

# **Economic Contributions of the Green Industry to the Texas Economy**

Report to the Texas Nursery and Landscape Association  
2018

by

Marco A. Palma and Charles R. Hall  
Texas A&M University  
2124 TAMU, College Station, TX. 77843-2124  
[mapalma@tamu.edu](mailto:mapalma@tamu.edu)

## **Acknowledgements**

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### ***Background information***

Back in 2017, the economy had sustained 3% growth for two consecutive quarters. This economic momentum continued into the fourth quarter, with 2.7% growth, providing strong momentum going into 2018. There were a few more red flags economically-speaking than 2016, but nothing that deterred our optimism for the green industry going into 2018. In fact, at that time, most economic modelers were not expecting a slowdown for at least another 18 months.

Although slowing, one of the continuing bright spots in the green industry outlook that year was the housing market, a prime influencer of derived demand for green industry products and services. Extra spending to repair damage from the hurricanes continued to boost the economy. However, back-to-back hurricanes did put some additional pressure on prices for lumber and other building materials and worsened the already tight labor market for construction laborers. While hurricanes often lead to a spike in building activity, we suspected that physical constraints including a lack of buildable lots, shortages of skilled construction workers, rising material prices and tighter underwriting standards would keep a relatively low ceiling on housing starts and that has indeed been the case. Efforts were being made to break the log jam, with several municipalities looking to streamline the permitting process and investment in worker training and lumber mills was increasing. Such efforts, however, would still take time to produce meaningful results.

Still, early signs suggested solid growth in 2018. At that time, we were expecting an acceleration toward the mid-2% range for underlying trend economic growth. Less government interference freed up entrepreneurship and productivity growth powered by new technology. The Federal Reserve was starting to normalize policy, but fiscal and monetary policy together were still pointing toward a good environment for growth.

The American Trucking Association (ATA) in 2017 forecasted a bleak picture for freight costs over the next few years. ATA predicted freight volumes to grow 2.8% and beginning in 2018, volumes were expected to grow 3.4% annually until 2023. In addition, according to ATA, the trucking industry was short around 48,000 drivers with that number expected to surge by several hundred thousand by 2025. The actual extent of the driver shortage is still unknown with a lot of it having to do with increasing trucking regulations (e.g. EDL). Because of this, growers continued to find it difficult to find enough drivers to ship their plants in 2018 and their freight rates were increasing.

Most garden centers that we interacted with across the state reported increased profitability over 2016-2017, mainly stemming from increased dollars sold per transaction, while customers count (and thus transaction count) was down. As with all sectors in the green industry, finding labor was one of the main critical issues with garden centers in 2017, resulting in a limited their growth potential.

Landscape service firms also faced significant labor availability pressures, but still had a good run in 2017 since housing had been growing steadily. Merger and acquisition activity in the landscape industry was very strong in 2017, another signal of a sector

achieving above-average returns. As Boomers continue to age, they will switch from do-it-yourself lawn and landscape sales to more do-it-for-me sales, another positive sign for landscape service providers and the growers that supply them.

### ***Summary Introduction***

Total green industry sales in Texas were **\$20.1 billion** in 2017. The *production and manufacturing* sales increased 4.03% to a total of \$2.1 billion in 2017. Adjustments in the comptroller's office sales numbers for the past three years reveal that *production and manufacturing* sales have grown since their lowest point of \$1.5 billion in 2014. Similar to previous years, the *Lawn and Garden Equipment Manufacturing* sector is significantly lower compared to the levels prior to 2014. *Prefabricated Metal Buildings* experienced a slight decrease of 1.18% in 2017 relative to 2016. The *Nursery and Greenhouse* sector sales increased 6.41% from 1.59 billion in 2016 to the highest all-time sales peak of \$1.70 billion in 2017.

The *Horticultural Services* sector grew 3.49% to an all-time record of \$5.66 billion in 2017. *Wholesale and Retail* had an increase of 3.36% to a total of \$12.3 billion in 2017. The net margins attributed to the retail sector accounted for more than \$3.7 billion. Net margins represent the share of sales attributed to the retail sector and not accounting for the portion of sales included in the production and manufacturing sector or the horticultural services sector. This study measures green industry sales in Texas by sector and then estimates economic contributions to the Texas Economy in terms of output, employment and value added.

### ***Methodology***

In order to estimate economic contributions of the Green Industry to the Texas economy sales by each green industry sector need to be measured. The North American Industry Classification System (NAICS) is used to gather data on *total green industry sales, including all sectors related to the green industry*. The data used in this report were provided by the State Comptroller's Office, as well as baseline data from the Green Industry Research Consortium National Nursery Survey, and **includes industry sales through the end of fiscal year 2017**. Every business in the state and the country is classified by North American Industry Classification System (NAICS). NAICS was developed jointly by the United States, Canada and Mexico to provide comparable statistics about business activity across North America. Green industry firms fall within one of the NAICS codes in Table 1.

### ***Green Industry Sales in Texas***

When reporting sales to the State Comptroller's office, each firm must report all sales, including those with sales taxes and those without sales taxes (wholesale). The reporting system has an area of potential slippage. For example, since wholesale growers do not collect any sales tax (for the state), some small and medium size growers are unaware of their reporting responsibilities. Not all of these firms realize that their services are subject to sale taxes. Therefore, unintended non-compliance has been a source of under reporting, which would underestimate green industry sales in Texas.

Table 1. NAICS Codes for Green Industry Sectors

Industry Sector	NAICS Code
Nursery & Greenhouse	1114
Lawn & Garden Equipment Mfg	333112
Greenhouse Manufacturing (Prefab. Metal Buildings)*	332311
Landscaping Services	561730
Landscape Architectural Services	541320
Flower, Nursery Stock And Florist Supplies Wholesalers	424930
Lawn & Garden Equipment & Supplies Stores	4442
Florists	4531
Building Material & Supplies Dealers*	4441
Food & Beverage Stores*	445
General Merchandise Stores*	452
Farm & Garden Machinery & Equipment Wholesalers*	423820

\* Green industry represents a portion of overall business activity (Sectors not included in Previous Scope reports).

