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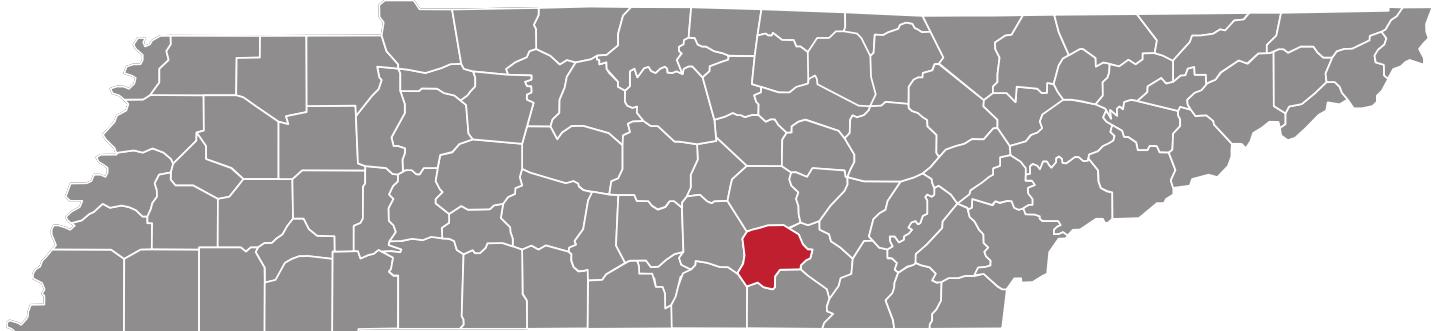
# Mapping the Agricultural Assets of Grundy County Tennessee

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## Introduction

Presented here is an agricultural asset mapping report for Grundy County, Tennessee. The report is based on a combination of focus group meetings with local agricultural leaders and secondary data. The primary goal is to help local leaders identify agricultural assets that could be used to support economic growth and development of the county. A secondary goal is to increase the understanding of local agriculture. Several other counties [Hancock (Hughes et al., 2019b and Hardeman, Hughes et al., 2019c)] have undergone the same effort. We believe that this replicating approach could be beneficial for other interested counties.

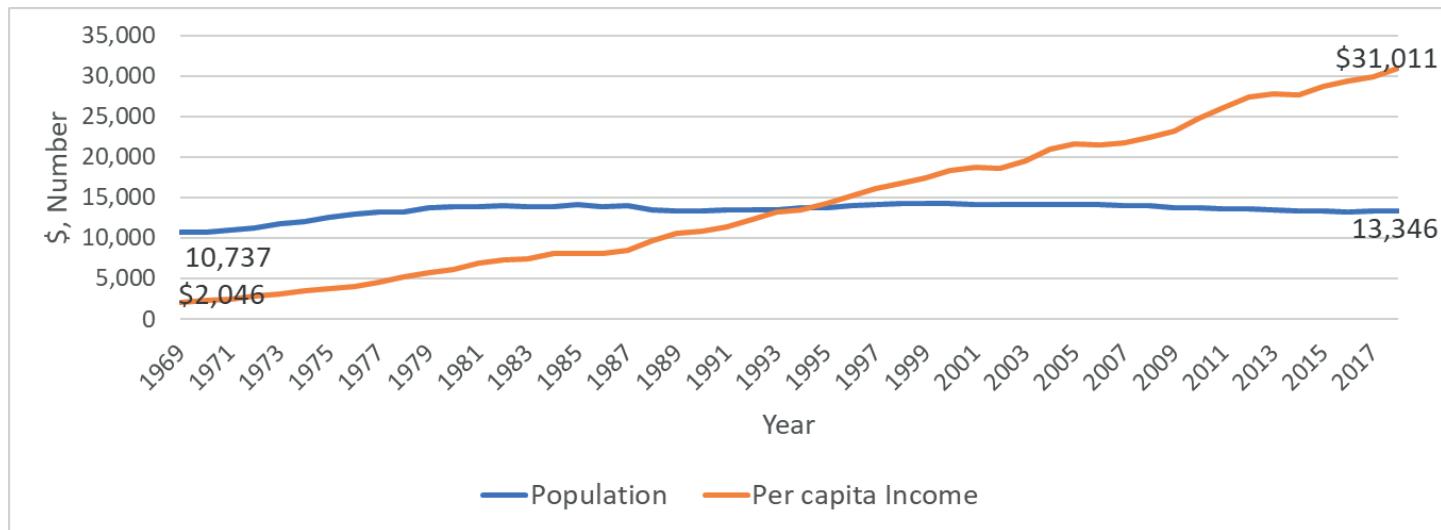
Initially provided here is a discussion regarding general information about Grundy County, followed by information regarding the asset mapping exercise with local agribusiness leaders. The follow-up data-based analysis is then discussed, including recommendations based on that analysis. We then discuss the agribusiness targets that were identified by local leaders followed by summary and conclusions including a call for further action.

## Background on Grundy County

Considered the crown jewel of the Cumberland Plateau, Grundy County is rich in scenic beauty and local history. The county is located in south central Tennessee. It is 360.5 square miles (US Census, 2020) with Interstate 24 and highways 41, 50, 56, 108, 111 and 399 crossing the county (Grundy County, 2020). The town of Altamont is the county seat with Beersheba Springs, Coalmont, Gruetli-Laager, Palmer and Tracy City as other incorporated towns completely in the county and Monteagle at the confluence of Grundy, Franklin and Marion counties. Pelham is an unincorporated community (State of Tennessee, Department of Economic and Community Development, 2011) within Grundy County.

The 2019 population was estimated to be 13,427 a slight decline from 2010. Over half of the population is rural. As of 2020, the US Census Bureau reports there are 4,838 households with an average of 2.72 persons per household. The median household income is \$36,987 with an estimated 21.2 percent of residents in poverty (US Census Bureau, 2014-2018 American Community Survey 5-Year Estimates). As shown in Figure 1, the population has increased by 2,609 since 1969 (S Bureau of Economic Analysis, 2020).

Figure 1. Grundy County Population and Per Capita Income 1969-2018.



Source: Bureau of Economic Analysis, 2020.

Agriculture production in Grundy County makes a significant contribution to the local economy. As of 2017, there were 261 farming operations with an average size of 129 acres (Census of Agriculture, 2020). Among the 33,686 acres devoted to agriculture, 39 percent was in cropland, 34 percent was devoted to woodland, and 20 percent was planted in pasture. The top commodities for Grundy County include poultry (with \$11.797 million in sales), nursery, greenhouse, floriculture, sod (with \$7.505 million in sales) and cattle at \$1.693 million in sales.

Based on data from an economic model of the county economy for 2018 (Minnesota IMPLAN Group, Inc. 2000), nursery, greenhouse, floriculture and sod accounted for 75 jobs; the beef cattle industry accounted for 32 jobs; poultry and egg production generated 46 jobs; and commercial logging generated 74 jobs.

A 2018 economic impact analysis conducted for all agribusiness activity in Grundy County showed a total direct contribution of 439 jobs, \$43.9 million in outputs and a total impact of \$57 million in output and 572 jobs (or 10.2 percent of all employment in the county) (Hughes et al. 2018a).

Grundy County is currently a Tier Four Tennessee Economy Development County and an Appalachian Region Commission distressed county, meaning it ranks at or near the bottom (25 percent) of Tennessee counties in terms of poverty rate, unemployment rate, per capita income and other economic indicators (Tennessee Department of Economic and Community Development, 2020).

