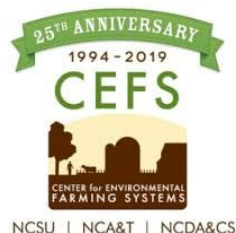


# EmPOWERing Mountain Food Systems

## Food and Farm Assessment



Prepared by ASAP (Appalachian Sustainable Agriculture Project)  
for the Center for Environmental Farming Systems  
November 2019





## **About ASAP (Appalachian Sustainable Agriculture Project)**

ASAP's mission is to help local farms thrive, link farmers to markets and supporters, and build healthy communities through connections to local food. For two decades, ASAP has been a leader in connecting communities to food and farms, simultaneously building markets for locally grown food, increasing access, and promoting positive relationships with healthy foods. The Local Food Research Center, established in 2012, studies the role and importance of building strong local and regional food systems. ASAP's other programs include the Local Food Campaign, Growing Minds Farm to School Program, and Asheville City Market.

Contributors on this assessment were Charlie Jackson, Sarah Hart, Amy Marion, and Allison Perrett.

Recommended citation: EmPOWERing Mountain Food Systems: Food and Farm Assessment, Local Food Research Center, Appalachian Sustainable Agriculture Project, November 2019.

For more information, contact:

ASAP  
306 W. Haywood St.  
Asheville, NC 28801  
(828) 236-1282  
[asapconnections.org](http://asapconnections.org)

# Contents

---

<b>List of Tables and Figures</b>	<b>5</b>
<b>List of Acronyms</b>	<b>6</b>
<b>Introduction</b>	<b>7</b>
Project Description	7
Methodology	7
Key Recommendations	8
<b>Section 1: Description of Project Region</b>	<b>10</b>
Geographic Location	10
Demographics	11
Major Economic Drivers	12
<b>Section 2: Farming in the Project Region</b>	<b>13</b>
Overview of Farming	13
Farming by Primary Economic Activity	14
Agricultural Sales	16
Top Farm Products	17
<b>Section 3: Market Opportunities for Local Food</b>	<b>22</b>
Overview of Local Markets	22
Direct Markets	24
Retail and Wholesale Markets	25
Quantifying Potential Market for Fresh Fruits and Vegetables	29
<b>Section 4: Tourism, Brewing, and Outdoor Recreation</b>	<b>33</b>
Tourism and Agritourism in the Project Region	33
Intersections with the Outdoor Recreation Industry	34
Intersections with the Brewing Industry	35
<b>Section 5: Infrastructure and Supply Chain</b>	<b>37</b>
Sorting/Packing	37
Cold Storage	38
Food Processing/Kitchens	39
Transportation/Distribution	41
Aggregation/Food Hubs	41
Meat Processing	43
Additional Infrastructure with Potential for Enhancement	44

<b>Section 6: Labor and Internship Opportunities</b>	<b>46</b>
Farm Labor	46
Internships and Apprenticeships	47
<b>Section 7: Continuing Education</b>	<b>48</b>
Primary Training and Continuing Education Needs	48
Existing Training Programs	48
<b>Recommendations</b>	<b>50</b>
<b>Appendix A: Annotated Bibliography of Existing Research and Resources</b>	<b>53</b>
<b>Appendix B: County Snapshots</b>	<b>64</b>
<b>Appendix C: Crop Totals by County</b>	<b>72</b>
<b>Appendix D: Farm Support Services</b>	<b>73</b>
<b>Appendix E: Food Hub Models in Western North Carolina</b>	<b>74</b>
<b>Appendix F: Breweries in Southwestern North Carolina</b>	<b>77</b>

## List of Tables and Figures

---

Table 1. Farmland in Southwestern North Carolina, 2017	11
Table 2. Farms by Size, 2017	12
Table 3. Farms by Primary Economic Activity, Change from 2007 to 2017	14
Table 4. Overall Farm Sales	15
Table 5. Top 9 Agricultural Products by Sales, 2017	16
Table 6. Cattle Production by County, 2017	16
Table 7. Top 10 Fruit and Vegetable Crops by Acreage, 2017	18
Table 8. Direct Sales by County, 2017	20
Table 9. Calculated Supply and Demand for 23 Common Crops	26
Table 10. Calculated Potential Local Spending on Fresh Fruits and Vegetables	28
Figure 1. Farmland Type by Acreage, 2017	12
Figure 2. Farms by Primary Economic Activity, 2017	13

## List of Acronyms

---

ARC	Appalachian Regional Commission
ASAP	Appalachian Sustainable Agriculture Project
BRFV	Blue Ridge Food Ventures
CAFE	Center for Agricultural and Food Entrepreneurship
CEFS	Center for Environmental Farming Systems
CSA	Community Supported Agriculture
EBCI	Eastern Band of Cherokee Indians
EMFS	Empowering Mountain Food Systems
GAP	Good Agricultural Practices
GHP	Good Handling Practices
LFG	Local Food Guide
NCDA&CS	North Carolina Department of Agriculture & Consumer Services
NAICS	North American Industry Classification System
POWER	Partnerships for Opportunity and Workforce and Economic Revitalization
USDA	United States Department of Agriculture

# Introduction

---

## Project Description

EmPOWERing Mountain Food Systems (EMFS) is a three-year initiative of the Center for Environmental Farming Systems (CEFS) focused on expanding opportunities and capacity for food and farm businesses across the southwestern North Carolina region, including the counties of Cherokee, Clay, Graham, Haywood, Jackson, Macon, and Swain, and the Eastern Band of Cherokee Indians. The project, funded in 2019 by the Appalachian Regional Commission (ARC), brings together producers, food businesses, schools, and regional partners to increase business opportunities that support the expansion of the food supply chain. Diverse project elements include infrastructure development, marketing, business assistance, land matching, training, and other resources for food and farm entrepreneurs. As a first step, ASAP (Appalachian Sustainable Agriculture Project) conducted this food systems assessment. It is intended to provide guidance for developing the region's food and farm infrastructure and identifying food and farm business assistance needs.



Assessment goals were prescribed by EMFS objectives. Within the parameters of the project, the assessment seeks to:

- Identify potential supply chain improvements or additions (including but not limited to cold storage, loading docks, dry storage, and food processing).
- Explore the nexus between agritourism, brewing, and the outdoor recreation industry. Recommend project entry points and collaborations.
- Develop an understanding of market opportunities for farmers and food producers in the region.
- Assess continuing education, training, certification and infrastructure needs for farmers and food businesses. Training may include technical production topics and infrastructure as well as business creation, entrepreneurship, and management topics
- Explore demand and viability for a regional food hub, cooperative processing facility, and/or incubator farm.

## Methodology

Findings are based on a review of existing research, assessments, and reports; an analysis of data from the U.S. Department of Agriculture (USDA) Census of Agriculture; USDA Economic Research Service; ASAP's Appalachian Grown Producer Survey; ASAP's *Local Food Guide* data set; the U.S.

Census Bureau; the U.S. Bureau of Labor Statistics; Visit North Carolina; and surveys, interviews, and correspondences conducted for this assessment. An annotated bibliography of the most relevant publications is included in Appendix A.

The Census of Agriculture is the most complete and comprehensive account of U.S. agricultural activities and is conducted every five years, with the most recent in 2017. The Census of Agriculture is sent to all farms where \$1,000 or more of agricultural products were produced and sold in the census year. Following data collection, a statistical methodology accounts for undercoverage, nonresponse, and misclassification. While considered accurate, data at the county level is often withheld to avoid disclosing information about individual farms, which can limit the accuracy of some calculations. Additionally, starting in 2017 the Census of Agriculture changed the way it reports local sales at the county level. For the first time, it combines the value of both agricultural products and value-added products, including jam, wine, cheese, floral arrangements, and more. This makes comparisons of 2017 local sales with past years no longer possible.

ASAP has published an annually updated *Local Food Guide* (LFG) since 2002 and maintains a database of farms, markets, and food businesses operating within 100 miles of Asheville, which includes the project region's seven counties and EBCI (available at [appalachiangrown.org](http://appalachiangrown.org)). Likewise, ASAP's Appalachian Grown Producer Survey is sent annually to all farmers who take part in the Appalachian Grown™ program, which certifies food and agricultural products grown or raised on farms in the Southern Appalachian Mountains (the past four Appalachian Grown Producer Survey Reports are available at [asapconnections.org](http://asapconnections.org)).

A survey was sent in July 2019 to individuals identified as having knowledge of local food and farming in southwestern North Carolina, including farmers, distributors, agricultural service providers, food and beverage entrepreneurs, tourism professionals, and others. Survey outreach encompassed farms and businesses beyond those listed in the LFG and a link to the survey was shared widely. Additionally, key informants were identified and interviewed in depth in August and September 2019. These included a cross section of farmers from small and medium-sized farms, food and beverage entrepreneurs, and agriculture service providers. Input was solicited and received from a wide variety of stakeholders, service providers, and subject experts to inform the construction and direction of this assessment. Findings should be considered thorough but not exhaustive.

Southwestern North Carolina refers to the project region's seven counties and EBCI. Western North Carolina refers to the larger region bordering the Appalachian Mountains, including the project region and Buncombe, Madison, Yancey, Henderson, Polk, Transylvania, Burke, Caldwell, McDowell, Rutherford, Alleghany, Ashe, Avery, Mitchell, Watauga, and Wilkes counties



## Key Recommendations

Based on findings detailed throughout the assessment, the following measures are recommended. Additional context and action steps are included in the final section.

### **Promote local food and farms to build demand.**

Implement strategies that directly connect southwestern North Carolina residents to farms and their local food system.

### **Provide farmers with the support needed to connect to local markets successfully.**

To build viable businesses and be successful in local markets, farmers need to develop skills and receive support in multiple areas.

### **Link tourism to local food and farms.**

Work within a tourism framework to brand the region as a food and farm destination.

### **Enhance infrastructure and work with farmers and entrepreneurs to support their enterprises.**

Farmers and entrepreneurs need to lead the way in determining infrastructure investments.

### **Integrate local food and farms into economic development planning and create supportive policies.**

Demonstrate the ways local farm and food assets can support regional economic development goals.

### **Coordinate, convene, and build on existing efforts and successes.**

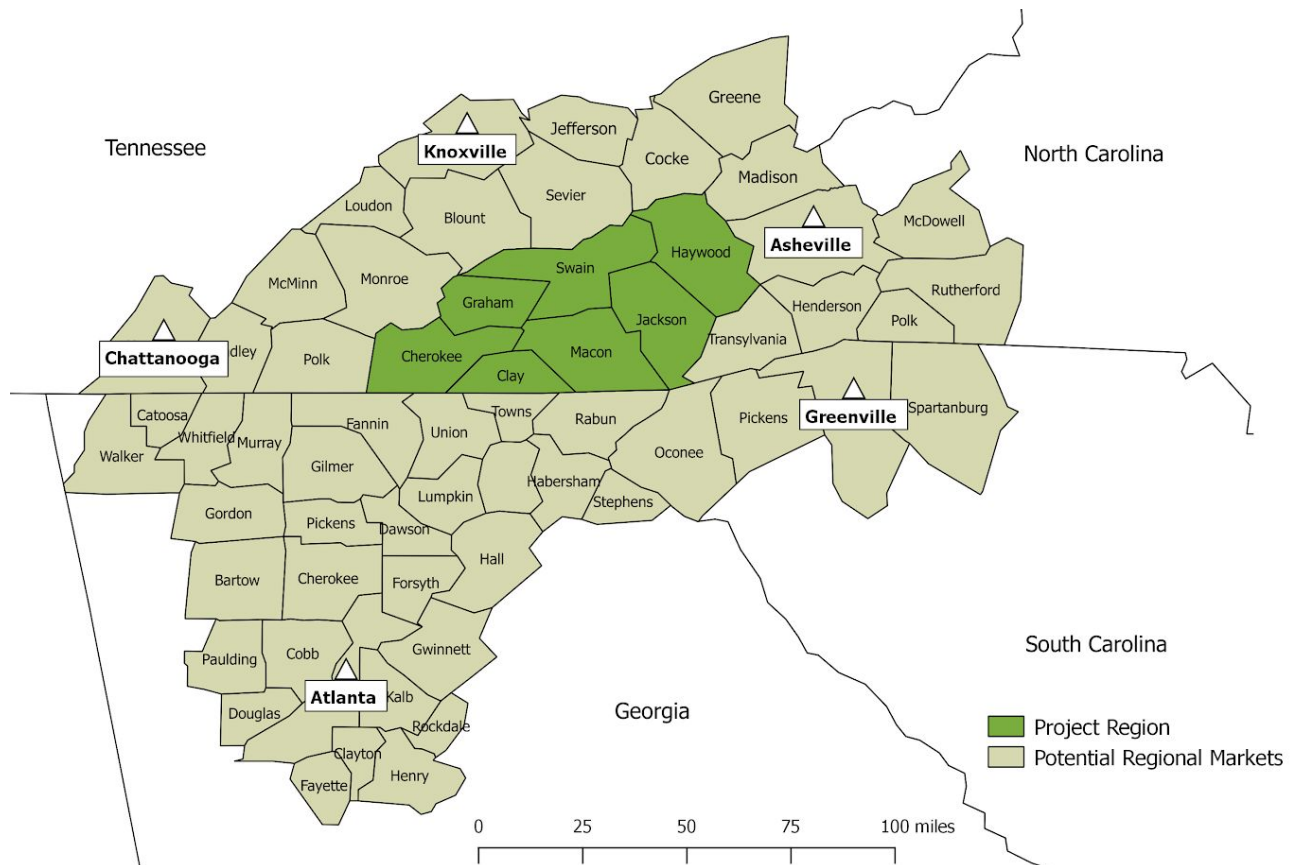
Build on the great work and research being done in the region.

## Section 1: Description of Project Region

The EMFS project region in North Carolina includes the seven counties of Cherokee, Clay, Graham, Haywood, Jackson, Macon, and Swain, and the Eastern Band of Cherokee Indians. These are the westernmost counties in the state, sharing a border with Eastern Tennessee, North Georgia, and Northwest South Carolina. The Eastern Band of Cherokee Indians (EBCI) is a federally recognized Native American tribe in the region. Many of the more than 16,000 EBCI members live on property known as the Qualla Boundary. The Boundary spans approximately 56,000 contiguous acres across Swain and Jackson counties with a few noncontiguous sections in Cherokee and Graham counties.

All seven counties in the region are classified as rural. Haywood County is the most populous in the region, accounting for nearly a third of the region's population. Overall there are 16 incorporated towns across the region, ranging in size from 10,000 to 30 people. The largest town is Waynesville in Haywood County. Haywood County also has the most farms, acres of farmland, and market outlets for farm products of any county in the region.

### Geographic Location



The mountainous geography of the region greatly limits infrastructure development and isolates food and farm businesses from larger market centers. The only interstate passes by Waynesville on the eastern edge of the region. The closest large market centers are Asheville, NC; Greenville, SC; Chattanooga, TN; Knoxville, TN; and Atlanta, GA (approximately 50–200 miles away).

There are approximately 3,100 square miles (just under 2 million acres) of land in this region, and more than 70 percent of it is publicly owned, including the Great Smoky Mountains National Park, the Blue Ridge Parkway, Nantahala and Pisgah National Forests, and four TVA lakes.<sup>1</sup> Agricultural land makes up about 7 percent of the region's land, and only 24 percent of that (35,000 acres) is used to grow crops—including fruits and vegetables, but also non-food crops like hay and Christmas trees. Although there is limited land suitable for farming, the region benefits from a temperate climate and lack of seasonal extremes that allows for the production of diverse crops nearly year round.

## Demographics

According to the 2018 U.S. Census Population Estimates Program, approximately 202,834 people live within the project region. Since the 2010 Census count, all counties except one experienced a slight increase in population—Graham decreased by 4.3 percent. Jackson County experienced the largest increase with 7.6 percent. Overall the region had a 4.5 percent population increase, which is lower than the 8.9 percent increase experienced by North Carolina as a whole.

The age ranges of the population are fairly evenly split between those under 25, 25–44, 45–64, and over 65. This is similar to North Carolina as a whole, although there is a higher percentage of residents in the oldest category and slightly lower percentage of residents in the two youngest categories in the project region.

The region's residents have comparable high school graduation rates to North Carolina as a whole, but lower post-secondary education rates. High school graduation rates in the project region are 85.7 percent (compared to 86.9 percent for the state) and post-secondary education rates are 21.2 percent (compared to 29.9 percent for the state).

The median household income for residents of these seven counties is \$39,680. This compares to a median household income of \$50,320 for all of North Carolina. A higher percentage of people are living below the poverty level in the project region as well—18.6 percent compared to 16.1 percent for the state.

The racial makeup of the project region is less diverse than the rest of North Carolina, although there is a higher proportion of Native Americans than the state average. Within the project region,

---

<sup>1</sup> Southwestern Commission. (2017). *Southwestern NC Economic Development District: A Comprehensive Economic Development Strategy*. Sylva, NC. Retrieved from <https://regiona.org/wp-content/uploads/CEDS-Update-2018.pdf>

88 percent of residents are white, 7 percent are Native American, 1 percent are black, and 2 percent reported two or more races. North Carolinians as a whole are 71 percent white, 2 percent Native American, 22 percent black, and 2 percent reporting two or more races. Finally, the proportion of Hispanic or Latinx residents at the state level (10 percent) is double the proportion in the project region (5 percent).

## Major Economic Drivers

The two largest industry clusters in the project region are Health Services and Education, both public and private. However, the two fastest growing industries are Arts, Entertainment, and Recreation and Accommodation and Food Service, which are driven by the large amount of public land and the associated outdoor recreational tourism opportunities.

Tourists to the region contribute greatly to its economic development. The U.S. Travel Association reports the direct visitor spending from 14.5 million people in these seven counties in 2018 was over \$885 million.<sup>2</sup> These visitors are less racially diverse, higher educated, and have a higher median household income than the average resident. Visit North Carolina reports that overnight visitors to Western North Carolina are 94 percent white, 69 percent have a college degree, and their median household income is \$87,270—over double that of the region.<sup>3</sup>

---

<sup>2</sup> U.S. Travel Association. (2019). “The Economic Impact of Travel on North Carolina Counties.” Retrieved from <https://partners.visitnc.com/economic-impact-studies>

<sup>3</sup> Visit North Carolina. (2018). “2018 North Carolina Regional Visitor Profile.” Retrieved from <https://partners.visitnc.com/contents/download/71007/file/2018-North-Carolina-Regional-Visitor-Profile.pdf>

# Section 2: Farming in the Project Region

---

## Overview of Farming

According to the 2017 U.S. Department of Agriculture (USDA) Census of Agriculture, there are 1,759 farms covering 147,638 acres in the seven-county project region.<sup>4</sup> From 2012 to 2017, the region experienced a slight decrease (-1 percent) in the overall number of farms, but a slight increase (7.5 percent) in the acres of farmland.