Table 2. Total Green Industry Gross Sales in 2017

**Sales in the TEXAS Environmental Horticulture Industry, 2017**

Sector (NAICS code)	Sales	Establishments
<b>Production/Manufacturing</b>	<b>2,138,895,933</b>	<b>3,156</b>
Nursery & Greenhouse (1114) ^	1,700,697,298	2,755
Lawn & Garden Equipment Manufacturing (333112) ^	414,245,373	338
Prefabricated metal buildings (332311) (Greenhouses) ^*	23,953,261	63
<b>Horticultural Services</b>	<b>5,661,293,068</b>	<b>53,822</b>
Landscaping Services (561730)	5,283,491,361	51,538
Landscape Architectural Services (541320)	377,801,707	2,284
<b>Wholesale &amp; Retail Trade Horticulture Products (Gross)</b>	<b>12,297,271,716</b>	<b>82,399</b>
Flower, Nursery Stock and Florist Supplies Wholesalers (424930)	803,235,930	1,840
Lawn & Garden Equipment & Supplies Stores (4442)	5,847,987,881	8,914
Florists (4531)	823,877,725	12,257
Building Material & Supplies Dealers (4441)*	1,869,163,220	7,103
Food & Beverage Stores (445)*	447,021,904	11,587
General Merchandise Stores (452)*	1,628,075,063	39,675
Farm & Garden Equipment Wholesalers (423820)*	877,909,992	1,023
<b>Total All Sectors</b>	<b>20,097,460,717</b>	<b>139,377</b>

^ Estimated from baseline data from National Nursery Survey, and Texas Comptroller's Office Data.

\* NAICS represents a portion of Total Green Industry Sales

Due to this this potential slippage problem, additional data were used to supplement this report's methodology. Table 2 shows Total Green Industry Gross Sales in 2017, and Table 3 shows sales from 2011-2017 for each green industry sector. Table 3 shows sales for the retail industry including gross sales, and net sales. Net sales represent the margin sales that correspond to the retail sector only.

**Table 3. Total Green Industry Sales 2010-2017**

	<b>GROWER</b>	<b>LANDSCAPE</b>	<b>RETAIL (Gross)</b>	<b>RETAIL (Net)</b>	<b>TOTAL</b>
<b>2017</b>	\$2,138,895,933	\$5,661,293,068	\$12,297,271,716	\$3,723,944,170	\$11,524,133,170
<b>2016</b>	\$2,052,700,913	\$5,463,941,197	\$11,883,918,182	\$3,598,769,617	\$11,115,411,727
<b>2015</b>	\$1,987,750,169	\$4,763,827,857	\$12,141,826,310	\$3,676,871,125	\$10,428,449,152
<b>2014</b>	\$1,505,326,681	\$4,465,856,219	\$11,713,810,871	\$3,547,256,554	\$9,518,439,454
<b>2013</b>	\$2,100,242,682	\$4,550,424,995	\$11,721,100,798	\$3,549,464,140	\$10,200,131,818
<b>2012</b>	\$1,804,926,582	\$4,054,303,568	\$10,857,786,292	\$3,288,029,320	\$9,147,259,470
<b>2011</b>	\$1,918,432,053	\$3,538,719,690	\$10,374,997,040	\$3,141,827,767	\$8,598,979,510

Total industry sales, including grower, landscaping and retailing sales increased 3.47% in 2017 for a total of \$20.1 billion in gross sales. The grower sector experienced an increase of 4.0% to a total of \$2.1 billion. The landscaping sector increased sales by 3.49% to a total of \$5.66 billion. Gross retail sales increased 3.36% to a total of \$12.3 billion in 2017. Figures 1, 2, 3 and 4 represent industry sales for growers, landscaping, retailing (gross) and total gross industry sales respectively broken down by subsectors.

