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Mapping the Agricultural Assets of Perry County, Tennessee

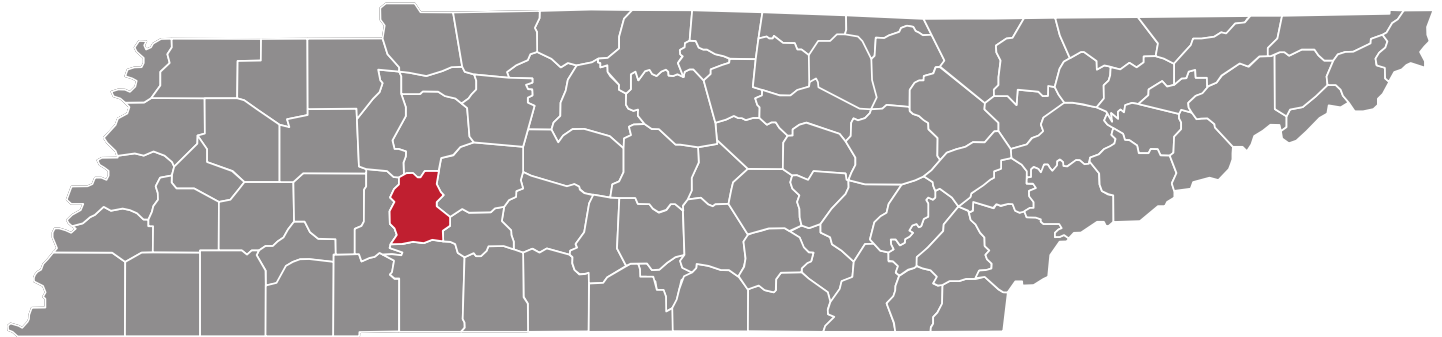
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Introduction

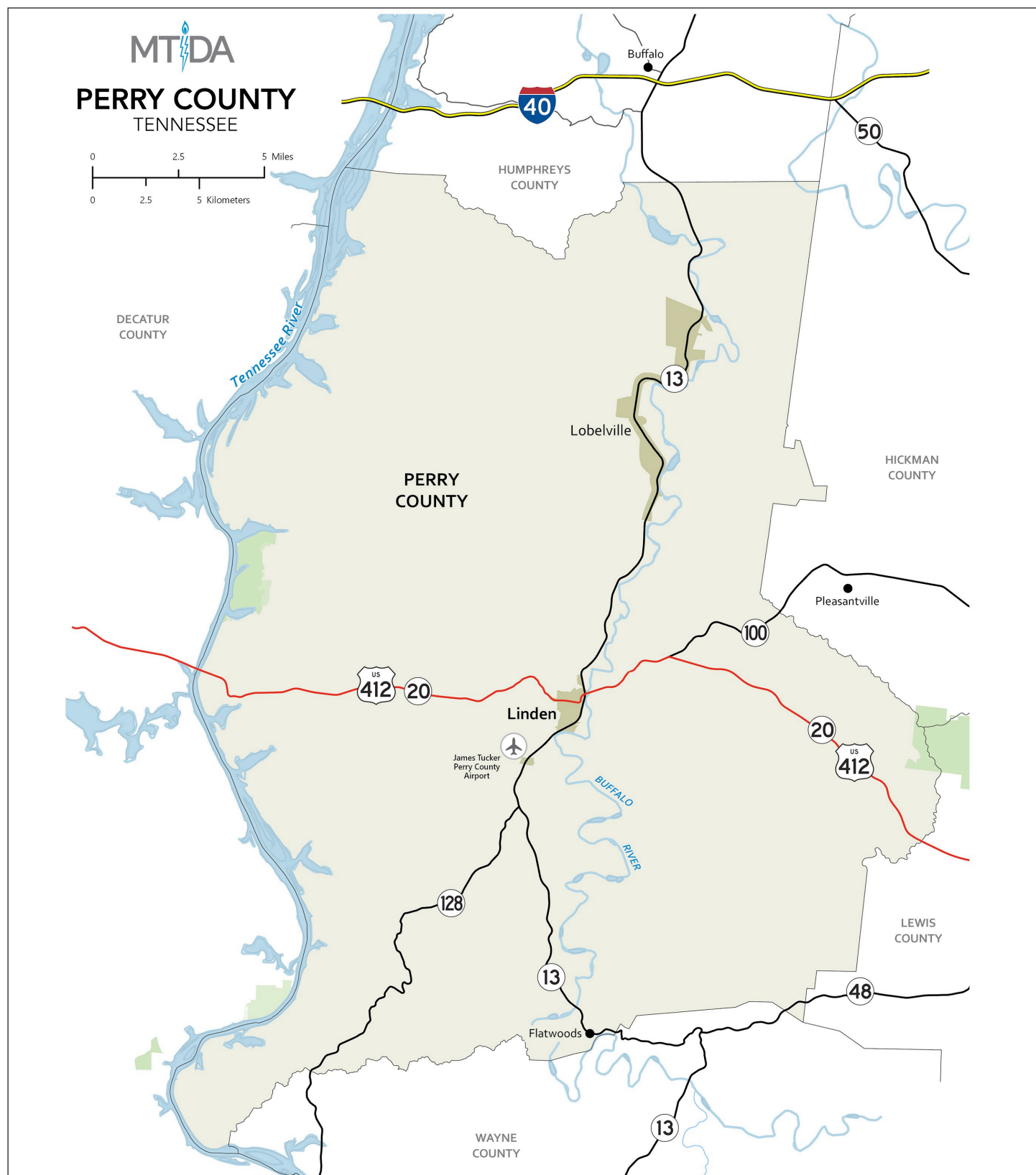
Presented here is an agricultural asset mapping report for Perry County, Tennessee. The report is based on a combination of focus group meetings with local agricultural leaders and secondary data. The primary goal is to help local leaders identify agricultural assets that could be used to support economic growth and development of the county. A secondary goal is to increase the understanding of local agriculture. Several other counties [Grundy (Hughes and Kimbro, 2021), Hancock (Hughes et al., 2018a), and Hardeman (Hughes et al., 2018b)] 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 Perry 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 Perry County

Situated on the Buffalo and Tennessee rivers, Perry County is rich in scenic beauty and local history. The county is located in the southeastern portion of Middle Tennessee. It is 414.8 square miles (US Census, 2019) with highways 13, 50, 100, 128, 412 and 438 crossing the county (Figure 1 Perry County Tourism, 2021). The town of Linden is the county seat. Lobelville is an incorporated city and there are numerous unincorporated communities including Beardstown, Bunker Hill, Chestnut Grove, Flat Woods, Pine View and Spring Creek.