As shown in Table 1, the area is populated primarily by smaller farms. Ninety percent of farms in the region fall within the USDA’s definition of a small farm (under 180 acres). However these farms are significantly smaller than the USDA’s designation; the median farm size is 36 acres. Table 2 shows that 15 percent of farms are smaller than 10 acres, and 47 percent of all farms are between 10–49 acres. The average acres per farm is 84 acres, which is much smaller than the state average of 182 and the national average of 441 acres. The region’s average is much larger than the median because it includes a few very large farms with significant tracts of pastureland and woodland. In fact, much of the farmland measured in this region is designated as pastureland or woodland. As seen in Figure 1, cropland accounts for less than a quarter of all farmland (24 percent), compared with 43 percent pastureland for grazing and 28 percent woodland in the form of timber tracts. Cropland not only includes fruits and vegetables, but also field crops like hay and Christmas trees, as well as floriculture and bedding crops from nurseries, and greenhouses. The final 4 percent accounts for land that contains buildings, roads, ponds, and other non-agricultural uses.

**Table 1. Farmland in Southwestern North Carolina, 2017**

Number of Farms	1,759
Land in Farms (acres)	147,638
Average Acres per Farm	84
Median Farm Size (acres)	36

Source: USDA Census of Agriculture, 2017

---

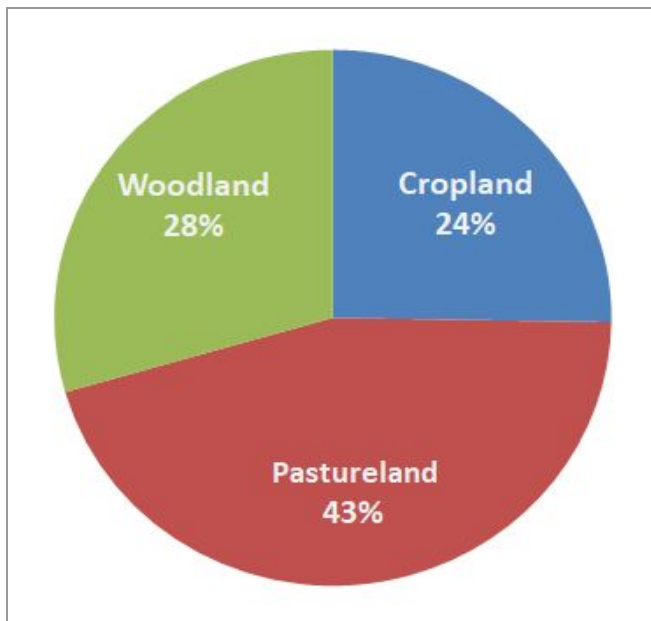
<sup>4</sup> USDA National Agricultural Statistics Service. (2019). 2017 Census of Agriculture. Retrieved from <https://www.nass.usda.gov/AgCensus/index.php>

**Table 2. Farms by Size, 2017**

Farm Size	Number of Farms	%
1 to 9 acres	266	15%
10 to 49 acres	823	47%
50 to 179 acres	488	28%
180 to 499 acres	144	8.2%
500 to 999 acres	26	1.5%
1,000 acres or more	12	0.7%

Source: USDA Census of Agriculture, 2017

**Figure 1. Farmland Type by Acreage, 2017**



Source: USDA Census of Agriculture, 2017

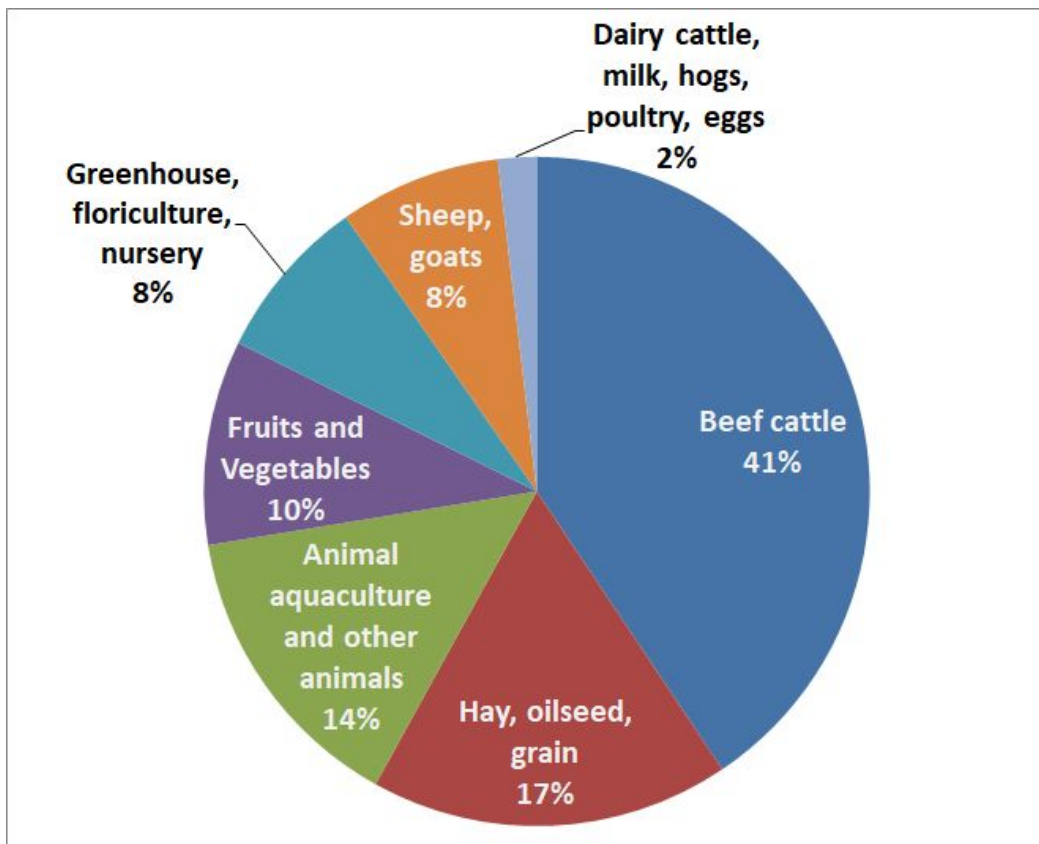
## Farming by Primary Economic Activity

Using another Census data classification tool, the North American Industry Classification System (NAICS), provides insight into farming in the project region by primary economic activity.<sup>5</sup> As shown

<sup>5</sup> The Census of Agriculture uses the North American Industry Classification System (NAICS) to classify farms by primary economic activity. This is determined by which product accounts for over 50 percent of a farm's agricultural production in terms of overall market value. For example, a farm receiving 51 percent of its earnings from cows and 49 percent of from tomatoes will only be classified under the beef cattle ranching and farming NAICS code. The NAICS system is intended to provide a consistent framework for the collection, analysis, and dissemination of industrial statistics related to specific business sectors. To account for farms that produce a diversity of products, the Census of Agriculture tracks more detailed data on individual crops, acres, and sales, examined in the next section.

in Figure 2, farms raising cattle and farms supporting them with the production of hay and silage are the most prevalent in this region. Forty-one percent of farms in this region report cattle as their primary product, followed by 16 percent growing primarily hay and silage. A category labeled “animal aquaculture and other animal production” accounts for 14 percent of all farms, but this is a catch-all grouping, including farms with bees, horses, and other animals, as well as farms that raise a combination of animals where no one type of animal accounts for a majority (one-half) of the farm’s agricultural production. Only 10 percent of the region’s farms are growing fruits and vegetables as their primary crop.

**Figure 2. Farms by Primary Economic Activity, 2017**



Source: USDA Census of Agriculture, 2017

Table 3 shows the major trends over time in the types of farms in this region. Over the past 10 years the region lost just over 159 farms. Much of that loss occurred within farms growing primarily beef cattle and greenhouse, nursery and floriculture crops.

**Table 3. Farms by Primary Economic Activity, Change from 2007 to 2017**

Farm Type	2007	2017	Change	% Change
Beef cattle ranching and farming	809	714	-95	-12%
Hay and silage production	237	281	44	18%
Animal aquaculture and other animal production	264	253	-11	-4.2%
Greenhouse, nursery, and floriculture production	219	140	-79	-36%
Sheep and goat farming	123	138	15	12%
Vegetable farming	123	120	-3	-2.4%
Fruit and tree nut farming	41	54	13	32%
Grain farming	17	26	9	53%
Poultry and egg production	56	10	-46	-82%
Dairy cattle and milk production	17	18	1	5.9%
Hog and pig farming	3	5	2	67%
Tobacco	9	0	-9	-100%
Total	1918	1759	-159	-8.3%

Source: USDA Census of Agriculture, 2007 & 2017

## Agricultural Sales

According to the Census of Agriculture, in 2017 overall farm sales in the region were approximately \$64,689,000. However, few farms are operating as profitable full-time businesses. In this region, 31 percent of all farmers farm full time and 28 percent farm part time. The final 41 percent work off-farm full time (defined by the USDA as a person working off-farm more than 200 days a year). As seen in Table 4, only 7 percent of farms had sales of more than \$50,000. Conversely, three-quarters of the region's farms had sales of less than \$10,000.

In the survey and interviews conducted for this assessment, farmers, agricultural and business support providers, and other community stakeholders identified the need for farmers to be able to support themselves through farming. Noting how hard it is to make a living farming, one interviewee stated, "How would they ever support someone or a family? To see the people up the road have a u-pick farm...but they're stocking shelves at Wal-Mart at night."



**Table 4. Overall Farm Sales**

<b>Farms by Value of Sales</b>	<b>Number of Farms</b>	<b>%</b>
Less than \$2,500	793	45%
\$2,500–\$4,999	244	14%
\$5,000–\$9,999	258	15%
\$10,000–\$24,999	227	13%
\$25,000–\$49,999	106	6%
\$50,000–\$99,999	41	2%
More than \$100,000	90	5%

*Source: USDA Census of Agriculture, 2017*

## **Top Farm Products**

The region’s farms produce a diversity of products. The Census of Agriculture reports the number of farms growing any amount of every major crop or raising any number of farm animals. It also reports the number of acres associated with that production, along with the market value earned from each product. Table 5 shows the top nine agricultural products produced in the region measured in total sales from the 2017 Census of Agriculture. Cattle, including the sale of calves, accounts for the largest proportion of sales, over \$12 million from nearly 900 farms. Farms growing hay (which is likely grown along with cattle) are the second most numerous, but hay only accounts for approximately \$2 million in sales. Christmas trees ranked second highest in total sales, accounting for \$7.8 million in sales. Trend data show that there were half as many farms growing Christmas trees in 2017 as in 2002. Third in sales and number of farms are vegetables, with 160 farms growing and selling vegetables and accounting for \$7.8 million in sales.

A few categories of crops and animals produced in the region stand out and are worthy of deeper exploration. As can be seen in the following charts, the region produces some farm products in significant quantities. This presents the opportunity to explore larger scale markets for regional food products. The region is well known for the quality of several farm products such as tomatoes, peppers, and trout.

**Table 5. Top 9 Agricultural Products by Sales, 2017**

	Total Sales	Number of Farms
Cattle, including calves	\$12,154,000	896
Cut Christmas trees	\$7,865,000	88
Vegetables, including seed and transplants	\$7,806,000	160
Milk	\$5,332,000	11
Hay and haylage	\$2,068,000	787
Grain, including field corn	\$1,295,000	103
Floriculture, including bedding plants	\$1,191,000	38
Fruit and tree nuts	\$692,000	98
Aquaculture sales	D*	23

Source: USDA Census of Agriculture, 2007 & 2017

\*Data is withheld to avoid disclosing information about individual farms. Other aquaculture data is analyzed later.

## Beef Production and Cow-Calf

Cattle farms dominate agriculture in this region. Nearly 900 of the 1,759 farms in southwestern North Carolina report raising cattle; this is down 40 percent from the 1,485 farms that raised cattle in 1997. The sale of cows and calves in 2017 accounted for \$12.1 million of the region's \$64.6 million in agricultural sales.

**Table 6. Cattle Production by County, 2017**

	Farms	Sales (\$)
Cherokee	137	\$7,381,000
Clay	86	\$708,000
Graham	61	\$481,000
Haywood	310	\$3,124,000
Jackson	89	\$335,000
Macon	170	D
Swain	43	\$125,000

Source: USDA Census of Agriculture, 2017

The majority of cattle raised in the region is through cow-calf operations, in which farmers keep a permanent herd of cattle and raise the calves to “feeder” weight to sell at livestock auctions. Cow-calf operations are marginally profitable and have been in decline, in both the number of

farms and acres of farmland in production. In general, beef cows are not high-value animals and cow-calf producers are more susceptible to the cycles of supply and demand that determine commodity pricing. Despite the low profitability, these kinds of operations have continued to be an important part of the region's agriculture. Historically, raising cows on pasture is suited to the challenges of mountainous landscapes. It also worked well with tobacco production as a means to supplement landowner income. The care of the calves themselves is less demanding, which allows older farmers to continue the practice. Additionally, many farmers are not dependent on these operations for their primary income and use cow-calf to supplement income and to keep land maintained in pasture. A benefit of maintaining a cow-calf operation is that it allows farmers to qualify for an agricultural tax classification on land that would otherwise be taxed at a higher rate.

Because so many farmers are engaged in cow-calf and because it is the dominant form of agriculture land use in the region, strategies and actions implemented to support farms in the southwestern North Carolina region should include cow-calf operations. While there are some innovative models for increasing the profitability of raising beef cows, significant market and infrastructure development are needed for these models to expand. While alternatives are explored, existing infrastructure and expertise should be supported to increase stability for cow-calf production. See additional discussion in Section 5/Meat Processing.

## Dairy Farming

Dairy has historically played an important role in this region but is rapidly declining. The Census of Agriculture shows that in 2017 only 49 farms reported raising dairy cows—down from 86 in 1997. Dairy farms are more specialized than other farm operations and accordingly have particular equipment and facility needs. They require facilities to milk cows and to store and cool milk, and they need equipment to test milk for antibiotics, bacteria, and somatic cell counts before it is picked up by milk haulers. Dairy farmers also tend to have fewer sources of off-farm income than other farmers, making them more dependent on farm-generated income. Taken together, these factors make dairy farms particularly susceptible to price volatility, which has been severe in the industry in recent years.

The infrastructure for large-scale milk processing and distribution still exists in Western North Carolina. MilkCo, an Asheville-based milk processing and packaging plant, produces 53 million gallons of milk annually—approximately 450.5 million pounds—using a combination of milk from Western North Carolina dairies, dairies in other parts of the Appalachian Federal Milk Market Order, and from milk imported from other regions. Milk processed at MilkCo provides Ingles Markets with nearly all of its fluid milk needs. A rough estimate is that 80 percent of the fluid milk processed at MilkCo comes from regional dairies and the remaining amount is imported from other regions.<sup>6</sup>

As with the cow-calf industry, dairy producers have little control when they sell their raw products into a wholesale market. Alternatives to traditional dairy operations are emerging and worthy of

---

<sup>6</sup> Kirby, L., Jackson, C., and Perrett, A. (2007). *Growing Local: Expanding the Western North Carolina Food and Farming Economy*. Asheville, NC: Appalachian Sustainable Agriculture Project.

exploration as models for suitable area farms. Today, there is a rise in smaller scale dairies processing their products on the farm and selling into local markets. There are several farmstead cheesemakers in the region who make cheese from milk produced on the farm, including Dark Cove Farm (goat) in Cullowhee, High Mountain Meadows Farm and Creamery (goat) in Hayesville, and Yellow Branch Cheese (cow) in Robbinsville. Farmers and entrepreneurs exploring artisanal dairy should be supported and connected with markets and tourism marketing in the region.

### Fruit and Vegetable Farming

Table 7 shows the top 10 fruit and vegetable crops in the project region ranked in terms of the number of acres dedicated to it. For further breakdown of these crops by county, see Appendix C. Overall, the region had 1,178 acres dedicated to vegetable production and these 10 vegetables account for approximately all the acres of vegetables grown in the region. Tomatoes are the region’s top vegetable both in terms of acres in production (443) and number of farms (80). Collard greens, squash, pumpkins, and sweet corn each account for approximately 100 acres of production. Fewer acres are used to grow fruits, but grapes are the top fruit in terms of acres in production (48) and number of farms (33). Blueberries, apples, strawberries and watermelon each have between one to two dozen acres grown in this region. While the census reports where these products are produced, it does not track where they are sold.

**Table 7. Top 10 Fruit and Vegetable Crops by Acreage, 2017**

Top Vegetables			Top Fruits		
	Acres in Production	Number of Farms		Acres in Production	Number of Farms
Tomatoes	443	80	Grapes	48	33
Collard Greens	121	12	Blueberries	22	26
Squash	115	64	Apples	21	27
Pumpkins	108	38	Strawberries	14	20
Sweet Corn	93	53	Watermelons	12	11

Source: USDA Census of Agriculture, 2017

### Trout Farming

Trout is an important product for the region both as food and game. North Carolina ranks second in the United States for commercial trout production. In 2018, Western North Carolina had 36 commercial trout farms raising fish for processing, generating over \$9.4 million in sales. Additionally, 16 fingerling producers raised and sold fingerlings generating nearly \$1 million. Three trout processing facilities in Western North Carolina processed over 1.7 million pounds of trout in 2018, generating over \$12.2 million in sales. In addition, fee fishing operations, in which customers pay a fee to fish in stocked ponds, are a popular agritourism connection for the region. In 2018, the region had 20 fee fishing operations that generated nearly one million dollars.

The Western North Carolina trout industry has matured over the last 30 to 40 years. Currently, the market demand for trout outpaces the supply. Establishing a trout farm is expensive, highly regulated, and it's difficult to find suitable water sources. A new trout farm has not gone into production since 2002. Trout remains an important farm product for the region with opportunities for growth. Trout industry experts should be closely consulted to determine where assistance would be most useful.<sup>7</sup>

---

<sup>7</sup> Sloan, D. (personal communication, November 19, 2019).