**Figure 1. Grower Sales 2008-2017**

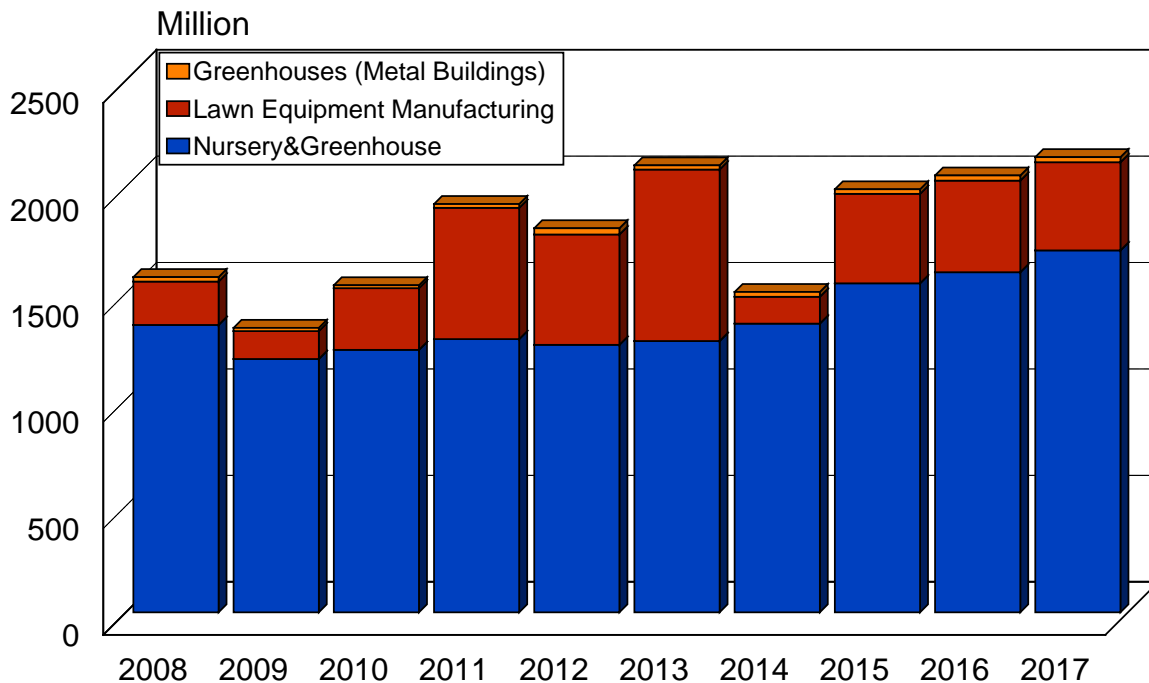


Figure 2. Landscaping Sales 2007-2017

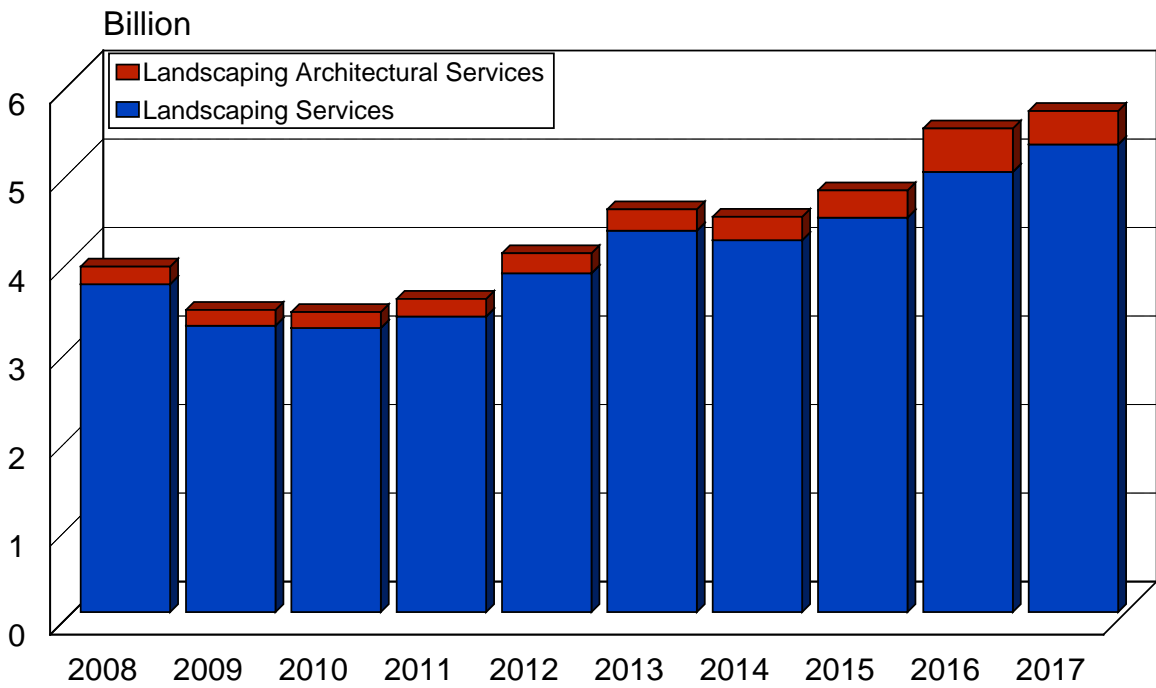


Figure 3. Retailing Sales 2007-2017

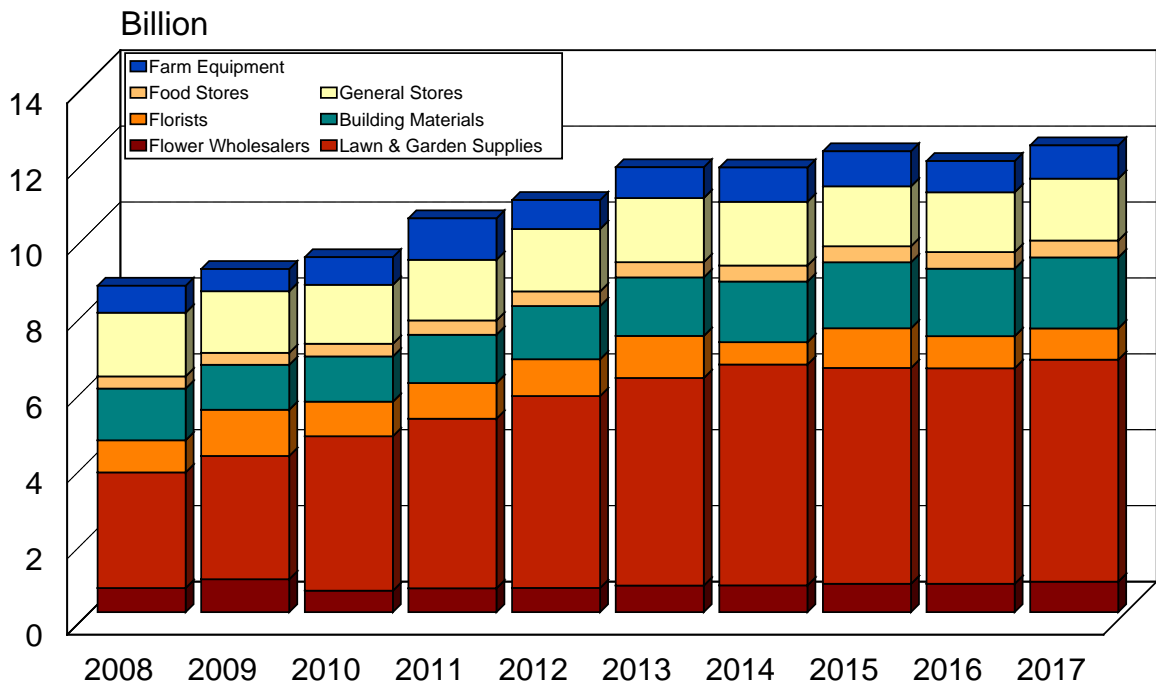


Figure 4. Total Industry Sales 2007-2017

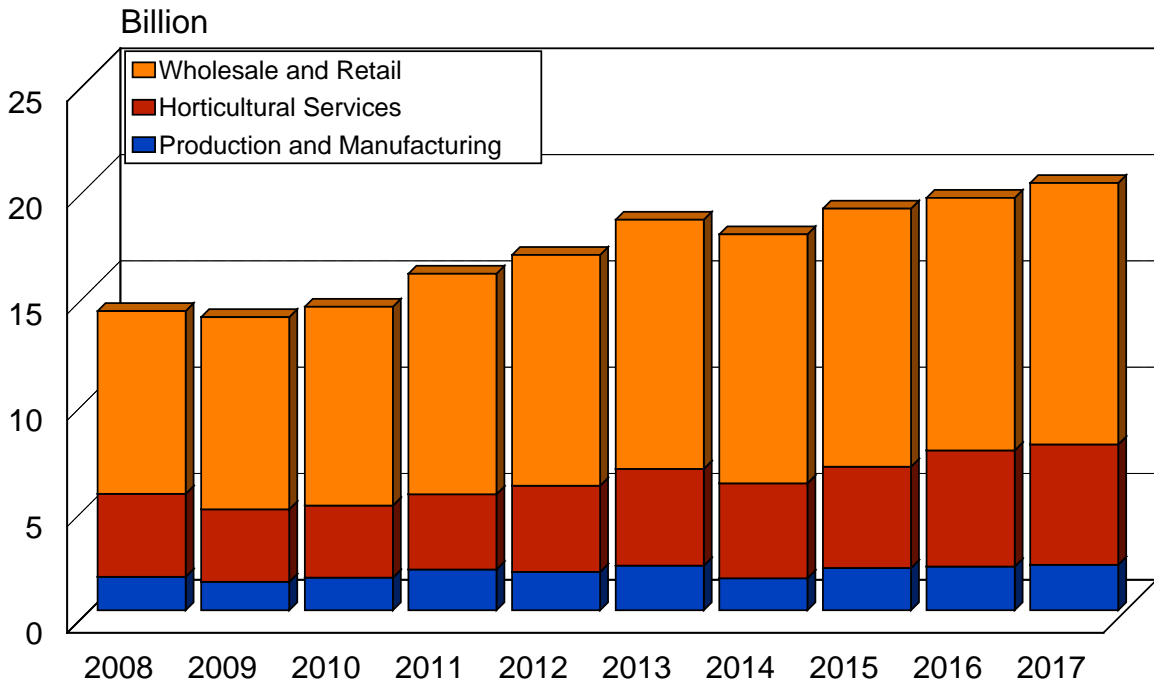


Table 4 presents green industry sales by sector and by major Metropolitan Statistical Area (MSA). There are 27 MSAs in Texas. The major MSAs are, Austin, Dallas-Ft. Worth, Houston, and San Antonio. The economic scope reports sales in five of the major MSAs. Dallas and Fort Worth are combined into one area; together, the five major MSAs included in this report represent almost 60% of the total industry sales as shown in Figure 5. Dallas-Fort Worth and Houston hold the largest share of green industry sales in 2017 with 24.4% and 19.1% respectively. Figure 6 is a graphical representation of grower, landscaping and retailing sales by MSA in Texas.

