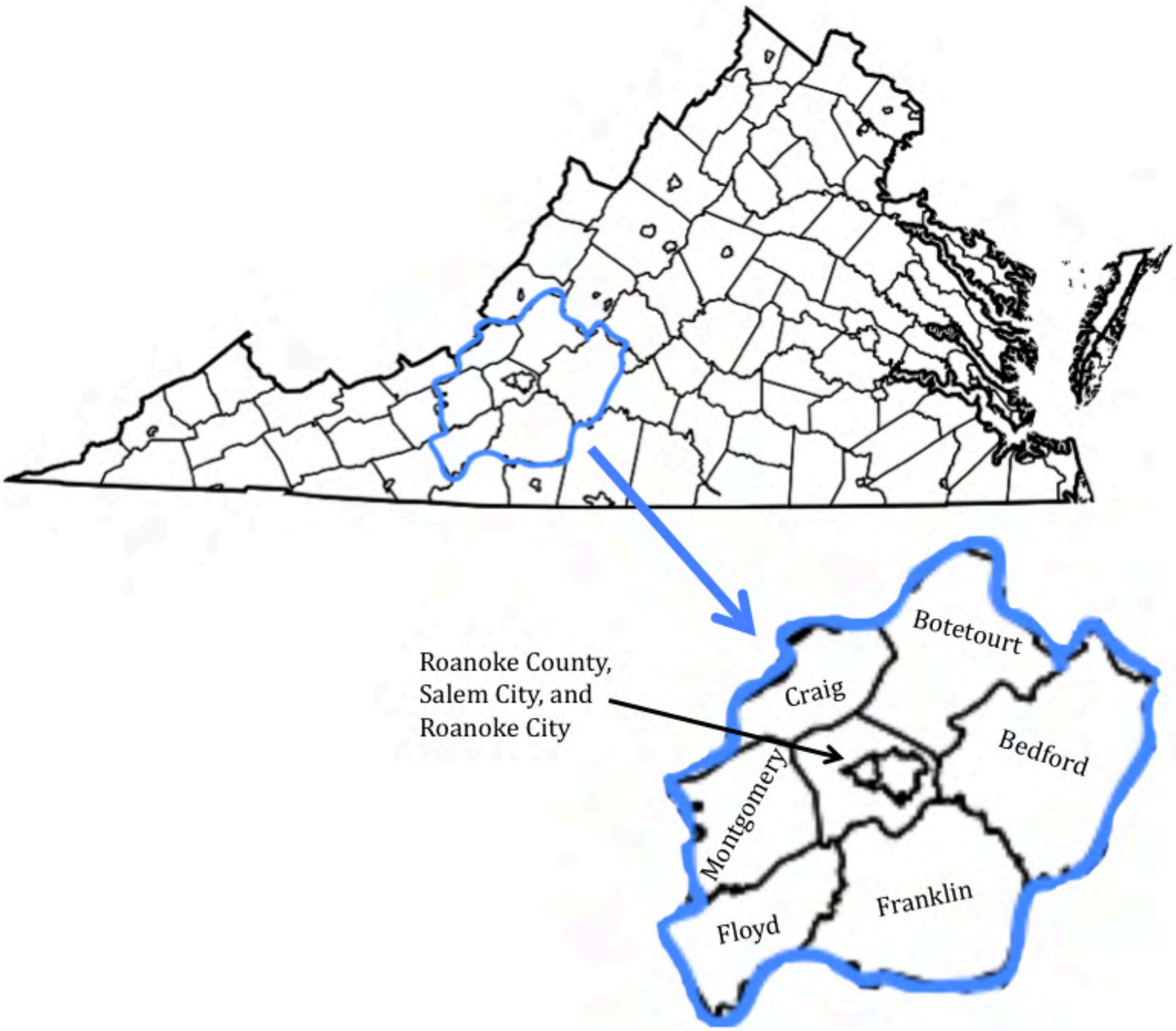
"Roanoke Local"
Regional Food & Agriculture Report

Prepared by Local Environmental Agriculture Project (LEAP) for the Roanoke Valley-Allegany Regional Commission (RVARC) Regional Local Food Planning Committee

December 2016



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Section 1: The "Roanoke Local" Program and Region

"The food and farming system is critical to economic vitality and community health however, it is often overlooked and undervalued."