## Asset Mapping Exercise

An agricultural asset mapping exercise was held with county agricultural leaders (farmers, agricultural-based businesses and local government leaders) on November 25, 2019. Participants were asked to think about opportunities for the county such as local and regional markets and target areas as it pertains to local agriculture or agribusiness. The participants were recruited by Creig Kimbro, University of Tennessee Extension agent and county director, and represented agricultural leadership in Grundy County. Participants were given dots to place where local businesses (red), physical assets (blue), challenges (yellow) and possible opportunities (green) are available throughout the county (Figure 2 and Figure 3). We present the challenges and the opportunities offered by the participants in the following sections.

Figure 2. Result from Asset Map Exercise for Grundy County.

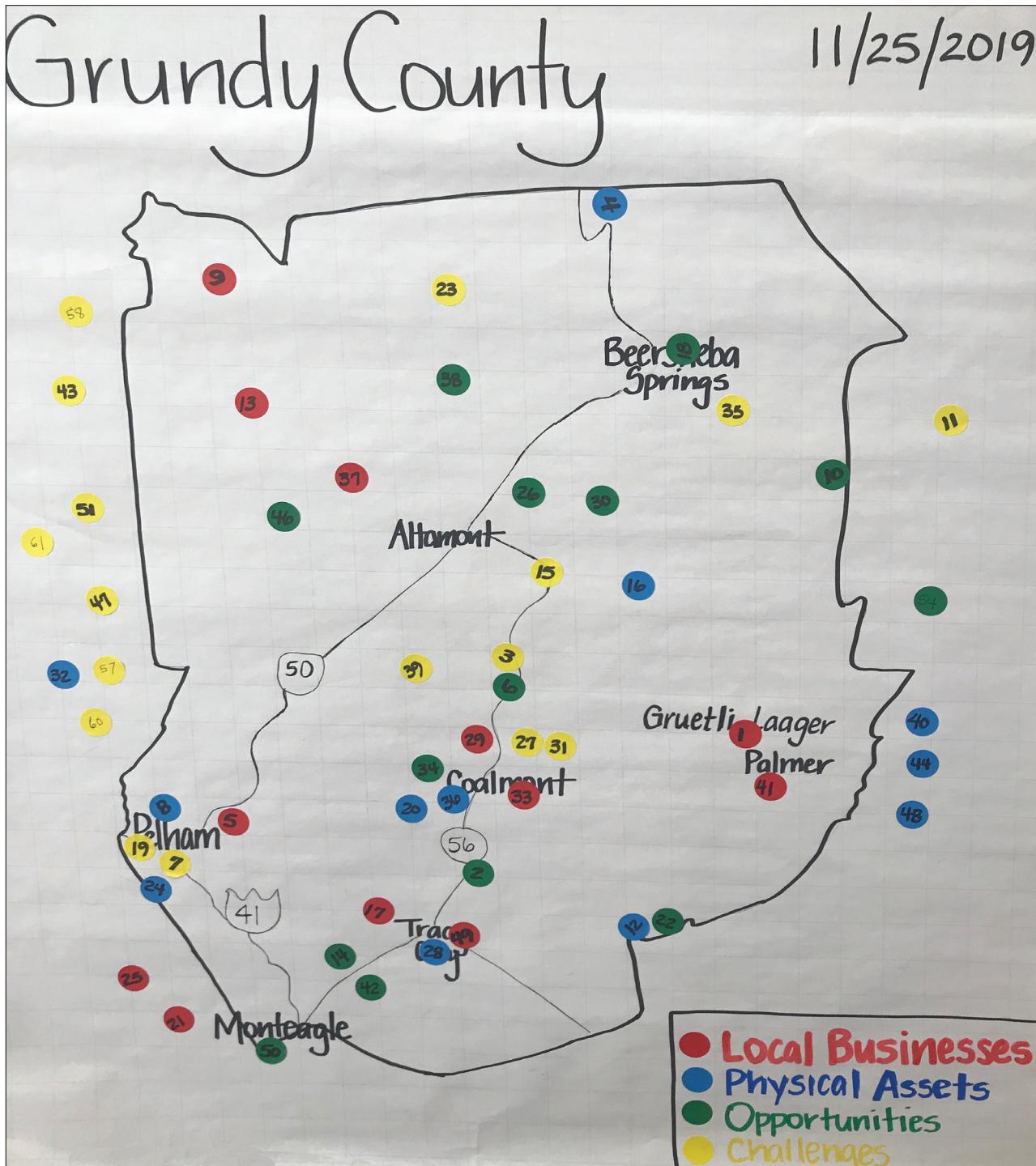


Figure 3. Assets, Businesses, Challenges: Businesses

| Businesses   |   |
|--|---|
| Braden's Feed & Farm Supplies (1)  | Diesel Mechanics (38): People have to drive out of town to get tractors worked on   |
| Nurseries (5 and 9): They ship within a 300- to 500-mile radius  | Farm Incubators (26): Opportunities for beginning farmers   |
| Mennonite Dairy (13): Sell pet milk and feed, maybe an opportunity with goat cheese                                | Marketing for fruits and vegetables (2): Most sales on-farm, Murfreesboro, Nashville and Chattanooga primary markets  |
| Baggenstoss Farms (13): Ziplines and camping   | Non-GMO products (30)   |
| Food Hub (21): Hooked in with 25   | Poultry opportunities based on transportation (46): 82 poultry producers in 1999; now < 10  |
| Truck (25) that picks up from a five-county area   | Meat Market/Butcher (50)  |
| Lee Vegetable Farms (29): Market in Atlanta to the Korean and Hispanic markets                                     | Large animal processing (54)  |
| Silver Bait Worm Farm (33): Worm farm and castings, 700 acres and employs over 35, one of the largest in the world | <b>Challenges</b>   |
| Niche market for poultry (37)  | Road conditions (3)   |
| Savage Gulf Deer Processing (41)   | Transportation System (7): There is no 4-lane highway going east  |
| Dutch Made Bakery (49)   | Transportation- Expansion of road system (11): Connect to Highway 111, etc.   |
| Physical Assets  | No Farmers Market (!5): Every community wants their own market, On-farm sales is big in Grundy County   |
| Rivers in Grundy County (4)  | Water/Sewer System for Pelham (19)  |
| The Caverns and the Bed and Breakfasts associated with it (8)  | Stone Door Annex needs developing (24)  |
| Large ATV park on the Bluff line (12): Grant funded, overnight camping, showers and cabins                         | Challenge with the school system for agriculture education (27)   |
| Hunting preserves (16): Lots of logged areas/big tracts of land, 3 phase electricity (20)                          | The school system wants to put the "slow" kids in agriculture (31)  |
| Industrial park in Pelham (24)   | Need for general development (35)   |
| Grundy County Historical Society (28)  | Very few grocery stores (39): Piggly Wiggly and Dollar Store, Example was shared that you would have to go to four different stores to have the items for Thanksgiving Dinner |
| Development districts (32)   | Poultry processing (43)   |
| Grundy County High School Welding Program (36): They partner with Chattanooga State                                | Dollars going out are far more than the dollars coming into the local economy (47)  |
| EMS System (40)  | Broadband Internet and Cellphone Service (51)   |
| Volunteer Fire Departments (44)  | Distance from livestock markets (57)  |
| Big Creek Utility District (48): 480 miles of the district   | New residents and their misunderstanding of area (58)   |
| Opportunities  | Lack of staff members or qualified individuals to fill county roles (60)  |
| Tourism in General (6)   | One of the few counties that has sewer water depreciation (61): Sewer rate hikes, Wastewater board issues   |
| Tourist for the State Parks (10)   | Transportation/infrastructure is a huge problem   |
| State Parks (14): 30,000 acres of Grundy County is in state park land  | Healthcare: There is no ER or hospital in Grundy County, Few health care facilities   |
| Mountain Goat Trail for bicycling and so forth (old railroad bed trail) (42): Will eventually connect to Palmer    |   |
| Grundy County High School Welding Program (34): They partner with Chattanooga State                                |   |