Table 4. Total Green Industry Sales by Metropolitan Statistical Area (MSA), 2017

MSA	GROWER	LANDSCAPE	RETAIL(Gross)	TOTAL	% OF TOTAL
Austin	88,777,664	741,918,576	724,998,943	1,555,695,183	7.74%
Dallas-FW	329,904,716	1,821,388,290	2,755,882,042	4,907,175,048	24.42%
Houston	263,026,636	1,531,735,420	2,048,183,769	3,842,945,825	19.12%
San Antonio	81,010,722	414,682,571	964,389,759	1,460,083,052	7.27%
Other	1,376,176,195	1,151,568,211	5,803,817,203	8,331,561,608	41.46%
<b>Total</b>	<b>2,138,895,933</b>	<b>5,661,293,068</b>	<b>12,297,271,716</b>	<b>20,097,460,717</b>	<b>100.00%</b>

Figure 5. Total Green Industry Sales in Texas by MSA in 2017

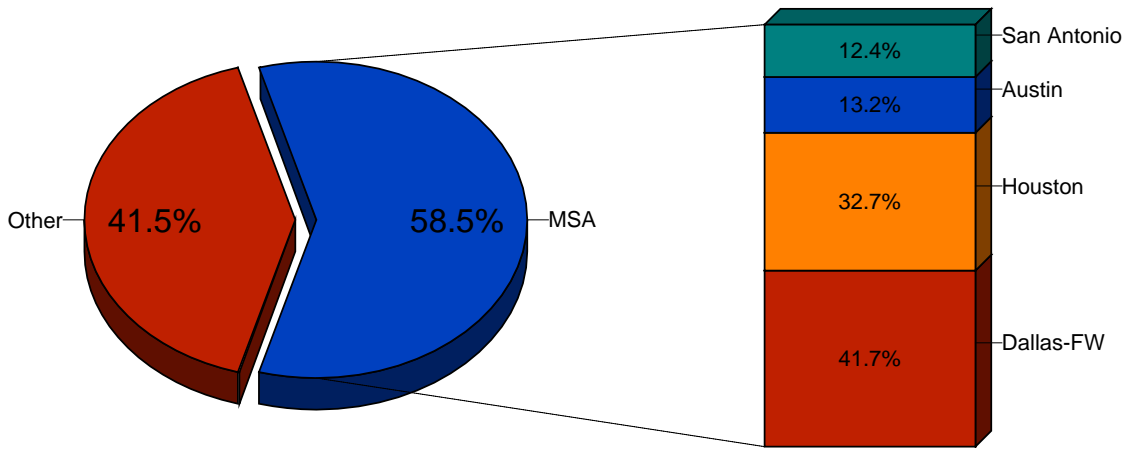
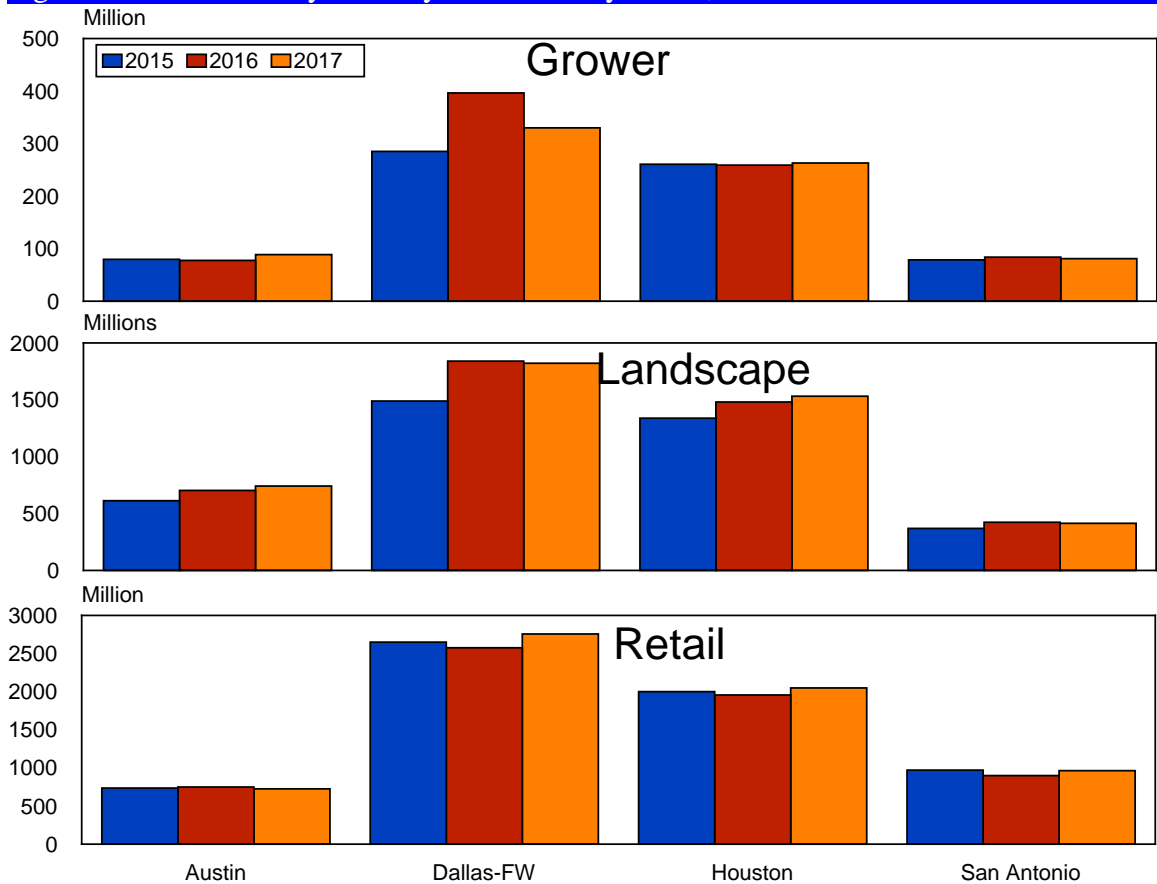


Figure 6. Green Industry Sales by Outlet and by MSA , 2015-2017





### ***Economic Contributions of the Green Industry to the Texas Economy***

The net sales data from the previous section were used to estimate total economic contributions of the Green Industry to the Texas Economy. To evaluate the economic impact contributions of the green industry to the Texas economy, economic models were developed using the Implan software system and associated Texas datasets (MIG, 2018). The Implan system includes more than 500 industries. Input-Output models represent the structure of a regional economy in terms of transactions, employees, households, and government institutions (Miller & Blair, 1985).

