COVID-19 Pandemic and the Nursery Greenhouse Industry

On March 11, 2020, the novel coronavirus disease (COVID-19) was declared a pandemic by the World Health Organization (WHO, 2020) and began to emerge in the United States. On March 13, 2020, President Trump issued a proclamation declaring that the COVID-19 outbreak in the U.S. was a national emergency (Whitehouse, 2020). As COVID-19 evidenced community spread, actions were taken by federal, state and local governments to help limit the spread. Some of these actions included recommendations or orders to stay at home, temporary closures or limitations of services by certain types of businesses (e.g., dine-in restaurants and bars), limiting meetings of organizations and institutions, travel restrictions and other actions. Tennessee Governor Lee issued Executive Order No. 22 (EO 22) with a safer-at-home directive, except for engagement in essential activities or services (State of Tennessee, 2020). Under EO 22, nursery and greenhouse growers, wholesalers and retailers and garden centers were deemed essential services, which meant that they could remain open (State of Tennessee, 2020). However, the COVID-19 pandemic and associated economic downturn impacted many other businesses in a variety of ways. In some cases, businesses were temporarily closed, limited in their business activities or directed to offer modified services. This may ultimately impact consumers’ access and ability to afford nursery and greenhouse products, if the consumers’ household employment status has been negatively impacted. Other firms experienced labor issues due to outbreaks or employee illness. In some cases, this likely impacted the available supplies of some products. Many businesses experienced impacts on sales of their products and/or services. For instance, green
industry projections anticipate that industry revenue growth will slow in 2020, due to decreased per capita income and consumer spending, with the largest threat coming from supply chain disruptions and shortages, partially attributed to COVID-19 (IBISWorld, 2020).

While nursery and greenhouse growers were considered essential, several economic forces led to unintended consequences due to the COVID-19 pandemic and have likely influenced the state’s nursery and greenhouse industry. First, the pandemic has had negative impacts on employment and consumers’ employment (Jensen, et al., 2020) and consequently incomes, which could negatively impact sales of nursery and greenhouse products (IBISWorld, 2020). For example, Tennessee’s unemployment increased from 3.3 percent in January 2020, to 15.5 percent in April 2020, and 11.0 percent in May 2020 (Bureau of Labor Statistics, 2020). Anecdotal evidence suggests, however, that national, statewide and local better-at-home recommendations and stay-at-home directives have encouraged some consumers to add to their landscapes, grow their own food at home or participate in other gardening activities (Murphy, 2020; Willjasper and Polansek, 2020), as many consumers count gardening as a healthy hobby (Conway, 2016; Soga, Gaston, and Yamaura, 2017). Third, nursery stock sales can be linked in part to the housing markets. Compared with February, the month just prior to the pandemic, housing starts declined in March-June, with the greatest decline observed this year in March and April (US Census Bureau, 2020a). In the U.S., new single unit housing starts declined from 994,000 in February to 666,000 in April. For the southern U.S., single unit housing starts declined from 732,000 in February to 612,000 in April. Fourth, in some cases, growers may have experienced temporary labor disruptions due to infection or health concerns among workers. An important component of keeping the nursery greenhouse industry supply chain disruptions to a minimum and maintaining the well-being of the industry is being able to keep workers on a payroll through the pandemic (Bartik et al., 2020).

CARES Act and the PPP
In order to offset some of the pandemic’s impacts upon small businesses, the Coronavirus Aid, Relief and Economic Security (CARES) Act was passed by Congress and signed into law by President Trump on March 27, 2020 (U.S. Department of Treasury, 2020a). The package included more than $2 trillion in economic relief to help offset the negative economic impacts of COVID-19. One of these small business assistance programs is the Paycheck Protection Program (PPP), which is administered by the Small Business Administration through local lending institutions. The PPP is designed to assist small business owners with maintaining payrolls and other business operating expenses during the pandemic and associated economic downturn by providing more than $660 billion in forgivable loans (BEA, 2020). The PPP was initially approved on April 3, 2020, and was extended through the Paycheck
Protection Program and Health Care Enhancement Act, April 24, 2020, which also added to the loan amount originally created under the CARES Act. While the original PPP loan application deadline was June 30, 2020, the PPP resumed accepting applications July 6, 2020, in response to President Trump signing the program’s extension legislation. As of this report date, the application deadline was extended to August 8, 2020.