-Key finding of 2011 Virginia Cooperative Extension Report, "A Community-Based Food System: *Building Health, Wealth, Connection, and Capacity as the Foundation of Our Economic Future*

Local Environmental Agriculture Project (LEAP), a 501c3 non-profit based in Roanoke, Virginia, works to nourish healthy communities and resilient local food systems. As part of this mission, LEAP partners with community organizations, food producers, and consumers to address needs related to local food supply, distribution, and demand in the region.

Drawing on the concept of a "foodshed," analogous to that of a watershed in studying how food travels from farm to plate, LEAP views the "Roanoke Local" region to include the counties that produce a majority of the local food supply for the cities of Roanoke and Salem. Roanoke and Salem, as the major urban centers in the Roanoke Valley, make up over 25% of the residents in the region (see Table 1). However, there is little food produced in these urban areas. Therefore, to discuss a foodshed, we have to include rural, urban, and periurban communities in the Roanoke Valley and beyond. The Roanoke Local foodshed, for the purpose of this report, includes:

- Roanoke City
- Salem City
- Roanoke County
- Botetourt County
- Craig County
- Franklin County
- Floyd County
- Montgomery County
- Bedford County

As a foodshed is shaped by forces beyond the physical or geographic landscape, it is important to also look at social and economic information when attempting to understand an entire foodshed and its potential to become more localized. Consolidated in Table 1, the characteristics of regional population highlight the potential for the local food economy, and income and poverty statistics show potential economic barriers for accessing local food. For example, Roanoke City may have the largest population, but 20.4% of the population is considered to be in poverty. Therefore, over 20,000 individuals in Roanoke City alone may not prioritize local food purchases over other expenses such as caloric intake and housing.

	Population, 2010	Median Household Income (in 2014 dollars), 2010-2014	Persons in Poverty, 2014
Roanoke City	99,897	$39,530	20.4%
Salem City	25,432	$50,590	10.2%
Roanoke County	92,376	$60,950	8.2%
Botetourt County	33,148	$63,011	7.8%
Craig County	5,190	$46,658	12.4%
Franklin County	56,159	$44,827	16.3%
Floyd County	15,279	$47,543	14.1%
Montgomery County	94,392	$44,810	24.8%
Bedford County	68,676	$56,043	9.4%
Regional Average	--	$50,440	13.73%
Regional Total	490,549	--	--

Table 1: Overview of Demographic and Economic Information (United States Census Bureau QuickFacts)

It is important to note that Montgomery County hosts Virginia Tech in Blacksburg. The town of Blacksburg had a population of 42,620 in 2010, which included the transient student population (approx. 25,000). It is possible that the student population explains high levels of poverty in Montgomery County as over 46% of the town's population was considered in poverty in 2014. Nearby Christiansburg had a population of 21,041 in 2010, leaving unincorporated Montgomery County at a population of 30,731 (United States Census Bureau QuickFacts).

Over the past five years, a number of organizations and government agencies have conducted food, agriculture, and farming assessments and studies in specific geographic areas throughout the Roanoke Local region (see Appendix A). In the interest of time and resources, we compiled and organized existing data on the region. This regional food report, based on existing data, will create the foundation for discussions around local food system development and planning in the region.

The report contains five major sections. Section 2 provides an overview of agriculture production throughout the seven counties, often in comparison with the state. Section 3 offers the current state of processing and distribution in the region, while section 4 discusses local food access. These three chapters indicate existing local food production, infrastructure, and sales but also provide a broad perspective beyond the local food economy. This broad perspective allows us to analyze our current status, envision future potential, and identify key gaps within the local food system.