The economic multipliers derived from the Implan model were used to estimate the total economic activity generated in the state by sales (*output*) to final demand or exports. This includes the effects of intermediate purchases by green industry firms from other economic sectors (*indirect effects*) and the effects of green industry employee household consumer spending (*induced effects*), in addition to direct sales by industry firms. The wholesale and retail sectors use products from the production/manufacturing and horticultural services sectors; therefore, when calculating the impacts for the wholesale and retail trade horticulture products, output (retail sales) are reduced to reflect only the gross margin on sales to those sectors, otherwise we would be double counting the economic impact stemming from those products.

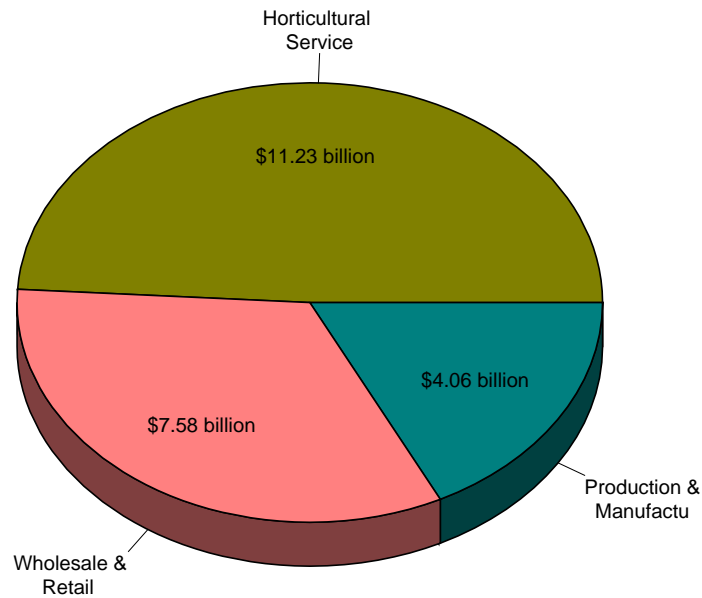
Economic impact multipliers vary based on data about actual relationships in the economy. The total economic contributions of the Green Industry in Texas were estimated at \$22.87 billion in output; 229,880 jobs, and \$13.7 billion in value added as shown in Table 5. For the production and manufacturing sectors, including nursery and greenhouse, lawn and garden equipment manufacturing, and metal building manufacturers, total output impacts were \$4.1 billion; employment impacts were 33,600 jobs; and value added impacts were \$2.2 billion. For the horticultural services sectors, including landscaping services and landscape architecture services, total output impacts were \$11.23 billion; employment impacts were 129,225 jobs; and value added impacts were \$6.7 billion. For the wholesale and retail trade sectors, total output impacts were \$7.6 billion; employment impacts were 67,055 jobs; and value added impacts were \$4.7 billion. The largest economic impact contributions for individual sectors were landscaping services, lawn and garden stores and nursery and greenhouse.

**Table 5. Economic Contributions of the Green Industry in Texas, 2017**

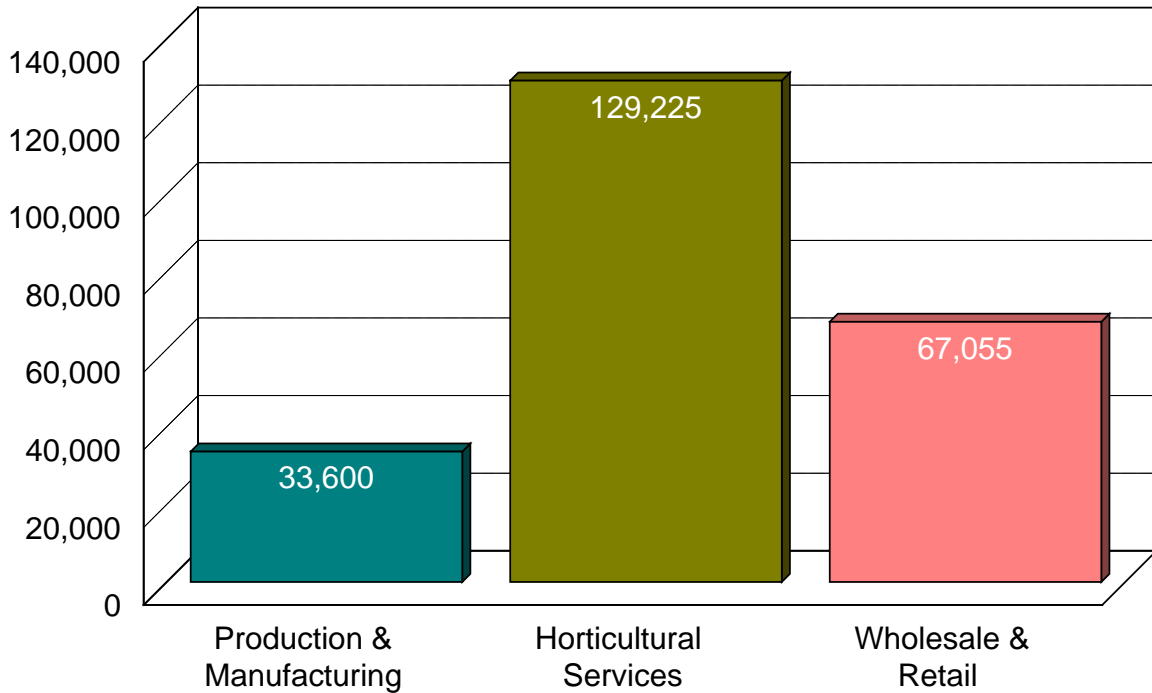
	Output (\$Mn)	Employment (jobs)	Value Added (\$Mn)
<b>Production &amp; Manufacturing</b>	4,058	33,600	2,242
Nursery & Greenhouse	3,399	31,676	1,992
Lawn & Garden Equipment Manufacturing	613	1,725	230
Prefabricated Metal Buildings	45	199	19
<b>Horticultural Services</b>	11,229	129,225	6,733
Landscaping Services	10,382	123,815	6,240
Landscape Architecture Services	847	5,410	493
<b>Wholesale &amp; Retail Trade Horticulture Products</b>	7,584	67,055	4,684
Flower, Nursery Stock & Florist Supplies Wholesalers	261	1,293	170
Lawn & Garden Equipment & Supplies Stores	3,905	31,256	2,395
Florists	807	12,231	494
Building Material & Supplies Dealers	1,248	9,990	766
Food & Beverage Stores	239	2,437	151
General Merchandise Stores	839	8,436	521
Farm & Garden Equipment Wholesalers	286	1,413	186
<b>Total (All Sectors)</b>	<b>22,871</b>	<b>229,880</b>	<b>13,659</b>

\*Figures may not sum due to rounding

**Figure 7. Green Industry Economic Output Contributions to the Texas Economy in 2017**



**Figure 8. Employment Contributions by the Green Industry in Texas 2017**



Economic impact results are also reported by major metropolitan statistical area (MSA) as summarized in Table 6. The MSAs with the greatest economic impact contributions to the State’s economy are Dallas-Fort Worth and Houston with \$5.6 billion and \$4.3 billion respectively. Austin generated \$1.77 billion in output impact and San Antonio had \$1.66 of output economic impact.