**Study Purpose**

The purpose of this publication is to provide information about participation in the PPP by Tennessee’s greenhouse, nursery and floriculture firms (hereafter termed “green industry”). Measures include the number of firms participating, loan amounts and jobs retained due to the PPP. For purposes of comparison, information about participation in the PPP by firms in nearby states that also have significant green industries is provided. The data contained in this study are for PPP from the initiation of the program on April 3, 2020, until June 30, 2020, and do not include the later application period mentioned in the paragraph above.

**Green Industry in Tennessee and Selected Southeastern States**

As shown in Table 1, the 2017 Census of Agriculture (USDA/NASS, 2017) shows Tennessee had 513 nursery growers with sales of more than $135 million in 2017. Among the states included for comparison, North Carolina (NC) had the greatest number of firms (800) and sales ($230 million). South Carolina (SC) had the smallest at 265 firms and $67 million in sales. Other states that are contiguous to Tennessee (TN), including Arkansas, Kentucky and Mississippi were not included because their state’s industries were considerably smaller in terms of number of nursery industry firms and value of sales. If the sales per firm are calculated for Tennessee, this averages around $263,229 per firm. As can be seen in the two far right columns, Tennessee’s nursery firms make up about 3.1 percent of U.S. nurseries, and their sales make up about 2.3 percent of all U.S. nursery product sales.

<table>
<thead>
<tr>
<th>State/Region</th>
<th>2017 Firms (Number of Firms)</th>
<th>2017 Value of Sales (Dollars)</th>
<th>2017 Sales Per Firm (Dollars Per Firm)</th>
<th>Percent of U.S. Firms</th>
<th>Percent of U.S. Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>265</td>
<td>67,225,800</td>
<td>253,682</td>
<td>1.6</td>
<td>1.1</td>
</tr>
<tr>
<td>AL</td>
<td>224</td>
<td>92,881,007</td>
<td>414,647</td>
<td>1.4</td>
<td>1.6</td>
</tr>
<tr>
<td>VA</td>
<td>306</td>
<td>118,008,610</td>
<td>385,649</td>
<td>1.9</td>
<td>2.0</td>
</tr>
<tr>
<td>TN</td>
<td>513</td>
<td>135,036,677</td>
<td>263,229</td>
<td>3.1</td>
<td>2.3</td>
</tr>
<tr>
<td>GA</td>
<td>417</td>
<td>160,850,424</td>
<td>385,732</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>NC</td>
<td>809</td>
<td>230,091,532</td>
<td>284,415</td>
<td>4.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Region</td>
<td>2,534</td>
<td>804,094,050</td>
<td>317,322</td>
<td>14.4</td>
<td>3.9</td>
</tr>
<tr>
<td>U.S.</td>
<td>16,420</td>
<td>5,889,637,611</td>
<td>358,687</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: 2017 Census of Agriculture, USDA NASS)
Data Description

The data for this report was sourced from the U.S. Department of Treasury on July 19, 2020 (U.S. Department of Treasury, 2020b). Thus, the PPP loan information presented in this report is from the date of inception (April 3, 2020) through July 19, 2020. The 2017 North American Industry Classification (NAICS) codes were used to extract data for greenhouse, nursery and floriculture production firms, including floriculture production, nursery and tree production, other food crops grown under cover and mushroom production (NAICS 1114, Greenhouse, Nursery and Floriculture Production) (U.S. Census Bureau, 2020b). The data included information from Tennessee and five surrounding states: Alabama, Georgia, North Carolina, South Carolina and Virginia. Several statistics are reported, including the number of PPP loans approved for green industry firms, the approval date of the loans, the number of jobs retained, and the loan amounts.

