of construction and maintenance of complex and expensive "hard" infrastructure to manage stormwater is an increasing concern in municipal

¹ See Appendix A for NAICS code definitions.

budgets. ² Another contribution of the green industry is the carbon sequestration provided by trees, shrubs, turf, and other landscape plants. All plants capture and store carbon as they grow and develop both above and below ground.³

Measuring the economic impact of an industry sector requires an appropriate input-output model that captures the interlinkages among sectors of the economy, in this case for the State of Connecticut. To this end, we use the most widely accepted input-output model, IMPLAN (IMpact analysis for PLANning; see IMPLAN 2019). The IMPLAN software estimates the economic impacts of business and commerce in three main ways: The Direct Effects of the industry: This is the direct economic activity and employment generated by the firms analyzed. For example, sales and employment at a manufacturer or grower or employment in the green industry. The Indirect Effects: This is the spending that occurs by the industry or firms impacted. In other words, the business to business effects, such as the impact of nursery production on fertilizer suppliers. This spending supports both local and out-of-state businesses as a firm purchases production inputs, but the focus here is on state impacts. Finally, there are the **Induced Effects:** These are the economic impacts created by the spending of employees and owners of the industries impacted as they purchase household goods and services and support the state economy. The sum of these three effects comprise the total effects or total economic impact of the industry being analyzed (IMPLAN 2019). IMPLAN examines the impacts of changes in sectoral activity via built-in multipliers, based on input-output tables of the economy. These multipliers identify the change in state output, value added, and jobs associated with a unit of change in direct spending or sales in a specific sector or industry of the economy. The multiplier is a way to quantify the total impact (direct, indirect, and induced) by indicating the impact on the economy for each dollar of output generated by the industry. It is calculated by dividing the total effect by the direct effect.

Results and Discussion

Table 2 details the economic impact of the green industry in Connecticut in 2017. The largest industry sector, by far, was landscape services, with \$1.5 billion in direct output and \$2.4 billion in total economic impact. Next was lawn and garden equipment and supply retailing, followed by floriculture, nursery and sod production; flower, nursery stock, and florist wholesaling; machinery and equipment wholesaling; florists; landscape architecture; and lawn and garden equipment manufacturing. The *impact multiplier* varied by sector, but overall was 1.70, meaning that for every dollar of direct output generated by the green industry, an additional 70

² The study by McPherson et al. (2005) on costs and benefits of municipal and city trees in five U.S. cities found that although cities spent between \$13 and \$65 annually per tree, they received between \$1.37 and \$3.09 in benefits returned for every dollar spent.

 $^{^3}$ A 2011 study by Zirkle et.al. found that residential lawns can sequester anywhere from 25.4 to 204.3 g C/m 2 each year, resulting in a continual net uptake of carbon from the atmosphere.

cents of economic activity were created. Overall, the industry had \$2.7 billion in direct output, and an economic impact of \$4.7 billion.

Impact multipliers vary by industry and relate to how much additional economic activity is created in the state for each dollar of industry output. For comparison, here are a few impact multipliers for other sample industries in Connecticut (IMPLAN 2019):

• New Residential Home Building: 1.79

Insurance Carriers: 1.49

• Aircraft Engine and Parts Manufacturing: 1.32

• Hospitals: 1.77

Computer Programming Services: 1.81

Other economic impact studies have found a range of impact multipliers for the green industry in various states. A national study of the economic contributions of the green industry in 2013 found a multiplier of 1.44 for the United States as a whole (Hodges et al. 2015). A similar study for the state of Georgia found a multiplier of 1.49 for that state in 2013 (Campbell et al. 2018). A 2012 Study by the University of Kentucky found a multiplier of 1.90 for the green industry in that state in 2007 (Ingram and Hodges 2012). Most other economic impact studies of the green industry have used IMPLAN software as well. Variations in impact multipliers may be due to differences in years, how the "green industry" is defined, as well as differences in industry structure between states. A higher or lower multiplier is not necessarily better or worse, but rather indicates the amount of indirect and induced spending related to the output of the industry in question that remains within the state studied.