**Table 6. Economic Impact Contributions of the Green Industry in Texas by MSA 2017**

	Output (\$Mn)	Employment (jobs)	Value Added (\$Mn)
Austin	1,770	17,794	1,057
Dallas-Fort Worth	5,584	56,129	3,335
Houston	4,373	43,957	2,612
San Antonio	1,662	16,701	992
Other	9,481	95,298	5,662
<b>Total</b>	<b>22,871</b>	<b>229,880</b>	<b>13,659</b>

\*Figures may not sum due to rounding

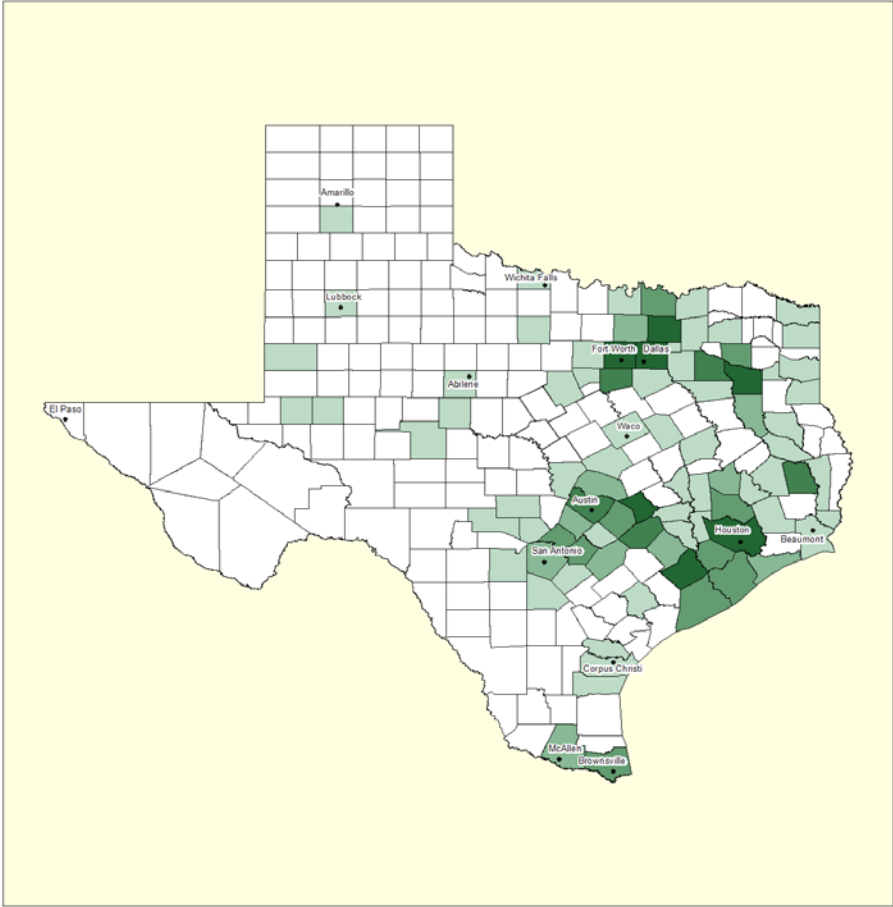
*Measures of economic activity.*

**Sales or output** is the dollar volume of a good or service produced or sold. **Final Demand** is sales to final consumers, including households, governments, and exports. **Intermediate sales** are sales to other industrial sectors. **Income** is the money earned within the region from production and sales. **Total income** includes personal income (wage and salary income, including income of sole proprietor's profits and rents). **Jobs or employment** is a measure of the number of jobs required to produce a given volume of sales/production, expressed as full time equivalents, or as the total number including part time and seasonal positions. **Value Added** is the sum of total income and indirect business taxes.