The final section, Section 5, reviews select assessments, studies and reports from the region and lists possible projects. This last section includes a preliminary list of stakeholders and will be particularly useful for giving direction to a regional local food system council or working group.

Section 2: Production

According to the 2013 study, The Economic Impacts of Agriculture and Forest Industries in Virginia, and the 2016 New River Valley Agricultural and Agritourism Strategic Plan (NRV Plan), agriculture is Virginia's largest and oldest industry, generating over $52 billion annually and supporting approximately 310,900 jobs. Further, almost 90% of Virginia's farms are family-owned and -operated (NRV Plan, 2016). There are a number of agriculture assessments that cover a variety of regions across Virginia; however, this assessment pertains only to the Roanoke Local region (the cities of Roanoke and Salem and the seven surrounding counties).

Based on the Catawba Sustainability Center's (CSC) 2015 study, the counties that host the main producers for the Roanoke Valley include all of the Roanoke Local region except Bedford County. We decided to include Bedford County in the Roanoke Local region for three main reasons: (1) compared to the counties included in the CSC study, Bedford County has more existing farms and agriculture land than the remaining six counties and more sales than four of these regional counties (see Table 2), (2) Bedford County completes the circle of counties that surround Roanoke County, and (3) producers are often willing to travel up to 125 miles to for access to a better market (Bendfeldt, personal communication, 2016).

Regional Trends in Farm Numbers, Sizes, and Sales

The following tables and graphs provide an overview of farming and agriculture in the region. This information is not all-inclusive. The data points in this assessment are based on those commonly used in agriculture assessments, like the CSC study. Figures 1, 2, and 3 show regional agriculture trends over a 15-year period, and Table 2 breaks down this same data by county for the year 2012.

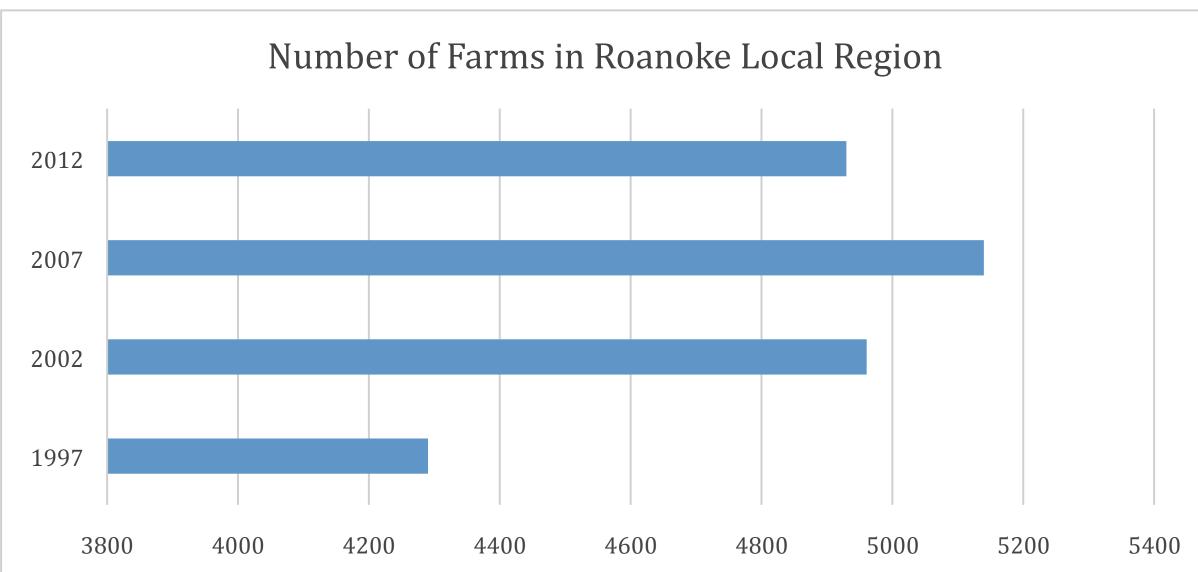

Figure 1: Number of Farms in Roanoke Local Region (2012 USDA Census of Agriculture)