Table 3 details the jobs supported by the green industry both through direct employment and through indirect and induced economic activity. The number of jobs supported was roughly proportional to the size of their economic impact, with landscape services again leading the industry with 19,598 in direct employment and 25,313 in overall jobs supported. The jobs multiplier for the green industry was 1.4, which means for every 10 direct employees in the industry, an additional four jobs were supported elsewhere in the state's economy.

Table 4 details the 2017 tax impact of the green industry. Both the local and federal tax impacts of the industry were significant. The state and local tax impact is broken down by property taxes, which are generally submitted to municipalities; sales taxes, which are generally submitted to the state; and other state and local taxes, such as vehicle excise taxes and other miscellaneous taxes and fees. Overall, the industry contributed nearly \$263 million in state and local taxes and \$467 million in federal taxes.

Table 2: Output Impacts, 2017

| Sector | Direct Output⁴ | Indirect | Induced | Total Output | Impact | | | |
|----------------------|----------------------------|---------------|-----------------|-----------------|------------|--|--|--|
| (NAICS code) | | | | Impact | Multiplier | | | |
| Production & Ma | Production & Manufacturing | | | | | | | |
| Floriculture, | \$301,537,000 | \$85,491,745 | \$140,825,472 | \$527,854,217 | 1.75 | | | |
| Nursery & Sod | | | | | | | | |
| Production | | | | | | | | |
| (1114) | | | | | | | | |
| Lawn & Garden | \$30,084,872 | \$7,419,882 | \$4,895,783 | \$42,400,537 | 1.41 | | | |
| Equipment | | | | | | | | |
| Manufacturing | | | | | | | | |
| (333112) | | | | | | | | |
| Services | 4 | 4 | 4 | | | | | |
| Landscape | \$1,478,271,658 | \$305,641,648 | \$663,074,140 | \$2,446,987,446 | 1.66 | | | |
| Construction & | | | | | | | | |
| Maintenance | | | | | | | | |
| Services | | | | | | | | |
| (56173) Landscape | \$38,859,000 | \$14,025,076 | \$20,314,843 | ¢72 100 010 | 1.88 | | | |
| Architectural | \$30,039,000 | \$14,025,076 | \$20,314,643 | \$73,198,919 | 1.00 | | | |
| Services | | | | | | | | |
| (54132) | | | | | | | | |
| Wholesale & Ret | ail Trade | | | | | | | |
| Lawn & Garden | \$65,331,000 | \$15,948,686 | \$19,572,524 | \$100,852,210 | 1.54 | | | |
| Machinery & | 703,331,000 | 713,540,000 | 713,372,324 | 7100,032,210 | 1.54 | | | |
| Equipment | | | | | | | | |
| Wholesalers | | | | | | | | |
| (423820) | | | | | | | | |
| Flower, | \$132,951,000 | \$32,456,166 | \$39,830,809 | \$205,237,975 | 1.54 | | | |
| Nursery Stock | . , , | , , , | . , , | | | | | |
| & Florist | | | | | | | | |
| Supply | | | | | | | | |
| Wholesalers | | | | | | | | |
| (42493) | | | | | | | | |
| Lawn & Garden | \$640,239,998 | \$260,783,190 | \$257,402,881 | \$1,158,426,069 | 1.81 | | | |
| Equipment and | | | | | | | | |
| Supply | | | | | | | | |
| Retailing | | | | | | | | |
| (4442) | | | | | | | | |
| Florists (4531) | \$55,591,000 | \$19,357,514 | \$26,952,455 | \$101,900,969 | 1.83 | | | |
| Totals | \$2,742,865,528 | \$741,123,907 | \$1,172,868,907 | \$4,656,858,342 | 1.70 | | | |

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⁴ See Appendix C for sources of sales figures.