## Section 3: Market Opportunities for Local Food

---

Local food continues to gain popularity across the nation. In a context of growing distrust in large food companies and increased awareness of the social and environmental impacts of the food system, the food culture in the U.S. is changing. People are looking for food that is authentic and transparent, and that connects them closely to the source. Local food has increasingly come to represent transparency and trust, and more people want to spend their food dollars with local farmers. Recent research by Nielsen found that demand for local food will continue to increase in 2020 and that 48 percent of consumers are looking for food that is grown close to home.<sup>8</sup>

This national trend is reflected in the project region. In interviews and surveys, most reported that the consumer base for local products in the region is growing. “If we tell people we grow it ourselves, they’ll take that over the stuff brought in,” stated one farmer.

Interview subjects also noted that the buying habits of the local food customer have shifted. As one farmer said, “Every year I think we can’t do any more [business at the farm stand], then there’s more people. But it’s a different clientele. It’s not the ladies coming in to buy bushels to can. It’s the ladies coming in to buy half a pound for dinner tonight. The way the consumer prepares food is entirely different than it used to be. We as farmers need to realize that and adapt.” Another farmer stated, “Customers buy less in bulk than they used to. I do \$3 or \$4 in sales instead of \$30 or \$40.”

Though moderate quantities of certain foods are produced in the region, a large majority of these products are not marketed to local residents but are sold to outside markets through complex national and global food supply chains. The challenge for retaining value and growing markets is to first increase awareness and demand for food produced locally. At the same time, there needs to be an effort to research and understand the intricacies of the food system so that stakeholders can conduct strategic interventions that boost the capacity of local producers to grow for and supply local consumers through local markets.

### Overview of Local Markets

According to the 2017 Census of Agriculture, 229 farms (13 percent of all farms) in the seven counties sell their edible goods directly to customers via farmers markets, roadside stands, or through community supported agriculture (CSAs). The Census also reported that 47 farms (2.7 percent of all farms) sell their goods directly to retail outlets like restaurants and institutions. This translates to approximately \$3,794,000 of the region’s overall farm sales made directly to customers (5.9 percent of all sales) and \$1,405,000 made directly to retail outlets (2.2 percent of all sales). Direct sales data is withheld for a few counties in the region, so these total sales numbers are likely underestimates. Table 8 shows the number of farms selling directly to consumers and retailers and direct sales for each county in the region.

---

<sup>8</sup> Souza, K. (2019). “Nielsen: Consumers will want more local foods in 2020.” Retrieved from <https://talkbusiness.net/2019/10/nielsen-consumers-will-want-more-local-foods-in-2020/>

**Table 8. Direct Sales by County, 2017**

	Direct to Consumers		Direct to Retailers	
	Farms	Sales (\$)	Farms	Sales (\$)
Cherokee	35	D	6	\$318,000
Clay	23	\$542,000	3	\$450,000
Graham	14	\$636,000	4	\$187,000
Haywood	84	\$1,826,000	16	D
Jackson	15	\$57,000	7	D
Macon	46	\$125,000	8	D
Swain	12	\$608,000	3	\$450,000

Source: USDA Census of Agriculture, 2017

The Census of Agriculture’s data on markets sourcing from local farms is limited and is tracked at the farm rather than at the point of sale. Additionally, starting in 2017 the Census of Agriculture changed its definition of local sales, making it impossible to identify historical trends. To gain insight into activities in local markets, this assessment uses data from ASAP’s *Local Food Guide*, a database of farms, markets, and food businesses operating within 100 miles of Asheville, which includes the project region’s seven counties. The LFG, which can be accessed at [appalachiangrown.org](http://appalachiangrown.org), is the most comprehensive data set on farms selling locally and businesses buying locally for the region and is particularly useful because it is updated annually instead of every five years like the Census.

In 2019, the LFG listed 119 farms in this region that focus on local sales. Nearly half of these farms are in Haywood County, where there are a greater number of direct market outlets. LFG data provides additional information about the market outlets farms are utilizing within the project region, including farmers markets, retail businesses and value-added producers, institutional buyers, and wholesale distributors. In 2019 the LFG listed 10 farmers markets, which have an average of 19 vendors each. Thirty-two farms in the region reported selling through these markets and many sell at more than one. Roadside farm stands are also popular along the main thoroughfares. In total the 2019 LFG data showed 26 farm stands including 14 in Haywood and five in Macon. Ten farms offered CSAs (Community Supported Agriculture), including five in Haywood County.

The LFG also includes retail businesses that prioritize local sourcing and name the farms they purchase from, as well as wholesale distributors and institutional buyers. In 2019 the LFG listed 21 retail businesses sourcing local products in this region, including nine in Haywood County and about two in each of the other counties. The 2019 LFG listed three wholesale distributors in the region (August Produce in Macon County and Christopher Produce and J.W. Johnson Tomato Co., Inc., in Haywood County).

## Direct Markets

Direct markets like farmers markets, CSAs, and farm stands are vital to local food system development and expansion in southwestern North Carolina. Direct markets offer high returns to farmers and offer low barriers to market entry in comparison to other types of markets. Direct markets also work synergistically with efforts to develop local food supply chains that serve non-direct markets like grocery stores, restaurants, and institutional cafeterias.<sup>9</sup>

### Farmers Markets

The 2019 LFG listed 10 farmers markets in the region: Haywood's Historic Farmers Market and Original Waynesville Tailgate Market in Haywood County; The 'Whee Market, Jackson County Farmers Market, and The Village Green of Cashiers in Jackson County; Swain County Farmers Market; Graham County Farmers Market; Franklin Farmers Tailgate Market in Macon County; Murphy Farmers Market in Cherokee County; and Brasstown's Farmers Market in Clay County.

Interview and survey respondents indicated that farmers markets are currently an underutilized market opportunity, particularly for medium-sized farms. Some perceive that existing farmers markets need assistance and may be in decline in number and size even though they have potential for growth. Interviewees also identified that management challenges of some markets has led to a lack of trust from farmers. Market vendor mix was also cited in interviews as an issue. Farmers have shied away from markets that have become too heavily weighted toward craft vendors, some report. Some farms travel outside the region to get to more profitable markets. Farmers markets in Georgia were specifically cited as valuable markets for area farms.

Farmers market management training and resources were identified as needs in interview and survey responses. One effort currently in place to build the capacity and effectiveness of market management is the ASAP-led Growing Direct Sales for Appalachian Farms project. This effort includes creating a farmers market toolkit, hosting an annual farmers market summit, and providing technical assistance to individual markets to address needs specific to each market. Haywood's Historic Farmers Market, Original Waynesville Tailgate Market, Jackson County Farmers Market, and the 'Whee Market have been active participants in these efforts.

Interview and survey respondents also identified a project in development to create a nonprofit that would support three farmers markets in Jackson County through infrastructure and online ordering, modeled after the High Country Food Hub (see Appendix E for more on that model).

---

<sup>9</sup> Perrett, A. and Jackson, C. (2018). *The Influence of Farmer-Customer Interactions at Farmers Markets on Farmer Growing Practices*. Asheville, NC: Appalachian Sustainable Agriculture Project. Retrieved from <https://asapconnections.org/wp-content/uploads/Final-The-Influence-of-Farmer-Customer-Interactions-at-Farmers-Markets-on-Farmer-Growing-Practices.pdf>



## Community Supported Agriculture (CSAs)

The 2019 LFG listed 10 farms currently using CSA models: Betsy’s Farm, Our Fiddlehead Farm, Still Waters Landing, The Ten Acre Garden, and Two Trees Farm in Haywood County; Deal Family Farm and Winding Stair Farm and Nursery in Macon County; Chrysalis Earth Farm in Jackson County; and Candy Mountain Farm in Cherokee County.

CSAs were also identified through the survey and interviews as an underutilized market opportunity for farmers in the project region. Many view CSAs as an untapped outlet, particularly with the rise of meal kits and consumer desire for “a meal in a basket,” even outside of urban environments. According to one interviewee, “There was a time in Jackson County, eight years ago, you had a choice of four [CSAs]. Now the closest one is in Macon County.”

The time and effort required to organize and market a CSA is a barrier for many farmers. It can be harder to sell a CSA in rural areas such as the project region, due both to lack of population density and because more of the population continues to garden and grow their own food. However, an example of a CSA in the region is Deal Family Farm in Franklin (Macon County), which has a 65-person CSA made up of local customers. This is a shift from when the farm started the CSA and marketed primarily to customers in the Atlanta area.

Workplace CSAs are an emerging option and may offer a more sustainable market opportunity than traditional CSAs. In a workplace CSA, employees sign on as a group, and the farmer delivers directly to the place of business. This strategy has the potential to lighten the marketing burden and provide logistical support for the farmer. One such program is Haywood Local Food Marketplace, a multi-farm CSA at Haywood Regional Medical Center, which significantly expanded this year. Coordinated by Betsy’s Farm, the CSA incorporates products from other farms and food producers, including Shady Brook Farm, King Harvest Farm, and KT’s Orchard and Apiary, all located in Canton.

Opportunity exists for similar models at other large employers in the region, which are generally in education, health services, or public administration sectors. Top employers by county are compiled by the Southwestern Commission and available at [regiona.org](http://regiona.org).

## Retail and Wholesale Markets

Restaurants, retail, and institutional markets should be part of an overall strategy of market diversification and growth for farmers in southwestern North Carolina. ASAP’s research demonstrates that as local food awareness grows, interest by restaurants, grocers, and other wholesalers in meeting consumer demand is increasing. However, more support is needed to create consistent demand among these buyers as well as to connect farmers with these outlets.

## Restaurants

The 2019 LFG included eight restaurants and bakeries sourcing farm products locally in the project region: Coffee Cup Cafe, Frogs Leap Public House, and Just Simply Delicious in Haywood County; City Lights Cafe and Guadalupe Cafe in Jackson County; Paoletti's and Yonder in Macon County; and Backwoods Bakery in Swain County. These are likely to be the businesses most engaged with local food sourcing and branding; other restaurants in the region are also sourcing locally, but on a much more sporadic basis. Interview and survey respondents perceived that restaurants sourcing from local farms in the project region are growing in number. For instance, a new restaurant in Brasstown, The Crown, opened in May and has received attention for its commitment to local sourcing.<sup>10</sup>

Selling to restaurants requires farmers to essentially go door to door, building and maintaining relationships one at a time. Interview and survey respondents cited a need for better connections with restaurant buyers. ASAP has hosted several grower-buyer meetings in the project region, which are networking events designed to provide introductions between farmers wishing to sell to restaurants and other retailers and buyers wishing to purchase from local farms. These events have had mixed results, primarily due to a lack of committed buyers.

As stated by interview and survey respondents, more work needs to be done to create demand among chefs and restaurant owners. Key to creating this demand is building demand among restaurant customers. Efforts focused on creating and deepening connections between local farms and restaurants might include increased outreach around grower-buyer meetings; better utilization of ASAP's Wholesale Local Food Guide (a farm to business trade directory); and helping restaurants to promote local food connections to customers and the wider community through branding, labeling, and publicized food and farm events.

## Grocery Stores

There is a practical limit to how much food can be sold through direct market and restaurant outlets; a large share of consumers' food spending will continue to be in grocery stores. North Carolina has several grocery chains with local food purchasing programs (such as Ingles Markets and Lowes Foods). These outlets provide farmers with potential market opportunities, but farmers need to be equipped with knowledge of market standards. Accessing larger chains (such as Wal-Mart and Kroger), which look for year-round supply and consistent pricing, can be a challenge even for larger farms, as well as be less profitable as a broker or other middleman is often involved.

---

<sup>10</sup>Figueras, L. (2019, Nov. 19). "Appalachia calling: Atlanta chef trades city life for mountain cooking." *The Atlanta Journal-Constitution*. Retrieved from <https://www.ajc.com/entertainment/dining/appalachia-calling-atlanta-chef-trades-city-life-for-mountain-cooking/96t1hl6odVwoCmEPDJ8R2L/>

Ingles, which operates 212 stores in six southeastern states with headquarters in Black Mountain (Buncombe County), is the dominant supermarket in the project region and was singled out by several farmers in interviews as doing a better job of sourcing from local farms than other large grocers in the region. “If it were not for Ingles being aware that there were people out there saying, ‘What about local?’ we wouldn’t be where we are,” said one farmer.

In order to sell to major grocery chains, farmers must meet market requirements, including high levels of liability insurance and the ability to offer graded product in standardized packaging. Food safety certification (Good Agricultural Practices or “GAP”), which verifies that fruits and vegetables are produced, packed, handled, and stored as safely as possible to minimize risks of microbial food safety hazards, is also usually required. Understanding what is necessary to pass a GAP audit and implementing the plan can be a barrier for many small, diversified farmers. The USDA currently lists 10 companies in the project region that have been audited by the USDA Agricultural Marketing Service, Fruit and Vegetable Programs and meet all GAP criteria. In addition to the USDA audits, farmers may use third-party auditors, so this number is likely to be slightly higher.

In interviews multiple farmers expressed desire for a non-brokered middleman to connect with grocery buyers (as well as institutions, discussed in the next section). “You need someone who can reach out and know that I’ve got cabbage and tomatoes, and you’ve got collards and potatoes. But not somebody who’s going to say if you want to sell to the hospital, cabbage is \$14 a box, but we’re going to pay you \$10 a box.” This desired service would track markets and industry requirements for packaging and labeling, food safety certification, quality standards and traceback, product quantities and distribution; connect farmers to suitable market outlets; and prepare farmers to meet industry standards. This role might be filled by an entrepreneurial farmer (“someone with skin in the game,” as one interviewee said) or be part of an aggregation enterprise (see Aggregation/Food Hubs in Section 5 for more discussion of this).

In addition to grocery chains, there are local independent grocers that buy directly from farmers, including Harold’s in Sylva and Bryson City IGA. Some farms also purchase and resell products from other farms at their own roadside stands, including Christopher Produce in Waynesville (also a distributor; see Section 5), Darnell Farms in Bryson City, Ledford Farms in Clyde, and Chambers Farm Market, Duckett’s Produce, and Owl Produce Market & Farm in Canton. Specialty food stores, for example, Copper Pot and Wooden Spoon in Waynesville, carry value-added products and some farm goods.

## Institutions

With the growth of demand for local food, there has also been increasing interest by institutions such as schools, hospitals, colleges, daycares, summer camps, senior centers, and resorts, in providing fresh, local options to students, staff, patients, and employees. Institutional market settings like schools and hospitals provide opportunities to highlight the connections between food, food access, and health; nurture healthy eating habits in kids and families; and build support and appreciation for local farms and food. Moreover, schools and hospitals, because they reach

broad constituencies and reach across socioeconomic and other cultural lines, provide opportunities to increase access to fresh, local food to all community members.

Public schools in particular may provide farms in rural settings with market options. Rural areas often lack sufficient market outlets, but school systems exist in every county and have the potential to provide a steady market for farmers. Cherokee, Clay, Haywood, Jackson, Macon, and Swain county schools, as well as Cherokee Central School, all currently report purchasing at least some food from local farms. All school districts in North Carolina are eligible to participate in the North Carolina Department of Agriculture's Farm to School program ([ncfarmtoschool.com](http://ncfarmtoschool.com)), which makes this statewide program the most accessible option for many county school districts. The Growing Minds Farm to School program ([growing-minds.org](http://growing-minds.org)) also provides resources and assistance to teachers, school systems, and early care centers in the region.

The best results for selling into schools will generally occur when farmers connect with a school nutrition director who can be a champion for local food and farms and who can educate people within the school systems, including cafeteria employees, administration, teachers, parents, and students. Farmers need training in educating these institutional buyers, as well as support in identifying and connecting with champion school nutrition directors.

There are seven hospitals in the region: Erlanger Western Carolina Hospital in Cherokee County, Haywood Regional Medical Center, Harris Regional Hospital in Jackson County, Swain Community Hospital, Angel Medical Center and Highlands-Cashiers Hospital in Macon County, and Cherokee Indian Hospital in the Qualla Boundary. Hospitals use a variety of approaches to incorporate local food into foodservice, including purchasing local foods through contracted suppliers, working within out-of-contract percentages to maximize local food purchases, offering expanded nutrition education regarding consumption of fresh fruits and vegetables, and operating farmers markets or CSA drops on hospital grounds. As with groceries, farmers need introductions to hospital buyers, as well as training to meet required standards. The GrowCherokee report (see Appendix A) assessed market opportunities at Cherokee Indian Hospital and noted two primary barriers: finding local vendors/distributors that can meet stringent food safety requirements and a lack of kitchen equipment for onsite food preparation (flash-frozen foods are preferred).<sup>11</sup>

Other potential institutional markets in the region include Western Carolina University (WCU) in Cullowhee, Harrah's Cherokee Casino, and resorts centered around Highlands and Cashiers.

WCU dining services are managed by Aramark, a national food service provider. Aramark's Green Thread environmental sustainability program provides a framework for local sourcing. It currently promotes sourcing from farms outside the region.<sup>12</sup> Interview and survey respondents cited difficulty in accessing this market.

---

<sup>11</sup> WithersRavenel. (2018). *GrowCherokee Agricultural Economic Development Plan*. Eastern Band of Cherokee Indians Division of Agriculture and Natural Resources.

<sup>12</sup> Western Carolina University, Campus Dining Service. (2019). "What We're Doing on Campus." Retrieved from <https://westerncarolina.campusdish.com/Sustainability/WhatWeAreDoing>

The GrowCherokee report assessed the restaurants and banquet facilities within Harrah’s Cherokee Casino as markets for local products, noting that the best outlets, according to purchasing agents, are through the banquet, buffet, and catering channels. Outreach should be done with individual outlets to determine local procurement opportunities. There are nine foodservice outlets at the Cherokee location of the Casino as well as six at the Murphy location; these operations share a single warehouse and cold storage space is limited. Cost-effective products and food safety (i.e., GAP certification) are primary concerns for purchasing agents.