## Appendix – Estimated Green Industry Sales by County, 2017.

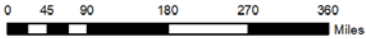
County	Sales	County	Sales	County	Sales	County	Sales	County	Sales
Anderson	25,282,588	Deaf Smith	151,352,616	Hutchinson	3,422,344	Navarro	33,373,353	Val Verde	9,760,144
Andrews	2,003,722	Delta	-	Irion	-	Newton	287,907	Van Zandt	98,486,136
Angelina	60,193,408	Denton	553,959,778	Jack	696,305	Nolan	2,600,766	Victoria	87,901,067
Aransas	13,688,056	De Witt	-	Jackson	24,344,607	Nueces	233,195,753	Walker	37,084,641
Archer	5,970,935	Dickens	-	Jasper	29,116,555	Ochiltree	1,855,544	Waller	120,087,192
Armstrong	-	Dimmit	1,160,964	Jeff Davis	74,144	Oldham	11,390	Ward	7,318,742
Atascosa	37,873,352	Donley	164,537	Jefferson	153,232,244	Orange	35,462,740	Washington	56,665,374
Austin	62,651,576	Duval	204,706	Jim Hogg	216,370	Palo Pinto	10,009,699	Webb	108,957,060
Bailey	6,857,080	Eastland	13,751,416	Jim Wells	5,278,150	Panola	4,752,056	Wharton	212,843,217
Bandera	3,205,472	Ector	82,787,220	Johnson	199,980,148	Parker	116,202,657	Wheeler	526,604
Bastrop	64,333,816	Edwards	102,286	Jones	2,534,475	Parmer	41,697,069	Wichita	71,707,879
Baylor	126,356	Ellis	95,972,937	Karnes	1,844,047	Pecos	5,944,767	Wilbarger	9,473,697
Bee	15,008,481	El Paso	-	Kaufman	86,148,909	Polk	23,745,406	Willacy	387,400
Bell	146,051,602	Erath	49,925,584	Kendall	71,357,974	Potter	70,232,967	Williamson	440,333,792
Bexar	1,139,271,924	Falls	1,773,373	Kenedy	-	Presidio	559,901	Wilson	35,931,498
Blanco	1,009,832	Fannin	24,723,779	Kent	403	Rains	8,171,709	Winkler	364,771
Borden	-	Fayette	76,116,945	Kerr	44,430,130	Randall	139,211,614	Wise	46,441,056
Bosque	2,121,978	Fisher	27,309	Kimble	330,355	Reagan	53,385	Wood	55,633,271
Bowie	105,314,975	Floyd	3,125,833	King	-	Real	97,228	Yoakum	1,464,683
Brazoria	208,103,207	Foard	-	Kinney	4,521	Red River	571,338	Young	5,834,177
Brazos	305,494,356	Fort Bend	368,707,223	Kleberg	9,579,692	Reeves	2,448,602	Zapata	646,461
Brewster	1,391,253	Franklin	2,112,164	Knox	242,679	Refugio	177,157	Zavala	195,453
Briscoe	8,705	Freestone	7,610,887	Lamar	59,569,296	Roberts	-		
Brooks	269,499	Frio	1,302,081	Lamb	88,463,356	Robertson	1,023,266		
Brown	15,456,773	Gaines	48,020,918	Lampasas	13,473,822	Rockwall	58,053,266		
Burleson	33,816,055	Galveston	222,086,524	La Salle	-	Runnels	7,753,020		
Burnet	36,194,746	Garza	313,729	Lavaca	12,721,745	Rusk	15,583,157		
Caldwell	29,540,281	Gillespie	31,255,281	Lee	144,890,331	Sabine	1,742,201		
Calhoun	4,027,317	Glasscock	-	Leon	14,702,787	San Augustine	325,461		
Callahan	6,593,482	Goliad	321,274	Liberty	51,523,528	San Jacinto	1,105,718		
Cameron	126,554,751	Gonzales	41,836,801	Limestone	13,107,403	San Patricio	73,954,101		
Camp	1,107,347	Gray	17,601,990	Lipscomb	32,389	San Saba	5,434,314		
Carson	8,577,118	Grayson	128,507,056	Live Oak	7,761,384	Schleicher	17,923		
Cass	9,355,150	Gregg	150,640,206	Llano	6,578,006	Scurry	2,145,041		
Castro	24,240,588	Grimes	19,833,402	Loving	-	Shackelford	90,619		
Chambers	30,085,087	Guadalupe	114,882,618	Lubbock	225,889,898	Shelby	20,111,863		
Cherokee	44,317,319	Hale	83,197,965	Lynn	7,192	Sherman	0		
Childress	1,026,105	Hall	61,619	Madison	1,328,293	Smith	400,441,526		
Clay	317,213	Hamilton	2,793,512	Marion	632,957	Somervell	1,500,585		
Cochran	12,942	Hansford	12,476,476	Martin	315,363	Starr	9,856,151		
Coke	123,477	Hardeman	136,668	Mason	87,987	Stephens	5,569,419		
Coleman	639,687	Hardin	16,317,273	Matagorda	51,754,814	Sterling	-		
Collin	762,355,221	Harris	2,978,577,758	Maverick	19,798,261	Stonewall	12,906		
Collingsworth	51,138	Harrison	90,735,202	McCulloch	3,980,189	Sutton	118,802		
Colorado	33,454,660	Hartley	475,607	McLennan	215,082,436	Swisher	161,487		
Comal	136,291,226	Haskell	311,230	McMullen	-	Tarrant	1,417,447,505		
Comanche	13,750,161	Hays	132,765,569	Medina	73,283,695	Taylor	93,422,341		
Concho	-	Hemphill	260,014	Menard	11,059	Terrell	578		
Cooke	64,511,834	Henderson	53,831,381	Midland	106,200,319	Terry	55,550,673		
Coryell	17,340,168	Hidalgo	292,059,120	Milam	8,945,924	Throckmorton	8,617		
Cottle	3,431	Hill	31,050,270	Mills	560,892	Titus	20,813,827		
Crane	10,213	Hockley	41,430,162	Mitchell	169,230	Tom Green	73,525,441		
Crockett	-	Hood	26,011,553	Montague	9,465,692	Travis	1,101,852,324		
Crosby	12,756,696	Hopkins	37,382,431	Montgomery	355,394,101	Trinity	475,916		
Culberson	29,994	Houston	18,274,434	Moore	190,376,723	Tyler	84,186,292		
Dallam	82,774,432	Howard	29,127,827	Morris	3,417,013	Upshur	14,688,986		
Dallas	2,309,351,523	Hudspeth	46,443	Motley	-	Upton	51,211		
Dawson	3,023,310	Hunt	51,810,150	Nacogdoches	46,710,103	Uvalde	9,422,900		

# Grower Sales



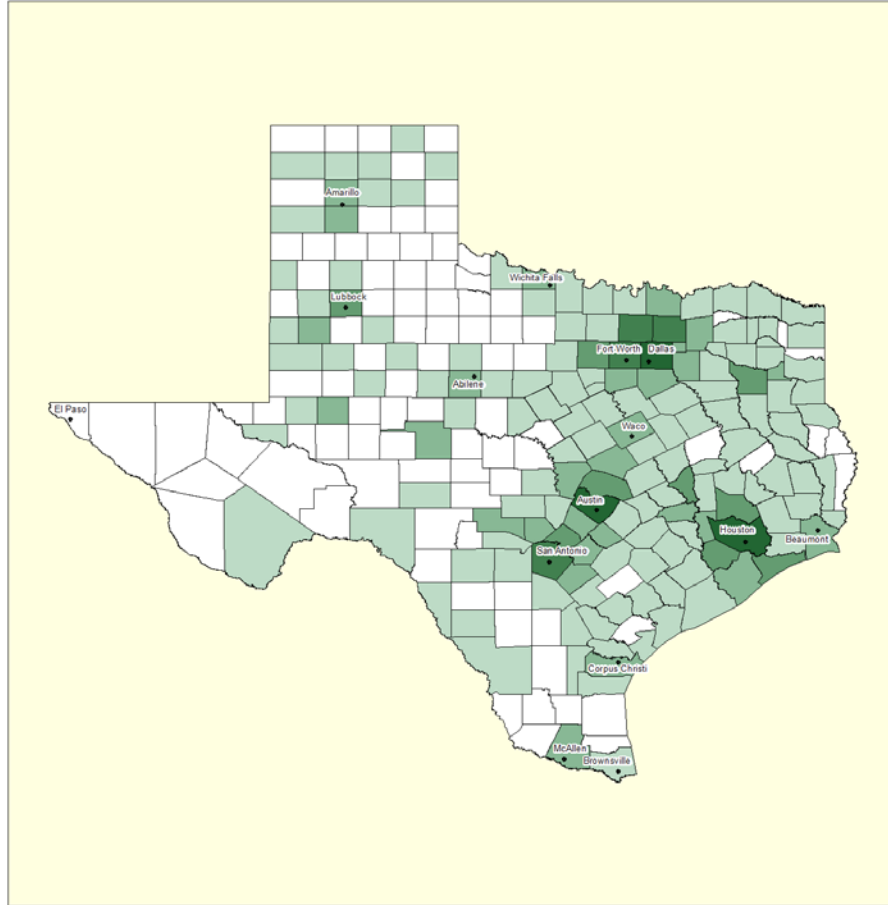
### Grower Sales for 2017

- No sales reported
- \$10,000,000 or less
- \$10,000,001 - \$25,000,000
- \$25,000,001 - \$50,000,000
- \$50,000,001 - \$100,000,000
- More than \$100,000,000