Table 3: Jobs Supported, 2017

| Sector | Direct Employment | Indirect | Induced | Total Jobs Supported | Jobs Multiplier | | | |
|----------------------------|----------------------------|----------|---------|-------------------------|--------------------|--|--|--|
| Production & Manufacturin | Production & Manufacturing | | | | | | | |
| Floriculture, Nursery & | 4,747 | 612 | 903 | 6,262 | 1.3 | | | |
| Sod Production | | | | | | | | |
| Lawn & Garden Equipment | 63 | 31 | 31 | 126 | 2.0 | | | |
| Manufacturing | | | | | | | | |
| Services | | | | | | | | |
| Landscape Construction & | 19,598 | 1,479 | 4,236 | 25,313 | 1.3 | | | |
| Maintenance Services | | | | | | | | |
| Landscape Architectural | 241 | 99 | 130 | 469 | 1.9 | | | |
| Services | | | | | | | | |
| Wholesale & Retail Trade | | | | | | | | |
| Lawn & Garden | 219 | 90 | 128 | 437 | 2.0 | | | |
| Machinery & Equipment | | | | | | | | |
| Wholesalers | | | | | | | | |
| Flower, Nursery Stock & | 445 | 183 | 260 | 889 | 2.0 | | | |
| Florist Supply Wholesalers | | | | | | | | |
| Lawn & Garden | 5,530 | 1,379 | 1,642 | 8,551 | 1.5 | | | |
| Equipment and Supply | | | | | | | | |
| Retailing | | | | | | | | |
| Florists | 1,143 | 102 | 171 | 1,416 | 1.2 | | | |
| Totals | 31,986 | 3,975 | 7,501 | 43,463 | 1.4 | | | |

Comparison to 2012 Data

The same analysis used for 2017 data was also performed using 2012 data and multipliers (Appendix C). In terms of economic impact, both direct output of the green industry as well as total output impact increased over the five-year period. Direct output increased by 18%, with significant increases in floriculture, nursery, and sod production; landscape construction and maintenance services; flower, nursery stock and florist supply wholesaling; and lawn and garden retail sales. Overall economic impact grew by 27%, due to the increase in direct output, as well as a greater impact multiplier from IMPLAN. This substantial increase is consistent with a growing general economy during an expansionary period.

Table 4: 2017 Tax Impacts

| Sector | State & Local: Property Taxes | State & Local: Sales Taxes | Other State & Local Taxes | Total State & Local Taxes | Federal Taxes |
|--------------------|--|----------------------------------|---------------------------------|------------------------------|---------------|
| Production & Ma | nufacturing | | | | |
| Floriculture, | \$6,308,278 | \$3,824,553 | \$7,439,249 | \$17,572,080 | \$50,088,223 |
| Nursery & Sod | | | | | |
| Production | | | | | |
| Lawn & Garden | \$278,342 | \$459,101 | \$320,314 | \$1,057,757 | \$2,002,042 |
| Equipment | | | | | |
| Manufacturing | | | | | |
| Horticultural Serv | | | | | |
| Landscape | \$37,739,869 | \$22,880,753 | \$42,084,767 | \$102,705,389 | \$260,424,421 |
| Construction & | | | | | |
| Maintenance | | | | | |
| Services | | | | | |
| Landscape | \$1,099,329 | \$666,496 | \$1,190,210 | \$2,956,035 | \$7,763,365 |
| Architectural | | | | | |
| Services | | | | | |
| Wholesale & Reta | ail Trade | | | | |
| Lawn & Garden | \$4,212,326 | \$2,553,830 | \$1,618,358 | \$8,384,514 | \$9,185,160 |
| Machinery & | | | | | |
| Equipment | | | | | |
| Wholesalers | | | | | |
| Flower, Nursery | \$8,572,240 | \$5,197,138 | \$3,293,417 | \$17,062,795 | \$18,692,139 |
| Stock & Florist | | | | | |
| Supply | | | | | |
| Wholesalers | | | | | |
| Lawn & Garden | \$53,105,217 | \$32,196,385 | \$18,529,686 | \$103,831,288 | \$108,257,529 |
| Equipment and | | | | | |
| Supply Retailing | | | | | |
| Florists | \$4,590,587 | \$2,783,160 | \$1,848,966 | \$9,222,713 | \$10,556,719 |
| Totals | \$115,906,188 | \$70,561,416 | \$76,324,967 | \$262,792,571 | \$466,969,598 |