## Local Businesses

Local businesses were identified based on their importance and(or) ability to contribute to economic growth in the county. Silver Bait, one of the largest worm farms in the world, operates on 770 acres in the county with more than 35 employees. Besides worms, the operation produces worm castings as fertilizer and potting soil. Lee Vegetable Farms primarily markets to Korean and Hispanic populations in Atlanta. Baggenstoss Farms provides a variety of agritourism activities including hunting and serving as a venue for weddings and other events (Baggenstoss Farms Website, 2020). Braden Feed and Farm Supply in Gruetli-Laager offers an array of farm and feed supply to the surrounding area (Braden Feed and Farm Supply Facebook Page, 2020). Savage Gulf Meat Processing provides custom-exempt (non-sale to the public) processing for deer hunters (Savage Gulf Meat Processing Facebook Page, 2020). The Dutch Maid Bakery in Tracy City has been open since 1902 (Dutch Maid Bakery Website, 2020). Additionally, a goat farm-based dairy, niche processing for poultry, a food hub with supporting farmers in a five-county area, and several nurseries that serve national markets were also identified by participants as businesses.

## Physical Assets

Attendees emphasized the scenic assets of the county including various rivers, a hunting preserve, and The Caverns, a venue for concerts in the Pelham Valley (The Caverns, 2020), which generates customers for several new bed and breakfasts and a large ATV park. Other organizational type assets include the Grundy County Historical Society, the joint welding program at the local high school with Chattanooga State, the Emergency Medical Services, Volunteer Fire Departments, and Big Creek Utility District. The industrial park in Pelham and the Development District are assets that facilitate economic development and growth.

## Challenges

Attendees emphasized the need for infrastructure development including the road system, selected issues with sewer and water systems, and the need to develop the Stone Door Annex (a potential Tennessee Department of Economic Development Project). A general need for economic development was also highlighted including the leakage of local dollars outside of the county, a limited number of grocery stores, the establishment of a local hospital or emergency room, and broadband services. Other challenges were a lack of understanding of the area by new residents and the difficulty in finding qualified individuals to fill county jobs and other roles.

In terms of agriculture, cited challenges include the lack of a farmers market in the county. Other agriculture-based challenges included the decline in poultry farming, the distance to livestock markets, and challenges for agricultural education in the local school system including the perception that it is for less qualified students.

## Opportunities

Besides the opportunities identified in the business section, participants identified marketing for fruits and vegetables with on-farm sales and markets in Murfreesboro, Nashville and Chattanooga as primary markets. The production of non-genetically modified crops (non-GMO) was identified as an opportunity as was the establishment of a farm incubator as a way to develop new farmers. Niche poultry production was also identified as an opportunity as was the development of a meat market (butcher) and a large animal (cattle, sheep, goats and possibly hogs) processing facility.

Other opportunities centered on the scenic beauty of the county including tourism in general and at state parks in the county (with 30,000 acres in state parks) and the development of the Mountain Goat Trail (a rail trail that will eventually connect to Palmer). A facility that repaired diesel vehicles such as tractors would support agriculture and other businesses is another opportunity as would be further development of the already cited Grundy County High School Welding Program.

## Follow-up Analysis and Discussion

A subsequent meeting was held with Grundy County agricultural leaders on November 18, 2020. The discussion centered on assessing the agricultural assets discussed in the prior meeting and on the results of our data analysis.

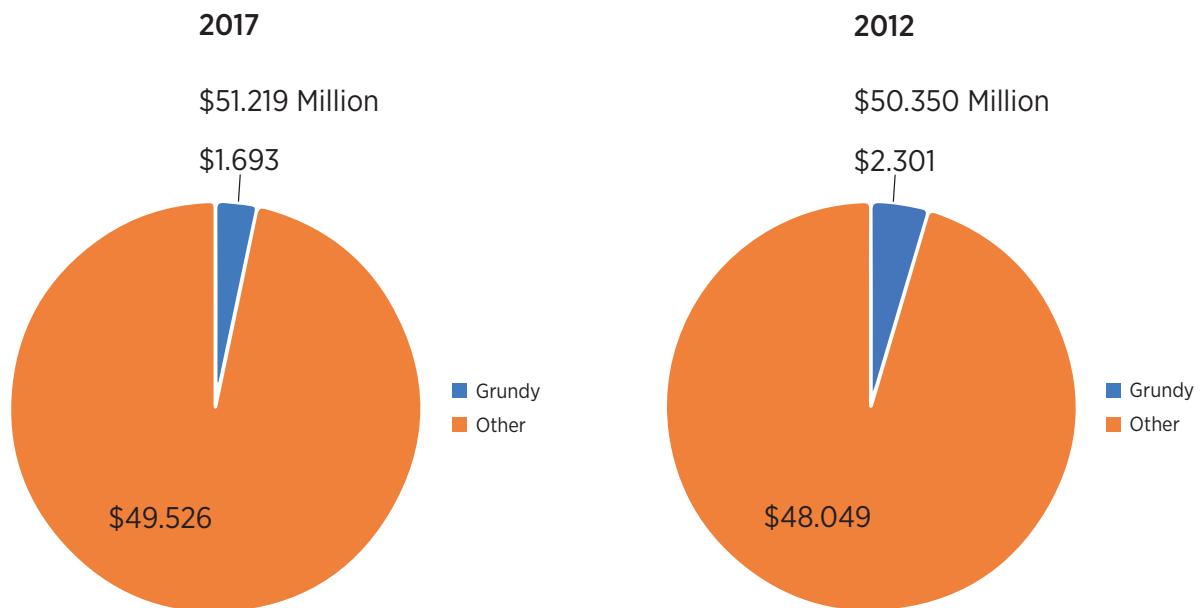
## Targeted Industry Economic Cluster Approach

We used a targeted industry approach to identify industries as possible assets. Our data analysis includes seven counties, specifically Grundy County and the surrounding counties of Coffee, Franklin, Marion, Sequatchie, and Warren plus Van Buren County (which does not share a border but is very close to Grundy County). In several cases, our analysis dovetails with the assets identified by local agricultural leaders. Based on secondary data sources (IMPLAN data for 2007 and 2018), we examined industries based on the number of jobs in the region (a minimum of 10), concentration (location quotients greater than 1.5 for output, jobs and pay) and regional growth, and then US estimates for 2007 versus 2018 (for output, jobs and pay). We also used financial analysis provided by the website IndustriusCFO Financial Analysis regarding business failure rates and profitability compared to the national average for all US businesses. The results of the analysis for livestock-related industries, fruits, vegetables and ornamental plants are discussed next.

### Livestock Slaughter Facility

A value-added slaughter facility could provide a market for area farmers and grow the county economy. According to Census of Agriculture data, more than 65,000 cattle, cows and calves were sold from Grundy County and the six nearby counties in 2017. Over the same period, the nominal value of cattle sales increased from \$50.350 million to \$51.219 million for the region but declined in Grundy County from \$2.301 million to \$1.693 million (Figure 4). While the cattle sold from the county and the region are primarily 6- to 9-month-old calves from cow-calf operations, there is growing interest in finishing cattle. This interest is based on increased consumer demand for local foods and to a lesser degree in grass fed cattle.