Developed by Daniel Hanselka, Texas A&M AgriLife Extension Service

# Landscaping Sales



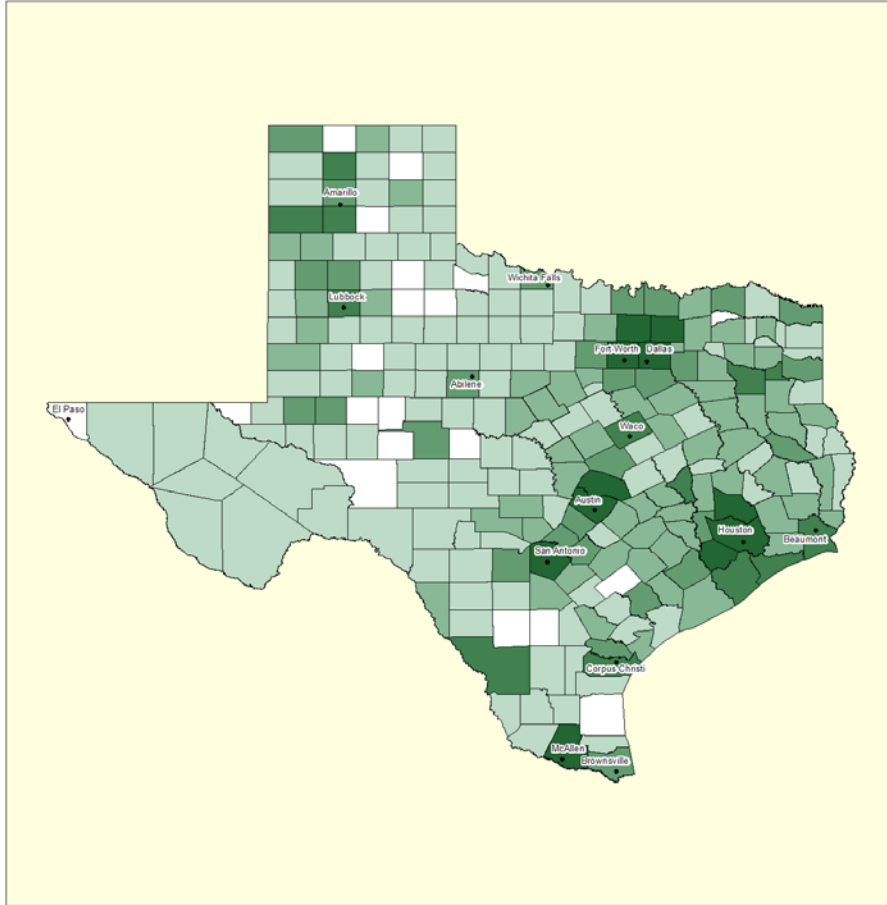
## Landscaping Sales for 2017

- No sales reported
- \$10,000,000 or less
- \$10,000,001 - \$50,000,000
- \$50,000,001 - \$250,000,000
- \$250,000,001 - \$500,000,000
- More than \$500,000,000

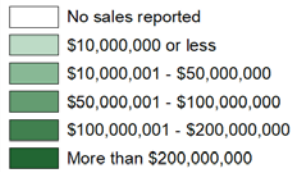


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# Retail Sales



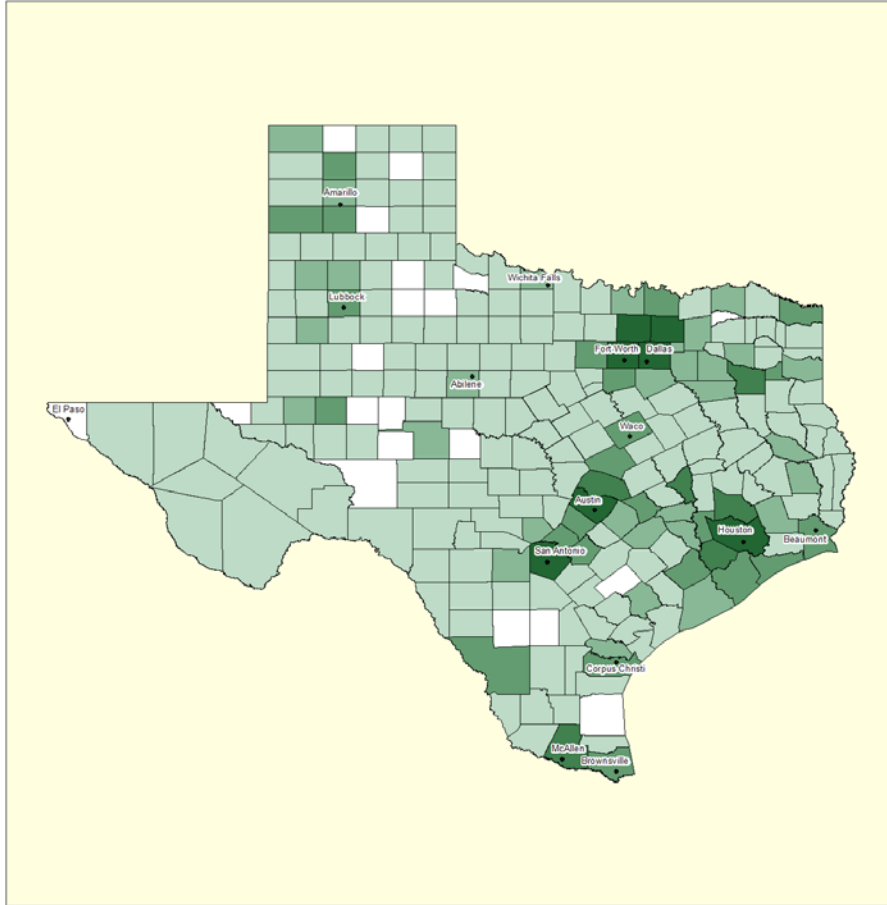
## Retail Sales for 2017



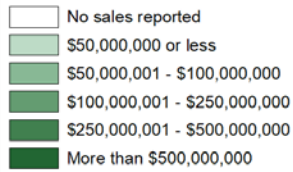
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# Total Sales



## Total Sales for 2017



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