Direct employment in the green industry declined by 4% from 2012-2017, largely due to a decline in the lawn and garden retailing sector. While lawn and garden retail sales increased during the period, the number of jobs in the sector declined as retailers have moved to economize on labor, and sales have shifted to larger stores. Employment in most other green industry sectors increased, including floriculture, nursery and sod production (+3%); landscape services (+5%); and flower, nursery stock and florist supply wholesalers (+12%). The overall

number of jobs supported by the green industry in Connecticut increased by 4% during the period due to a greater multiplier effect in 2017.

The tax contributions of the green industry significantly increased during the period, rising from \$626,807,552 in 2012 to \$729,762,169 in 2017, an increase of 16%. The total state and local tax impact increased by 10%, and the federal tax impact grew by 20%.

Conclusion

The green industry is a significant contributor to the Connecticut economy. When the various sectors of the industry are combined, they had a \$4.7 billion impact on the state's economy in 2017. This represents a 27% increase since 2012. The green industry makes a significant employment contribution as well, directly employing approximately 32,000 people and supporting more than 43,000 jobs throughout the state.

In addition to contributing to both employment and economic activity in Connecticut, the industry generated significant tax revenue for local, state, and federal governments. The green industry contributed nearly \$263 million in state and local taxes, and approximately \$467 million in federal taxes, some of which returns to Connecticut in the form of federal spending.

The economic impact multiplier for the green industry in Connecticut was 1.7, meaning that for every dollar in direct sales, an additional 70 cents were generated in the local economy. The jobs multiplier was 1.4, meaning that for every 10 jobs in the Connecticut green industry, an additional four jobs were supported in the state.

Landscape services represents the largest sector of the green industry in Connecticut at \$1.5 billion in direct sales. In terms of agricultural production, nursery, greenhouse, floriculture, and sod production are a critical sector of Connecticut's agriculture, totaling \$302 million in direct sales, representing slightly more than half (51%) of the total agricultural sales in the state.

Overall, the results of this study point to the key role of the Connecticut green industry as a driver of economic growth and employment in both the state agricultural economy as well as the state economy. The total impact on state output amounts to over \$1,300 per state resident. Beyond the monetary impact and the scope of this study, the industry provides significant environmental benefits that enhance the quality of life of state residents.

Appendix A

NAICS Code Definitions

1114: Greenhouse, Nursery and Floriculture Production: This industry group comprises establishments primarily engaged in growing crops of any kind under cover and/or growing nursery stock and flowers. "Under cover" is generally defined as greenhouses, cold frames, cloth houses, and lath houses. The crops grown are removed at various stages of maturity and have annual and perennial life cycles. The nursery stock includes short rotation woody crops that have growth cycles of 10 years or less. This group includes the subsectors 111421 and 111422.

111421: Nursery and Sod Production: This U.S. industry comprises establishments primarily engaged in the following: 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.

111422: Floriculture Production: This U.S. industry comprises establishments primarily engaged in growing and/or producing floriculture products (e.g., cut flowers and roses, cut cultivated greens, potted flowering and foliage plants, and flower seeds) under cover and in open fields.