Figure 4. Value of Regional Cattle Sales, 2017, 2012.



Source: Census of Agriculture, 2012, 2017.

Supply disruptions in livestock markets due to the COVID-19 pandemic have dramatically increased the interest in local slaughter (as cattle and hog farmers had difficulty in scheduling their animals for processing). Waiting times for slaughter facility in Tennessee have increased dramatically. However, it remains to be seen the degree to which this surge in interest will remain once the pandemic is over. Other livestock operators (sheep, goats and possibly hogs) are also interested in the local foods market. As shown in Figure 5 and Figure 6, these livestock operations are also important in the region and Grundy County.

Figure 5. Value of Regional Hog-Pig Sales, 2017, 2012.

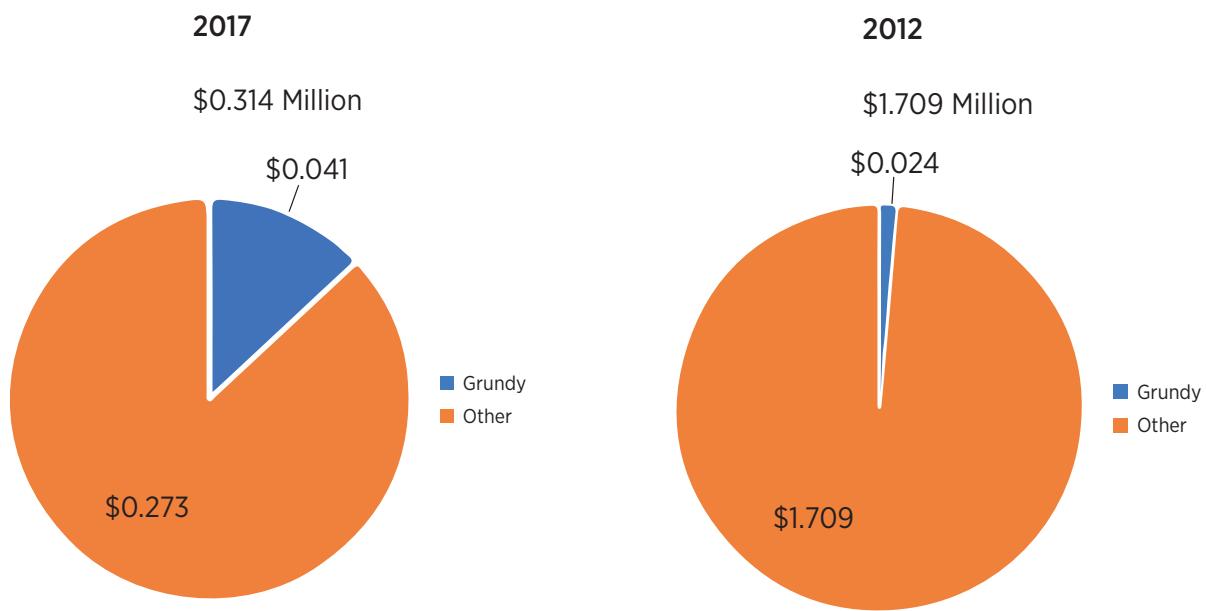
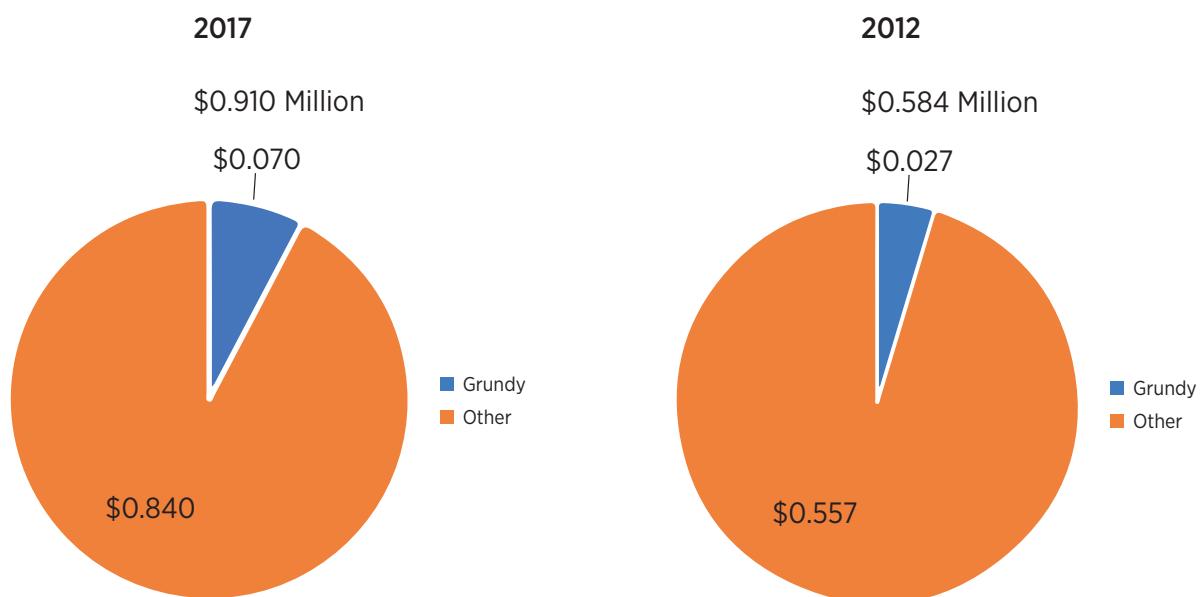


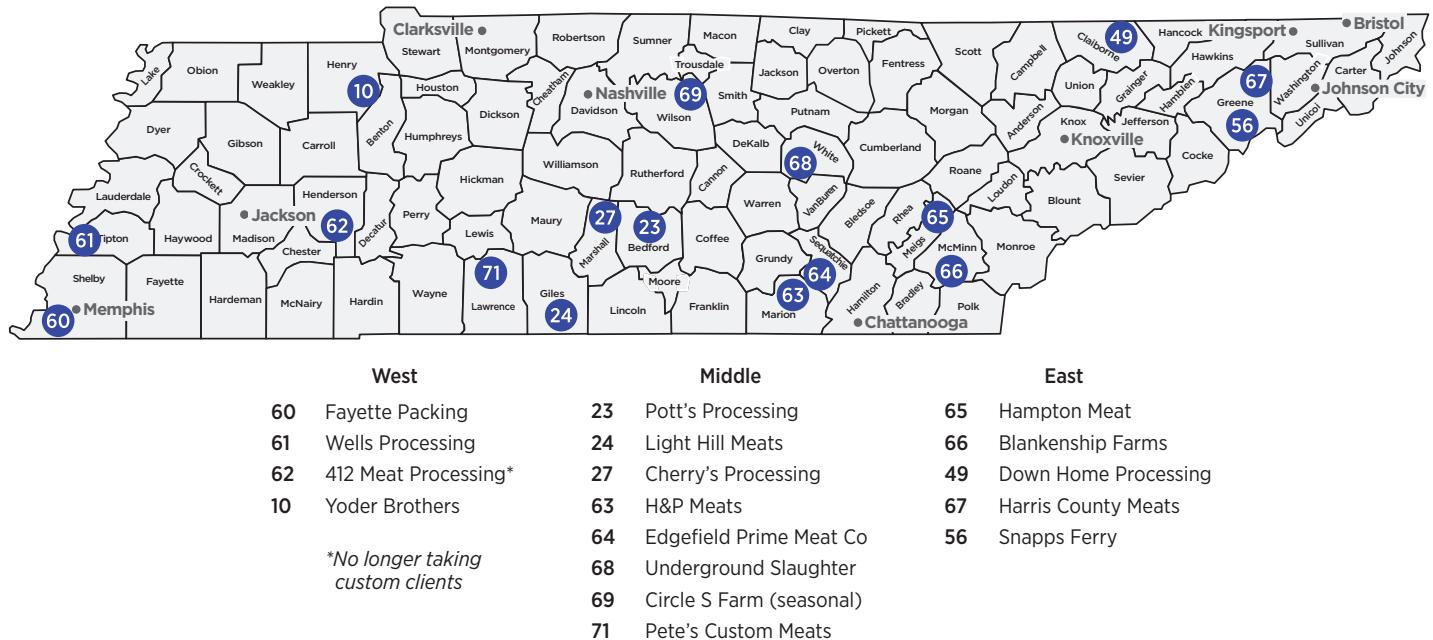
Figure 6. Value of Regional Goat-Sheep Sales, 2017, 2012.