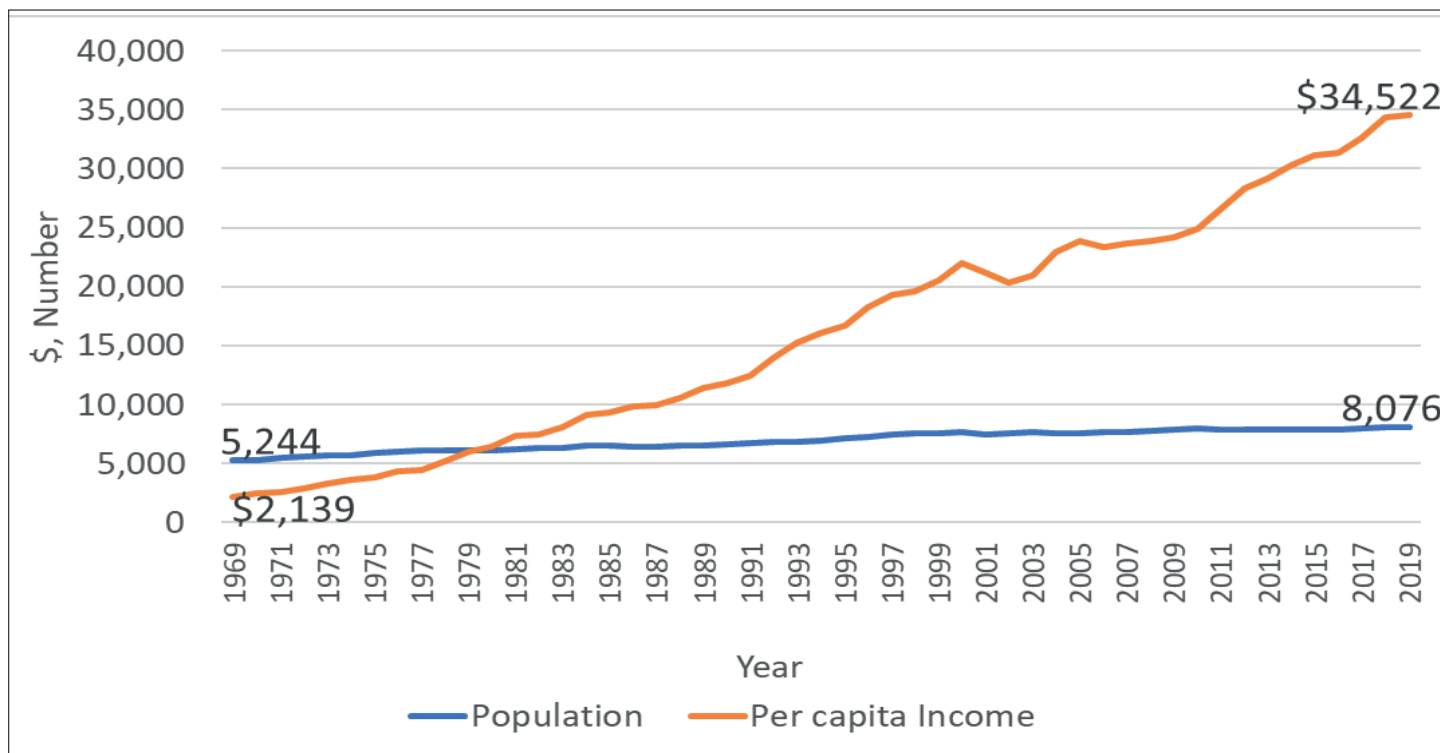
Figure 1. Perry County Map.



Source: Middle Tennessee Industrial Development Authority (MTDA), 2021.

The 2019 population was estimated to be 8,076, a slight increase from 2010. As of 2021, the US Census Bureau reports there are 3,073 households with an average of 2.54 persons per household. The median household income is \$41,034 with an estimated 26.9 percent of residents in poverty (US Census Bureau, 2019). As shown in Figure 2, the population has increased by 2,832 individuals since 1969 (US Bureau of Economic Analysis, 2020).

Figure 2. Perry County, Population and Per Capita Income 1969-2019.



Source: Bureau of Economic Analysis, 2020.

Agriculture production in Perry County makes a significant contribution to the local economy. As of 2017, there were 287 farming operations with an average size of 215 acres (Census of Agriculture, 2020). Among the 33,686 acres devoted to agriculture, 25 percent was in cropland, 34 percent was devoted to woodland, 15 percent was planted in pasture, and 3 percent was devoted to other uses. The top commodities for Perry County include grains and soybeans with \$2.459 million in sales and cattle at \$1.392 million in sales.

Based on data from an economic model of the county's economy for 2018 (Minnesota IMPLAN Group Inc. 2000), crop farming accounted for 143 jobs, the beef cattle industry accounted for 47 jobs, and commercial logging generated 21 jobs.

A 2018 economic impact analysis conducted for all agribusiness activity in Perry County showed a total direct contribution of 413 jobs, \$37.8 million in outputs and a total impact of \$49.6 million in output and 525 jobs (or 16.7 percent of all employment in the county) (Hughes et al. 2018a).

Perry 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 (Transparent Tennessee, 2021).

Asset Mapping Exercise

An agricultural asset mapping exercise was held with county agricultural leaders (farmers, agricultural-based businesses and local government leaders) on October 30, 2019. Participants were asked to think about opportunities for the county such as local and regional markets and target areas as they pertain to local agriculture or agribusiness. The participants were recruited by Amanda Mathenia, University of Tennessee Extension agent and county director, and represented agricultural leadership in Perry 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 3 and Figure 4). We present the challenges and the opportunities offered by the participants in the following sections.

Figure 3. Result from Asset Map Exercise for Perry County.