333112: Lawn and Garden Equipment Manufacturing: This U.S. industry comprises establishments primarily engaged in manufacturing powered lawnmowers, lawn and garden tractors, and other home lawn and garden equipment, such as tillers, shredders, yard vacuums, and leaf blowers.

423820: Farm and Garden Equipment Merchant Wholesalers: This industry comprises establishments primarily engaged in the merchant wholesale distribution of specialized machinery, equipment, and related parts generally used in agricultural, farm, and lawn and garden activities.

42493: Nursery and Florist Merchant Wholesalers: This industry comprises establishments primarily engaged in the merchant wholesale distribution of flowers, florists' supplies, and/or nursery stock (except plant seeds and plant bulbs).

444: Building Material and Garden Equipment and Supplies Dealers: Industries in the Building Material and Garden Equipment and Supplies Dealers subsector retail new building material and garden equipment and supplies from fixed point-of-sale locations. Establishments in this subsector have display equipment designed to handle lumber and related products and garden equipment and supplies that may be kept either indoors or outdoors under covered areas. The staff is usually knowledgeable in the use of the specific products being retailed in the construction, repair, and maintenance of the home and associated grounds. (This NAICS code was pro-rated to include only the lawn and garden product line sales)

4442: Lawn and Garden Equipment and Supplies Stores: This industry group comprises establishments primarily engaged in retailing new lawn and garden equipment and supplies.

4531: Florists: This industry group comprises establishments known as florists primarily engaged in retailing cut flowers, floral arrangements, and potted plants purchased from others. These establishments usually prepare the arrangements they sell.

54132: Landscape Architectural Services: This industry comprises establishments primarily engaged in planning and designing the development of land areas for projects, such as parks and other recreational areas; airports; highways; hospitals; schools; land subdivisions; and commercial, industrial, and residential areas, by applying knowledge of land characteristics, location of buildings and structures, use of land areas, and design of landscape projects.

56173: Landscaping Services: This industry comprises (1) establishments primarily engaged in providing landscape care and maintenance services and/or installing trees, shrubs, plants, lawns, or gardens and (2) establishments primarily engaged in providing these services along with the design of landscape plans and/or the construction (i.e., installation) of walkways, retaining walls, decks, fences, ponds, and similar structures.

Appendix B

Sources of 2017 Sales Data:

Sales figures for each sector were compiled from a number of sources, based on the availability of the data.

For floriculture, nursery, and sod production (1114), the value is from the 2017 USDA Census of Agriculture.

For lawn and garden equipment manufacturing (333112), the value is from IMPLAN's 2017 database.

The value for landscaping services (56173) is from IMPLAN's 2017 database.

The value for landscape architectural services is based on the US Census Bureau 2012 Economic Census of the United States (the most recent edition available), and multiplied by an annualized growth rate of 2.2%, which is the estimated national growth rate of the industry from 2012-2017 (IBISWorld, 2019).

The value for lawn and garden equipment wholesalers is based on the US Census Bureau 2012 Economic Census of the United States and multiplied by an annualized growth rate of -1.5%, the estimated national growth rate of the industry from 2012-2017 (IBISWorld, 2019).

The value for flower, nursery stock, and florist supply wholesalers (which largely supply landscape contractors in Connecticut) is based on the US Census Bureau 2012 Economic Census of the United States, and multiplied by an annualized growth rate of 4.6%, which is the estimated national growth rate of the landscape construction industry from 2012-2017 (IBISWorld, 2019).

The value for lawn and garden equipment and supply retailing (4442) is based on the percentage of lawn and garden product line sales from various retail outlet types in Connecticut, as reported by the US Census Bureau 2012 Retail Trade Census (U.S. Census Bureau, 2018), pro-rated to 2017 retail sales in the state. The Census of Retail stated that building material and garden equipment and supplies dealers (which would include home centers, garden centers, and hardware stores), had 13.4% of their sales in lawn and garden products. Food and beverage stores (which would include grocery stores), had 0.9% of sales in lawn and garden products. General merchandise stores had 1.2% of sales in lawn and garden. Non-store retailers had 2.8% of sales in lawn and garden, and miscellaneous store retailers had 4.7% of sales in lawn and garden. Retail categories with insignificant sales of lawn and garden products were excluded. These percentages were then applied to the 2017 retail sales of these same categories, as reported by the State of Connecticut Department of Revenue Services Sales and Use Tax Quarterly Reports, to obtain an estimate of total lawn and garden equipment and supply retail sales in Connecticut.