PPP Loans — Tennessee Overview

Tennessee’s agricultural firms were approved for a total of 1,557 PPP loans. Grain crops accounted for the largest portion of Tennessee’s approved PPP loans at 24 percent, followed by other farming, cattle/dairy, and timber/forest nursery/logging firms (Figure 1). Tennessee’s green industry received 112 PPP loans, which accounted for 7 percent of all Tennessee agriculture-related PPP loan approvals. As a basis for national comparison, the U.S. green industry was approved for 4,511 PPP loans for a total amount of $716.4 million, which resulted in a reported 78,505 jobs retained. Based on the national green industry data, Tennessee accounts for 3.1 percent of all U.S. nursery firms (Table 1). The state’s green industry received 2.4 percent of the PPP loans approved for green firms nationally, 0.8 percent of all jobs retained nationally by green firms and 0.5 percent of the total loan amount.

In Tennessee, regional differences were observed that likely reflect the distribution of green industry firms throughout the state. In Figure 2, which includes the number of nursery firms by county from the 2017 Census of Agriculture, the largest number of nursery firms are located in the middle of the state, which coincides with the larger portion of PPP loans approved for that area. Indeed, the vast majority of Tennessee’s PPP loans were to green industry firms in middle Tennessee at 79 percent, followed by eastern growers (14 percent) and western growers (7 percent).1 From these loans, 1,229 jobs were retained with 86 percent in middle Tennessee, 13 percent in the

1 The three regions of Tennessee are as follows: East-Anderson, Bledsoe, Blount, Bradley, Campbell, Carter, Claiborne, Cocke, Cumberland, Grainger, Greene, Hamilton, Hamblen, Hancock, Hawkins, Jefferson, Johnson, Knox, Loudon, McMinn, Marion, Meigs, Monroe, Morgan, Polk, Rhea, Roane, Scott, Sevier, Sullivan, Unicoi, Union and Washington; Middle-Bedford, Cannon, Cheatham, Clay, Coffee, Davidson, DeKalb, Dickson, Fentress, Franklin, Giles, Grundy, Hickman, Houston, Humphreys, Jackson, Lawrence, Lewis, Lincoln, Macon, Marshall, Maury, Montgomery, Moore, Overton, Perry, Pickett, Putnam, Robertson, Rutherford, Sequatchie, Smith, Stewart, Sumner, Trousdale, Van Buren, Warren, Wayne, White, Williamson and Wilson; and West-Benton, Carroll, Chester, Crockett, Decatur, Dyer, Fayette, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, McNairy, Madison, Obion, Shelby, Tipton and Weakley.
eastern region, and 1 percent in the western region. The total amount loaned to Tennessee green industry firms was $8.75 million, with 88 percent going to middle Tennessee firms, 9 percent to eastern growers and 3 percent to western growers.

**Figure 1. PPP Loans for Agricultural Firms By Type In Tennessee, April 3-June 30, 2020.**

**Figure 2. Number of 2017 Nursery Firms With Sales By County, Tennessee.**
(Source: USDA/NASS, 2017)
PPP Loans — Southeastern U.S.

Loan Approval Date

The U.S. Department of Treasury indicated that southeastern green industry firms were approved for PPP loans from early April through June 30, with no additional information for July, 2020. The number of loans were separated by state and into bimonthly segments (first half and second half of the month) to observe patterns in loan approvals. More than three quarters (76 percent) of the total PPP loans were approved in April, 2020, followed by 17 percent in May and 7 percent in June (Figure 3).