Source: Census of Agriculture, 2012, 2017.

Hughes et al. (2017) indicates that a United States Department of Agriculture approved custom livestock slaughter facility could be profitable under the right conditions. Accordingly, such a facility was also mentioned as a potential target for development. Beside the fallout from COVID-19, competition from other facilities also remains a concern (Figure 7), especially if new facilities come online as expected [Tennessee may have 20-25 facilities that provide USDA inspected slaughter in the near future (Sneed 2020)].

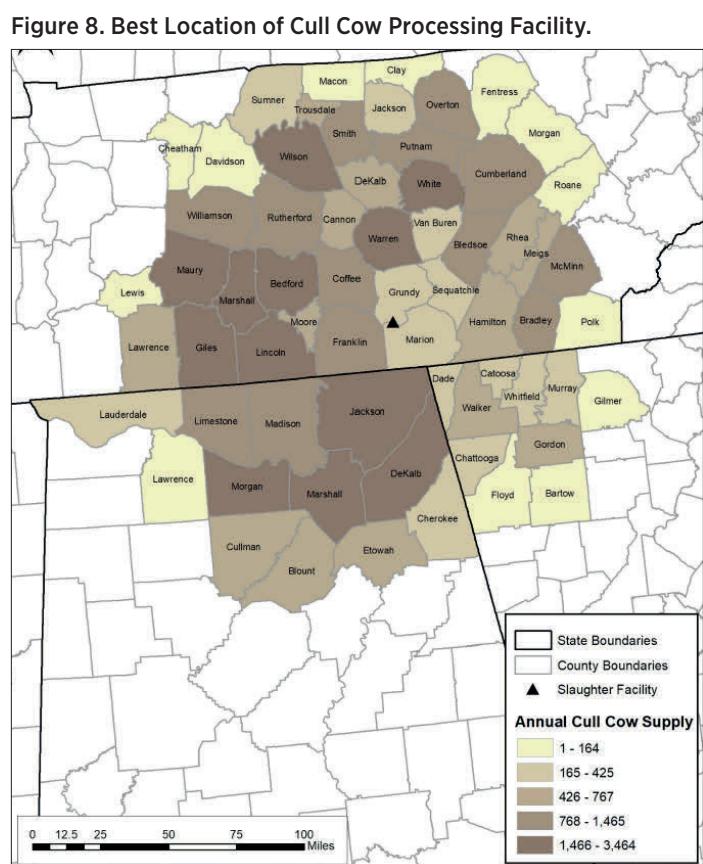
Figure 7. USDA Inspected Meat Processors in Tennessee as of February 2, 2020.



**Source:** Wendy Sneed, Tennessee Department of Agriculture.

Note: Faculties under construction or in planning stage excluded.

A similar disruption occurred in slaughter facilities for cull cows due to the temporary closure of the Southeastern Provision facility in East Tennessee (Grainger County). Accordingly, a study was conducted to determine the feasibility and best location (based on transportation costs of livestock) for a facility in Tennessee (Hughes et al., 2020). Because of the need for economic growth, the analysis was limited to industrial parks in the 15 most economically distressed counties in Tennessee. A facility that processed 55,000 head of cow culls annually was determined to be feasible if well managed and marketed. The best location was determined to be the Pelham Industrial Park in Grundy County based on several factors including being an economically distressed county, having an at least adequate industrial site location, and being a least cost location for the transportation of cattle (Figure 8).



Source: *Hughes et al., 2020.*

Data analysis for meat processing indicated growth in both the region and the US from 2007 to 2018 and at least ten jobs for non-poultry (i.e., large animal) slaughter (Figure 9). How, the financial analysis indicated that both non-poultry slaughter and meat processed from carcasses (i.e., butchering) returns were quite low and such ventures are relatively risky as compared to all US businesses.

Figure 9. Meat Processing Data Analysis.

| Sector<br>(# Criteria Met)           | Financial Analysis                                      | Regional<br>Minimum Size<br>(jobs) | Regional Strength<br>(location quotient) | Regional Growth | US Growth |
|--------------------------------------|---|------------------------------------|--|-----------------|-----------|
| Non-poultry<br>Slaughter (3)         | Avg 22.5%<br>(18% + 27%)<br>low return,<br>quite risky  | ✓                                  |  | ✓               | ✓         |
| Meat processed<br>from carcasses (2) | Avg 24%<br>(9% +39%)<br>low return,<br>relatively risky |                                    |  | ✓               | ✓         |

Source: For underlying data, *Industriuscfo, IMPLAN models*.

Another potential opportunity was on-farm poultry processing as a value-added option. Under certain circumstances, producers can raise and process up to 1,000 or 20,000 birds annually that they raise without daily federal inspection which can then be sold to the public in Tennessee (Pepper, 2015; USDA, 2006). They can process up to 20,000 annually that they raise or buy live from other producers but cannot sell to the general public (i.e., they can sell the birds through custom-exempt sales where the animals are pre-purchased by customers prior to slaughter). This approach could help stem the loss of poultry operations observed by study attendees in Grundy County and hence contribute to local economic activity.

### Local and Regional Fruits and Vegetables

Increased fruit and vegetable sales was also cited by attendees as an avenue of future growth. As shown in Figure 10, vegetable sales in the seven-county region increased from \$1.552 million in 2012 to \$2.014 million in 2017 despite a decline in Grundy County sales. Regional fruit sales grew from \$0.993 million in 2012 to \$1.389 million in 2017, while sales in Grundy County showed a slight decline (Figure 11 next page).

Figure 10. Value of Regional Vegetable Sales, 2017, 2012.