Finally, the value for retail florists is based on the US Census Bureau 2012 Economic Census of the United States and multiplied by an annualized growth rate of -1.8%, which is the estimated national growth rate of the industry from 2012-2017 (IBISWorld, 2019).

Appendix C

Economic Impacts in 2012

Table 5: Output Impacts, 2012

| Production & Manufacturing | Sector | Direct Output | Indirect | Induced | Total Output Impact | Impact Multiplier | | |
|--|--|------------------------------|----------------------|---------------|------------------------|----------------------|--|--|
| Nursery & Sod Production Sas, 714,1046 Sas, 716,151 Sas, 716,151 Sas, 714,1046 Sas, 716,151 Sas, 714,1046 Sas, 716,151 Sas, 714,1046 Sas, 716,151 Sas, 714,1046 Sas, 714,1046 Sas, 716,151 Sas, 714,1046 Sas, | Production & Manufacturing | | | | | | | |
| Production | Floriculture, | \$258,589,0005 | \$27,439,786 | \$91,773,958 | \$377,802,744 | 1.46 | | |
| Lawn & Garden Equipment Manufacturing \$35,714,1046 \$8,716,151 \$4,924,362 \$49,354,617 1.38 Services Landscape Construction & Maintenance Services \$1,173,519,1797 \$183,435,178 \$470,105,549 \$1,827,059,906 1.56 Landscape Architectural Services \$34,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,00010 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,27211 \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,00012 \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Equipment Manufacturing Equipment Manufacturing Equipment Manufacturing Equipment Manufacturing Services Services Services Services Services \$470,105,549 \$1,827,059,906 1.56 Landscape Architectural Services \$34,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Architectural Services Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | Production | | | | | | | |
| Manufacturing Services Serv | | \$35,714,104 ⁶ | \$8,716,151 | \$4,924,362 | \$49,354,617 | 1.38 | | |
| Services | 1 | | | | | | | |
| Landscape Construction & Maintenance Services \$1,173,519,1797 \$183,435,178 \$470,105,549 \$1,827,059,906 1.56 Landscape Architectural Services \$34,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Construction & Maintenance Services Maintenance Services Services Services Services \$15,850,673 \$61,698,679 1.77 Architectural Services Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹¹⁰ \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | _ | | | | | | |
| Maintenance Services Sada,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Architectural Services Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹¹⁰ \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | The state of the s | \$1,173,519,179 ⁷ | \$183,435,178 | \$470,105,549 | \$1,827,059,906 | 1.56 | | |
| Services Landscape \$34,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Architectural Services Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Landscape \$34,853,0008 \$10,995,006 \$15,850,673 \$61,698,679 1.77 Architectural Services Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Architectural Services Service | | 4 | 4 | 1 | 1 | | | |
| Services Services Services Services Services Wholesale & Retail Trade Services | | \$34,853,000° | \$10,995,006 | \$15,850,673 | \$61,698,679 | 1.77 | | |
| Wholesale & Retail Trade Lawn & Garden Machinery & Equipment Wholesalers \$70,459,000° \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹° \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Lawn & Garden Machinery & Equipment Wholesalers \$70,459,0009 \$17,182,757 \$18,992,199 \$106,633,956 1.51 Flower, Nursery Stock & Florist Supply Wholesalers \$106,178,000¹⁰ \$25,893,509 \$28,620,243 \$160,691,752 1.51 Lawn & Garden Equipment and Supply Retailing \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Florists \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Machinery & Equipment Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Stock & Florist Supply Wholesalers \$588,462,272¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | 4 | 4 | 4 | | | |
| Equipment Wholesalers Flower, Nursery \$106,178,000 ¹⁰ \$25,893,509 \$28,620,243 \$160,691,752 1.51 Stock & Florist Supply Wholesalers Lawn & Garden Equipment and Supply Retailing Florists \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | \$70,459,000° | \$17,182,757 | \$18,992,199 | \$106,633,956 | 1.51 | | |
| Wholesalers \$106,178,000¹0 \$25,893,509 \$28,620,243 \$160,691,752 1.51 Stock & Florist Supply Wholesalers \$588,462,272¹¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | · · | | | | | | | |
| Flower, Nursery \$106,178,000 ¹⁰ \$25,893,509 \$28,620,243 \$160,691,752 1.51 Stock & Florist Supply Wholesalers Lawn & Garden Equipment and Supply Retailing Florists \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | 1 ' ' | | | | | | | |
| Stock & Florist Supply Wholesalers \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | ¢406.470.000 ¹⁰ | ¢25 002 500 | ¢20, ¢20, 242 | ¢4.00.004.753 | 1.51 | | |
| Supply Wholesalers \$588,462,272 ¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | 1 | \$106,178,000 | \$25,893,509 | \$28,620,243 | \$160,691,752 | 1.51 | | |
| Wholesalers Lawn & Garden \$588,462,272 ¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Lawn & Garden \$588,462,272 ¹¹ \$149,544,592 \$232,140,806 \$970,147,670 1.65 Equipment and Supply Retailing \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| Equipment and Supply Retailing | | \$588 462 272 ¹¹ | \$149 544 592 | \$232 1/0 806 | \$970 147 670 | 1 65 | | |
| Supply Retailing \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | ۶۶۵۵٬ 4 ۵۷,۷7۷ | 7149,544,532 | 7232,140,000 | J3/U,14/,U/U | 1.03 | | |
| Florists \$60,876,000 ¹² \$11,953,447 \$28,081,644 \$100,911,091 1.66 | | | | | | | | |
| | | \$60.876.000 ¹² | \$11 953 <i>44</i> 7 | \$28 081 644 | \$100 911 091 | 1 66 | | |
| | Totals | \$2,328,650,555 | \$435,160,426 | \$890,489,434 | \$3,654,300,415 | 1.57 | | |