Additionally, high-end resorts, lodges, and spas centered around the popular tourist and vacation home destinations of Highlands and Cashiers serve a clientele that is seeking experience dining and is willing to pay a premium for it. Several of these establishments tout farm to table menus and local sourcing, but opportunity exists to better connect with farms in the project region (local ingredients on these menus often come from Tennessee, Georgia, or other parts of North Carolina). One future opportunity is at High Hampton Resort in Cashiers, which was sold in 2017 and will undergo restoration in 2020. In 2021 Blackberry Farm of Tennessee, a luxury resort known for elevating local food and farms, will take over the management of the inn, including the food and beverage offerings.<sup>13</sup>

## Quantifying Potential Market for Fresh Fruits and Vegetables

To quantify the potential demand and the capacity of the region’s farms to supply local food to the region’s population, this assessment compared consumption and production estimates of common foods grown in the region. Several factors were considered to provide a realistic and reasonable upper limit for growing food for local markets. Local farmers cannot supply 100 percent of the food consumed by local customers, because they cannot efficiently grow bananas, avocados, or lemons, for example, no matter how much local food infrastructure is improved. There are also immediate constraints on meeting demand imposed by lack of processing and the inability to meet year-round consumption with seasonal restrictions on production. Farmers can, however, readily grow 23 different types of fruits and vegetables that are regularly consumed fresh by the region’s residents.

Table 9 shows production and consumption estimates for these 23 fresh fruits and vegetables. The column labeled “Acres in Production” shows the current capacity for the production of these goods as of 2017. The column titled “Sufficient to Satisfy (x)% of the Local Population” is a calculated estimate of the approximate amount of local consumption that could be satisfied by local production, based on a national average per capita consumption of each fresh food item.

---

<sup>13</sup> Richeson, D. (2019, Jun 23). “Blackberry Farm to run High Hampton.” *Crossroads Chronicle*.

**Table 9. Calculated Supply and Demand for 23 Common Crops**

	Acres in Production	Sufficient to Satisfy (x)% of the Local Population
Apples	21	16%
Bell Peppers	45	33%
Blackberries	3	2%
Blueberries	22	43%
Broccoli	3	2%
Cabbage	9	11%
Carrots	4	6%
Cantaloupes	4	4%
Collard Greens	121	2,513%
Cucumbers	69	78%
Grapes	48	28%
Lettuce	8	3%
Okra	7	314%
Onions, dry	3	2%
Potatoes	44	13%
Pumpkins	108	116%
Snap Beans	83	239%
Squash	115	396%
Strawberries	14	13%
Sweet corn	93	41%
Sweet potatoes	4	4%
Tomatoes	443	366%
Watermelons	12	13%

Sources: USDA Census of Agriculture, 2017; USDA Economic Research Service, 2018

What is clear from Table 9 is that for some of the fresh fruits and vegetables grown in the region, there is significantly more demand (consumption) than supply (production). For certain produce items, like collard greens, regional production levels far surpass consumption levels. However, the region's population could support more production of many key fruits and vegetables without extensive infrastructure or distribution changes. This table also illustrates that some crops grow particularly well in the region and that there are robust export (outside the region) markets for some fresh products. These products might help facilitate access to larger regional buyers for local products by having an ability to meet the higher volume required by bigger buyers.

For the purposes of this exercise in estimating potential for local production to match consumption, only fruit and vegetable opportunities are considered. Currently, very little beef raised in southwestern North Carolina is marketed locally (see Section 2/Beef Production and Cow-Calf and Section 5/Meat Processing). Likewise, small-scale dairy offers potential for growth but would require significant changes in production and processing infrastructure to match local and regional consumption. For this reason, this calculation does not examine the demand or potential for local spending on local meat or dairy and focuses instead on products that could most easily be expanded to meet local and regional demand potential.

### Potential Local Food Spending

This section calculates potential local food spending based on the current population and realistic production and consumption estimates for the region. The figure takes into account the growing season of local produce, assuming the use of practices like greenhouse production to extend the growing season, and improved storage and processing techniques. A potential local food spending estimate also assumes achievable improvements to infrastructure and distribution systems in addition to changes in shopping behaviors and preferences so that all residents in the project region choose to purchase local food when it is available. It is offered here to illustrate potential production of local products for local consumption and to calculate the direct economic impact of shifting to local.

Based on current regional expenditure estimates, the residents of the seven-county project region spent over \$611 million on food in 2018.<sup>14</sup> The average household in the southern U.S. spends 56 percent of total food expenditures on food consumed at home, and the remaining 44 percent on food consumed away from home. On average, 12.5 percent of food purchased for the home is fresh fruit and vegetables. Other data show that a little less than three-quarters of all away-from-home food spending occurs in restaurants, showing the market potential restaurants hold for local farmers.

Table 10 shows that based on current expenditure estimates, residents of the project region spend approximately \$43.1 million on fresh produce annually at retail outlets. In order to get a realistic estimate of potential economic impact, the following estimate factors in seasonality of production for fresh fruits and vegetables that could be produced in the region. If local farms were to meet the project region’s total demand for regionally produced crops during their specified growing seasons, they have the potential to generate \$16.4 million in local sales for the region.

**Table 10. Calculated Potential Local Spending on Fresh Fruits and Vegetables**

	<b>Current Retail Spending</b>	<b>Potential Local Spending</b>
<b>Fresh Fruits and Vegetables</b>	\$43,186,654	\$16,410,928

Sources: U.S. Census Bureau, 2019; USDA Economic Research Service, 2018

<sup>14</sup> U.S. Department of Labor, Bureau of Labor Statistics. (2019). Consumer Expenditure Survey. Retrieved from <https://www.bls.gov/cex/>

## Potential Spending in Nearby Markets

This section examines food expenditure estimates for four nearby urban areas as a first step in assessing the feasibility of marketing southwestern North Carolina products to those areas. Asheville,<sup>15</sup> Atlanta,<sup>16</sup> Chattanooga,<sup>17</sup> and Greenville<sup>18</sup> Metropolitan Statistical Areas (MSA) were looked at to estimate potential markets.<sup>19</sup> With a 2018 population of 5,950,000, Atlanta is one of the largest cities in the southeastern U.S. Greenville, Chattanooga, and Asheville are midsize cities, with 2018 populations of 907,000, 561,000, and 460,000, respectively.<sup>20</sup> The per capita personal income for Atlanta in 2017 was \$40,600; for Chattanooga, \$26,700; for Greenville, \$36,300; for Asheville, \$31,100.<sup>21</sup> Based on current consumption estimates, residents of Asheville, Chattanooga, Greenville, and Atlanta spent over \$1.3 billion, \$1.6 billion, \$2.7 billion, and \$17.9 billion respectively on food in 2018. Approximately seven percent of that is spent on fresh fruits and vegetables in the home, which translates to nearly \$1.7 billion spent annually in these four urban areas.

Given the large population centers close to the region and the relatively small population within the region, nearby markets should be considered for the larger market opportunities they provide. For the biggest farms of the region, and farms looking to expand, nearby markets are a necessity.

---

<sup>15</sup> Comprising Buncombe, Haywood, Henderson, Madison, and Transylvania counties in NC.

<sup>16</sup> Comprising Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, Rockdale, and Spalding counties in GA.

<sup>17</sup> Comprising Hamilton County in TN and Catoosa and Walker counties in GA.

<sup>18</sup> Comprising Anderson, Greenville, Laurens, and Pickens counties in SC.

<sup>19</sup> MSA central counties are defined by the U.S. Census Bureau as counties that (a) have at least 50 percent of their population in urban areas of at least 10,000 population; or (b) have within their boundaries a population of at least 5,000 located in a single urban area of at least 10,000 population.

<sup>20</sup> U.S. Census Bureau. (2018). *Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018*.

Retrieved from <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

<sup>21</sup> U.S. Census Bureau. (2018). *Selected economic characteristics, 2013–2017 American Community Survey 5-year estimates*. Retrieved from <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>



## Section 4: Tourism, Brewing, and Outdoor Recreation

---

### Tourism and Agritourism in the Project Region

Tourists today are different than at any other time in history. They are not interested in being passive spectators; they want to participate in their experiences and are seeking authentic experiences.<sup>22</sup> Food tourism in particular is on the rise. Trying new foods now plays a major role in travel experiences, especially for the millennial generation.<sup>23</sup> Local farms and signature foods and products can provide the authentic experiences today's travelers desire.

Tourism is Western North Carolina's number one industry, driven by scenic landscapes and the natural beauty of the region. Over the past decade, local farms and local food have become integral to the way the region promotes itself. In the central mountains, the Asheville Convention and Visitors Bureau has branded the region "Foodtopia" to promote Asheville as a tourist destination. Its identity is tied to local farms, local food, and unique regional cuisine.

Southwestern North Carolina is especially rich in public lands and outdoor recreational opportunities. It's not surprising then that the two fastest growing industries are Arts, Entertainment and Recreation and Accommodation and Food Service. Tourists in the seven-county project region spend nearly \$300 million on food and drink annually, providing ample opportunity to connect local farms to tourism promotion, as well as interconnected industries like brewing and outdoor recreation.<sup>24</sup>

Except for on-farm agritourism, agriculture and tourism in the project region operate more or less independently of one another. In 2019, 46 of the area's farms in the LFG indicated that they welcome visitors on their farms, including for u-pick, farm tours, wineries, corn mazes, campgrounds, event hosting, or lodging. For example, farms such as Walnut Hollow Ranch in Clay County, Darnell Farms in Bryson City, Deal Family Farm in Franklin, Wehrloom Honey in Robbinsville, and Barber Orchards in Waynesville have developed extensive agritourism channels as part of their farm businesses.

Coordinated efforts to promote agritourism across the region have met with challenges due to the region's lack of farms suitable for visitors and low population density. Southern Appalachian Family Farms, a farmer-led nonprofit serving Cherokee, Clay, Graham, and Macon counties, founded in 2010, attempted to coordinate a regional farm tour, but was not successful, in part because of the

---

<sup>22</sup> Stănciulescu, G.C., Molnar, E. and Bunghez, M. (2011). "Tourism's Changing Face: New Age Tourism Versus Old Tourism." *Annals of Faculty of Economics*. 1(special), 245–249. Romania: The University of Oradea.

<sup>23</sup> Kelter, D. (2017). "Will Travel for Food: Travel Culture Shakes Up Dining Out." Retrieved from <https://www.mintel.com/blog/foodservice-market-news/travel-culture-shakes-up-dining-out>

<sup>24</sup> U.S. Travel Association. (2019). "The Economic Impact of Travel on North Carolina Counties." Retrieved from <https://partners.visitnc.com/economic-impact-studies>

distance between farms and the small population base to pull from for visitors. Jackson County also held a farm tour for several years, but it stopped due to all-volunteer staff.

Opportunity exists to better connect local food and farm activities to general tourism promotion for the region, particularly grouped by proximity. Tourist attractions, including farms, outdoor recreation activities, restaurants, and breweries, should be identified in proximate clusters and cross-promoted in order to attract visitors. Tourists are often looking for multiple outings/stops that are close together for day trips. As one interviewee said, “Wehrloom Honey is a regular tourist stop. There is one winery near Wehrloom, but you need to really know where it is to find it.”

Surveys show a need for farms/agritourism ventures to build better partnerships with entities such as the local Tourist Development Authority, Chamber of Commerce, Economic Development Commission, and the Southwestern Commission. The ASAP/Blue Ridge National Heritage Area publication *Farm Promotion and Support. Ideas and Tools for Economic Development and Tourism Development Authorities* (see Appendix A) offers tourism and economic development professionals a set of strategies for ways they can utilize local farms and food to meet tourism development goals. For the project region, efforts could include:

- Develop a broad-based collaboration that includes representatives from agricultural support agencies, nonprofit organizations, restaurants, breweries, wineries, hospitality, outdoor recreation, and farmers to raise the visibility of agritourism in the region.
- Integrate farms, farmers markets, farm to table restaurants, etc. into existing regional and county tourism promotions and guides.
- Create up-to-date resources that guide tourists to authentic local food and farm-linked events, destinations, etc. For instance, a curated map or guide is more useful than those that are open to all venues, as less-visitor-friendly destinations are added and the promotion piece loses its value.
- Draw on (and partner with) the Foodtopia effort to establish the region as a farm to table destination. Encourage chefs and breweries to put farm and farmer names on menus and labels.
- Implement a farm signage program. Investigate the North Carolina Department of Transportation farm signage program and the Tourist Oriented Directional Signage program, or explore the creation of a county-run farm signage program that would utilize suitable county-owned land and rural routes.

## **Intersections with the Outdoor Recreation Industry**

The strongest connection to the outdoor recreation industry exists within a tourism cross-promotional framework. Additional intersection opportunities with farming in the project region include:

- Connect the EBCI Trout Hatchery to local food markets, including restaurants and grocers, and brand products for retail sales. The EBCI Trout Hatchery is strongly connected to the

outdoor recreation industry in growing stock for creeks and rivers in the Qualla Boundary, a highly marketed and popular fishing destination. A Community Economic Development Strategy (CEDs) plan to upgrade the hatchery would expand trout production capacity by more than double and include educational components such as public tours.<sup>25</sup> (More on the EBCI Trout Hatchery is included in Section 5.)

- Promote local foods and create outlets for purchase along the route to popular outdoor recreation sites. Products should focus on prepared foods that can travel or be used as snacks while hiking, biking, fly fishing, rafting, or touring on the Great Smoky Mountains Railroad, for example.
- Use private land not in current agricultural use for outdoor recreation to bring in additional income and keep farmers on their land. This could include developing hiking or biking trails on the land, creating river access points for fishing or water sports, or partnering with outdoor education programs.

In addition, other potential intersection points exist with a simultaneous Appalachian Regional Commission POWER project, Growing Outdoors: A Regional Approach to Expanding WNC Outdoor Industry and Jobs. Led by Mountain BizWorks, the goal of this other POWER project is growing the outdoor recreation industry in rural Western North Carolina, including the westernmost seven counties. Outcomes and initiatives from that project should inform this effort.

## Intersections with the Brewing Industry

There are 18 breweries in the project region, with at least two in each county except for Graham (two breweries have multiple locations in the region). A full list is included in Appendix F. All of the breweries have opened in the past decade, with Nantahala Brewing Company opening first in 2009. Beyond the intersections through the tourism framework, opportunities to connect this fast-growing industry with farming include:

- Determine need among livestock farmers for spent grain and make connections with brewers. Spent grain can account for upwards of three-quarters of a brewery's byproduct, and eco-conscious craft brewers across the country have looked for ways to keep it from going to waste. Many have developed mutually beneficial relationships with farmers in which the farmer receives the spent grain for free in return for hauling it away. This is particularly efficient for farmers if they are able to combine a trip to pick up the spent grain with product deliveries to the breweries or to other establishments along the same route.
- Support brewers in sourcing more local ingredients. Brewers often use fruits, spices, or herbs to flavor beers, and many craft brewers are eager to use locally grown products. Connect farmers and brewers to identify needs and availability. This could take the form of a grower-buyer meeting or facilitating a listserv or other digital communication. Ten brewery locations also serve food, creating an additional opportunity for local sourcing.

---

<sup>25</sup> WithersRavenel. (2018). *GrowCherokee Agricultural Economic Development Plan*. Eastern Band of Cherokee Indians Division of Agriculture and Natural Resources.

- Investigate if there are additional niche crops not currently being grown locally that brewers could be a market for.

Outreach to breweries might be facilitated by partnering with Asheville Brewers Alliance, a membership organization dedicated to promoting breweries in Western North Carolina, including in the project region. Eleven of these breweries are currently members and the owner of Nantahala Brewing Company serves on the board.

In addition to breweries, there is one meadery (part of Wehrloom Honey in Graham County), one distillery (Elevated Mountain Distilling Company in Haywood County), and six wineries in the region. Plans for another distillery, an expansion of Mystic Farm & Distillery of Durham, is expected to come to Jackson County in the spring of 2020 at a site along U.S. 441 near Cherokee. Connections with these businesses will overlap with connections within the brewing industry.

## Section 5: Infrastructure and Supply Chain

---

Through surveying, interviews, and review of literature, this assessment identified key existing infrastructure and supply chain assets; existing infrastructure gaps that could benefit from new projects; and potential improvements that could be made to underutilized assets to fill current needs. The assessment defined infrastructure and supply chain assets as those related to processing, storing, and moving local farm food products, including but not limited to transportation, distribution, cold storage, warehouse spaces, packing facilities, sorting lines, kitchen equipment, and food processing.

A GIS mapped inventory of local food infrastructure in North Carolina was compiled by the North Carolina Growing Together Project, a program of CEFS, in 2014 and updated in 2017. This inventory includes farmers markets, cold storage facilities, food hubs/aggregators, commercial kitchens/co-packers, incubator farms, multi-farm CSAs, wholesalers/distributors, fruit and vegetable processors, dairy processors, meat processors, and seafood processors/distributors. This tool is useful for viewing assets geographically and determining where centers of food infrastructure exist in proximity to one another. However, there are significant data gaps and information that is no longer accurate, so this tool should only be used in conjunction with on-the-ground knowledge. The map can be found at [arcg.is/1zyWXv](http://arcg.is/1zyWXv). Data on farmers markets and wholesalers/distributors can be found in the LFG, which is updated annually and can be accessed online at [appalachiangrown.org](http://appalachiangrown.org).

From interviews and survey responses, gaps in infrastructure and supply chain assets were primarily identified in the categories of sorting/packing, cold storage, kitchen space, transportation/distribution, aggregation/food hubs, and meat processing. Each of these areas are explored in more detail below.

A challenge identified in creating shared infrastructure projects is the lack of farm density in the project region. There may not be enough farms clustered together that would take advantage of and sustain new assets. In interviews and surveys, respondents expressed that farmers might be better served by smaller infrastructure investments on individual farms. Cost shares and grants may be the best way to invest in farms, while loans could be better focused on other entrepreneurial food businesses. Any specific large or shared infrastructure development would need a feasibility study and business plan before going forward.

### Sorting/Packing

Packing equipment, sorting lines, and washing facilities are critical for farmers in order to safely prepare produce for market outlets, both wholesale and direct. For farmers wishing to sell to school districts, major supermarket chains, and other large outlets, GAP certification, which has specific requirements for how fruits and vegetables are packed, handled, and stored in order to

minimize risks of microbial food safety hazards, is usually required. Implementing these practices can require prohibitive capital investment.

There is one USDA GAP-certified wholesale packing house in the region, J.W. Johnson Tomato Company in Haywood County. J.W. Johnson supplies grocery chains such as Ingles, Harris Teeter, Kroger, Fresh Market, and Whole Foods, packing for approximately 15 farms in the region, amounting to about three tractor trailer loads six days a week. Products include tomatoes, cucumbers, eggplant, peppers, and squash.