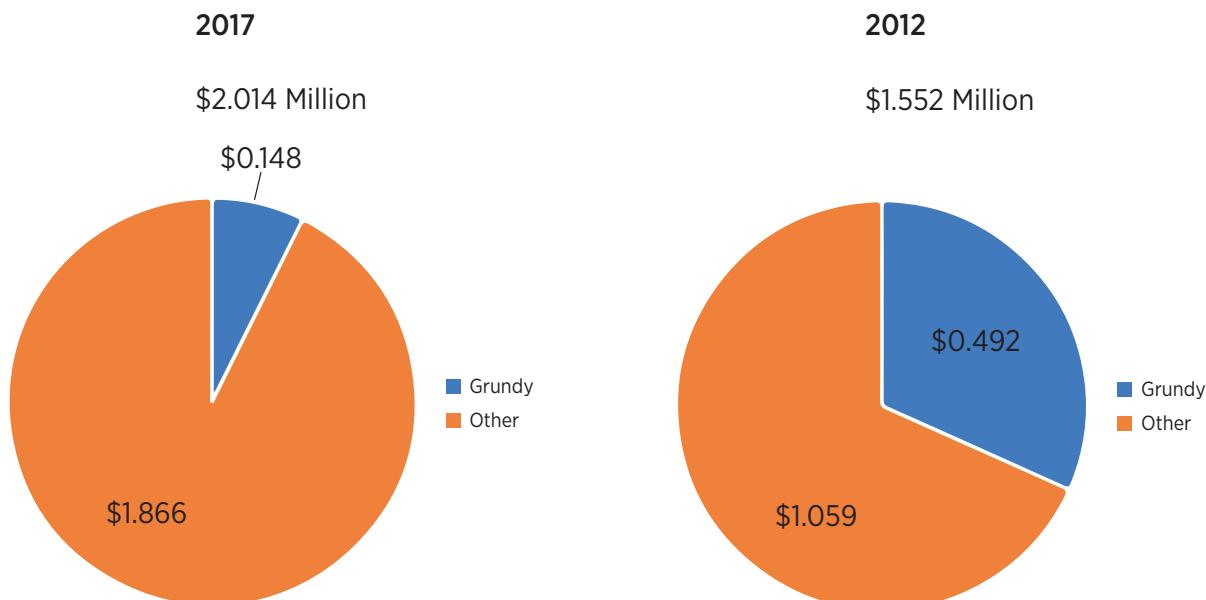
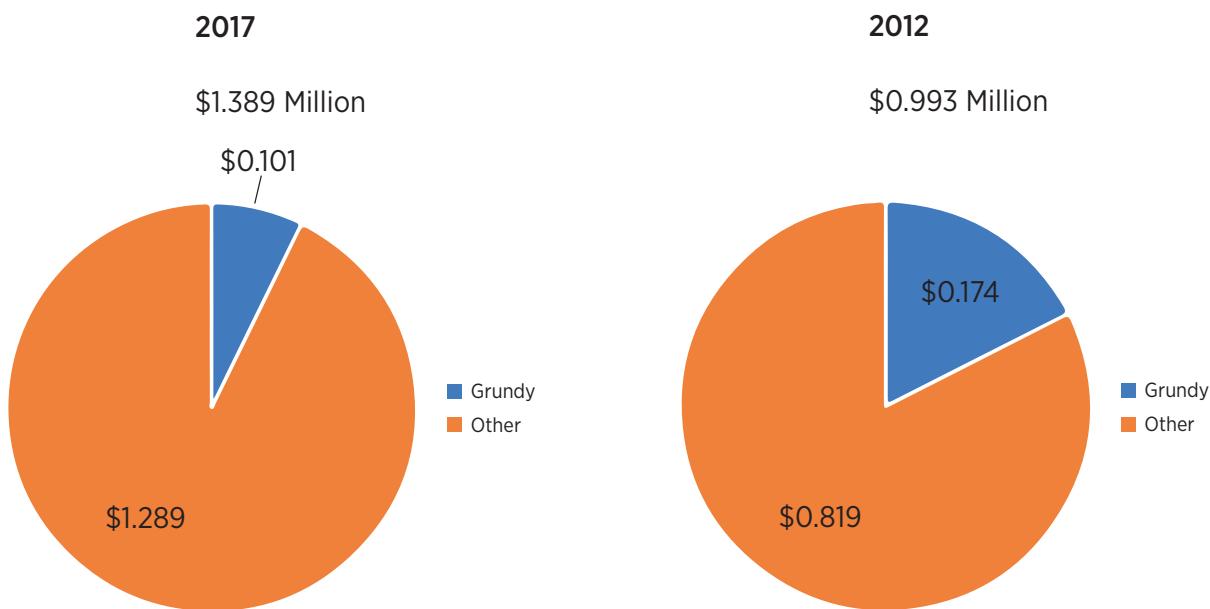


Figure 11. Value of Regional Fruit Sales, 2017, 2012.

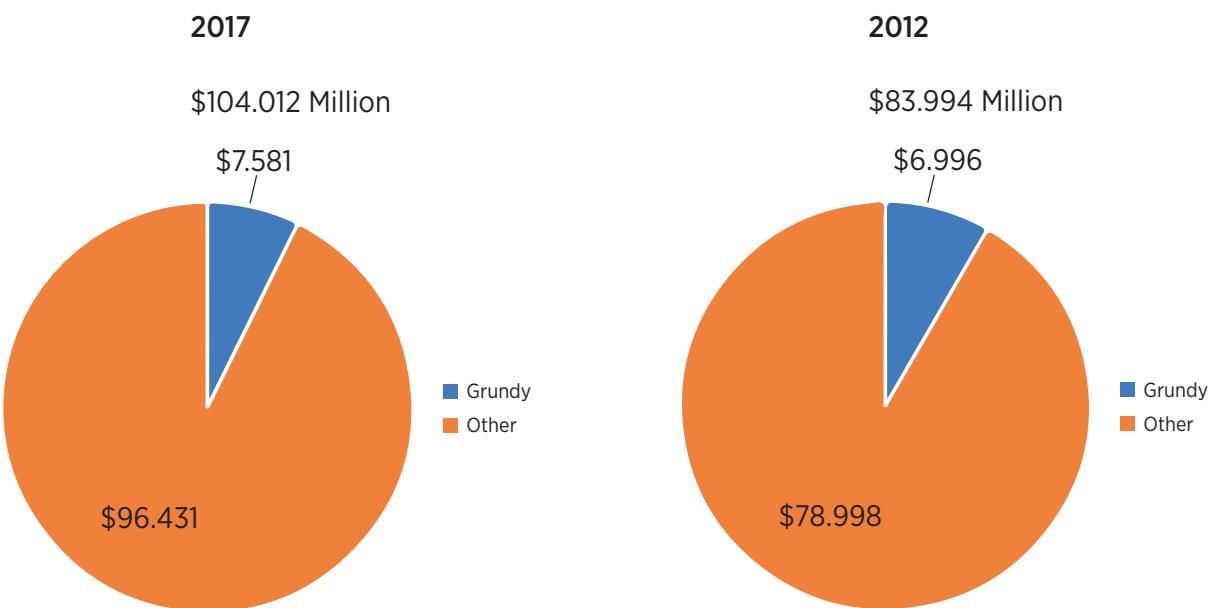


Source: *Census of Agriculture, 2017, 2012*.

### Local and Regional Ornamental Horticulture

Increased ornamental horticulture (nursery, greenhouse, floriculture, sod, and short rotation woody crops including Christmas trees and production of other nursery-based evergreen tree species such as Norway Spruce) sales was also cited by attendees as an avenue of future growth. As shown in Figure 12, such sales in the seven-county region increased from \$83.994 million in 2012 to \$104.012 million in 2017 including an increase in Grundy County sales from \$6.996 million in 2012 to \$7.581 million in 2017.

Figure 12. Growing Local and Regional Fruit, Vegetables, Ornamental Horticulture.



Source: *Census of Agriculture, 2017, 2012*.