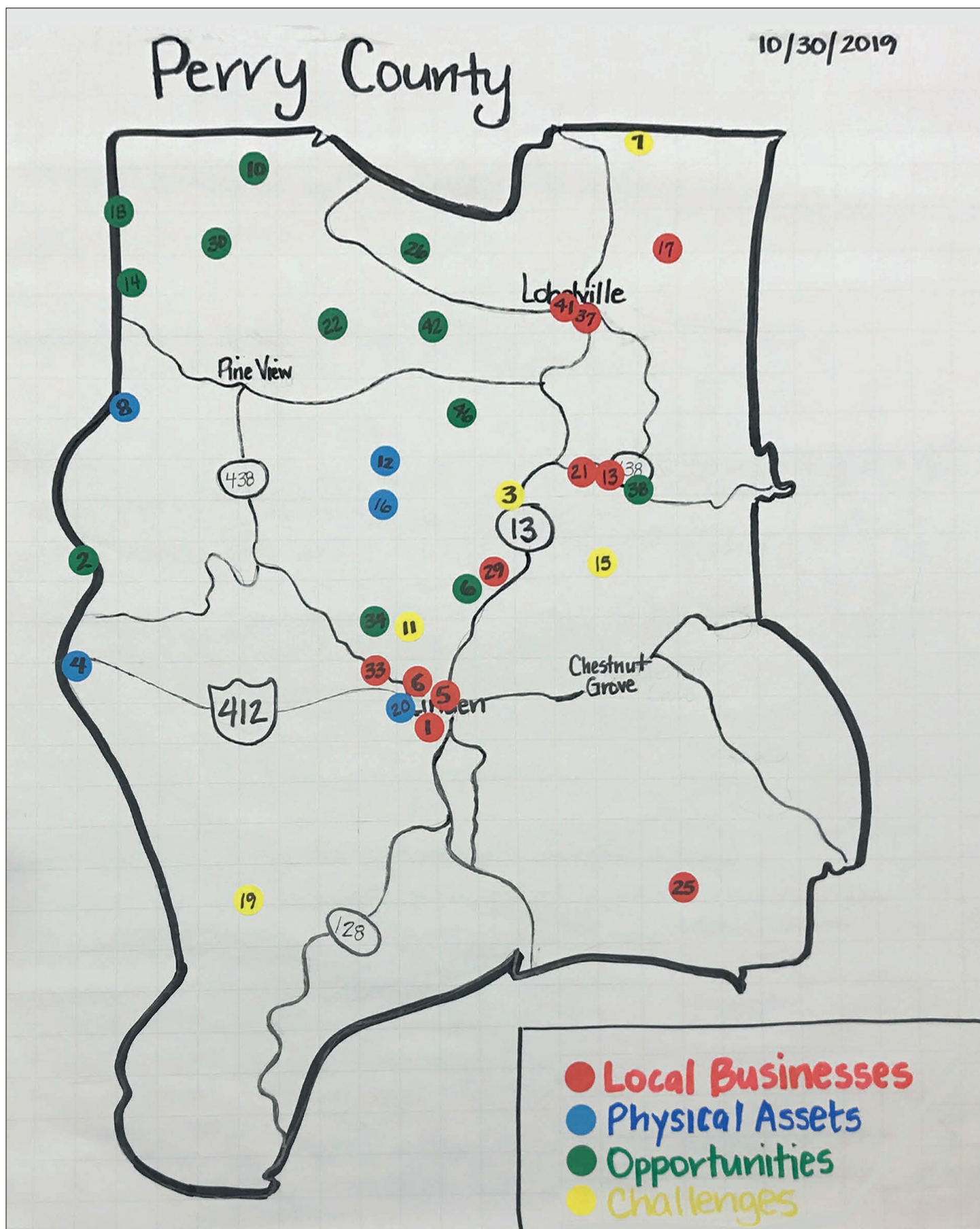


Figure 4. Assets, Businesses, Challenges: Businesses.

Businesses
Edward's Feed Store (5)
Graham Holdings, Inc. County largest sawmill and international trade (9)
Cane Creek Mennonites Store (13)
Russell Creek Amish Store (17)
Cane Creek Market (21) Dry food goods/processing
Grant Skelton Custom-Exempt Slaughter Facility (25) Mostly deer; some beef
Buffalo River Resort (29) 4 canoe/kayak businesses in the county
Planted H2O Bottling Company (33) Artisan Well Water
General Hardware (37)
Heaven Sent Hemp Processing (41) Organic
Opportunities
Tennessee River (2)
Buffalo River (6)
Airbnbs (10)
Marinas on the rivers (14) Crooked Creek only one in county; damaged by recent storm
Processing facility for Asian carp (18)
White Oak for Whiskey Barrel and Stave production (22)
Mineral/well water for whiskey production (26)
Growing hops for local breweries/craft beer (30)
County Fair (34)
Quality Metals (38) Build/fabricate metals and specialize in poll barns
Overflow growth from metro areas (Nashville and Memphis)
Anything can be done in Perry County that can be done in metro areas (46) I.E. research, etc. Cheaper/cost-efficiency

Challenges
Public access areas for the Buffalo River (3)
No 4-lane highway in the county (7)
No county fair (11)
1.5 hours away from the nearest USDA inspected slaughter facility (15)
Broadband internet (19) But solution is in route Grants from ECD

Local Businesses

Local businesses were identified based on their importance and(or) ability to contribute to economic growth in the county. Identified businesses included agricultural input providers such as the cooperative, Edward Farm Supply (2021, or Edward's Feed Store), and a general hardware store. Several processors of agricultural products included Heaven Sent Hemp Processing (which produces organic products, 2021), Cane Creek Market (which provides bulk items and some processing of dry food goods) and Grant Skelton, a custom-exempt slaughter facility, which primarily processes deer but also some beef on a cow-share basis. Another agriculture-related business is the Russell Creek Amish Store.

Other identified businesses related on local natural resources. These businesses included the four canoe/kayak providers for trips on the Buffalo River. Also the Planted H2O Bottling Company relies on local artisan well water.

Physical Assets

Attendees emphasized the scenic assets of the county including Mousetail State Park and Lady's Bluff Scenic Overlook (a Tennessee Valley Authority managed trail that is also a National Recreation Trail). The county also has a farmers market in Linden. Perry County is heavily forested (80 percent of the land), which provides great opportunities for various types of hunting and for all terrain vehicle side-by-side trails. The forest also can serve as a source of timber for various types of wood products processing facilities. Perry County has a 53-acre industrial park located on Highway 13. Participants also indicated that 57 percent of the farmers in the county use the internet in their farming operations and that the Perry County shares a long border with Humphreys County to the north. They also stated that land values are increasing in the county.

Challenges

Attendees emphasized the lack of areas for public access to the Buffalo River. They also indicated that there are no four-lane highways in the Perry County (although very recently the state has started work on turning a portion of Highway 13 into a four-lane road). Likewise, there is limited broadband in Perry County although a grant from the Tennessee Department of Economic and Community Development to Meriwether Lewis Electric Cooperative (Tennessean, 2021) is helping to remedy this problem. Finally, there is currently no county agricultural fair and the closest US Department of Agriculture animal slaughter facility is 1.5 hours away.