There is a shared washing/packing line in the former Drexel plant in Whittier (Jackson County). Interview and survey respondents identified the plant as having the potential for further development and increased utilization. The building is currently leased through 2021 by a co-op of local farmers who formed Thomas Valley Growers LLC. The facility has significant floor space (82,000 square feet). Adding cold storage, especially different degrees of cold storage for a variety of crop needs, could increase its value to area farmers.<sup>26</sup>

Due primarily to lack of farm density, many small and medium-sized farmers surveyed and interviewed for this assessment indicated they use, and would likely continue to use, sorting and packing space and equipment located on their own farms. These are smaller infrastructure pieces that could benefit from upgrades.

## Cold Storage

Cold storage allows farmers to work more efficiently, as produce can be held for longer periods, stretching the time available between markets, deliveries, or other methods of moving product. Adequate cold storage space also factors into GAP certification. Many farmers, especially new and beginning, don't have the capital to invest in enough cold storage on their farms. Farmers who have insufficient cold storage of their own might be able to temporarily use shared refrigerated space at a restaurant or brewery, but generally produce needs to go out the same day it is harvested.

The project region currently has no shared cold storage, and several interview subjects expressed doubt that shared space would be utilized enough to make the investment pay off. A feasibility study is needed to determine if there is sufficient demand, particularly with the lack of farm

---

<sup>26</sup> The Drexel building is owned by Jackson County, which had plans to turn it into a commercial kitchen and community center, but withdrew when a master planning process estimated \$1.7 million to bring the building up to code. The floodplain location also limits use. Adjacent to the Drexel is a 40,000-square-foot former Pepsi-Cola plant that is currently for sale. In January 2019, Jackson County backed out of its bid to purchase the 5.61-acre parcel (including the Pepsi-Cola structure). Kays, H. (2016, March 30). "Whittier farmers make an offer on Drexel plant." *Smoky Mountain News*. Retrieved from <https://www.smokymountainnews.com/archives/item/17389-whittier-farmers-make-an-offer-on-drexel-plant> and Kays, H. (2019, January 30). "Jackson will not buy Pepsi property." *Smoky Mountain News*. Retrieved from <https://www.smokymountainnews.com/news/item/26311-jackson-will-not-buy-pepsi-property>

density. A shared cold storage facility would need to be located close to a major interstate so that it could be accessed commercially. Empty manufacturing warehouses or plants, such as the Tomato Coop building in Macon County and Stanley/Oak Valley Hardwoods building in Robbinsville (Graham County), were suggested as having the potential to be repurposed as cold storage or other infrastructure, as was the former Drexel plant (see previous section). Farmers markets were also mentioned as potential sites for shared cold storage.

NC Cooperative Extension and other agriculture agencies in the region have investigated converting trailers into refrigerated units that could be shared by farmers in the project region (i.e., the Pack 'N Cool, developed by N.C. State University's Plants for Human Health Institute). According to interviews with agricultural support personnel, it was concluded that these would need to be used by individual farmers and could not be easily shared as the needs for refrigeration are too specific to each farm.

Another cooling technology being explored in the region is geothermal chilling. In 2013, Haywood Community College received a North Carolina Department of Agriculture and Consumer Services (NCDA&CS) grant to build an experimental demonstration geothermal pre-cooling facility at the Mountain Research Station in Waynesville. Geothermal chilling is an economical and energy-efficient technology, which can be used to pre-cool perishable crops as soon as they are harvested and extend their shelf life. The facility is meant to be a model for farmers, and Haywood Community College offers farmers education on geothermal technology and assistance in determining geothermal installation options for their own farms.

## **Food Processing/Kitchens**

Commercial kitchens or other food-processing facilities can enable farmers to capture a greater share of the food dollar and to reduce waste by turning culls into value-added products, such as sauces, salsas, jams, etc. They can also be an intersection point between farmers and food entrepreneurs, including artisan producers, caterers, food truck chefs, and community members.

Blue Ridge Food Ventures (BRFV) is an 11,000-square-foot shared-use kitchen and natural products manufacturing facility located on the Enka Campus of Asheville-Buncombe Technical Community College outside of Asheville. BRFV offers support in product development, guidance on government regulations, equipment for bottling and packaging, advice on marketing and label design, and more. Interviewees suggested that Western North Carolina is unlikely to be able to support a second shared-use kitchen of this size, even though its distance from the westernmost counties in the project region limits its relevance there.

However, a large-scale commercial operation like BRFV may not be the best option for many medium- and small-scale farmers, as it doesn't offer the entry-level training required to incubate these business offshoots. A new project is underway, supported by the Appalachian Regional Commission POWER initiative, to develop a food business innovation center at the Western North Carolina Farmers Market in Asheville. The center will be managed by the Center for Agricultural and Food

Entrepreneurship (CAFE), BRFV's parent organization, and will take on entry-level technical support and be able to serve more farmers' needs for value-added processing, while BRFV will focus on more established businesses. Construction is expected to be completed by September 2020.

Interviews identified another new project in development by Swain/Jackson County Extension, a shared-used commercial kitchen in Sylva. The model for this project is the certified kitchen and storage facility at Madison County Multi-Purpose Agricultural Complex, which is supported by user fees (see more discussion of the Madison model in Appendix E).

There are several other food processing and kitchen spaces that exist within the project region, but which are mostly underdeveloped or underutilized. These include:

**Cowee School Arts and Heritage Center (Franklin, Macon Co.)**

Cowee School has an NCDA&CS-inspected commercial kitchen available for rentals and classes. Interview and survey respondents identified the space as an underutilized asset.

**EBCI Tribal Cannery (Cherokee, EBCI)**

The cannery is managed by EBCI Cooperative Extension and currently serves personal canning needs. The facility is open to all enrolled EBCI members and occasionally used by members of other communities. In 2017 it served 60-plus families who produced 2,000 jars of preserved foods. With some investment in building, infrastructure, and process improvements, the potential exists to scale up and expand facility capacity to serve more people and house a commercial kitchen, extract processing, and flash freezing. This would require a detailed feasibility study and business plan to gauge demand and develop a model of financing.

**Mountain Projects (Sylva, Jackson Co.)**

Mountain Projects is a Community Action Agency providing services to the elderly, disadvantaged, and general populations, including nutrition and food services out of a centralized kitchen in Sylva. The facility currently also serves as a commissary kitchen for several food trucks, and there is opportunity to expand these community partnerships.

**Stecoah Valley Center Kitchen (Robbinsville, Graham Co.)**

This cultural arts center houses a renovated school cafeteria with an NCDA&CS-inspected commercial kitchen available for public use. The facility includes cold and dry storage space and can be used to prepare food for personal use, retail sales, catering purposes, to make value-added agricultural products, to host classes, and as a party venue rental. Interview and survey respondents identified the space as an underutilized asset.

Interview and survey respondents also suggested partnerships with community college and school kitchens, which could be used in the summer, and with churches or community centers that have underutilized cooking facilities that might be repurposed, such as the Folkmoot Center in Haywood County and the Brasstown Community Civic Center in Clay County.



## Transportation/Distribution

Reaching larger markets outside the project region, such as Atlanta, requires infrastructure around distribution and transportation. One model being used in the region is backhauling, a practice where self-distributing retailers pick up produce from farmers on return trips to a centralized warehouse for further distribution to individual store locations. Some farmers serving larger markets work with major grocers such as Ingles, Harris Teeter, and Food Lion to backhaul their products. Interview and survey respondents suggested there could also be potential to partner with larger distributors, such as U.S. Foods or Sysco, or other private businesses whose trucks are making similar routes. As noted in Section 2, there are several farm products produced in significant quantities that match larger volume needs that might make a good fit with backhauling and grocer partner opportunities. A regional brand would increase the desirability of these products and open doors for new product introduction.

Several interviewees stated that sharing trucks between farmers has not been successful as needs are too diverse. Also, for many small- and medium-sized produce farms selling direct to customers, improved transportation infrastructure is not a high priority, because at this scale the product fits in their own trailers.

## Aggregation/Food Hubs

A few aggregator models exist in the region that source produce from local farms and distribute to restaurants, institutions, and other food businesses, including for-profit wholesale distributors and food hubs. These include August Produce in Macon County, a wholesale delivery business that also operates a farm stand in Highlands from May to October, and Christopher Produce in Haywood County, a farm and farm stand that also serves as a distributor for other local farms. August Produce supplies Macon County Schools with produce.

Food hubs also focus on the logistics and distribution of local food, and while they can be for-profit, the not-for-profit model has been a prominent local food system building strategy to solve the mismatch between the smaller scale production typical of local food efforts and the food industry.<sup>27</sup> Food hubs are of interest in this region because such enterprises could have the potential to fill several gaps in infrastructure, including shared kitchen space, cold and dry storage, washing, sorting and packing facilities, distribution, brokering, marketing, and administrative support.

However, as food hubs most often operate with significant grant support, and are not necessarily focused on a profit-driven bottom line, they tend to not be self-sustaining. A 2018 assessment conducted by Kallan Strategic Partners for Appalachian Sustainable Development, funded by ARC through a POWER grant, concluded, “We do not see long-term success in the region for local food

---

<sup>27</sup> Perrett, A. and Jackson, C. (2015). “Local food, food democracy, and food hubs.” *Journal of Agriculture, Food Systems, and Community Development* 6(1), 7–18. Retrieved from <https://doi.org/10.5304/jafscd.2015.061.003>

aggregation and distribution through a large-scale enterprise led by a nonprofit organization. (With few exceptions, we have not found nonprofit food hubs or cooperatives to have achieved break even or better status without significant grant funding.)”<sup>28</sup>

In 2016, a *Journal of Agriculture, Food Systems, and Community Development* paper assessed existing (in 2014) food hubs in North Carolina.<sup>29</sup> Looking at data from three food hubs, located in the eastern coastal plain, the Piedmont region, and Western North Carolina mountains outside of Asheville, the authors found that average net revenues (in 2014) were negative at -\$86,204. Researchers determined, by developing a model budget, that it would take total annual revenues from wholesale produce sales of \$800,000 (assuming a 20 percent markup fee on products) to operate a food hub without outside funding, excluding cost of infrastructure investment and ownership expenses such as taxes, financing costs, and depreciation. Total average revenues of the food hubs studied amount to a third or less of this figure.

A more recent study, published in 2019 in the *Journal of Agriculture and Resource Economics*, used a entry-threshold model, often used by businesses to determine the best location for a new store, to estimate the county population required for one, two, or three food hubs to break even.<sup>30</sup> Results showed that a county needed a population of 182,000 residents for a single food hub to break even. More than double the population (500,000) would be needed to sustain a second food hub and over 1,600,000 for a third. The seven counties in the project region have a combined total of just over 200,000, with the largest population county, Haywood, having only a population of just over 60,000. Given the mountainous terrain and decentralized population of the region, these break-even estimates should be considered best-case scenarios when applied to the region.

A number of food hub endeavours have been attempted in Western North Carolina and nearby regions and provide useful examples. An annotated list is included in Appendix E. Several of these have since ceased operation and there are at least two more food hubs are currently in development. All of the existing hubs are financially dependent on outside support and do not generate enough revenue through their businesses to sustain themselves. Establishment of a food hub in the region, if considered, should be understood as not likely to be self-sustaining and assumed to need permanent subsidies to be viable. Considerations of investments in this type of operation should include the impact of a not-for-profit business competing with existing for-profit distributors.

A full feasibility study for a food hub is beyond the scope of this assessment and is a significant undertaking. A feasibility should ground any food hub project contemplated in market conditions

---

<sup>28</sup> Kallan, S. and Douglas, C. (2018). *Business Model Options to Enhance Market Access for Central Appalachian Small Farmers*. Abingdon, VA: Appalachian Sustainable Development.

<sup>29</sup> Rysin, O. and Dunning, R. (2016). “Economic viability of a food hub business: Assessment of annual operational expenses and revenues.” *Journal of Agriculture, Food Systems, and Community Development* 6(4), 7-20.

<sup>30</sup> Cleary, R., Goetz, S.J., McFadden, D.T., and Ge, H. (2019). “Excess Competition Among Food Hubs.” *Journal of Agricultural and Resource Economics* 44(1):141–163.

and answer fundamental questions: Is there enough demand from producers to support a new facility? Is there enough local production to support the operating costs of a new facility? Is there enough local consumption to support a new facility? To determine profitability, key variables need to include: the cost to build a new facility; estimates of production volume; facility operating costs; capital requirements; equipment and personnel costs; and sources of capital.

## Meat Processing

As described in Section 2, most meat animal producers in the region are engaged in cow-calf operations. Producers selling meat animals in this way are susceptible to the cycles of supply and demand that determine commodity pricing. A second option is on-farm processing. While meat animals being sold to the general public must be killed and butchered at an inspected meat processing plant, there is an exemption for farmers to slaughter up to 20,000 (per calendar year) chickens, turkeys, and/or other poultry raised on their own farms and sold within North Carolina. Operating under this exemption requires monitoring and scheduled reviews by NCDA&CS to verify that required criteria are being met. On-farm processing guidelines vary from state to state and some states carry less restrictive guidelines than North Carolina.<sup>31</sup>

Another option is to have the meat processed in an independent, government-inspected facility. The farmer maintains control over where the product is sold and may be able to earn a premium by selling in local markets. However, farmers must often travel long distances to reach these meat processors, and the additional costs of time and money can make this a challenging option. Processing facilities can either be USDA-inspected or state-inspected. State and federally inspected processing plants follow the same guidelines to ensure meat safety. However, a USDA-inspected facility allows the product to be sold across state lines, whereas product processed at a state-inspected facility can only be sold within North Carolina (and not online or via mail). USDA-inspected facilities are generally more useful to farmers, and this is particularly the case in the project region where all seven counties border at least one other state.

There are two USDA-inspected meat processors in the project region (Brasstown Beef, which acquired Nantahala Meats in Franklin in 2015, and Adam Farms in Murphy) and one state-inspected meat processor (K&B Meat Processing in Bryson City). These are small-scale facilities. There are no large animal processing facilities in the project region or facilities that slaughter as well as process for farmers. Most farmers in this region are using meat processors in Eastern Tennessee and North Georgia for large animal slaughter and processing. Survey results cite a desire for additional or expanded meat processing facilities as well as related pieces such as finish feed yards and slaughter plants for cattle.

In 2012 ASAP conducted a preliminary study to determine the feasibility of establishing a multi-species large animal processing facility in the mountains of Western North Carolina. The

---

<sup>31</sup> For more information on meat processing and other food processing and selling regulations, see ASAP's "The Regulatory Environment for Farms in Western North Carolina," included in The Farmer Toolkit. <https://asapconnections.org/resources/for-farmers/>

study found demand by farmers for increased large animal processing capacity in the region and buyer demand from regional wholesale distributors and retailers. Noting the competitive nature of the meat processing industry and the role that economies of scale play in the industry, the study recommended a comprehensive and detailed assessment and provided an outline of what the study should investigate and determine.

In 2015, the Western North Carolina Agriventures Report included a feasibility study, done in cooperation with industry specialists, regional economic development agencies, and state agricultural service providers, for expanding red meat processing capacity in the western mountains region of North Carolina. The authors of that report found that a new processing facility in Western North Carolina appeared to be a viable and profitable business opportunity. The study did note the need for significant capital investments.

In 2017 the small animal processing facility Foothills Pilot Plant (McDowell County) closed after five years in operation. Despite a feasibility study that concluded there was unmet demand for a USDA- or state-inspected small animal slaughter facility in Western North Carolina and a break-even analysis that estimated break-even status in three to five years, the plant closed due to lack of capital. In a story in *The McDowell News*, the plant manager noted the high cost of labor (even without fringe benefits, insurance, or paid time off).

ASAP's 2012 study identified critical factors to the success or failure of meat processing facilities. Factors critical to success included product certification, on-site retail, creative methods for selling non-prime cuts of meat, brand identity established at the start of the processing venture, strong marketing focus, diversified customer outlets, and sophisticated cost monitoring. Factors cited for unsuccessful ventures included insufficient start-up capital, inadequately skilled management, inability to identify and retain a skilled labor force, and insufficient planning.

In addition to a large animal processing facility, interviews and survey respondents indicated a need/opportunity in the greater Western North Carolina region for a custom/niche meat processing plant that could connect directly with the consumer. However, the project region might not be suited to this type of enterprise, as farms here are not producing sufficient volume outside of Brasstown Beef, which processes its cows at a facility in Georgia. Other models might include producing animals to standards and selling into an existing brand like Niman Ranch. Hickory Nut Gap Farm in Fairview, for example, has standards for production and works with farmers in the region to produce and market beef under an established brand. This model has multiple benefits as it allows farmers to focus on quality production, pools product to access larger markets, and creates a sought-after and recognized brand that enhances desirability and value of product.

## **Additional Infrastructure with Potential for Enhancement**

### **WNC Regional Livestock Center (Canton, Haywood Co.)**

The Temple Grandin-designed livestock market opened in 2011 following the closure of two livestock markets in Western North Carolina. Sales surpassed \$100 million at the end of 2018, but

the facility is set up to handle higher volume (up to three or four times its current average, according to one interviewee). Facility needs better marketing as well as improved genetics research and documentation to reach its full potential.

**EBCI Tribal Trout Hatchery (Cherokee, EBCI)**

A new Trout Hatchery Research and Education center is part of the CEDs Plan for economic development. New center plans would utilize green infrastructure and ensure biosecurity. It would double the capacity of the current hatchery and make it a public destination for tours and interactive experiences. Opportunities exist to market branded Cherokee-raised trout to Harrah's and other high-end resorts and restaurants, and to certify trout seconds for use in USDA Commodities "Bonus" Boxes for traditional foods.

**Jessie Owle Dugan Native Plant and Greenhouse Facility (Cherokee, EBCI)**

The 2,200-square-foot greenhouse facility on five acres, located in Birdtown, grows culturally significant plants, landscape plants, and vegetable plants. According to GrowCherokee report (see Appendix A), the 2018 records do not reflect investments in producing plants/starts for commercial production or marketing of facility and products to farmers, markets, or individuals.