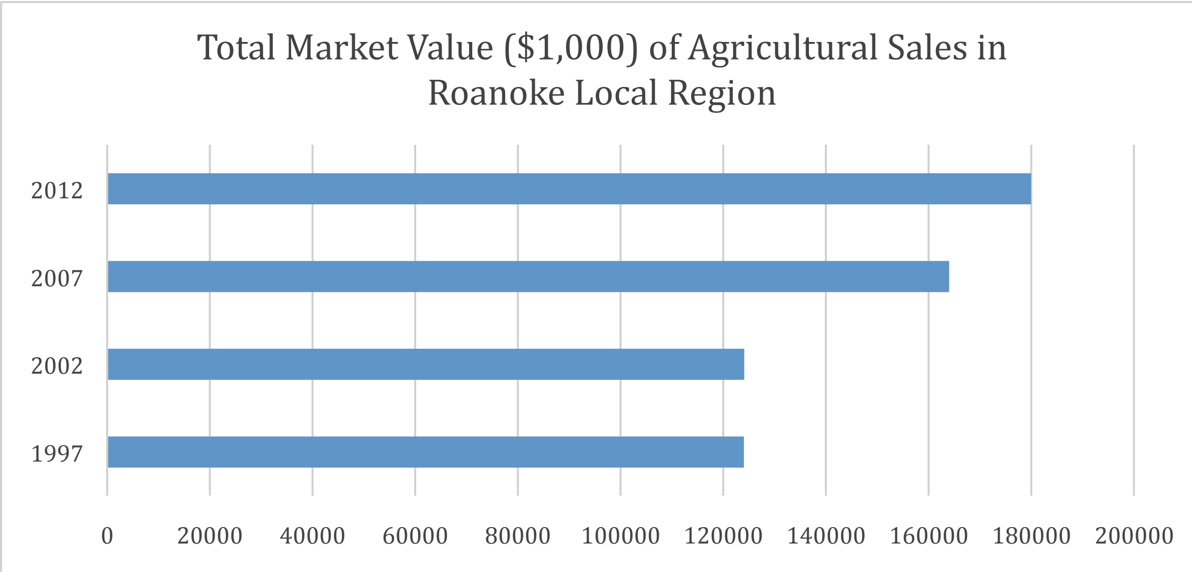

Figure 2: Total Market Value ($1,000) of Agricultural Sales in Roanoke Local Region (2012 USDA Census of Agriculture)