Most of the states followed a downward trend in the number of loans approved at the monthly level, but when the months were divided, more details were apparent. North Carolina and Tennessee had more PPP loans approved during the second half of April (April 16-30) than in the beginning of the month (between April 1 and 15). Alabama and South Carolina were more consistent in the number of loans approved throughout April (46 percent between April 1-15 and 43 percent from April 16-30 for Alabama; 37 percent from April 1-15 and 31 percent from April 16-30 for South Carolina), whereas Georgia and Virginia had sharp decreases in April (45 percent in the first half of April and 27 percent in late April for Georgia; 45 percent for the first half of April and 28 percent for the second half of April for Virginia). As May progressed, the number of PPP loans approved across each state decreased. In June, the PPP loan approval activity varied by state. Tennessee, Alabama and Georgia were fairly consistent throughout the month. Specifically, Tennessee exhibited the same level of approval (4 percent of all loans) for the first and second half of the month. Alabama had 1 percent of their loans approved in the first half of May and 0 percent in the second half of the month. Georgia had 5 percent of the PPP loans approved in the first half of the month and 3 percent in the second half. South Carolina exhibited a jump in the number of loans approved in the first half of June (12 percent of all loans in the state), followed by none in the second half. Conversely, North Carolina and Virginia had more loans approved in the second half of the month (1 percent in the first half and 5 percent in the second half of June for North Carolina; 0 percent in the first half and 12 percent in the second half for Virginia).
Figure 3. Number of Payment Protection Program Loans Issued to Green Industry Firms In Six Southeastern States, April 3-June 30, 2020. (Source: US Department of Treasury, 2020b)

**PPP Loan Amount**

The U.S. Department of Treasury divides PPP loans into two categories based on amount: less than $150,000 and greater than $150,000. For the loans less than $150,000, specific loan amounts were provided. Conversely, for the larger category, loan amount ranges were listed (i.e., $150,000-$350,000, $350,000-$1 million, $1 million-$2 million, and $2 million-$5 million). For analysis, the actual amount reported was used for the loans less than $150,000, while the mean was used for each of the loan range categories for the loans greater than $150,000.

Eighty-one percent of the PPP loans approved were less than $150,000, while 19 percent were more than $150,000 (Figure 4). States with green industry firms with higher sales values (see Table 1) had more firms approved for the larger loans, with the majority of the larger loans being in the $150,000 to $350,000 category. Approximately 23 percent of the loans approved for Georgia firms were more than $150,000, while 77 percent were less than $150,000. Twenty-two percent of North Carolina’s firms were approved for loans greater than $150,000 and 78 percent were...
approved for loans for less than $150,000. Virginia had 24 percent of their approved loans in the greater-than-$150,000 category and 76 percent in the less-than-$150,000 category. Tennessee, South Carolina and Alabama had a larger portion of their loan approvals in the less-than-$150,000 category. Tennessee had 88 percent of the loan approvals in this category and 12 percent in the greater-than-$150,000 category. South Carolina had approximately 85 percent of their loan approvals in the less-than-$150,000 category and 15 percent in the greater-than-$150,000 category. Alabama had 82 percent of their loan approvals in the less-than-$150,000 category and 18 percent of the approved loans in the greater-than-$150,000 category.

![Figure 4. Distribution of PPP Loans Approved By Amount Category and State, April 3-June 30, 2020.](Source: U.S. Department of Treasury, 2020b)

A total of 621 loans were approved for green industry firms in the six states for a total amount of $81.8 million (Table 2). Virginia had the highest total amount at $19.6 million, followed by Georgia ($19.5 million), North Carolina ($18.2 million), Alabama ($11.5 million), Tennessee ($8.8 million) and South Carolina ($4.2 million). The mean average amount loaned followed a similar pattern, with Virginia having the highest amount at $178,032 per firm and Tennessee having the lowest average at $78,143 per firm. The median amount is also provided and is substantially lower than the mean, which reflects that a few firms received high-value loans, but the majority (75-88 percent of all loans approved) were approved for substantially lower loan amounts.
To provide a more complete picture, the PPP loan amounts were divided into the lower-value category (less than $150,000) and higher-value category (more than $150,000). In the less-than-$150,000 category, North Carolina was approved for the highest total amount at $5.8 million, followed by Tennessee with $3.4 million, and Georgia with $3.2 million. Alabama, Virginia and South Carolina had less than $3 million each in total for this category. Regarding the average loan amount per firm, North Carolina had the largest loans at nearly $50,000, followed by Alabama, South Carolina, Georgia, Tennessee and Virginia.
Table 2. Green Industry PPP Loans, By State and Loan Amount, April 3-June 30, 2020