## Section 6: Labor and Internship Opportunities

---

### Farm Labor

Farming is labor intensive, and labor is often a farmer’s greatest expense. Throughout this assessment labor challenges emerged as a primary concern for farms of all scales across the region. Farmers employ different labor models depending on their scale and markets. In a 2017 survey of area farmers that sell locally that included the EMFS project region, half reported solely using family labor on their farms. Another 30 percent reported using waged labor, including H-2A labor, a federal program which provides seasonal visas for foreign workers to fill temporary agricultural jobs. Ten percent reported using only non-waged labor like interns and apprentices, and the final 10 percent used a mix of waged and non-waged labor.<sup>32</sup>

Farms using waged labor like H-2A workers generally operate larger-scale farms that necessitate a larger, more consistent and dedicated labor crew that don’t require continual training or significant oversight. While farms in the project region are not large by state and national standards, the current labor challenges are impacting even small farms seeking to find sufficient labor. One interviewee shared, “The biggest issue is labor and issues surrounding labor, including housing, compliance, how to access the labor.” Survey respondents similarly referenced the challenges of finding skilled people willing to do physically demanding farm labor when they could earn better pay in other industries such as construction, landscaping, or tourism. Respondents likewise reported challenges navigating the complicated federal H-2A program, which involves extensive paperwork, and has detailed requirements that many small-scale farmers find challenging to meet. One interviewee shared, “H-2A paperwork and compliance, housing in particular, even with a company to do the paperwork, it’s almost impossible to navigate.”

Farmers need support in navigating these challenges and the legal landscape of labor issues. While labor is a complex and thorny issue, some ways these needs could be addressed include:

- Training for for farmers around H-2A paperwork and compliance.
- Housing assistance, including identifying and securing existing low-cost housing; investing in compliant on-farm housing structures; connecting farmers with alternative markets for on-farm housing during the off season that could offset costs.
- Advocacy efforts at the federal level to help smooth transitions of workers coming across the border to work with small farms.

---

<sup>32</sup> Marion, A.K. (2019). *An Examination of Non-waged Labor and Local Food Movement Growth in the Southern Appalachians* (unpublished master’s thesis). Portland, OR: Portland State University. Retrieved from [https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=6108&context=open\\_access\\_etds](https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=6108&context=open_access_etds)

## Internships and Apprenticeships

Farm internships and apprenticeships offer some farmers an opportunity to add labor to their farm without the expense or challenge of navigating H-2A requirements, while simultaneously offering an invaluable hands-on training to aspiring farmers. The 2017 survey of farmers in Western North Carolina showed that farms hosting apprentices and interns are smaller, less profitable, and more likely to be new to farming than their wage-paying counterparts. Many shared that this model allowed them to have labor they couldn't otherwise afford and gave them the financial flexibility to sustain themselves year after year.

Unlike waged labor, internships and apprenticeships are often informal and unregulated, which can create a sense of precariousness for both parties. Interns and apprentices are less likely to be skilled and may not possess the work experience of a paid worker. Additionally, both the farmer and apprentice lack the commitment guaranteed by a contract. Farmers can face losing crops and profits if an apprentice quits mid-season. Alternatively, apprentices can be exploited since they have little guarantee about the quality of the training they will receive, which is up to the farmer's personality, resources, and commitment to education.<sup>33</sup> Ultimately, finding, training, and managing new interns every year requires a significant amount of time and supervision, which may not be efficient for farmers. "You have to be there all the time," noted one farmer in an interview who previously used intern labor. "You have to be a teacher and a farmer. Dealing with people who absolutely know what to do [hourly year-round workers], you're not wasting motion. As I've increased pay I've noticed more efficiency in production." As with waged labor, farmers need support navigating the expectations of hosting interns and apprentices on their farm and understanding the associated legal requirements.

Internship and career ladder opportunities in agriculture are not confined solely to farming. Agriculture also encompasses accountants, salespeople, social media marketing, veterinarians, and more. High schools, community colleges, and universities have a role to play in teaching students about the range of opportunities that exist in agriculture, including connecting students with those internship opportunities. As one interviewee suggested, "Develop programs that look at all the career opportunities in agriculture. If you're interested in sales, agriculture can be an avenue for that."

---

<sup>33</sup>Ekers, M., Levkoe, C. Z., Walker, S., & Dale, B. (2016). "Will work for food: agricultural interns, apprentices, volunteers, and the agrarian question." *Agriculture and Human Values* 33, 705–720.

## Section 7: Continuing Education

---

### Primary Training and Continuing Education Needs

Through surveys and interviews, the following primary training and continuing education needs of farmers and food businesses in the project region were identified:

- Business planning, including business start-up and scaling up.
- Financial management and recordkeeping.
- Marketing and promotion, including consumer education, social media, and website development, to build farm brands and develop/expand customer bases.
- Food safety, including GAP certification.
- Navigating complex labor and legal issues.
- Production strategies, including help identifying the crops to grow and how to grow them to meet potential market demand.
- Developing business relationships with appropriate local buyers, including restaurants, groceries, distributors, and institutions, and navigating supply chain complexity.

In addition to these areas of training, survey and interview respondents identified the need for individualized assistance. Said one interviewee, “The personal relationship is necessary for these trainings. You have to get down to one-to-one to have a major impact one family at a time.”

### Existing Training Programs

The three community colleges (Tri-County Community College, Haywood Community College, and Southwestern Community College) and one university (Western Carolina University) in the project region offer some training and continuing education opportunities for farmers and food and farm entrepreneurs. A goal of the EMFS project is to strengthen and expand these opportunities.

Interviews and surveys with farmers, agricultural support personnel, and other food system stakeholders also identified organizations and programs that currently provide valuable training and expertise in the project region. Partnering with these organizations will leverage available resources and knowledge. A fuller list of potential partner organizations is included in Appendix D. Below are the top training opportunities in the project region that were identified through interviews and existing reports and assessments.

**Appalachian Farm School** is an eight-week series of training seminars for new and existing small-to-medium-size farms coordinated by Southwestern Community College’s Small Business Center in Sylva. Done in partnership with NC Cooperative Extension and the NCDA&CS.



**Appalachian Sustainable Agriculture Project (ASAP)** offers the Business of Farming Conference annually in Asheville, which includes workshops in business planning, marketing and branding, financial management, market opportunities, and more. The conference is designed for beginning and established farmers as well as those seriously considering farming as a profession. ASAP also offers an annual agritourism workshop, one-on-one consultations, resources compiled into a Farmer Toolkit, and additional trainings around the Appalachian Grown region to fill needs identified by farmers.

**Carolina Farm Stewardship Association** offers food safety training and consultation for farmers, including navigating GAP certification requirements. Workshops are typically repeated in multiple sessions across North and South Carolina.

**Center for Agricultural and Food Entrepreneurship (CAFE)**, as a partner on the EMFS project, will develop a four-hour training module for food business entrepreneurs, including guidance on business planning, branding, sourcing, food safety, and regulatory environments. This module will travel to Small Business Centers in the project region with the opportunity to follow up for one-on-one consultation.

**Organic Growers School** offers a number of training opportunities, including workshops and resources on farm labor management; Farm Beginnings, a yearlong training, mentoring, and networking program for new and beginning farmers; Collaborative Regional Alliance for Farmer Training (CRAFT), which brings together established farmers, farm apprentices, and agriculture students for a training program consisting of farm/intern matching and monthly on-farm workshops; and spring and fall conferences on organic growing and sustainable practices.

**Mountain BizWorks** is a community development financial institution (CDFI) offering customized business coaching and lending support. As part of a federal grant, Mountain BizWorks will offer free one-on-one business coaching for new and beginning farmers through 2021. BizWorks also offers training and technical assistance, business planning, and loans to food businesses and works with several food business entrepreneurs in the region.

**NC Cooperative Extension** at the county and regional levels offers resources for farmers looking for training and technical assistance for production planning and problem solving. Currently Extension is offering a series of regional workshops targeting production for direct markets. This series will include at least two workshops in the project region annually through 2021.

**Small Business Centers Network**, part of North Carolina Community Colleges, has six sites within the project region and provides free courses throughout the year focusing on entrepreneurship, small business, and economic development. The Food and Farm Portal ([farmfoodportal.com](http://farmfoodportal.com)) offers resources specific to agribusinesses.

**Winter Vegetable School**, offered annually by NC Cooperative Extension and the North Carolina Tomato Growers Association, is the largest commercial vegetable grower event in the region.

## Recommendations

---

### **Promote local food and farms to build demand.**

Actions that increase community support and demand for food grown by the region's farms are critical to the viability and sustainability of all local food- and farm-linked efforts. Implement strategies that directly connect southwestern North Carolina residents to farms and their local food system. Citizens who are actively engaged with local farms and food will become advocates for local agriculture and local food products and will provide the foundation for the continued expansion of opportunities for farmers and other entrepreneurs.

Action steps:

- Support the development, expansion, and/or promotion of CSAs (Community Supported Agriculture), farm stands, farmers markets, u-picks, and other direct experiences. These direct market spaces put a face on food.
- Connect farmers selling to the public through direct markets to training opportunities in direct marketing topics, such as salesmanship, display, and marketing.
- Partner with local media to tell the stories of farmers in the region and to promote what is being grown and produced and where it can be found.
- Collaborate with existing regional branding efforts to identify local food in the marketplace.
- Coordinate county-level "buy local" programs to cross-promote food and farms.

### **Provide farmers with the support needed to connect to local markets successfully.**

Farmers that are connected to a holistic combination of assistance are able to make decisions and implement practices based on careful planning. Planning reduces risk and increases the likelihood that strategies are successful. To build viable businesses and be successful in local markets, farmers need to develop skills and receive support in multiple areas.

Action steps:

- Leverage existing training and technical assistance programs that support farmers and food businesses, particularly in business planning, market planning and diversification, and marketing. Help to ensure training and technical assistance opportunities are accessible throughout the region.
- Connect farmers with professionals who have the expertise to help them assess the capacity of their operations, direct them to suitable market outlets, and prepare them to meet the standards and requirements of buyers in different market segments, including restaurants, large and small groceries, school districts, and hospital systems.
- Identify the crops with ready or emerging markets and prepare farmers to grow them.
- Assist farmers and businesses in navigating complex labor and legal issues.
- Partner with community colleges, nonprofits, NCDA&CS, NC Cooperative Extension, and other agencies and organizations for support.

- Use research and partners to continue to identify and prioritize unmet needs and work to develop support systems.

### **Link tourism to local food and farms.**

Tourism is a major and growing economic driver in the region; it generated an impact of nearly \$885 million in 2018, over a third of which was spent on food and drink. Work within a tourism framework to brand the region as a food and farm destination, cross-promoting with other growing tourism sectors such as outdoor recreation, brewing, and restaurant industries.

Action steps:

- Build partnerships with and across tourism agencies.
- Identify tourist attraction clusters, including farms, outdoor recreation activities, restaurants, and breweries, and cross-promote to attract visitors.
- Collaborate with partners to create accurate resources that guide visitors to authentic local food and farm-linked events and destinations.
- Integrate farms, farmers markets, farm to table restaurants, etc. into existing regional and county tourism promotions and guides.
- Encourage restaurants and breweries to identify farms and farmer names on menus and labels.

### **Enhance infrastructure and work with farmers and entrepreneurs to support their enterprises.**

Farmers and entrepreneurs need to lead the way in determining infrastructure investments. Existing infrastructure enterprises should be supported and connected to other opportunities to enhance their sustainability and increase their use. With a lack of farm density in the region and the challenges identified with shared infrastructure projects, smaller infrastructure investments on individual farms should be considered. For any new larger-scale projects, conduct full feasibility studies and business plans with clear expectations about whether they are intended to be self-sustaining or grant-supported models.

Action steps:

- Make connections between existing infrastructure.
- Develop cost share or grant options for farm- and food business-level infrastructure projects.
- Leverage economic development incentives to finance larger-scale projects.
- Identify the most promising new or enhancement infrastructure projects and conduct feasibility studies. Example opportunities might include supporting farmer-managed infrastructure such as the Drexel plant; underutilized assets within EBCI, such as the Trout Hatchery and Tribal Cannery; or for-profit and nonprofit aggregation models.

### **Integrate local food and farms into economic development planning and create supportive policies.**

Demonstrate the ways local farm and food assets can support regional economic development goals. Farms in the project region generate nearly \$65 million in sales annually. Many of these farms are only tapping into a fraction of the potential income value of their land. Growth in

demand for local food and farm products is documented nationally and regionally and is expected to continue.

Action steps:

- Show the economic benefits of homegrown food businesses and make a case for investment in food entrepreneurs.
- Review existing regulations and policies that may be hindering the production or sale of locally produced farm products. Create new supportive policies.
- Promote county- and state-level programs to support agricultural land use.
- Connect farmers with farmland preservation and transition opportunities such as NC Farmlink and land trusts.
- Consider food and farm development inclusively, making space for cow-calf, woodland, nursery crops, Christmas trees, and other prominent agriculture enterprises.
- Support policies to address labor challenges.

**Coordinate, convene, and build on existing efforts and successes.**

Partner with existing support organizations to enhance and expand existing efforts wherever possible. Build on the great work and research being done in the region.

Action steps:

- Develop a farm and food advisory team to guide this effort.
- Inventory the services, programs, and products offered by farmer support organizations in the region and find ways to enhance or build on those efforts.
- Build on completed feasibility studies and assessments.

## Appendix A: Annotated Bibliography of Existing Research and Resources

---

**Appalachian Sustainable Agriculture Project. (2006). *Opportunities for Expanding Food and Farm Tourism in Western North Carolina*. Asheville, NC.**

A survey of tourism professionals in Western North Carolina designed to explore an expanded concept of agritourism. The expanded definition of agritourism included local food and farm related activities beyond farm visits and perhaps not including them at all, e.g., eating at a restaurant or staying at a Bed and Breakfast that features locally grown food, attending a festival or event celebrating regional cuisine, traveling a scenic trail through the region's farmland. This definition agritourism would support greater demand for locally produced food and farm products, benefitting all farms in the region and not only the farms suitable to welcome tourists for events and activities. The survey was sent to tourism professionals at Chambers of Commerce, Convention and Visitor Bureaus, Tourism Development Authorities and similar organizations to determine the extent visitor organizations were currently promoting agritourism to motivate visitors to vacation in the region and determine the potential for tourism professionals to adopt the expanded definition in their promotions. At the time of the survey, over a decade ago, 70 percent of tourism professionals surveyed indicated an expanded definition of agritourism would be a valuable marketing concept. More than half indicated that they would suggest those types of activities to visitors requesting general information about the region; a third said they would suggest those types of activities only to visitors inquiring about food and farm tourism opportunities. For support, respondents indicated a need for training (on how they can promote the region's agricultural sector), maps and print materials, and web-based information.

Recommendations from the findings included providing information about ASAP's *Local Food Guide* to tourist professionals, which provides information about the availability of locally grown food in restaurants and other businesses (and was used by less than half of tourism professionals at the time of the survey); exploring collaboration between agriculture and other tourism-related industries (the arts, recreation or hospitality, for example) to advance the connectedness between tourism and agriculture; using regional food branding to differentiate food and farm products produced in the region (from those produced in other regions) like ASAP's Appalachian Grown™ logo; and developing a broad-based collaboration that includes representatives from agricultural support agencies, nonprofit organizations, restaurant and hospitality, and farmers to raise the visibility of agritourism in the region.

**Brennan, M.J and Rutz, J. (2017). *Summary of Extension Local Food Program Team Inventory of Extension County-Based Local Food Assets and Assessment of Training and Resource Needs*. Raleigh, NC: NC Cooperative Extension.**

This report shows the results of the Local Food Asset Inventory and Needs Assessment Survey, which was distributed to NC Cooperative Extension Local Food Coordinators (LFCs) for each North Carolina county in 2017. The goal of the survey was to collate a repository of current and past county-based local food program assets that Extension agents and local food program teams could use to plan/inform their own programs, trainings, and resources. The survey identified training and resource needs.

The survey identified 256 local food programs including farm production, marketing education, gardening and cooking program, accessing direct and nondirect markets, food access for low income consumers, farm succession planning, etc. Training needs were identified by training level (introductory, intermediate, advanced) and topic, and resource needs by topic. Top assets identified include other farm production and marketing education programs; gardening programs; direct markets and marketing; youth programs; and cooking programs. The general topics most requested for training and resource needs included: value-added and processing; direct to consumer markets; urban farming; farm to institution, and garden programs.

**Cagle, W, Cai Hillon, Y, and Salido, A. (2018). *Western North Carolina Natural Products Economy Opportunity Assessment*. Cullowhee, NC: Western Carolina University.**

This is a report of research that looked into the natural products industry in Western North Carolina with a goal of understanding the current state of the industry in the region and identifying barriers and opportunities for growth. The research was conducted by students at Western Carolina University (WCU) as part of a capstone class project under the supervision and guidance of two WCU professors. Findings and recommendations are drawn from market research of the “natural products and service economy” at international, national, and regional levels and from interviews with individuals from different sectors of the industry. Trend data show growth in the natural and organic products market nationally and globally and within the region, researchers identify six potential industry drivers: tourism, personal and health care, food manufacturing and packaging, education and research, agriculture, and home and garden.

The authors make five recommendations:

- Increase the supply of natural products to meet demand by identifying solutions to overcome barriers to farming and wild harvesting plants and herbs with economic value.
- Develop a facility plan for an Western North Carolina natural products hub to support local growers and manufacturers in production and distribution of natural products.
- Create a coalition between county, city, and state chambers of commerce and economic development agencies to create a strong retail and consumer services component and increase access to the natural products and service economy market.
- Establish a center for natural product research and innovation in Western North Carolina to conduct research and testing on natural products with a goal of substantiating the effectiveness of plant based medicines.

- Make resources in support of the development of the natural product industry easily accessible. Authors note most resources are scattered among entities and agencies, which has resulted in resources “overlaps, gaps, and inconsistencies.” Agencies and other providers need to breakdown silos and collaborate to ensure resource, education, and technical and business assistance needs are met efficiently.

**Cherokee County. (n.d.). *Cherokee Farmland Protection Plan*. Cherokee County, NC. Retrieved from <http://www.cherokeecounty-nc.gov/DocumentCenter/View/384/Farmland-Protection-Plan-PDF>**

Report of research that assessed the agricultural economy and lands of Cherokee county in 2008. The report contains an agricultural development plan, an agricultural land protection plan, and recommendations to support farming and farmland preservation. The agriculture development plan provides an economic profile of agriculture and a history of farming in the county. The analysis finds that the agriculture economy in the county is fragile and there is a need for proactive actions focused on market development, building public awareness of and support for the local agriculture, and training and technical assistance for farms transitioning to the next generation and/or securing their farms through conservation easements. In developing the protection plan, land protection policies were investigated and ranked for their applicability in Cherokee County. Specific farms were identified as most optimal for farmland preservation activities (i.e., because of their close to population centers and/or because of areas of prime soil).

