



Economic Impacts of the Kentucky Green Industry

Dewayne L. Ingram, Horticulture, University of Kentucky, and Hayk Khachatryan, Food and Resource Economics, University of Florida

The green industry, comprised of firms engaged in the production and use of landscape and floral crops and related supplies and equipment and the design, construction, and maintenance of landscapes, has a significant impact on Kentucky's economy. Green industry enterprise owners, managers, and employees should be aware of their economic impacts, and policy makers and other state leaders need to know the importance of this industry as potential laws, regulations, and resource allocations are considered. This publication is intended to provide a brief summary of the 2018 economic impacts of the green industry in Kentucky.

The Green Industry Research Consortium is a group of horticulturists and economists conducting a multistate research project through the Agriculture Experiment Stations at land-grant universities throughout the United States. Drs. Hayk Khachatryan, Alan Hodges, Charlie Hall, and Marco Palma, project team members, published a paper in 2020 entitled, "Production and Marketing Practices and Trade Flows in the United States Green Industry, 2018" (Khachatryan et al., 2020). The data for this report were compiled principally from the Impact Analysis for Planning (IMPLAN) and several other current, national economic databases and reports. The study results for Kentucky are summarized in this circular.

At the national level, the U.S. green industry in 2018 was estimated to generate \$159.57 billion in output (revenue) and directly employed 1.3 million people in full-time and part-time jobs. The total economic contribution of the industry, including regional multiplier effects in other sectors of the economy, was \$348 billion in output impact, \$121.5 billion in labor earnings from 2.3 million total jobs,

\$191.0 billion in value-added contribution to gross domestic product (GDP) and 41.8 billion in local, state, and federal taxes. Green industry contributions in 2008 increased by 4.4 percent for employment and to 2.7 percent in 2013 for GDP in inflation-adjusted terms. Since the 2013 study of the U.S. Green industry (Hodges et al., 2015), the total economic contributions increased by 16.2% for employment, 17.3% for output, and 19.8% for GDP, adjusted for inflation. Growth in industry employment during this period was greatest in the landscape services sector, showing a 30 percent increase from 2010 to 2018. Some terms used in the report, particularly output, output impact, and value-added, require some explanation. Total output is total sales throughout the revenue stream. Except for retailers, it represents the gross margin (sales less cost of goods sold). This avoids double-counting wholesale sales to retailers. Value-added impact by the industry is a measure of the net contribution to the U.S. GDP, calculated as total sales (output) minus the intermediate sales in the supply chain (cost of inputs to the sector).

Industry groups related to the green industry that were evaluated in this study included production and manufacturing, horticultural services and the wholesale and retail trades. The production and manufacturing group included nursery and greenhouse production, and lawn and garden equipment manufacturing. The horticultural services group encompassed landscape services and landscape architectural services sectors. The wholesale and retail trade groups accounted for green industry related sales and economic impacts from 12 sectors, including wholesale establishments that distribute horticultural products (durable and non-durable) to retailers and end-users, lawn and garden supply stores, building material and supply stores, and home im-

provement centers (e.g. Lowe's, Home Depot), florists, general merchandise stores with garden departments (e.g. Walmart, Target), non-store retailers such as mail order or internet retail sales, as well as other retail establishments that offer horticultural goods as a minor sideline, such as food and beverage stores. Activity of independent garden centers and garden chain stores are captured in the data for lawn and garden supply stores.

Kentucky's green industry in 2018 directly supported 15,229 jobs, and generated \$2.15 billion in value-added and \$3.8 billion output impacts to the state's economy, based on direct output (sales) of \$535 million. The total output impact was \$96 million for nursery and greenhouse crop production, \$2.3 billion for landscape and horticultural services (including landscape architecture), \$17 million for lawn and garden equipment manufacturing, \$372 million for the wholesale trade, and \$1.0 billion for retail trade sectors. Value-added impacts to the economy by industry segment were \$53 million for crop production, \$1.2 billion for horticultural services, \$6 million for equipment manufacturing, \$315 million for wholesale trade, and \$555 million for retail trade. The sales, output impacts, and value-added impact are presented for all Kentucky industry sectors in Figure 1.

Of the total employment impact of 26,134 full-time and part-time jobs in Kentucky in 2018, the largest impacts were for horticultural services (14,994) with wholesale trade (3,040) and retail trade (7,318), followed by crop production (729), and manufacturing (52) making important employment impact. Direct jobs in the green industry and total employment impacts, including indirect and induced jobs generated in other economic sectors through the multiplier effect, are presented by the various industry groups in Figure 2.