Opportunities

Besides the opportunities identified in the Business section, participants identified the Buffalo and Tennessee Rivers including development of additional marinas on the rivers. A related idea was starting a processing facility for Asian carp and further developing local Air B&Bs (which provide hospitality services to individuals recreating on the rivers). Using white oak in whiskey barrel and stave production was another idea, as well as using local mineral/well water for whiskey production. Growing hops for local craft breweries was mentioned as another way to grow local agriculture and the local economy. Furthering developing a local business, (Quality Metals Business that builds and fabricates metals used in poll barns and other facilities) was also cited as an additional idea. Meeting attendees also stated that the county needs an annual agricultural fair.

Other agricultural-based opportunities for growing the Perry County economy were more general in nature. The potential for exploiting overflow growth from Nashville and Memphis was discussed. Also, meeting attendees emphasized that many activities which currently occur in metropolitan areas could be done in a more cost-effective manner and as well in Perry County, even including certain research-based activities.

Follow-up Analysis and Discussion

A subsequent meeting was held with Perry County agricultural leaders on February 18, 2021. The discussion centered on assessing the agricultural assets discussed in the prior meeting and on the results of our data analysis.

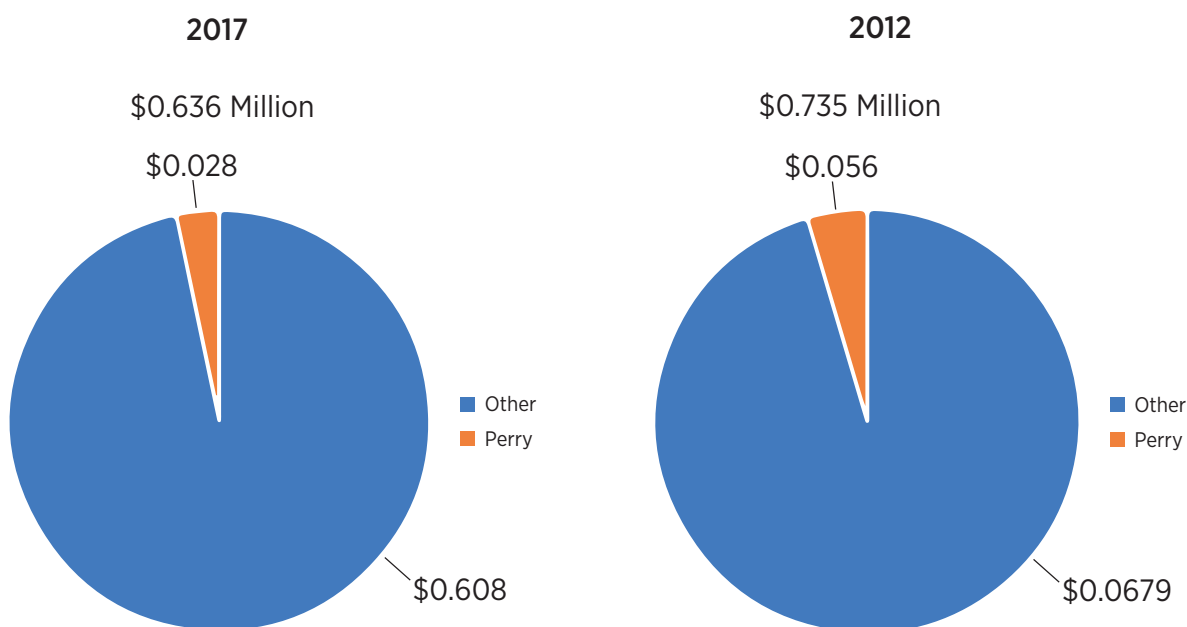
Targeted Industry Economic Cluster Approach

We used a targeted industry approach to identify industries as possible assets. Our data analysis includes eight counties, specifically Perry County and the surrounding counties of Benton, Decatur, Humphreys, Hickman, Lewis, and Wayne plus Hardin County (which does not share a border but is very close to Perry 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)¹. We also used financial analysis provided by the website IndustriousCFO 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.

Local and Regional Fruits, Vegetables and Ornamental Horticulture

Increased fruit and vegetable sales could be an avenue of future growth. As shown in Figure 5 vegetable sales in the eight-county region decreased from \$0.735 million in 2012 to \$0.636 million in 2017 with a decline in Perry County sales. On the other hand, regional fruit had a marked increase in sales from \$0.264 million in 2012 to \$0.850 million in 2017, while sales in Perry County showed a very slight increase (Figure 6). Ornamental horticulture (nursery, greenhouse, floriculture, sod and short rotation woody crops including Christmas trees) sales in the eight-county region decreased from \$1.905 million in 2012 to \$1.804 million in 2017 including a small increase in Perry county (Figure 7).

Figure 5. Value Regional Vegetable Sales, 2017, 2012.



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

¹ The Location quotient (LQ) estimates the concentration of a particular industry in a region as compared to the nation (Sentz, 2011). In this analysis, it is the industry in question's share of the regional economy versus its share of the national economy using the estimates value of output, value of earned income and employment.

Figure 6. Value of Regional Fruit Sales, 2017, 2012.