⁵ USDA 2012 Ag Census, Table 51.

⁶ IMPLAN 2012 data

⁷ IMPLAN 2012 data

⁸ 2012 Economic Census of the United States (US Census Bureau)

⁹ 2012 Economic Census of the United States (US Census Bureau)

¹⁰ 2012 Economic Census of the United States (US Census Bureau)

¹¹ Pro-rated based on 2012 retail sales data from the State of Connecticut Department of Revenue Services

¹² 2012 Economic Census of the United States (US Census Bureau)

Table 6: Jobs Supported, 2012

| Sector | Direct Employment | Indirect | Induced | Total Jobs Supported | Jobs Multiplier | | | | |
|--|----------------------------|----------|---------|-------------------------|--------------------|--|--|--|--|
| Production & Manufacturin | Production & Manufacturing | | | | | | | | |
| Floriculture, Nursery & Sod Production | 4,608 | 264 | 626 | 5,498 | 1.2 | | | | |
| Lawn & Garden Equipment Manufacturing | 94 | 39 | 34 | 167 | 1.8 | | | | |
| Services | | | | | | | | | |
| Landscape Construction & Maintenance Services | 18,723 | 965 | 3,203 | 22,891 | 1.2 | | | | |
| Landscape Architectural Services | 230 | 82 | 103 | 415 | 1.8 | | | | |
| Wholesale & Retail Trade | | | | | | | | | |
| Lawn & Garden Machinery & Equipment Wholesalers | 264 | 98 | 134 | 496 | 1.9 | | | | |
| Flower, Nursery Stock & Florist Supply Wholesalers | 398 | 148 | 202 | 748 | 1.9 | | | | |
| Lawn & Garden Equipment and Supply Retailing | 7,142 | 787 | 1,576 | 9,505 | 1.3 | | | | |
| Florists | 1,746 | 63 | 190 | 1,999 | 1.1 | | | | |
| Totals | 33,205 | 2,446 | 6,068 | 41,719 | 1.3 | | | | |