The two industry sectors most recognized as part of the green industry, nursery and greenhouse crop production, and landscape services, together had 8,910 direct jobs and an overall employment impact of 15,723 jobs, with \$392 million in total sales and value-added impact of \$1.3 billion to Kentucky's economy in 2018. The nursery and greenhouse crop production sector was comprised of 60 employer firms, with revenues (sales) of \$46 million, directly supported 520 jobs and had an overall employment impact of 729 jobs and value-added impact of \$53 million to the state's economy in 2018. The landscape service sector was comprised of 1,235 firms, supported 8,233 jobs directly. Landscape services combined with an additional 42 landscape architecture firms had revenues of \$346 million direct output and 14,994 jobs impact, generated a value-added impact of \$1.2 billion for the economy. Lawn and garden equipment manufacturers in Kentucky generated \$32 million in total sales, with an output impact of \$17 million.

The wholesale and retail trade industry group is comprised of eight individual sectors as described above. Of the total Kentucky green industry, the wholesale and retail trade industry group represented 41 percent of direct jobs, 40 percent of the value-added impact, and 36 percent of the output impact. Wholesale establishments are those that distribute horticultural products to retailers, including plants, chemicals, fertilizers, and other supplies and various types of lawn and garden equipment. The wholesale trade represented 15 percent of Kentucky green industry jobs, 15 percent of value-added impact and 10 percent of output impact. Similarly, for the United States as a whole, wholesale trade represented 4 percent of green industry jobs, 12 percent of value-added, and 12 percent of the output impact. In Kentucky, output of durable and nondurable horticultural goods by the wholesale and retail trade industry group totaled \$111 million in 2018, which supported 6,307 jobs directly in the industry, and a total employment impact of 10,358 jobs, generated value-added impacts of \$871 million to the economy and resulted in an overall output impact of \$1.3 billion.

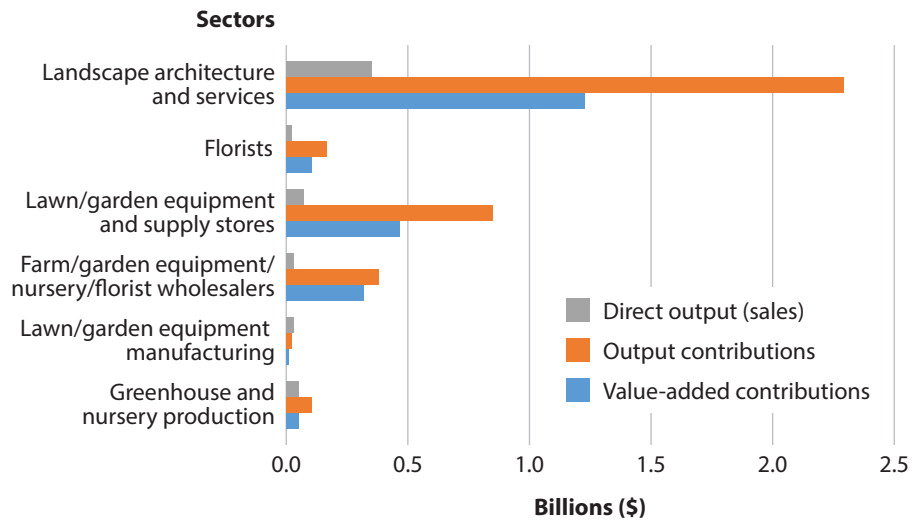


Figure 1. Green industry sales, output impact, and value added in Kentucky, 2018.

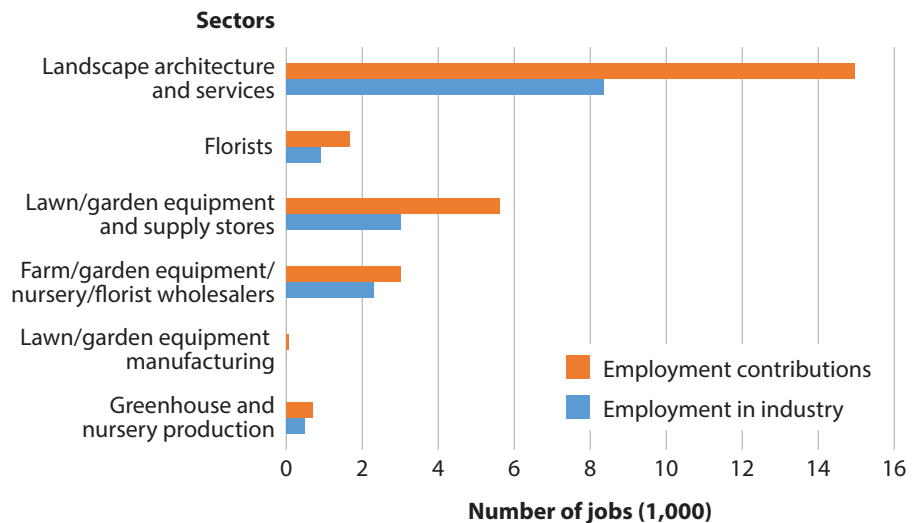


Figure 2. Kentucky green industry direct employment and total job impact in 2018.