<table>
<thead>
<tr>
<th>State</th>
<th>Number Approved</th>
<th>Total Amount</th>
<th>Average Amount Per Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$ (Total)</td>
<td>(Mean) $(Median)</td>
</tr>
<tr>
<td>AL</td>
<td>83</td>
<td>$11,478,927.00</td>
<td>$138,300.30 $35,332.00</td>
</tr>
<tr>
<td>GA</td>
<td>118</td>
<td>$19,525,546.00</td>
<td>$165,470.70 $36,805.21</td>
</tr>
<tr>
<td>NC</td>
<td>149</td>
<td>$18,231,392.00</td>
<td>$122,358.30 $64,892.00</td>
</tr>
<tr>
<td>SC</td>
<td>49</td>
<td>$4,204,724.20</td>
<td>$85,810.70 $40,947.00</td>
</tr>
<tr>
<td>TN</td>
<td>112</td>
<td>$8,752,032.70</td>
<td>$78,143.15 $28,790.00</td>
</tr>
<tr>
<td>VA</td>
<td>110</td>
<td>$19,583,481.00</td>
<td>$178,031.60 $30,400.00</td>
</tr>
<tr>
<td>Region Total</td>
<td>621</td>
<td>$81,776,102.90</td>
<td>--- ---</td>
</tr>
</tbody>
</table>

For the firms that were approved for loans that were greater than $150,000, the total approved amount was approximately $62.35 million. As a reminder, the actual loan amount was not reported for these firms, rather a range was indicated and the mean of that range was used in this report. With 26 firms, Virginia had the largest amount at $16.9 million, with an average of $650,000 per firm. Georgia had similar results with 26 firms and $16.3 million total, with an average of $603,704 per firm. North Carolina was next ($12.5 million total, $378,030 per firm), followed by Alabama ($8.7 million total, $580,000 per firm), Tennessee ($5.4 million total, $413,462 per firm) and South Carolina ($2.6 million total, $371,429 per firm).
**Jobs Retained from PPP Loans**

The green industry PPP loans equated to a total of 8,516 jobs retained among the six southeastern states in this report. North Carolina and Georgia accounted for the largest portion of the retained jobs at 28 percent (2,350 jobs) and 24 percent (2,027 jobs), respectively. Virginia accounted for 18 percent (1,508 jobs), followed by Tennessee (14 percent; 1,229 jobs), Alabama (11 percent; 965 jobs) and South Carolina (5 percent; 437 jobs).

**Figure 5** presents the distribution of the number of loans per state by the number of jobs retained. In general, the majority of the PPP loans allowed for retaining 10 or less jobs. Tennessee and South Carolina indicated a larger portion of PPP loans retaining one to 10 jobs, with both indicating 59 percent of total jobs retained. Virginia had a larger portion of firms indicate that their PPP loans did not account for job retention (as indicated by zero or blank answers).\(^2\) North Carolina had a larger portion of jobs in the 21-40 range than the other states. Georgia had a larger portion of firms that indicated they had 61+ jobs retained from the PPP loans. The mean number of jobs retained per firm are presented in **Figure 6**. Note that these means do not include zeroes or missing values for jobs retained. Georgia had the largest mean at 18.3 jobs, followed by North Carolina (16.1 jobs), Virginia (14.1 jobs), Alabama (12.1 jobs), Tennessee (11.8 jobs) and South Carolina (9.5 jobs).

![Figure 5. Percent of Green Industry Firms That Received Approval for PPP Loans By Number of Jobs Retained, April 3-June 30, 2020.](source: US Department of Treasury, 2020b)

\(^2\) It is important to note that the zero or blank answers in the number of jobs retained may indicate that even though the loans were approved, the firms may not have actually taken the loans. This data set did not differentiate between the number of jobs approved and number of loans fulfilled.