Key recommendations included:

- Reconstituting and strengthening the Agricultural Advisory Board to harness a broad range of skills and resources to preserve and support farms and farmland in the County.
- Incorporating Agriculture as an explicit element in County economic development planning.
- Refocusing efforts of the Cooperative Extension Service to support innovative economic development strategies and help with farm transition issues.
- Strengthening multi-agency and multi-jurisdictional collaboration to preserve farmland.
- Beginning the process of investigating land management policies that will strike a balance between preservation of prime farmland and the natural growth needs of the County.

**Cleary, R., Goetz, S. J., McFadden, D. T., and Ge, H. (2019). “Excess Competition Among Food Hubs.” *Journal of Agricultural and Resource Economics* 44(1), 141-163.**

Authors use an adaptation of an entry-threshold model to estimate the average U.S. county population needed for one, two, and three food hubs to break even. Findings show that a county needs a population of about 182,660 to sustain one food hub, which the authors note is higher than the average county population size of about 99,530. For two food hubs to break even, a county needs a population size of about 503,000; across the U.S., about 129 counties meet this size requirement. Based on these data, the authors conclude that zero or one food hub is economically viable for most counties in the U.S., and suggest that smaller counties collaborate to meet the

population size that will sustain them. In comparison, merchant wholesalers have a lower population threshold likely due to higher market penetration, larger volume transactions, price competition, and product assortment. Authors also found that social capital plays an important role in food hub success and is positively associated with food hub profitability.

**Emergent Opportunities Inc and Smithson Mills Inc. (2017). *McDowell County Community Food & Health Hub A Feasibility Study*. Marion, NC: McDowell County Cooperative Extension. Retrieved from <https://emergentopportunities.com/wp-content/uploads/2018/04/McDowell-County-Community-Food-Health-Hub-Feasibility-Study.pdf>**

A feasibility study around a multi-purpose central hub in McDowell County that would include space for donated food from and for food pantries; cooking classes and culinary training; a commercial kitchen and/or affordable cafe; and a place where community agencies can do community outreach. In addition the central hub is envisioned to support the local food economy and provide farmers with infrastructure related to produce packing and storage, and serving as an aggregation site for farmers who are working to diversify their market opportunities. This feasibility study includes:

- A program plan
- Site selection requirements and characteristics
- Partnership and collaboration opportunities
- Recommended location
- Conceptual design
- Development costs
- Equipment needs
- An operating budget
- Management recommendations
- Opportunities and recommendations for green infrastructure components
- Fundraising plan
- Social and economic metrics hub leaders/managers can use to measure community impact
- Full project budget

**Jackson, C. and Perrett, A. (2011). *Food and Farm Assessment: Clay County, North Carolina*. Asheville, NC: Appalachian Sustainable Agriculture Project. Retrieved from <https://asapconnections.org/downloads/asap-food-and-farm-assessment-clay-county.pdf/>**

A report with the results of research conducted by ASAP for the Clay County Small Farms Initiative in Clay County based on an analysis of USDA 2007 Census of Agriculture data, U.S. Census Bureau data, and data from surveys with businesses and residents in Clay County and the region. The research explored what food and farm products were produced in the region; examined how much of what was produced was also consumed in the region; considered the potential impacts of increased purchasing of locally produced food and farm products; and identified points where investment of resources or other actions could support local farms and local food. The report



summarizes agricultural statistics for Clay County, a four-county area that includes Clay and Cherokee in North Carolina and Towns and Union in Georgia, and a six-county area that includes the four-county area plus Macon and Graham counties in North Carolina. A set of recommendations provide action steps for tapping into and further developing local food and farm opportunities.

Recommendations include:

- Promote Clay County farms and food
- Promote and support direct-to-consumer outlets
- Develop a local branding label
- Dedicate staffing time toward the development of local markets for Clay County farms
- Provide training and support to Clay County farmers
- Highlight and develop connections between farms and restaurants
- Explore the viability of larger scale retail and institutional market outlets
- Promote positive experiences around local food
- Promote Clay County food and farms to tourists
- Tap into existing resources in your region

**Kirby, L., Jackson, C., and Perrett, A. (2007). *Growing Local: Expanding the Western North Carolina Food and Farming Economy*. Asheville, NC: Appalachian Sustainable Agriculture Project. Retrieved from**

**<https://asapconnections.org/downloads/growing-local-expanding-the-western-north-carolina-food-and-farm-economy-full-report.pdf/>**

A food and farm assessment of the 23 counties of Western North Carolina. Published in 2007, this assessment provided a foundation of research to inform efforts to expand the region's emerging local food system. The assessment looked at what food and farm products were produced in the region; how much of what was produced was also consumed in the region; the potential for increasing local consumption of locally-produced food and farm products as a way to strengthen the regional farm economy; and where investment of resources or other actions could eliminate barriers currently impeding the purchase of local food. The research identified existing areas for expansion and where new initiatives and additional research were needed. Recommendations included:

- Improve outreach efforts for larger scale markets
- Improve the labeling of local food
- Provide information and support to growers
- Advocate for policies that favor local food distribution and sale
- Help maintain working farmland in the region
- Identify points of intervention in food distribution and infrastructure systems
- Expand public education and awareness about local food
- Expand the Local Food Campaign more fully throughout the region
- Integrate efforts to promote agriculture with efforts to promote tourism
- Expand direct market channels

- Strengthen partnerships among regional organizations

**Kline, C. and Joyner, L. (2013). *Identifying Gaps and Barriers along the NC Farm-Food Value Chain: Delphi Study*. Greenville, NC: East Carolina University, Center for Sustainable Tourism. Retrieved from [https://libres.uncg.edu/ir/asu/f/Kline\\_Carol\\_2016\\_Gaps\\_and\\_barriers.pdf](https://libres.uncg.edu/ir/asu/f/Kline_Carol_2016_Gaps_and_barriers.pdf)**

This study consulted a group of experts across North Carolina who worked at different places along the farm and food value chain to identify a list of issues, gaps, and barriers within the farm-food value chain in North Carolina and to identify those with the greatest importance. The methodology used was based on the Delphi technique. The issues prioritized were organized into five categories:

- Access to markets and marketing—identified the need for access to distribution networks/channels, facilitation of cooperatives and aggregation mechanisms, increasing the market for local foods with promotional programs, and the specific promotion of direct market channels.
- Affordability/availability of food and food distribution—identified the issue of the cost/affordability of produce and proteins and the availability of distributors and transportation between food system sectors.
- Farm profitability—related to identifying appropriate markets and input costs, availability of land, cost of labor, access to capital, training programs for young farmers, and succession planning.
- Societal awareness and education—the importance of consumer education in general including about where food comes from, the benefits of local foods, why buying North Carolina foods support North Carolina jobs; using agritourism to teach consumers about farms and food; educating youth on farming and cooking.
- Supporting institutions—the need for additional support from government agencies and nonprofit organizations, the issue of regulatory barriers, infrastructure support for the Supplemental Nutrition Assistance Program-Electronic Benefit Transfer (SNAP-EBT) and broader SNAP-EBT access at direct market outlets, support for micro food systems in low resource, rural communities.
- Connectedness issues within/across the food value chain—access to processing facilities that can accommodate small-scale producers, availability of distribution networks including those that serve low-income people, building supply chains between farmers and dining outlets, aggregating products to serve wholesale buyers, policy that support farm to institution

The findings are intended for service providers along the value chain, who can use the lists of emergent critical issues to consider areas where their resources could be focused.

The research conducted was a collaborative effort of Carolina Farm Stewardship Association, Appalachian Sustainable Agricultural Project, Center for Environmental Farming Systems, and East Carolina University.

**Local Food Research Center. (2012). *Large Animal Meat Processing Feasibility in Western North Carolina*. Asheville, NC: Appalachian Sustainable Agriculture Project. Retrieved from <https://asapconnections.org/downloads/asap-large-animal-meat-processing-feasibility-in-wnc.pdf/>**

A preliminary study to determine the feasibility of establishing a new multi-species large animal processing facility in the central mountains of Western North Carolina. The research asked: Is there enough demand from producers to support a new facility?; Is there enough local production to support the operating costs of a new facility?; Is there enough local consumption to support a new facility?; Would local larger-scale buyers be likely to purchase locally processed meat from a new facility?

The study, which reviewed feasibility studies of other large animal meat processing facilities, also identified critical factors to the success and failure of facilities, and key variables to examine to determine break-even volumes and production thresholds.

The study found a perceived need by farmers for increased large animal processing capacity in the region and buyer demand from regional wholesale distributors and retailers. Noting the competitive nature of the meat processing industry and the role that economies of scale play in the industry, the study recommends a comprehensive and detailed assessment and provides an outline of what the study should investigate and determine.

**Local Food Research Center. (2015). *Local Food and Farm Assessment Anderson, Oconee, and Pickens Counties South Carolina*. Asheville, NC: Appalachian Sustainable Agriculture Project.**

Food and farm assessment conducted for a tri-county area in upstate South Carolina. In addition to documenting current food and farm conditions, food production trends, and consumption patterns, this assessment also looked at demand for a public, shared used commercial kitchen. This part of the assessment found that while there was significant demand for this kind of infrastructure as well as relevant training and technical assistance, findings also showed cost, specifically the cost to rent space, to be a potentially significant barrier to its feasibility. The study recommends a full cost-benefit analysis to determine its financial feasibility.

**Marks, P., Jackson, C., Jackson, E., and McLarney, R. (2009). *Farm Promotion and Support. Ideas and Tools for Economic Development and Tourism Development Authorities*. Asheville, NC: Appalachian Sustainable Agriculture Project. Retrieved from <https://asapconnections.org/wp-content/uploads/farm-promotion-and-support-ideas-and-tools-for-economic-development-and-tourism-development-authorities.pdf>**

A tool for tourism authorities, economic development authorities, rural planners, etc. in the Southern Appalachians that makes a case for the ways local farms and food links can be used to support goals in tourism development and regional economic development. Drawing on research

that pointed out the importance of “experience” to twenty-first century travelers, the tool illustrates the opportunity this provides to farmers and communities. It offers examples of ways farms and food can provide the authentic experiences travelers are looking for (e.g., farm visits that include u-pick, learning/observing rural skills, interacting with animals; eating at a farm to table restaurant that connects eaters to their food through photos and other farm information; visiting farmers markets to experience the unique foods, crafts, and traditions of the region).

For tourism development, the tool offers these best practices:

- Integrate farms into existing promotions and displays. Include farms, farmers markets, and Farm to Table restaurants in existing promotions.
- Get known as a farm to table destination. E.g., encourage chefs to put farm and farmer names on menus; encourage chefs/restaurant owner to learn about the farms featured and to train waitstaff to be able share farm information; establish communication between farm to table restaurants and visitor centers, include farm to table restaurants in farm-themed displays, brochures, special events, websites.
- Create farm maps, farm trails, and themed itineraries. Provide accurate resources with guidance, direction, and information. Tourists may be unsure what destinations offer real hospitality and real local farm products.
- Implement a farm signage program. Investigate the North Carolina Department of Transportation farm signage program and the Tourist Oriented Directional Signage program, or explore the creation of a county-run farm signage program that would utilize suitable county-owned land and rural routes.
- Use farm products as event themes. Festivals tied to farm products are easy to promote and remember, and connect visitors in meaningful ways to the location, season, and farmers. Provide appropriate event tie-ins like recipe contests, chef demonstrations, and tastings.

For regional economic development tied to farms, the tool offers these best practices:

- Integrate farms into existing economic development programs. For example, target young farmers, farm entrepreneurs, and farm product processors or marketers in programs to attract industries and employers to your region, include available prime farmland and other farm infrastructure and facilities in databases of sites available for sale or lease to industry and other employers, include the presence of working farms as an asset to quality of life and a potential partner for new employers in information promoting the amenities, convenience to commerce, and quality of life of the region.
- Use tax incentives to spur farm job creation and farm enterprise investment.
- Help local businesses connect with farms as program participants and suppliers.
- Promote consumer purchasing of local farm products.
- Create agriculture funds for disaster relief and entrepreneurial lending. Investment funds are a common economic development tool and provide a needed influx of capital to spur job-providing industries to survive and thrive. For farms, this tool is underutilized. Agriculture funds make sense, both in times of disaster and to spur innovation and growth.

- Use purchase of development rights (pdr) or transfer of development rights (tdr) to preserve farmland.

**Mills, S. (2014). *Developing Processing Capacity for Red Meat Producers in Western North Carolina: Current Conditions, Opportunities, and Business Planning*. Southwestern Commission, Advantage West, and Land of Sky Regional Council.**

A report of a feasibility study that looked at the potential for establishing a red meat processing plant in Western North Carolina. The study determined infrastructure development costs for a new red meat facility, identified physical sites where red meat processing could be developed, determined overall economic viability of a new facility built using private capital investment, and developed a business plan for a new facility providing services to independent red meat businesses. To assess market demand, the study focused on producer demand in Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, Swain, Transylvania, and Yancey counties. The study found high interest by large animal producers in building a new processor in the region that can offer professional services including value-added services and that charges reasonable fees. Large animal meat producers in Buncombe County produced nearly 80 percent of red meat animals in the Western North Carolina region; production in southwestern counties in the region was low. The study identified four counties that could host the plant including Haywood, Henderson, Madison, and McDowell based on certain criteria (developable land, road access, municipal water and sewer, zoning, etc). The report provides a CAD-generated floor plan option, estimates total development costs (nearly \$2.5 million), and provides a draft business plan that provides data and projections to use in the development of a full business plan.

**Mills, S. and Bingham, S. (2010). *A Farmland Protection Plan for Clay County, North Carolina*. Clay County, NC. Retrieved from <https://regiona.org/wp-content/uploads/clay-county-farmland-preservation-plan-6-27-10-5.pdf>**

The plan describes current agriculture activities, challenges to family farming, opportunities for maintaining and/or enhancing family farming and the local agriculture economy, and county plans to support local agriculture, and a schedule for plan implementation.

The plan articulates an agriculture economy in decline with losses in farms, farmland, and agricultural receipts. Key challenges identified include increasing land values, the mountainous topography ill suited to large scale farming, small farm sizes, opportunities for off-farm work, scarcity of farm labor, and a lack of infrastructure (e.g., processing, packing) and access to market opportunities (farmers markets, schools, institutional cafeterias). Policy and actions recommended to support and improve the viability of agriculture in Clay County include:

- Promotion of agriculture as an asset and a source of economic growth—locally, regionally, nationally

- Promote and facilitate farmland protection through the use of Voluntary Agricultural Districts, Present Use Value taxation, estate planning, easements, development ordinances, and development planning
- Bring farmland owned by non-farmers into productive uses with leases and multiple use agreements
- Support a diversification of agricultural enterprises and their profitability through marketing and processing development
- Provide promotion, training, and other support for “grass farming” and other production techniques that lower costs, reduce capital requirements, increase margins, and meet the environmental and aesthetic requirements of a healthy rural landscape
- Support the development and implementation of forest plans in accordance with Present Use Tax assessments

**TJH Research and Strategy. (2011). *A Survey of Consumer Behavior and Perceptions Concerning Locally Grown Food. Findings From a Spring 2011 Survey of Primary Household Food Shoppers in the 6 Westernmost Counties in North Carolina*. Asheville, NC: Appalachian Sustainable Agriculture Project.**

This report is a subset of a larger study that explored the potential to expand local markets for farm and forest products in Western North Carolina. This subreport focuses on shoppers in the six westernmost counties in North Carolina—Cherokee, Clay, Graham, Jackson, Macon and Swain. A representative survey was used to examine consumer behavior and perceptions of local food generally, and four foods in particular: mushrooms, ramps, honey, and trout. Key findings included:

- 52 percent reported spending 10 percent or more of their food budget on locally grown food.
- 61 percent of consumers reported weekly purchases of local food products (when in season).
- Local food purchases were likely to take place at a farmers market (53 percent), or a grocery store (54 percent) (rates higher than at a farm or farm stand).
- For southwestern North Carolina consumers, “local” means Western North Carolina (36 percent) or within their county (24 percent).
- For 64 percent, local food is an important consideration when choosing a restaurant; for 77 percent, it is an important consideration when choosing a grocery store.
- Southwestern North Carolina consumers buy local food because they believe it supports local farms and the local economy and because it lets them know where their food comes from.

**Wilson, N. (2017). *Rural Food Business Assistance Project. Western Region Final Report*. Southwestern Commission and NC Rural Center.**

Draft report from a project designed to assist local food and farming linked businesses in seven counties in Western North Carolina—Cherokee, Clay, Graham, Haywood, Jackson, Macon, and Swain. The report describes the project’s core work to connect agribusiness entrepreneurs to agricultural

resource providers and small business centers; support agribusiness entrepreneurs with scholarships and business coaching; and develop regional strategies to promote and assist local food and farms in the western region. The report documents assets and success stories connected to local farms and food identified in a series of community meetings.

**WithersRavenel. (2018). *GrowCherokee: Agricultural Economic Development Plan*. Eastern Band of Cherokee Indians Division of Agriculture and Natural Resources.**

A plan that identifies actionable steps for local community and regional economic development that respects cultural beliefs and meets economic needs. The plan was informed by a six-month community engagement and outreach process and it draws on existing programs and policies and supply chain infrastructure, local and regional agricultural data, and census and economic data, and models developed and used by other tribes.

**WithersRavenel. (2019). Tribal Council Summary Report. *GrowCherokee: Agricultural Economic Development for the Eastern Band of Cherokee Indians*. Eastern Band of Cherokee Indians Division of Agriculture and Natural Resources.**

The summary report of the *GrowCherokee Agricultural Economic Development Plan*. The summary focuses on the recommendations. Recommendations for community development projects included:

- Coordinated raised garden production for community donations
- Coordinated end-of-season donations through tribal cannery
- Integration of agriculture use into tribal land purchasing and planning
- Elk management methods and programs
- Agriculture education and outreach

Recommendations for economic development projects included:

- Tribal cannery upgrades and future expansion
- Tribal trout hatchery increased production and commercial branding
- Tribal commercial production of greenhouse vegetable and nursery crops
- Tribal commercial facility for cold storage and central distribution
- Kituwah incubator farm programming
- Mulch and by-products
- Marketing and branding certification program

## Appendix B: County Snapshots

The local food system information presented in these snapshots offers perspective and context for each county. Each variable presented was chosen based on the criteria: (1) data must relate directly to local food system development, (2) data must be obtainable and available to the public, (3) data must come from a reliable, credible source, and (4) collectively, the data must give an idea of the social, economic, and environmental components of the local food system.