## Growing Local and Regional Fruit, Vegetables, Ornamental Horticulture

Considered ways to grow such activities include a farmers market in the county, increasing access to urban markets including an agricultural technology campus (discussed later in its own section), and a farm incubator.

A farmers market has the possible benefits of increased farm sales, increased access to fresh produce for local consumers and tourists, and some local economic growth (especially if tourists are targeted). It can also be used to engender a stronger sense of community and educate new residents about the community in general and local agriculture in particular. At the same time, there is currently significant on-farm selling and delivery to urban areas for produce and ornamental horticulture. A farmers market could “steal from” or cannibalize such markets. The location of the market is also a concern although a rotating market between the communities in the county could be a solution.

A farm business incubator, where multiple new farmers are provided the use of free or very inexpensive land and equipment for a few years usually under the guidance of a nonprofit or governmental organization (such as Extension), could be used to train new farmers and grow the production of local produce. Such efforts are a challenge and would require the support of local farmers, local Extension, local government, and regional food systems at the retail and wholesale levels. One success story is the FarmaSis-Clemson Incubator Farm in Columbia, South Carolina (Clarey, 2020). Such an effort would be need to be tied in with a new and beginning farmer training effort, such as the Tennessee State University New Farmers Academy led by Finis Stribling, an Extension agent in Rutherford County.

## Further Data Analysis

The target industry cluster approach was also applied to existing industries to also identify possible assets for further development. Based on our criteria, we evaluated relevant food processing, wood product, paper product and furniture manufacturing sectors for further development. The sectors with the most promise for growth across all agricultural processing and input industries based on our data analysis are shown in Figure 13. (Full results from the analysis are provided in Appendix A). Valued added food and wood product processing that had potential for growth included cheese processing that met five criteria, wine and chocolate production that both met four of the criteria, and resawed lumber and paperboard mills that both met four of the criteria. These five possible targets were added to the list for consideration for further development by local agricultural leaders.

Figure 13. Possible Targets for Development Based on Data Analysis.

| Sector<br>(# Criteria Met) | Financial Analysis   | Regional<br>Minimum Size<br>(jobs) | Regional Strength<br>(location quotient) | Regional<br>Growth | US<br>Growth |
|----------------------------|--|------------------------------------|--|--------------------|--------------|
| Cheese<br>Manufacturer (5) | Avg 48% (59% + 37%)<br>higher return, relatively<br>risky ✓  | ✓                                  | ✓  | ✓                  | ✓            |
| Wine (4)                   | Avg 72.5% (79% +66%)<br>high return, low risk ✓              | ✓                                  |  | ✓                  | ✓            |
| Chocolate (4)              | Avg 60.5% (41% +80%)<br>low return, low risk ✓               | ✓                                  | ✓  | ✓                  |              |
| Resawed<br>Lumber (4)      | Avg 65.5% (49% +82%)<br>average return, low risk ✓           | ✓                                  | ✓  | ✓                  |              |
| Paperboard<br>Mills (4)    | Avg 57% (49% +65%)<br>average return,<br>somewhat low risk ✓ | ✓                                  | ✓  | ✓                  |              |

Source: For underlying data, *Industriuscfo*, IMPLAN models.

## Other Topics

### Perception of Agriculture in the School System

Farm-to-School is a federal government supported program aimed at getting local food into local school systems and teaching students about food, local farming and healthy eating (Tuck et al., 2010). In terms of improving the image of agriculture in the school system, we suggest enhancing existing Farm-to-School Program efforts in the county. Doing so would enhance student, teacher, school administrators and ultimately parents' knowledge of and appreciation of local agriculture in the county.

### Limited Grocery Store Access

Another issue that was raised is limited access to grocery stores. General economic growth is probably needed to solve this issue. However, given sufficient interest in attacking this challenge, contact could be made with the leadership of the Rural Grocery Store Initiative at Kansas State University (2020). The initiative provides a tool kit for approaching issues regarding new and existing stores.

### Tourism and Agritourism

The county has numerous assets in terms of scenic beauty and heritage that could be further developed to enhance tourism as a way to grow the county. Agritourism should, of course, be a major part of such an effort. A determination should be made regarding what assets are at state parks in the county and the potential for further development of these assets to support activities such as hiking, mountain biking and water trails. Determinations of businesses that could be developed to enhance the experiences of visitors to parks (such as canoe rentals) and other sites should also be conducted. An example of the possible impact of improvements in park facilities can be found in English et al. (2020). Funding from state government — under the local parks and recreation fund grant for example (Tennessee Department of Environment and Conservation, 2020) — could be sought to further develop state parks and possible other assets.

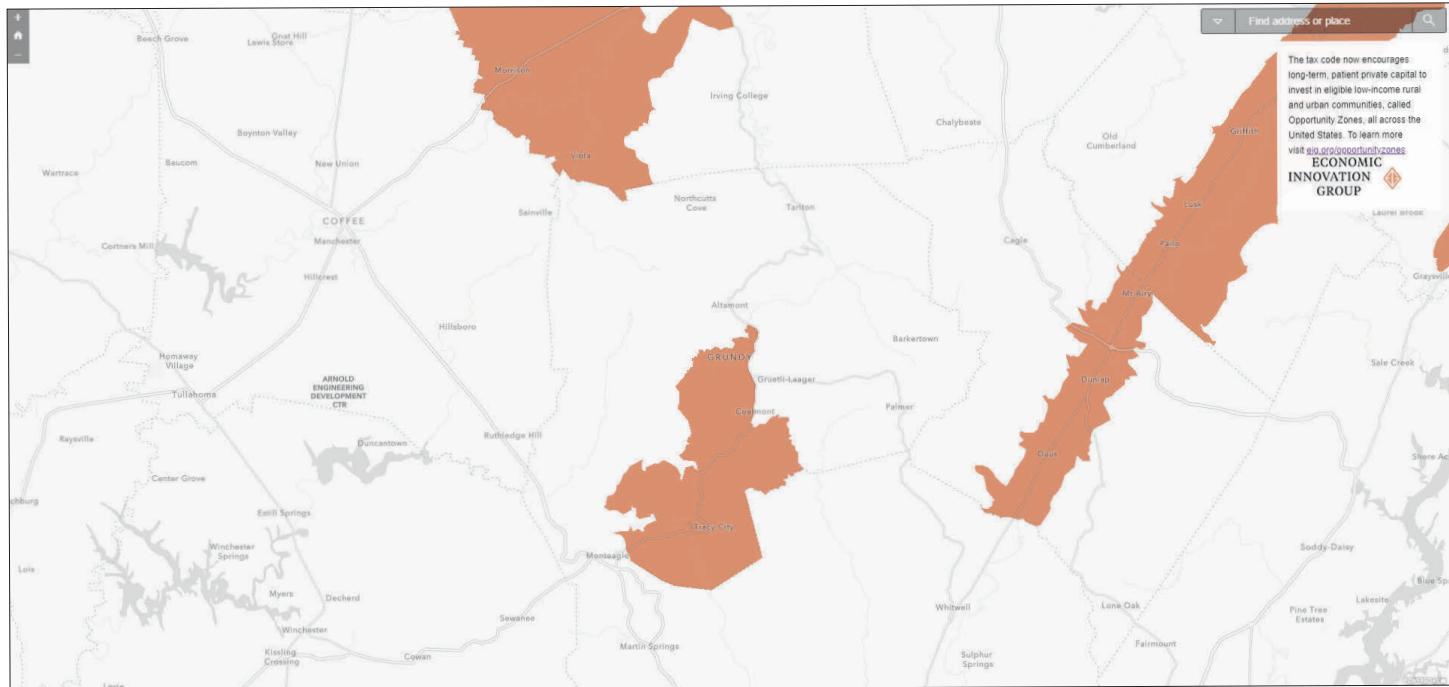
Agritourism should also be part of this effort. Local agritourism businesses should be encouraged to participate in the Pick TN Farm program where they can benefit from brand recognition and existing marketing channels, by being listed on the Pick TN Products website and on the mobile app (Tennessee Department of Agriculture, 2020a). University of Tennessee Extension's Center for Profitable Agriculture (2020) also has resources for the development of tourism for interested Grundy County farmers.