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Figure 6. Number of Jobs Retained By PPP Loans for Green Industry Firms In the Southeast U.S., April 3-June 30, 2020.
(Source: US Department of Treasury, 2020b)

Jobs Retained and Loan Dollar Approved

As shown in Table 3, a total of 8,516 jobs were indicated as being retained by the firms participating in the PPP. The loan amount among those reporting numbers of jobs retained is $68.3 million. For the firms reporting jobs retained and loan amounts, this is about $8,020 in loan dollars for each job reported as retained. Another measure is jobs retained per $10,000 of loans approved. Among those firms where jobs and dollar amounts were reported, this is about 1.25 jobs per $10,000 for the region. If the states are compared, Tennessee’s ratio for jobs retained per $10,000 of loans approved is the highest in the region at 1.49, while Virginia’s is the lowest at 1.01. As a reference point, in the U.S., the average hourly wage for farmworkers and laborers for crop, nursery and greenhouse operations is $12.23 per hour, with an annual wage of $25,440 (U.S. Bureau of Labor Statistics, 2020). Among the surveyed states, Tennessee, North Carolina, Georgia and Alabama have the mean annual wage of $20,020 to $25,560. Virginia and South Carolina have slightly higher annual wages with a mean of $25,970 to $28,960.
### Table 3. Green Industry PPP Loans and Jobs Retained, By State, April 3-June 30, 2020

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Loans Approved</th>
<th>Total Number of Jobs Retained</th>
<th>Total Loan Amount Among Those Reporting Jobs Retained*</th>
<th>Average Loan Amount Per Jobs Retained</th>
<th>Jobs Retained Per $10,000 Loans Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>68</td>
<td>965</td>
<td>$6,919,324.60</td>
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<td>2,350</td>
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<td>TN</td>
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<td>1.49</td>
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<td>VA</td>
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<td>$9,929.53</td>
<td>1.01</td>
</tr>
<tr>
<td>Total</td>
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<td>8,516</td>
<td>$68,298,588.30</td>
<td>$8,020.03</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*Note: The loan amount is the sum total of PPP loan amounts for firms reporting 1+ jobs retained and greater than $0 in loan approval amounts.

### Conclusion

The COVID-19 pandemic has resulted in a variety of governmental actions to reduce virus spread and also to help mitigate resulting economic hardships faced by consumers and businesses. The PPP loans are one means for small business owners to gain financial assistance to retain employees through uncertain economic times precipitated by the pandemic. This report summarizes the PPP loans in Tennessee’s green industry and provides information on PPP loans approved to green industry firms in several surrounding states for comparison purposes.

In Tennessee, more than $8.75 million in loans were approved for the green industry. For the state’s green industry, these loans were indicated as retaining 1,229 jobs within the industry. As might be expected, overall, PPP loans approved decreased as time progressed from the program opening. For Tennessee, smaller loans ($150,000 or less) dominated the landscape for green industry firms in terms of total number of loans.

Regionally, for Tennessee and surrounding states’ green industries, 621 loans were approved at a total amount at just under $81.8 million. For the study region, firms reported 8,516 jobs retained due to the PPP. As with Tennessee, regionally, the largest number of loans approved were $150,000 or less (more than 80 percent), while the largest share of dollars approved (76 percent) was for loans more than $150,000. For those green industry firms that reported jobs retained and loan amounts in the region, Tennessee had the highest ratio of jobs per $10,000 in loans at 1.49.
It should be noted that this study does not account for multiplier effects of the PPP through the state's and region's economy. It is important to note the PPP may have not only helped retain jobs within the green industry, but also by helping offset payroll expenses, more firms may have remained financially viable. Hence, it is also likely the PPP indirectly impacted businesses from which the green industry purchases inputs and services. These effects are not included in this analysis.
References


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Paycheck Protection Program Participation in Tennessee’s Green Industry