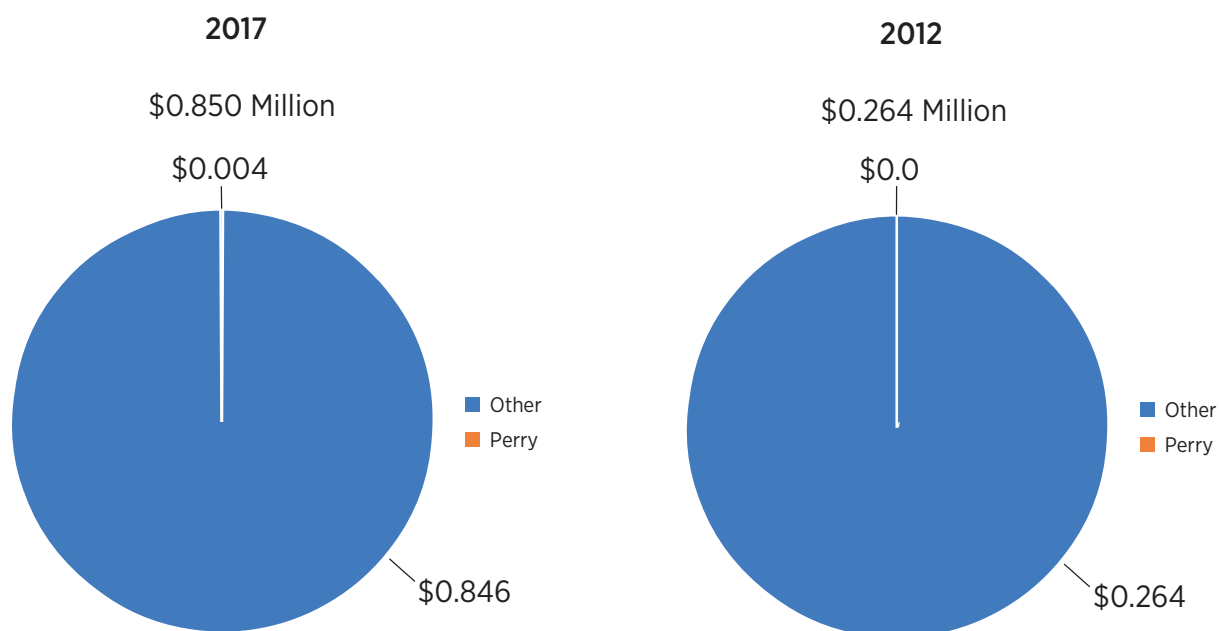
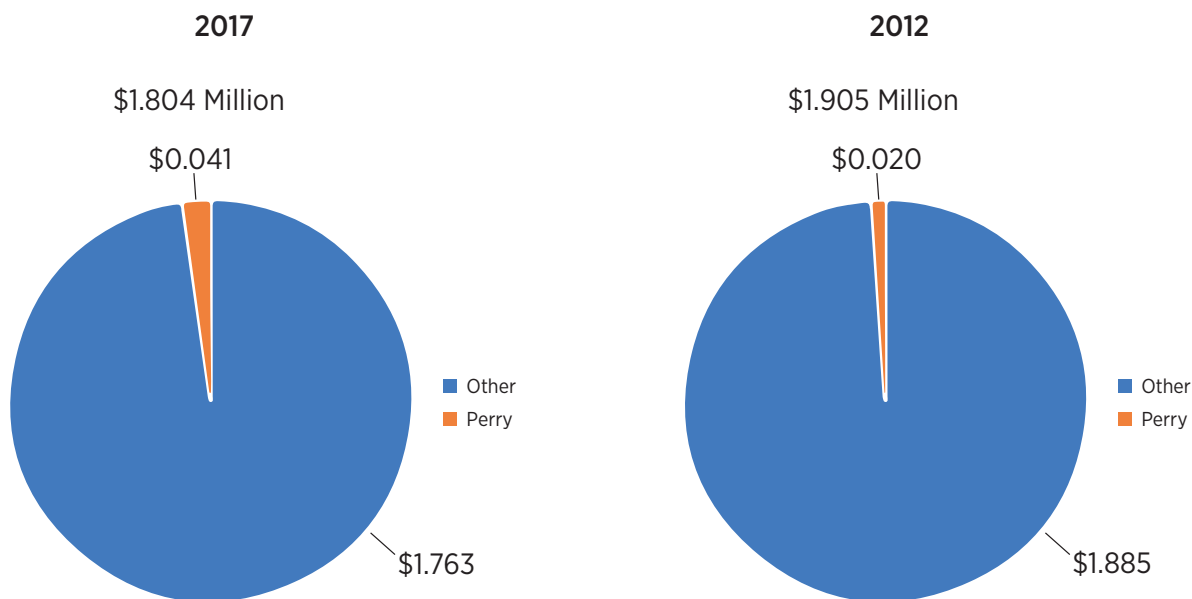


Figure 7. Value of Regional Ornamental Horticulture Sales, 2017, 2012.



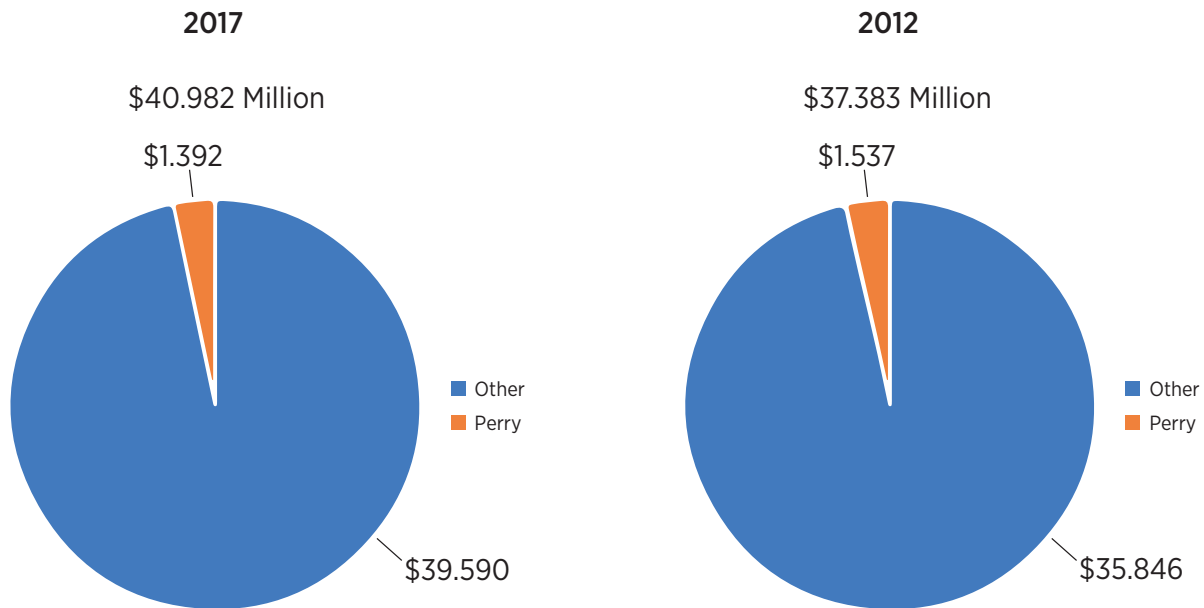
Source: Census of Agriculture, 2012, 2017.

One project proposed by meeting attendees was growing hops for regional breweries. Hops are generally dried immediately upon harvest because of oxidation (loss) of the lupulin (the active ingredient for brewing beer). However, hops can be used in an undried (wet) form if added to the beer wort within 24-36 hours after harvest. Many brewers like to have wet hops as an option. In fact, a survey of Tennessee craft breweries conducted in 2018 indicated that 17 put of 30 respondents were at least somewhat interested in Tennessee grown wet hops (Best, 2018). Further, drying hops is a relatively easy and inexpensive process so that is also a possible market. (The same survey indicated that 14 out of 30 Tennessee brewers are at least somewhat interested in dried hops grown in Tennessee.) However, growing hops in Perry County or anywhere else in the eight-county region is a challenge because yields are low relative to major production regions in the US and quality issues have also arisen with Tennessee grown hops (Holland et al., 2020). Accordingly, other local agricultural products as inputs for Tennessee craft breweries, such as berries, might be a better option to explore.