The retail sector firms are those that sell directly to consumers. The retailer sectors accounted for \$1.0 billion in economic output contributions and supported directly 3,947 jobs. In fact, retail trade represented 26 percent of all Kentucky's green industry jobs and 27 percent of the output impact to the economy in 2018, which is similar for the Appalachian region and nationally. The importance of the retail sector to jobs and output impact in 2018 was greater than in 2008 and 2013 for both the U.S. and Kentucky industries. The retail trade group had 2.7 times the output impact in 2018 as the wholesale trade in Kentucky while the retail trade had 5.5 times more output impact than

the wholesale trade in the United States. It appears that in Kentucky, as well as the region and nationally, growth in the retail sector outpaced growth in the crop production sector.

The total value-added contribution of the U.S. green industry to gross domestic product was \$190.9 billion, including labor income impacts of \$121.5 billion, and taxes paid to local, state, and federal governments of \$41.8 billion. Total value-added contribution of the Kentucky green industry to the commonwealth's economy was \$2.15 billion (Figure 1), including labor income impacts of \$1.3 billion, and paid \$493 million in state and federal taxes in 2018. Landscape services

and lawn and garden equipment stores had the greatest contributions on Kentucky labor income (Figure 3) and taxes paid (Figure 4).

Although details of the retail sector were not available for 2018, Kentucky green industry retail sectors, lawn and garden supply stores, including home improvement as well as independent garden centers in 2013, represented 73 percent of the output impact (Figure 5) and 55 percent of the jobs in these sectors. This type of firm represented 59 percent of the U.S. green industry retail sector output impact. Unfortunately, the available data would not allow the separation of independent garden centers within this sector. General merchandise stores, including big box stores such as Walmart and Target, represented 8 percent of the Kentucky green industry retail sector output impact while florists represented 15 percent. Non-store retailers, such as mail order and online vendors, represented 3 percent of the output impact of Kentucky's green industry retail sector in 2018 and 2013, and only 1 percent in 2007. This would imply that sales of plants and garden supplies by mail order or internet sales have become more important to Kentucky in recent years. Non-store retailers represented 9 percent of the U.S. green industry retail sector output impact in 2018, and 3 percent of retail sectors in the Appalachian region.

The U.S. average output impact per crop production firm was \$2.27 million, while the Kentucky average was \$1.94 million. The U.S. and Kentucky average output impact per firm for the other sectors are similar, indicating that Kentucky's nursery and greenhouse firms are smaller than the national average but that landscape services firms and retailers are of similar size, which is generally expected because most of these firms serve a local area.

Overall, the value-added impact of the green industry in Kentucky of \$2.1 billion represented 1.1 percent of gross domestic product in the state in 2018, up 0.5 percent compared to 2013. By way of comparison, the value-added to the state's economy by the green industry in Kentucky was greater than in West Virginia but less than in Tennessee, North Carolina, Ohio, and Virginia. Previous studies in 2003, 2008, and 2013 reported total value-added impacts of the green industry in Kentucky at \$651.1 million, \$1.07 billion, and \$1.1 billion, respectively.

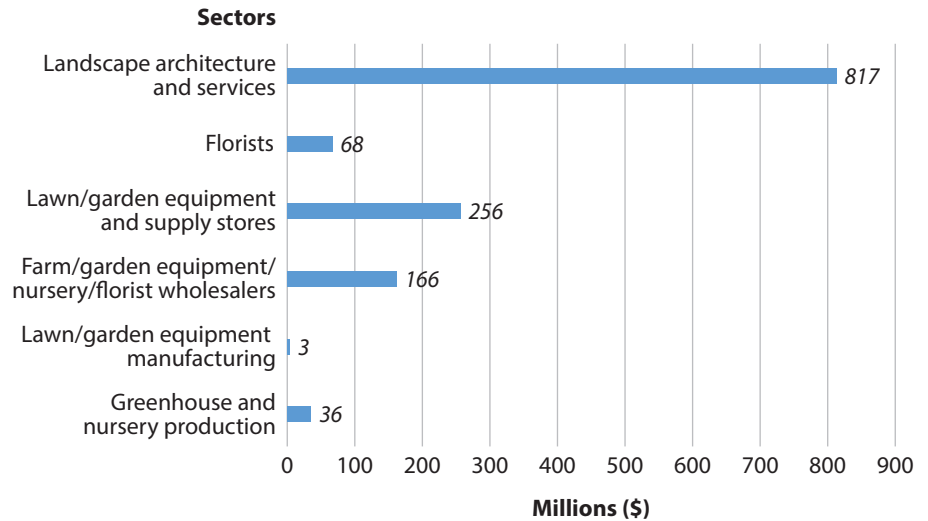


Figure 3. Kentucky green industry impacts on labor income in 2018.