### Opportunity Zone

The Opportunity Zone Program is a capital gains tax reduction program where realized capital can be invested in real estate projects and businesses in qualified areas (the invested funds are taxed at a lower rate and capital gains from appropriate investments receive major tax breaks). An Opportunity Zone is an economically distressed community where such private investments can be made. There are 8,760 designated Qualified Opportunity Zones including a block in Grundy County (Figure 14 next page) (US Department of Commerce, 2020).

An example of how funding from the program can be used to support development of a targeted industry can be found in Hampton County, South Carolina, where a 1,000-acre Agriculture Technology Campus is being established with a \$134 million investment. The campus will include greenhouses for locally grown, pesticide-free tomatoes, leafy greens, blueberries and other produce; a 150,000-square-foot distribution center; and a packing facility (South Carolina Department of Commerce, 2020). This effort can serve as a role model for an agribusiness development project in the Grundy County Opportunity Zone.

Figure 14. Grundy County Opportunity Zone.



Source: United States Department of Commerce (2020).

### Targets Identified by Local Agricultural Leaders

The group of Grundy County agricultural leaders reconvened on November 18, 2020. A presentation was made regarding the information that had been ascertained regarding their suggestions and our secondary data analysis. Participants were asked to think about opportunities for the county such as local and regional markets and target areas as it pertains to local agriculture or agribusiness. Based on our presentations and discussions, the leadership group was asked to indicate the activities that had the greatest potential for helping to grow the local economy. They were also allowed to insert an option for consideration. Each individual was provided with three dots and told to distribute the dots as they wished. A ranking of the various potential targets based on the vote of these local leaders is provided in Table 1.

### Moving Forward

Based on the number of votes in Table 1, the decision was made to investigate an evergreen tree project, tourism development and a USDA custom livestock slaughter facility as ways to further grow the local economy. It is recommended that local subcommittees be formed to further investigate the possibility of moving forward with on the ground projects in each of these three areas.

Table 1. Rank of Targets Identified by Grundy County Agricultural Leaders.

| Potential Target                                 | Target Votes |
|--|--------------|
| Evergreen Tree Project (Ornamental Horticulture) | 6            |
| Large Animal Processing Facility                 | 5            |
| Tourism, Agritourism Development                 | 5            |
| Farm Incubator                                   | 1            |
| Fruit and Vegetable Sector Development           | 1            |

## **Summary and Conclusions**

Provided here are the results of an agricultural mapping exercise conducted with local agricultural leaders in Grundy County Tennessee in cooperation with the University of Tennessee County Extension Office. Results were based on a combination of our analysis of secondary data and primary data provided by the local leaders. The result is a set of recommendations to pursue three possible avenues of further growth include the development of evergreen tree farming, a USDA custom livestock slaughter facility, and tourism development as ways to further grow the local economy.

A slaughter faculty would take advantage of the extensive cattle and other livestock in the county and the region. The evergreen tree project would further grow the already well-established ornamental horticultural industry in the county. Tourism development would take advantage of the abundant natural resources and heritage of the county. These efforts could take advantage of state tax credits through the Tennessee Department of Economic and Community Development or the Tennessee Department of Agriculture, Agriculture Enterprise Fund (2020b). For the animal processing facility, location in the designated enterprise zone in the county could provide a strong incentive for attracting capital funding for the project.

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## Appendix A. Data Analysis of food processing, wood product, paper product and furniture manufacturing sectors for further development.

### Food Processing Sectors with Development Potential

| Sector<br>(# Criteria Met)                               | Financial Analysis  | Regional<br>Minimum Size<br>(jobs) | Regional<br>Strength (Iq) | Regional<br>Growth | US Growth |
|--|---|------------------------------------|---------------------------|--------------------|-----------|
| Confectionery manufacturing from purchased chocolate (4) | ✓<br>Avg 60.5% (41+80)<br>Bottom ½ return, low risk             | ✓                                  | ✓                         | ✓                  |           |
| Cheese Manufacturer (5)                                  | ✓<br>Avg 48% (59% +37%)<br>Upper ½ return, relatively risky     | ✓                                  | ✓                         | ✓                  | ✓         |
| Frozen cakes and other pastries manufacturing (3)        | Avg 43% (57% + 29%)<br>Upper ½ return, quite risky              | ✓                                  |                           | ✓                  | ✓         |
| Wineries (4)   | ✓<br>Avg 72.5% (79% + 66%)<br>Relative high return and low risk | ✓                                  |                           | ✓                  | ✓         |

### Forest Product Sectors with Development Potential

| Sector<br>(# Criteria Met)                         | Financial Analysis                                      | Regional<br>Minimum Size<br>(jobs) | Regional<br>Strength (Iq) | Regional<br>Growth | US Growth |
|--|---|------------------------------------|---------------------------|--------------------|-----------|
| Sawmills (3)                                       | Avg 11.5% (15% +8%)<br>low returns, relatively risk     | ✓                                  | ✓                         |                    | ✓         |
| Engineered wood member and truss manufacturing (3) | Avg 58% (85.5% +30.5%)<br>high returns, relatively risk | ✓                                  | ✓                         | ✓                  |           |
| Cut stock, resawing lumber, and planning (4)       | ✓<br>Avg 65.5% (49% +82%)<br>average returns, low risk  | ✓                                  | ✓                         | ✓                  |           |
| Wood container and pallet manufacturing (3)        | Avg 38% (75% +1%)<br>high returns, very risky           | ✓                                  | ✓                         | ✓                  |           |
| Prefabricated wood building manufacturing (3)      | Avg 23.5% (42% +5%)<br>average returns, very risky      | ✓                                  | ✓                         |                    | ✓         |

Paper, Furniture Product Sectors with Development Potential

| Sector<br>(# Criteria Met)                                 | Financial Analysis  | Regional<br>Minimum Size<br>(jobs) | Regional<br>Strength (Iq) | Regional<br>Growth | US Growth |
|--|---|------------------------------------|---------------------------|--------------------|-----------|
| Paperboard mills<br>(4)                                    | ✓<br>Avg 57 % (49% +65%)<br>average return, relatively less risky | ✓                                  | ✓                         | ✓                  |           |
| Stationery product manufacturing<br>(3.5)                  | Avg 57.5% (18% +97%)<br>low returns, very low relative risk       | ✓                                  | ✓                         | ✓-                 | ✓         |
| Converted paper product manufacturing (3)                  | Avg 40% (25% +55%)<br>Low return, average risk                    | ✓                                  | ✓                         | ✓                  |           |
| Other household nonupholstered furniture manufacturing (3) | Avg 28% (38% +18%)<br>Low return, high risk                       | ✓                                  | ✓                         | ✓                  |           |
| Custom architectural woodwork and millwork (3)             | Avg 37.5% (34% + 41%)<br>Low return, moderate risk                | ✓                                  | ✓                         | ✓-                 | ✓-        |



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