Livestock and Slaughter

One major concern expressed by meeting attendees was the 1.5 hour distance to the nearest USDA-approved large animal (i.e., non-poultry) processing facility. According to Census of Agriculture data, more than 55,000 cattle and calves were sold from Perry County and the seven nearby counties in 2017. From 2012 to 2017, the nominal value of cattle sales increased from \$37.383 million to \$40.982 million for the region but declined in Perry County from \$1.537 million to \$1.392 million (Figure 8). 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 8. Value of Regional Cattle Sales, 2017, 2012.



Source: Census of Agriculture, 2012, 2017.

Supply disruptions in livestock markets due to the COVID-19 pandemic has 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 9 and Figure 10, these livestock operations are also important in the eight-county region with growth in the value of hog-pig sales from \$1.277 million in 2012 to \$1.976 million in 2017 and increases in the value of goat-sheep sales from \$0.499 million in 2012 to \$0.629 million in 2017. The value of poultry and eggs sales in the eight-county region had a dramatic increase from \$4.934 million in 2012 to \$18.266 million in 2017 (Figure 11).

Figure 9. Value of Regional Hog-Pig Sales, 2017, 2012.

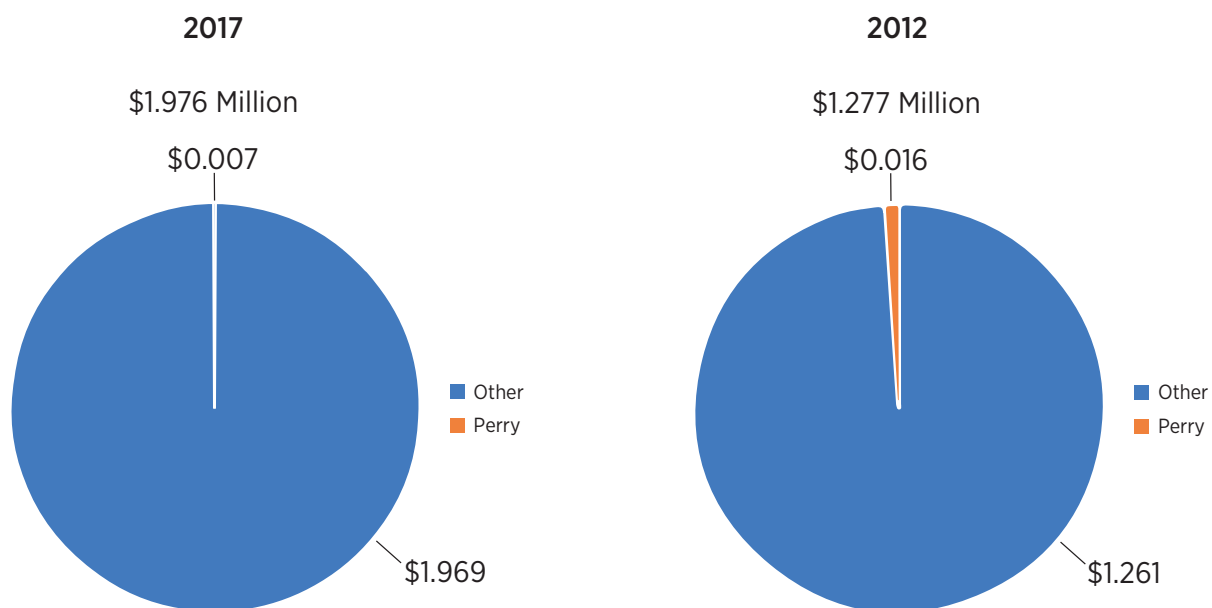
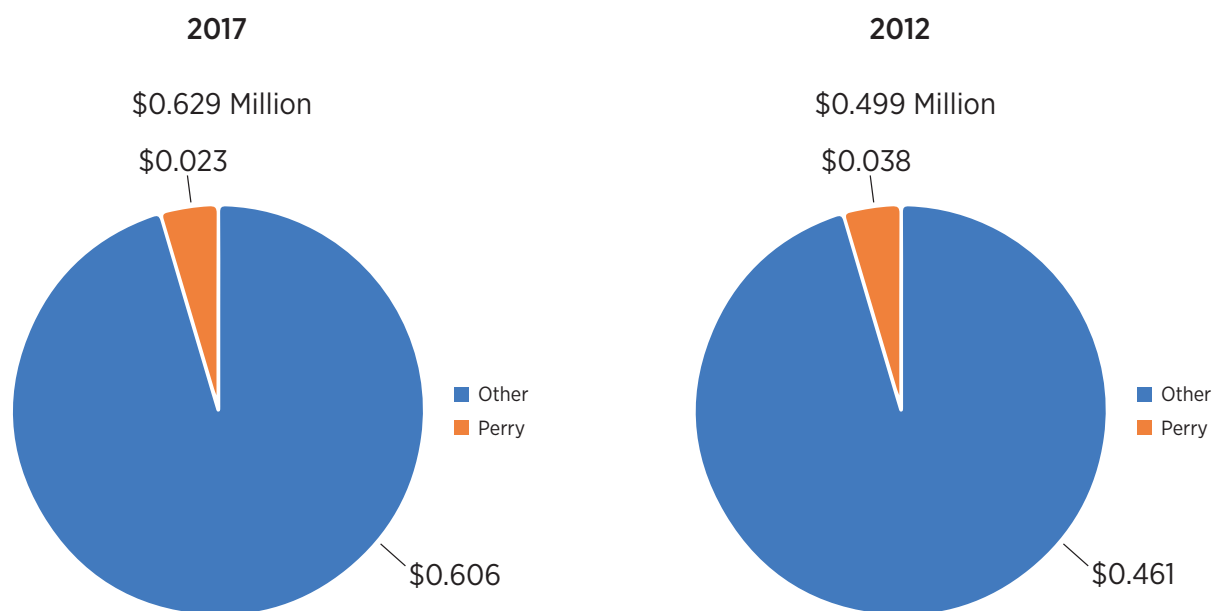
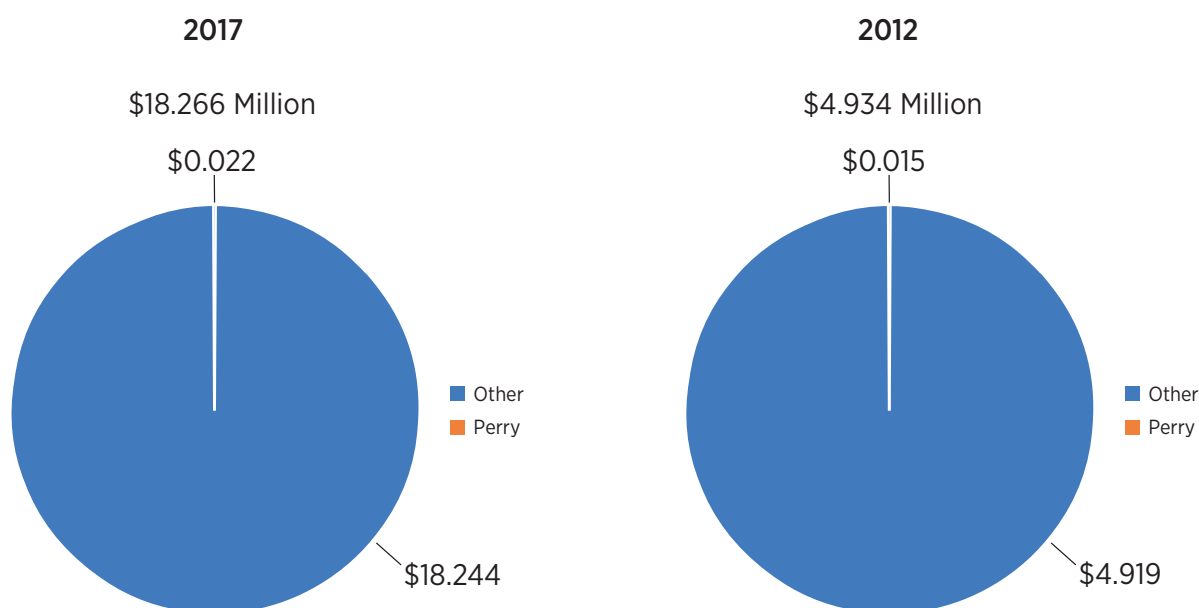