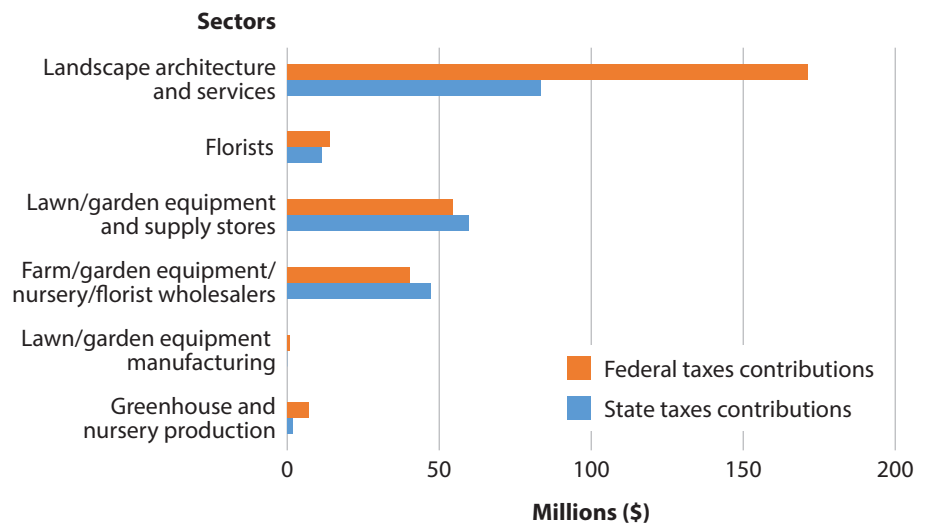


Figure 4. Taxes paid by the Kentucky green industry in 2018.

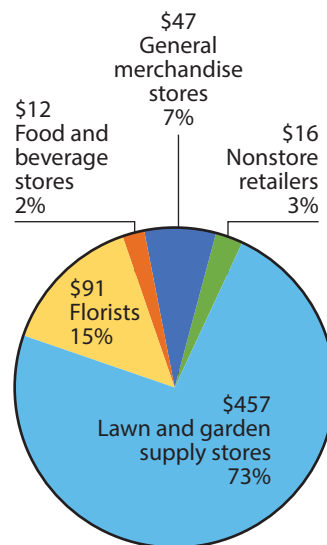


Figure 5. Green industry output impacts in million dollars and percent by retail sectors in Kentucky, 2013.

The change, adjusted for inflation, for the period 2003 to 2013 was 44 percent or a 4 percent annual average. It should be noted that this period includes the great recession of 2008-10.

The Kentucky green industry is obviously an important element of Kentucky's economy, and is present throughout the state. The diverse nature of the industry limits its visibility compared to some industries; therefore, it is important to recognize and to communicate these contributions. Data presented here can be used to engage governmental, business, and agricultural industry leaders in conversations about the needs and opportunities for the industry.

References

- Hall, Charles R., Alan W. Hodges and John J. Haydu. 2007. *The Economic Impacts of the Green Industry in the United States*. Southern Cooperative Series Bulletin No. 406. 90 p. Available at www.greenindustryresearch.org.
- Hodges, Alan, Charlie Hall and Marco Palma. 2011. *Economic Contributions of the Green Industry in the United States, 2007*. Southern Cooperative Series Bulletin No. 413. 61p. Available at www.greenindustryresearch.org.
- Hodges, A.W., C.R. Hall, M.A. Palma and H. Khachatryan. 2015. *Economic Contributions of the Green Industry in the United States in 2013*. Accepted for publication in *HortTechnology*, December 2015.
- Hodges, A.W., H. Khachatryan, C.R. Hall and M.A. Palma. 2020. *Economic Contributions of the Green Industry in the United States in 2018*. *Journal of Environmental Horticulture* 38(3):73-79.
- Khachatryan, H., A. Hodges, C. Hall, and M. Palma. 2020. "Production and Marketing Practices and Trade Flows in the United States Green Industry, 2018." *Southern Cooperative Bulletin Series #421*, ISBN: 1-58161-421-9. Accessed at <http://www.greenindustryresearch.org>.