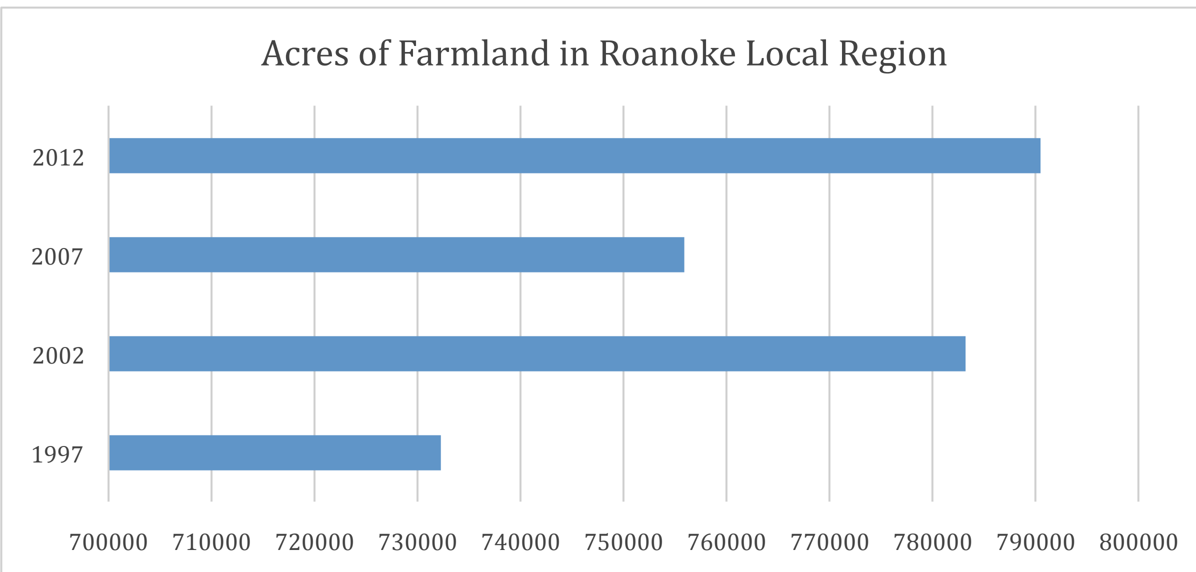

Figure 3: Acres of Farmland in Roanoke Local Region (2012 USDA Census of Agriculture)

	Virginia	**Bedford**	**Botetourt**	**Franklin**	**Floyd**	**Craig**	**Montgomery**	**Roanoke**	**Roanoke Local Region**
# of Farms	46,030	1,369	584	1,023	863	207	603	280	4,929
Acres of Farmland	8,302,444	206,534	89,316	164,564	144,657	46,625	107,260	31,486	790,442
Average Size Farm (acres)	180	151	153	161	168	225	178	112	164
Market Value of Agricultural Products Sold ($1,000)	3,753,287	28,283	18,704	65,442	34,701	4,886	23,707	4,140	179,863

Table 2: 2012 State, County, and Regional Information (2012 USDA Census of Agriculture)

In Virginia between 1997 and 2007, very small and very large farms (<$2,500 and >$500,000 in annual sales, respectively) increased while small to medium sized farms decreased (10-33%) (see Figure 4). As demand for local foods increases in southwest Virginia, farmers and ranchers continue to struggle for economic viability. From Figures 1, 2, and 3, it is clear that while the number of farms has decreased since 2007, the acres in farmland and market value of crops has increased. These figures can potentially be explained by farmland consolidation, and may help us understand the rise in very large farming operations.