Figure 10. Value of Regional Goat-Sheep Sales, 2017, 2012.



Source: Census of Agriculture, 2012, 2017.

Figure 11. Value of Regional Poultry-Egg Sales, 2017, 2012.



Source: Census of Agriculture, 2012, 2017.

Hughes et al. (2017) indicates that a US Department of Agriculture approved custom livestock slaughter facility could be profitable under the right conditions. Accordingly, because of the long travel distance to such a facility experienced by local farmers, such a facility could be a potential target for development. Beside the fallout from COVID-19, competition from other facilities also remains a concern (Figure 12), especially if new facilities come on line as expected (Tennessee may have 20-25 facilities that provide USDA inspected slaughter in the near future (Sneed 2020). One alternative to opening a new facility would be to ascertain the interest in the current custom facility becoming a USDA-inspected facility that would primarily serve beef producers.

Figure 12. USDA Inspected Meat Processors in Tennessee as of February 2, 2020.



Note: Facilities under construction or in planning stage excluded.

Source: Wendy Sneed, Tennessee Department of Agriculture.

Local White Oak for Local Whiskey Barrel and Stave Production

Attendees suggested that the abundant local supply of white oak trees could be used to produce whiskey barrels and staves for Tennessee markets. Currently there is no barrel production in Tennessee while there is some stave and heading material (for cooperages) production. A Stevenson, Alabama, facility is the major provider of barrels to a major Tennessee whiskey producer (through a private contract). An independent stave company (ISC) operates four cooperages (three in Kentucky and one in Missouri) with one of the Kentucky facilities having just opened (Wright et al., 2018). In general, Tennessee craft distilleries have expressed a strong interest in Tennessee sourced inputs (Best, 2019). As a first step, we encourage that the Tennessee Distillers Guild be contacted to further assess interest in purchasing barrels and staves produced in Perry County.

Local Craft Distillery and Local Mineral Water

Planted H2O Bottling Company currently produces mineral water in Perry County based on a deep aquifer (Planted H2O Bottling Company, 2021). Accordingly, bottled water was identified as a possible target for growth. Bottled water continues to be a growing market as it increasing cuts into the market for sodas and fruit drinks. From 2016 through 2019, the number of bottled water businesses increased by 8.5 percent in the US and by 50 percent in Tennessee (from eight to 12) while employment in the former increased by 10.3 percent and by 11.5 percent (from 200 to 223 workers) in the latter (US Bureau of Labor 2021).

A craft distillery in Perry County could also take advantage of both the local water and of the local wood supply. Use of such local inputs would tell a very appealing story for customers. Distilleries have experienced pronounced growth in Tennessee with the number of establishments increasing from 11 in 2011 to 108 in 2019. Once again, contacting the Tennessee Distillers Guild would be a good first step in developing a craft distillery in Perry County.

Asian Carp Processing Facility

As an invasive fish that is “a voracious eater and prolific reproducer” (Cogan Carp Solutions, 2021), Asian carp is a major and growing problem in the Tennessee River system as elsewhere. The fish reduces the number and size of native fish. But Asian carp has current and developing markets as bait, pet food and fertilizer. The fish could even be processed for human consumption as experts indicate it is tasty and healthy (low in mercury and rich in protein and omega-3 fatty acids). The Illinois Department of Natural Resources will introduce a new name for Asian carp this summer thereby enhancing the appeal of the fish for human consumption (Mathney, 2021). (Such renames are a common practice for fish, for example Chilean sea bass were originally called Patagonian toothfish). Several businesses in the Peoria, Illinois, area (Sorce Freshwater Company and Colgan carp Solutions) are currently processing Asian carp for various markets. A good first step would be investing the issues faced and prospects for these businesses and to work the Tennessee Department of Natural Resources in helping to assess the feasibility of such a facility in Perry County.

Annual County Fair

Meeting participants want to consider developing an annual county agricultural fair. Establishing a county fair would raise awareness of the agriculture assets of Perry County and increase opportunities for agritourism in the county by drawing outside visitors. As shown in Figure 13, all surrounding counties have an agricultural fair except Wayne County (Tennessee State Government Website, 2021a).

Figure 13. State Fair Map



Tourism: Nature-based, Recreational 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. In particular, local agricultural leaders identified the forest, the Buffalo River, and the Tennessee River as assets that could be further developed to support local economic activity.

As the longest un-impounded river in Middle Tennessee, the scenic Buffalo River is already the scene of several canoe and kayak float trip businesses. Several Airbnbs have also arisen as a result of these float trips. Mousetail State Park on the Tennessee River provides opportunities for hiking and fishing. Local leaders could investigate other local services (such as restaurants) that might interest river users. In response to a concern expressed by local leaders, efforts should probably be made to develop more access points to the river. For the Tennessee River, guided fishing could be developed as a business. Local leaders also indicated the need to develop more marinas on the river [although based on their Facebook Page (2021), Crooked Creek Marina, which experienced damage earlier, is apparently reopened for business]. Hunting-based businesses and all-terrain vehicle (ATV) trails are tied to the extensive forests in the county. A working group could be formed to further assess the potential for developing economic activity tied to tourism and recreational use of these assets. As a starting point, a 2018 Tourism Map and Guide produced for Perry County lists these are other assets that could be employed in further developing the local economy.