Table 7: Tax Impacts, 2012

| Sector | State & | State & | Other State | Total State & | Federal Taxes |
|---------------------|--------------|--------------|--------------|---------------|---------------|
| | Local: | Local: Sales | & Local | Local Taxes | |
| | Property | Taxes | Taxes | | |
| | Taxes | | | | |
| Production & Mar | ufacturing | | | | |
| Floriculture, | \$4,184,975 | \$2,918,113 | \$6,840,887 | \$13,943,975 | \$39,943,975 |
| Nursery & Sod | | | | | |
| Production | | | | | |
| Lawn & Garden | \$441,278 | \$307,696 | \$378,000 | \$1,126,974 | \$2,126,361 |
| Equipment | | | | | |
| Manufacturing | | | | | |
| Horticultural Servi | | | | | |
| Landscape | \$27,050,017 | \$18,861,526 | \$37,027,866 | \$82,939,409 | \$198,299,544 |
| Construction & | | | | | |
| Maintenance | | | | | |
| Services | | | | | |
| Landscape | \$797,544 | \$556,114 | \$1,112,174 | \$2,465,832 | \$6,081,148 |
| Architectural | | | | | |
| Services | | | | | |
| Wholesale & Reta | il Trade | | | | |
| Lawn & Garden | \$4,157,865 | \$2,899,210 | \$1,846,656 | \$8,903,731 | \$10,200,718 |
| Machinery & | | | | | |
| Equipment | | | | | |
| Wholesalers | | | | | |
| Flower, Nursery | \$6,265,683 | \$4,368,957 | \$2,782,813 | \$13,417,453 | \$15,371,945 |
| Stock & Florist | | | | | |
| Supply | | | | | |
| Wholesalers | | | | | |
| Lawn & Garden | \$49,670,204 | \$34,634,205 | \$19,720,296 | \$104,024,705 | \$104,997,509 |
| Equipment and | | | | | |
| Supply Retailing | | | | | |
| Florists | \$5,175,434 | \$3,608,744 | \$2,349,062 | \$11,133,240 | \$11,863,641 |
| Totals | \$97,743,000 | \$68,154,565 | \$72,057,754 | \$237,955,319 | \$388,852,233 |

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About the Authors

Chris Laughton is a Master of Science student in the department of Agricultural and Resource Economics at the University of Connecticut. He also works as the Director of Knowledge Exchange at Farm Credit East, ACA, an agricultural finance and services organization. He has produced numerous reports relating to the intersection of agricultural production, economics, and policy. He holds a bachelor's degree, with honors, in horticulture from Cornell University and an MBA from the University of Massachusetts. Chris grew up in Eastern Massachusetts, where he worked in his family's greenhouse/nursery business.

Rigoberto A. Lopez (advisor) is the Richard DelFavero Professor of Agricultural Economics in the Department of Agricultural and Resource Economics at the University of Connecticut. He is the co-editor of *Agribusiness: An International Journal* and was part of the Gov. Lamont policy transition team for agriculture His areas of expertise include food policy, industrial organization, and economic development. He has led research teams for multiple economic impact reports, including the Connecticut dairy industry, Connecticut's agricultural industries in 2010 and 2017, Northeastern food, fish, and forestry industries, and, more recently, the economic impact of the University of Connecticut.