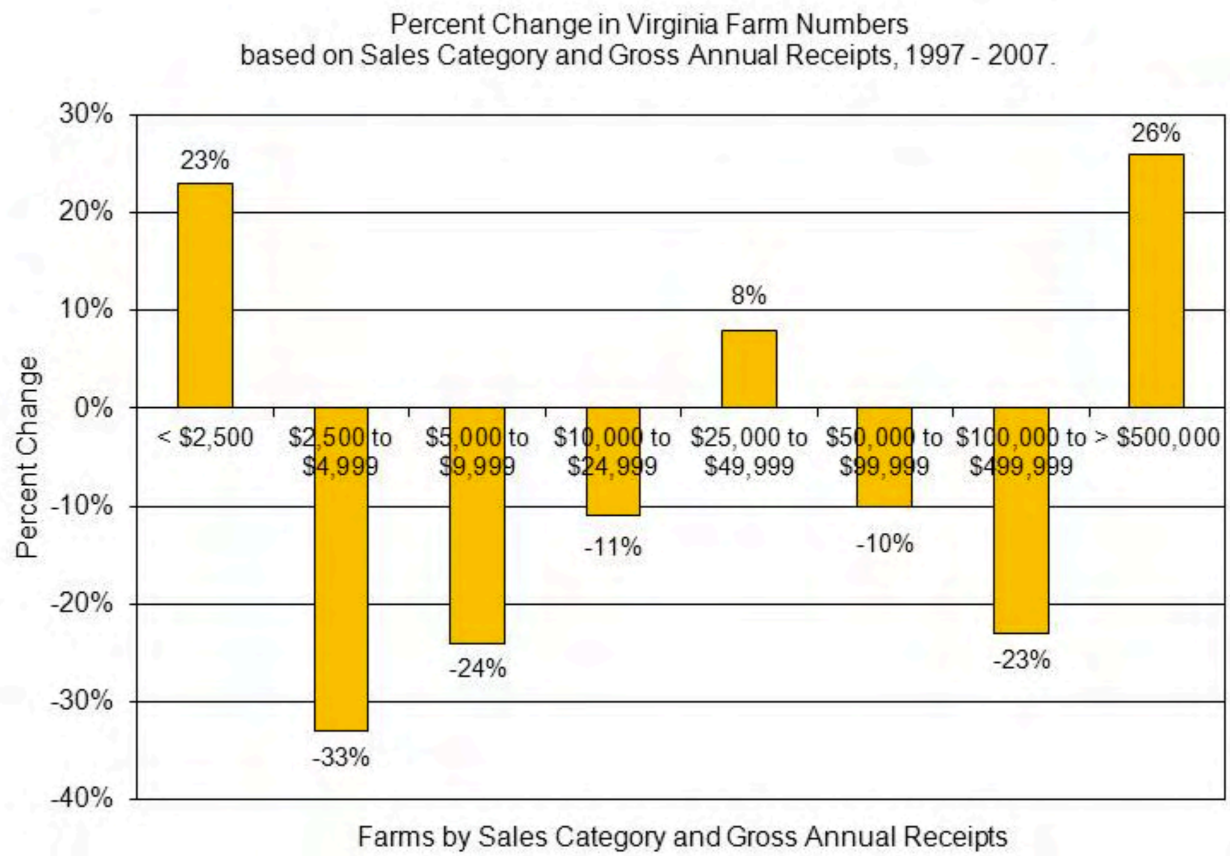

Figure 4: Percent Change in Virginia Farm Numbers, 1997-2007 (Virginia Farm to Table)