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). UT Extension's Center for Profitable Agriculture (2020) also has resources for the development of tourism for interested Perry County farmers. Local assets that should be part of agritourism and tourism in general development efforts include the Cane Creek Mennonites Store, Russell Creek Amish Store and the Cane Creek Market among others.

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 14. (Full results from the analysis are provided in Appendix A). Valued-added food product processing that has potential for growth included a winery and frozen cakes-pastries manufacturing that met four criteria, bread-bakery produces that both met three of the criteria. We also included a distillery despite only meeting two criteria in part because of a growing state industry and ties to the Nashville regional economy (when much of the industry is centered). Valued-added wood product processing that has the potential for growth includes paperboard mills and other wood product manufacturing that meet four criteria, manufactured mobile homes that met 3.6 criteria, and wood container and pallet manufacturing that met three criteria. These eight possible targets were added to the list for consideration for further development by local agricultural leaders.

Figure 14. Candidate Project List from Data Analysis.

Project	Number of Criteria Met	Notes
Winery	4	Could benefit from Value-Added Producer Grant and Strong State Industry
Distillery	2	Growing State Industry and Nashville Region Ties
Bread-Bakery products	3	
Frozen Cakes-Pastries	4	
Wood Container and Pallet	3	
Manufactured (Mobile) Homes Manufacture	3.6	
All Other Wood Product Manufacturing	4	
Paperboard Mills	4	

One area of further data analysis (agricultural input providers) that dovetailed with a business mentioned by meeting participants specifically Quality Metal (2021). They are a manufacturer and supplier of lumber, building supplies and tools providing home building materials; a pole barn construction package; or advice regarding construction. Started in 1996 and growth oriented, the leadership of Quality Metal may be interested in grants or subsidized loans to further expand. As in Figure 15, agricultural and forest service provides are a regional strength with regional growth and also meet the minimum size requirement but in general the sector has low a low return and is a relatively risky investment.

Figure 15. Agricultural Input Providing Sector with Development Potential.

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Agricultural and Forest Service Providers (3)	Avg. 29.5% (20% + 39%) low return, fairly risky	✓	✓	✓	no

Targets Identified by Local Agricultural Leaders

The group of Perry County agricultural leaders reconvened February 18, 2021. 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 they pertain 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 growth 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.

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

Potential Target	Percentage Target Votes
Tourism, Agritourism Development	100%
Four-Lane Highway	75%
Large Animal Processing Facility	50%
Public Access, Buffalo River	50%
Bakery, Cakes	25%
County Agricultural Fair	25%
Growing Quality Metal, other ag input providers	25%
Winery	25%
Wood Container and Pallet	25%

Moving Forward

Provided here are the results of an agricultural mapping exercise conducted with local agricultural leaders in Perry County, Tennessee, in cooperation with the county's UT Extension office. Results were based on a combination of our analysis of secondary data and primary data provided by the local leaders. Based on the distribution of votes in Table 1, the decision was made to pursue four possible avenues of further growth, including the development of tourism and agritourism sites, a USDA custom livestock (large animal) slaughter facility, enhanced public access to the Buffalo River, and further development of a four-lane highway. 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 four areas.

A slaughter faculty would take advantage of the extensive cattle and other livestock in the county and the region. Tourism and agritourism development would take advantage of the abundant agricultural and other natural resources and heritage of the county. Better access to the Buffalo River would further support the development of recreation-based businesses around that asset. Further development of a four-lane highway would in general foster growth in Perry 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).

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

Agricultural input providing Sectors with Development Potential.

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Agriculture and Forest Service Providers (3)	Avg 29.5% (20% + 39%) low return, fairly risky	✓	✓	✓	no

Food Processing Sectors with Development Potential.

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Canned fruits and vegetables manufacturing (2)	Avg 42.5% (50% + 35%) average return, quite risky	✓	✓	no	no
Non-poultry slaughtering (2)	Avg 22.5% (18% + 27%) low return, quite risky	no	no	✓	✓
Bread and bakery product, except frozen, manufacturing (3)	Avg 29% (22% + 36%) low return, quite risky	✓	No (1 only)	✓	✓
Frozen cakes and other pastries manufacturing (4)	Avg 43% (57% + 29%) Upper ½ return, quite risky	✓	✓	✓	✓
Wineries (4)	✓ Avg 72.5% (79% + 66%) Relative high return and low risk	✓	no	✓	✓
Distillery	✓ Avg 59% (58% + 60%) Slightly better than average on return and risk*				✓

*Beverage manufacturing served as a proxy.

Forest Product Sectors with Development Potential

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Sawmills (3)	Avg 11.5% (15% +8%) low returns, relatively risky	✓	✓	no	✓
Engineered wood member and truss manufacturing (3)	Avg 58% (85.5% +30.5%) high returns, relatively risky	✓	✓	no	✓
Reconstituted wood product manufacturing (5)	✓ Avg 78.5% (79% +78%) high returns, low risk	✓	✓	✓	✓
Cut stock, resawing lumber, and planning (3)	✓ Avg 65.5% (49% +82%) average returns, low risk	✓	✓	no	no
Wood Container and Pallet Manufacture (3)	Avg 38% (75%+1) high returns, very, very risky	✓	✓	no	✓
Manufactured (Mobile) Homes Manufacture (3.6)	✓- Avg 57.5% (78% +37%) high returns, relatively risky	✓	✓	no	✓-
All Other Wood Product Manufacturing (4)	Avg 46% (67% +25%) high returns, high risk	✓	✓	✓	✓

Paper Product Sectors with Development Potential.

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Paper mills (2)	Avg 42 % (40% +44%) Slightly below average return, average risk		✓	✓	no
Paperboard mills (4)	✓ Avg 57 % (49% +65%) average return, relatively less risky	✓	✓	✓	no

Furniture Product Sectors with Development Potential.

Sector (# Criteria Met)	Financial Analysis	Regional Minimum Size (jobs)	Regional Strength (lq)	Regional Growth	US Growth
Wood kitchen cabinet and countertop manufacturing (2)	Avg 50% (69% +31%) Above average return, high risk	✓	no	✓	no
Other household nonupholstered furniture manufacturing (3)	Avg 28% (38% +18%) Low return, high risk	✓	✓	✓	no
Institutional furniture manufacturing (2)	Avg 21% (31% +11%) Low return, high risk	✓	✓	no	

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