### Source Key

<b>Production</b>	<i>Source</i>	<i>Year</i>
Number of farms	USDA Census of Agriculture	2017
Proportion of farmers farming less than 10 years		
Proportion of principal farmers younger than 35		
Proportion of farms with direct sales		
Proportion of farms growing fruits and vegetables		
Change in farmland acres 2012–2017		
Proportion of county land in farmland	USDA Census of Agriculture and U.S. Census Bureau Census of Population and Housing	2017
<b>Retail Infrastructure</b>		
Grocery stores/1,000 pop	U.S. Census Bureau Population Estimates and County Business Patterns	2016
Full service restaurants/1,000 pop		
Farmers markets/1,000 pop	U.S. Census Bureau Population Estimates and USDA National Farmers Market Directory	2019
<b>Consumption, Access, Health</b>		
Proportion of population with inadequate fruit and vegetable consumption	NC Institute of Medicine County Health Profiles	2017
Rate of diabetes and obesity in adults 18+		2014
Rate of obesity in adults 18+		2013
Proportion of population below poverty level	U.S. Census Bureau American Community Survey	2013–17
Proportion of households receiving SNAP	Food Research and Action Center	2012–16
<b>Food and Farming Employment</b>		
Proportion of workforce employed in foodservice (average annual salary from foodservice)	Bureau of Labor Statistics	2019
Proportion of workforce employed in farming	USDA Census of Agriculture	2017



## Snapshot of Cherokee County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	277	46,418
Proportion of farmers farming less than 10 years	26.2%	18.1%
Proportion of principal farmers younger than 35	8.2%	8.4%
Proportion of farms with direct sales (total direct sales)	12.6% (D)*	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	11.2%	7.6%
Change in farmland acres 2012–2017	22.3%	0.2%
Proportion of county land in farmland	8.2%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.21	0.26
Full service restaurants/1,000 pop	0.95	0.72
Farmers markets/1,000 pop	0.04	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	9.7%	9.6%
Rate of obesity in adults 18+	30.6%	31.8%
Proportion of population below poverty level	16.8%	16.1%
Proportion of households receiving SNAP	14.7%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	16.1% (\$15,700)	10.4% (\$17,200)
Proportion of workforce employed in farming	7%	2%

\*Suppressed: In some cases data are suppressed by agencies to protect individually identifiable information, or because of a lack of conclusive information.

## Snapshot of Clay County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	164	46,418
Proportion of farmers farming less than 10 years	29.5%	18.1%
Proportion of principal farmers younger than 35	8.8%	8.4%
Proportion of farms with direct sales (total direct sales)	14.0% (\$542,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	5.5%	7.6%
Change in farmland acres 2012-2017	6.6%	0.2%
Proportion of county land in farmland	8.9%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.09	0.26
Full service restaurants/1,000 pop	1.08	0.72
Farmers markets/1,000 pop	0.09	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	9.5%	9.6%
Rate of obesity in adults 18+	29.2%	31.8%
Proportion of population below poverty level	17.5%	16.1%
Proportion of households receiving SNAP	13.1%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	13.3% (\$14,800)	10.4% (\$17,200)
Proportion of workforce employed in farming	14%	2%

## Snapshot of Graham County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	123	46,418
Proportion of farmers farming less than 10 years	25.8%	18.1%
Proportion of principal farmers younger than 35	4.6%	8.4%
Proportion of farms with direct sales (total direct sales)	11.4% (\$636,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	4.9%	7.6%
Change in farmland acres 2012–2017	60.9%	0.2%
Proportion of county land in farmland	5.7%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.47	0.26
Full service restaurants/1,000 pop	0.83	0.72
Farmers markets/1,000 pop	0.12	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	9.5%	9.6%
Rate of obesity in adults 18+	27.6%	31.8%
Proportion of population below poverty level	19%	16.1%
Proportion of households receiving SNAP	9.6%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	11.1% (\$12,100)	10.4% (\$17,200)
Proportion of workforce employed in farming	14%	2%

## Snapshot of Haywood County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	541	46,418
Proportion of farmers farming less than 10 years	33.6%	18.1%
Proportion of principal farmers younger than 35	9.2%	8.4%
Proportion of farms with direct sales (total direct sales)	15.5% (\$1,826,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	8.9%	7.6%
Change in farmland acres 2012-2017	6.7%	0.2%
Proportion of county land in farmland	14.7%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.26	0.26
Full service restaurants/1,000 pop	0.97	0.72
Farmers markets/1,000 pop	0.03	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	9.7%	9.6%
Rate of obesity in adults 18+	30.4%	31.8%
Proportion of population below poverty level	16.6%	16.1%
Proportion of households receiving SNAP	14.3%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	13.1% (\$15,300)	10.4% (\$17,200)
Proportion of workforce employed in farming	5.8%	2%

## Snapshot of Jackson County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	215	46,418
Proportion of farmers farming less than 10 years	18.9%	18.1%
Proportion of principal farmers younger than 35	5.1%	8.4%
Proportion of farms with direct sales (total direct sales)	7% (\$57,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	8.8%	7.6%
Change in farmland acres 2012–2017	-2.9%	0.2%
Proportion of county land in farmland	5%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.23	0.26
Full service restaurants/1,000 pop	0.97	0.72
Farmers markets/1,000 pop	0.07	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	10.5%	9.6%
Rate of obesity in adults 18+	31.6%	31.8%
Proportion of population below poverty level	21.6%	16.1%
Proportion of households receiving SNAP	12%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	14.9% (\$15,200)	10.4% (\$17,200)
Proportion of workforce employed in farming	2.7%	2%

## Snapshot of Macon County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	340	46,418
Proportion of farmers farming less than 10 years	32.8%	18.1%
Proportion of principal farmers younger than 35	7.1%	8.4%
Proportion of farms with direct sales (total direct sales)	13.5% (\$125,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	7.9%	7.6%
Change in farmland acres 2012–2017	-12.8%	0.2%
Proportion of county land in farmland	6%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.28	0.26
Full service restaurants/1,000 pop	1.25	0.72
Farmers markets/1,000 pop	0.03	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	8.6%	9.6%
Rate of obesity in adults 18+	27.7%	31.8%
Proportion of population below poverty level	17.7%	16.1%
Proportion of households receiving SNAP	14.6%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	12.9% (\$17,900)	10.4% (\$17,200)
Proportion of workforce employed in farming	6%	2%

## Snapshot of Swain County's Local Food System

<b>Production</b>	<b>County</b>	<b>North Carolina</b>
Number of farms	99	46,418
Proportion of farmers farming less than 10 years	17.6%	18.1%
Proportion of principal farmers younger than 35	8.5%	8.4%
Proportion of farms with direct sales (total direct sales)	12.1% (\$608,000)	8.7% (\$69,968,000)
Proportion of farms growing fruits and vegetables	20.2%	7.6%
Change in farmland acres 2012–2017	D	0.2%
Proportion of county land in farmland	2.9%	24.5%
<b>Retail Infrastructure</b>	<b>County</b>	<b>North Carolina</b>
Grocery stores/1,000 pop	0.42	0.26
Full service restaurants/1,000 pop	0.98	0.72
Farmers markets/1,000 pop	0.07	0.02
<b>Consumption, Access, Health</b>	<b>County</b>	<b>North Carolina</b>
Proportion of population with inadequate fruit and vegetable consumption	17.2%	17.9%
Rate of diabetes and obesity in adults 18+	12.8%	9.6%
Rate of obesity in adults 18+	33.6%	31.8%
Proportion of population below poverty level	20.9%	16.1%
Proportion of households receiving SNAP	12.5%	14.0%
<b>Food and Farming Employment</b>	<b>County</b>	<b>North Carolina</b>
Proportion of workforce employed in foodservice (average annual salary from foodservice)	14.4% (\$19,400)	10.4% (\$17,200)
Proportion of workforce employed in farming	3.9%	2%

## Appendix C: Crop Totals by County

### Acres in Top Vegetable Crops by County

	Tomatoes	Collard Greens	Squash	Pumpkins	Sweet Corn
Cherokee	109	120	38	3	6
Clay	30	0	48	D	15
Graham	D	D	D	0	D
Haywood	140	1	13	66	54
Jackson	101	0	D	0	3
Macon	1	0	4	3	4
Swain	62	0	12	36	11

Source: USDA Census of Agriculture, 2017

### Acres in Top Fruit Crops by County

	Grapes	Blueberries	Apples	Strawberries	Watermelon
Cherokee	19	D	13	2	D
Clay	D	D	0	D	12
Graham	D	D	D	D	D
Haywood	4	1	D	0	D
Jackson	0	3	0	0	0
Macon	25	18	8	D	0
Swain	0	0	0	12	0

Source: USDA Census of Agriculture, 2017



## Appendix D: Farm Support Services

---

The organizations below provide farm support services in the project region and are potential partners for the EMFS project. This list is not exhaustive. Commodity associations can be found at [ncagr.gov/markets/assoc](http://ncagr.gov/markets/assoc).

- ASAP (Appalachian Sustainable Agriculture Project), [asapconnections.org](http://asapconnections.org)
- Blue Ridge Food Ventures, [blueridgefoodventures.org](http://blueridgefoodventures.org)
- Carolina Farm Stewardship Association (CFSA), [carolinafarmstewards.org](http://carolinafarmstewards.org)
- Center for Environmental Farming Systems (CEFS), [cefs.ncsu.edu](http://cefs.ncsu.edu)
- Farm Service Agency (FSA), [fsa.usda.gov](http://fsa.usda.gov)
- Growing Minds Farm to School, [growing-minds.org](http://growing-minds.org)
- Organic Growers School, [organicgrowersschool.org](http://organicgrowersschool.org)
- Mainspring Conservation Trust, [mainspringconserves.org](http://mainspringconserves.org)
- MANNA Foodbank, [mannafoodbank.org](http://mannafoodbank.org)
- Mountain BizWorks, [mountainbizworks.org](http://mountainbizworks.org)
- Mountain Wise, [mountainwise.org](http://mountainwise.org)
- Natural Capital Investment Fund, [ncifund.org](http://ncifund.org)
- Natural Resources Conservation Service (NRCS), [nrcs.usda.gov](http://nrcs.usda.gov)
- NC Cooperative Extension, [ces.ncsu.edu](http://ces.ncsu.edu)
- NC FarmLink, [ncfarmlink.ces.ncsu.edu](http://ncfarmlink.ces.ncsu.edu)
- North Carolina Department of Agriculture and Consumer Services (NCDA&CS), [ncagr.gov](http://ncagr.gov)
- North Carolina Farm Bureau, [ncfb.org](http://ncfb.org)
- Small Business Center Network/North Carolina Community Colleges, [ncsbc.net](http://ncsbc.net)
- Soil and Water Conservation, [ncagr.gov/SWC](http://ncagr.gov/SWC)
- Southwestern Commission, [regiona.org](http://regiona.org)
- Vecinos Farmworker Health Program, [vecinos.org](http://vecinos.org)
- WNC Communities, [wnccommunities.org](http://wnccommunities.org)

Additionally, survey respondents identified which organizations provided them with information about food and farming resources. The top 10 responses, in order by number of mentions, were:

- ASAP (Appalachian Sustainable Agriculture Project)
- NC Cooperative Extension
- Farm Service Agency (FSA)
- U.S. Department of Agriculture (USDA)
- North Carolina Department of Agriculture and Consumer Services (NCDA&CS)
- Carolina Farm Stewardship Association (CFSA)
- Colleges/Community Colleges
- Farmers Markets
- Farmers
- Center for Environmental Farming Systems (CEFS)

## Appendix E: Food Hub Models in Western North Carolina

---

Enterprises currently operating as food hubs are marked with an asterisk (\*). Western North Carolina food hub projects in development are listed separately.

### **\*Appalachian Harvest (Washington Co., VA)**

Founded in 2000 by Appalachian Sustainable Development and one of the oldest food hubs in the country. Provides GAP certification training, assistance in obtaining organic certification, connections to large wholesale markets, and aggregation and distribution. Its rural location in Abingdon, VA, has similar geography to the project region. [asdevelop.org/appalachian-harvest](http://asdevelop.org/appalachian-harvest)

### **Farmers Fresh Market (Rutherford Co.)**

A project of Foothills Connect, a nonprofit Rural Economic Development organization focused on developing entrepreneurship within Rutherford County primarily through broadband technology. An online market offered aggregation and distribution in Rutherford, Polk, Cleveland, McDowell, Gaston, Buncombe, and Mecklenburg counties for both wholesale and individual buyers. It operated from approximately 2008 to 2012 when it closed due to financial difficulties.

### **\*High Country Food Hub (Watauga Co.)**

Founded in 2016 in the Watauga County Agricultural Services Center and run by the nonprofit Blue Ridge Women in Agriculture. Year-round weekly online farmers market where producers can sell and consumers can purchase food and artisan goods that have been grown/raised/produced in the High Country. This is a non-delivery model providing aggregation and cold storage space. [highcountryfoodhub.org](http://highcountryfoodhub.org)

### **Madison County Farms (Madison Co.)**

Founded in 2006 at Madison County Multi-Purpose Agricultural Complex as a hub for a local network of farmers, and offered aggregation, processing, storage, and distribution, primarily to schools. The initial hub model, including aggregation and distribution, was discontinued due to financial challenges, but the facility is still available to farmers through Madison County Extension. It includes a small certified kitchen, teaching kitchen, cold storage/freezer, wash line, delivery dock, and bulk ordering, and is supported through user fees.

### **Mountain/Carolina Organic Growers (Buncombe Co.)**

Founded in the 1990s as a cooperative aggregator and distributor. Formed by a group of organic farmers looking to expand their markets, it operated regionally and then expanded across the state. It is no longer in operation.

### **New River Organic Growers (Ashe Co.)**

A nonprofit farmer cooperative founded in 2000 to pool resources for marketing, transportation, bulk supply purchasing, and education, but which struggled to turn a profit. The effort shut down in

in 2015 with some aspects of the effort transitioning to New Appalachia Foods ([newappalachiafoods.com](http://newappalachiafoods.com)), a scaled-down for-profit LLC aggregator and distributor primarily to restaurants; also offers a multi-farm CSA.

#### **Northeast Georgia Food Hub (Rabun Co., GA)**

Begun in 2016 as a subsidiary of the nonprofit Food Bank of Northeast Georgia ([foodbanknega.org](http://foodbanknega.org)). The 38,000-square-foot facility, a satellite of the nonprofit's main location in Athens, includes a certified commercial kitchen, teaching kitchen, cold storage, and state of the art flash freezing production line. The facility was initially intended to offer aggregation, sorting, packaging, marketing, and food safety training for farmers, but these food hub aspects have not been realized.

#### **Pilot Mountain Pride (Surry Co.)**

Founded in 2010 to aggregate and distribute produce of farmers within a 30-mile radius (which includes Winston-Salem) to wholesale and retail markets. The effort was widely promoted as a model food hub for other efforts. It closed its doors in 2015 after four years in operation due to financial shortfalls and the lack of continued external support.

#### **Polk Fresh Foods (Polk Co.)**

Founded in 2011 with seed money from the County Board of Commissioners allocated over three years. Online model provided marketing, aggregation, and distribution for Polk County farmers. Progressive sales growth brought the hub to a point of viability that allowed it to be merged with Sunny Creek Farms and run as a private entity in 2015.

#### **Southern Appalachian Family Farms (Cherokee, Clay, Graham, and Macon Co.)**

Farmer-led nonprofit marketing organization serving Cherokee, Clay, Graham, and Macon counties founded in 2010. Attempts were made to fill an aggregation hub role, but were not ultimately successful.

#### **\*TRACTOR Food and Farms (Yancey Co.)**

Founded in 2012. Nonprofit food hub that works with over 50 small family farms in Yancey, Mitchell, Burke, McDowell, Avery, Madison, and Buncombe counties. TRACTOR provides training to farmers, offers a multi-farm CSA, and has a GAP-certified facility that includes a packing/washing/sorting line and commercial refrigeration. TRACTOR began with a model to aggregate produce to sell to large buyers (Ingles, Sav-Mor, Lowes Foods), but is currently transitioning to focus more on direct markets due to a lack of larger farms that can sustain a wholesale price structure. [tractorfoodandfarms.com](http://tractorfoodandfarms.com)

Food hubs in development:

#### **Falconhurst Community Food Hub (Buncombe Co.)**

Managed by the nonprofit Bountiful Cities ([bountifulcities.org](http://bountifulcities.org)). Facility would include cold and dry storage, washing/packing line, and shared-use community kitchen. Primary participants would be

community gardens and local urban farmers, as well as a planned farm school. This is not a brokering or delivery model.

**Foothills Food Hub (McDowell Co.)**

Managed by the nonprofit McDowell Local Food Advisory Committee with expected completion in 2021 (feasibility study completed in 2017, see Appendix A). Supporting farmers in McDowell, Rutherford, and Burke counties. Planned facility will include washing/packing line, storage, commercial kitchen, and teaching kitchen, and serve as an aggregation site for farmers and central hub for food pantry donations. [foothillsfoodhub.org](http://foothillsfoodhub.org)

## Appendix F: Breweries in Southwestern North Carolina

County	Brewery	City	Founded
Cherokee	Andrews Brewing Company	Andrews	2012
	Hoppy Trout Brewing Company	Andrews	2016
	Snowbird Mountains Brewery	Andrews	2019
	Valley River Brewery	Murphy	2016
Clay	Hayesville Brewing Company	Hayesville	2017
	Nocturnal Brewing Company	Hayesville	2018
	Valley River Brewery	Hayesville	2018
Haywood	7 Clans Brewing	Canton	2019
	BearWaters Brewing Company	Canton	2010
	Boojum Brewing Company	Waynesville	2015
	Frog Level Brewing Company	Waynesville	2010
Jackson	Whiteside Brewing Company	Cashiers	2018
	Balsam Falls Brewing Company	Sylva	2017
	Innovation Brewing	Sylva	2013
	Nantahala Brewing Company Outpost	Sylva	2018
Macon	Currahee Brewing Company	Franklin	2016
	Lazy Hiker Brewing Company	Franklin	2015
	Satulah Mountain Brewing Co.	Highlands	2014
Swain	Mountain Layers Brewing Company	Bryson City	2017
	Nantahala Brewing Company	Bryson City	2009