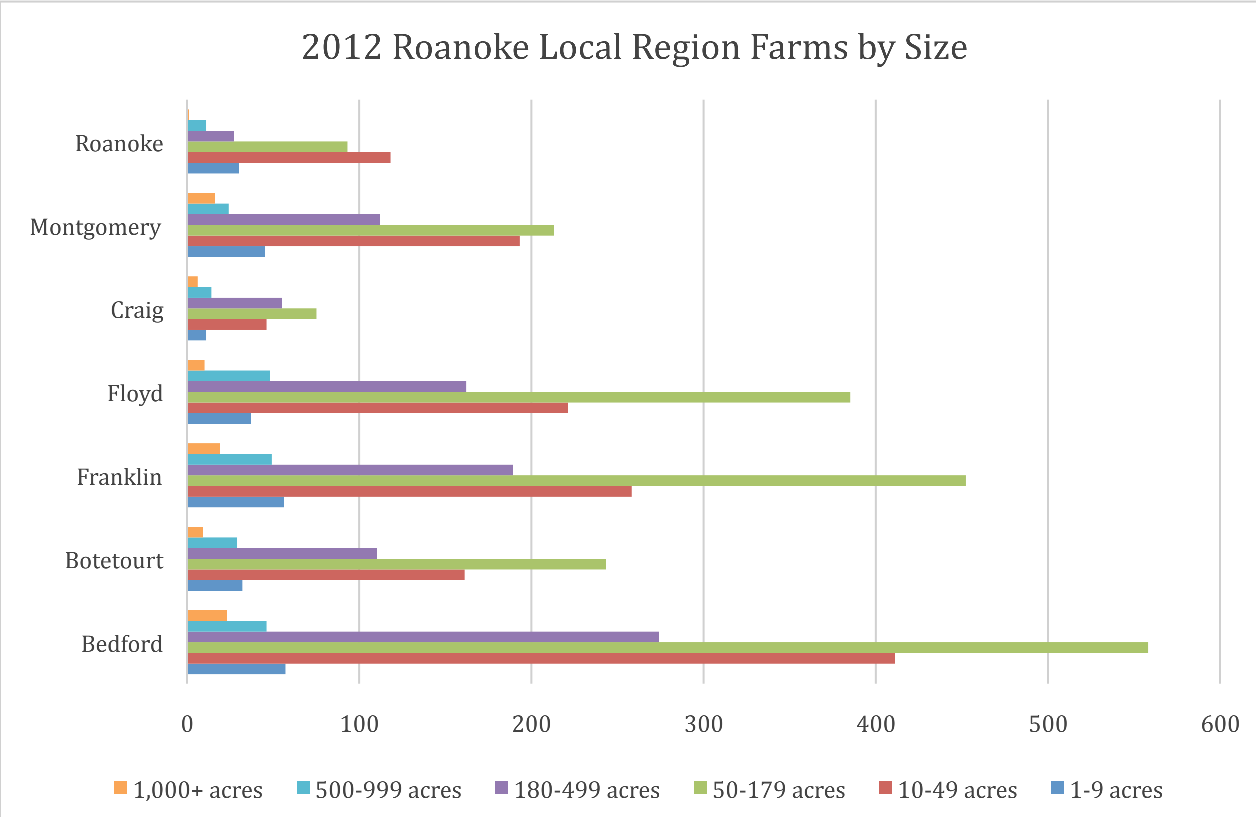

Figure 5: 2012 Roanoke Local Region Farms by Size (2012 USDA Census of Agriculture)

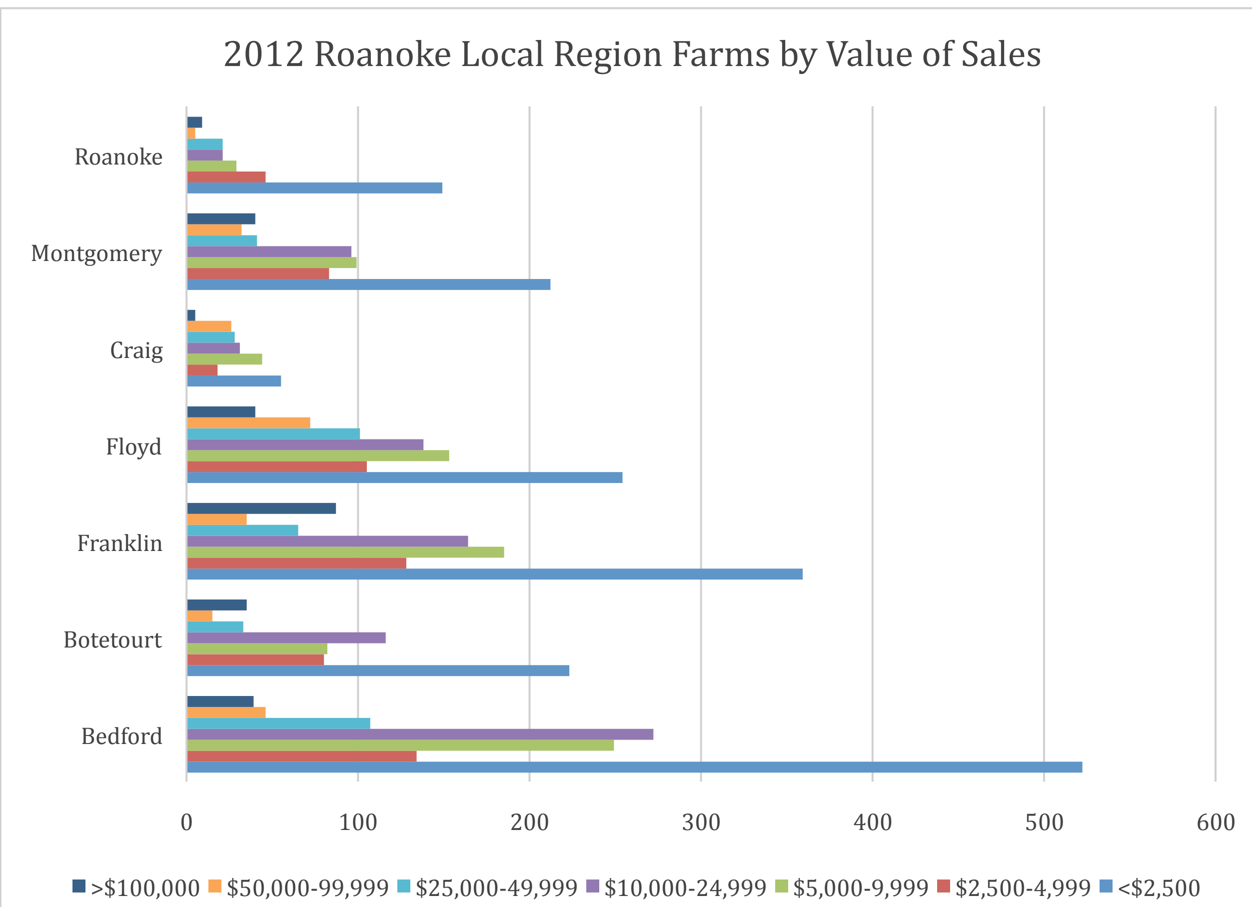

Figure 6: 2012 Roanoke Local Region Farms by Value of Sales (2012 USDA Census of Agriculture)

Reflected in Figures 5 and 6, the majority of farms in the Roanoke Local region are very small (<$2,500 in annual sales) and a large portion are 50-179 acres. The Botetourt County Agriculture Development Strategic Plan echoes these numbers, noting 53% of Botetourt farmers have fewer than $5,000 in sales. As the average regional size farm is 164 acres and the average value of sales for regional farms is $36,491 (see Table 2), it seems the capacity exists to increase revenue among these small farms that currently have low annual sales.

In Virginia, the total market value of products sold reached $3.75 billion in 2012, and almost $180 million (4.8%) of that came from Roanoke Local regional farmers (see Table 2). The average value of sales per farm was $81,540 in the state of Virginia and $36,491 for regional farmers (see Table 2). Over $82.3 million in government payments went to Virginia farmers in 2012, and slightly over $3 million (3.7%) of that went to regional farmers (2012 USDA Census of Agriculture). In comparing land in farms, 9.5% of Virginia's farm acreage resides in the region (see Table 2).

It is interesting to note that the percentage of Virginia government payments to regional farmers (3.6%) is lower than that of the total value of Virginia sales (4.8%), both of which are significantly lower than the percentage of Virginia farmland (9.5%) in the region (2012 USDA Census of Agriculture). Further, the average value of sales for farms in the region is less than half that of state-wide farmers (2012 USDA Census of Agriculture). These numbers show that agriculture exists in the Roanoke Local region; however, higher-value and government-subsidized agriculture is not happening proportional to the percentage of Virginia farmland. With existing agriculture and the seemingly low value of sales, there is room to expand agriculture and support existing farmers in the region. As the Roanoke Cooperative Extension Unit serving Salem, Roanoke City, Roanoke County, and Botetourt County recently hired the first Agriculture and Natural Resources Extension Agent in four years, there is hope that agriculture will get more attention from Virginia Cooperative Extension.

Top Agriculture Products

Based on USDA Agriculture Census data, in the Roanoke Local region, farmers produced over 2.5 times (in sales value) more livestock, poultry, and their products ($125,637,000) than crops, including nursery and greenhouse crops ($50,086,000) in 2012 (see Table 3). Table 4 shows that 81.31% of the harvested cropland in 2012 was in forage crops and less than 1% was in vegetable production and orchards. The remaining 17.74 % of harvested cropland was used to grow corn, wheat, oats, barley, and sorghum for grain, soybeans and tobacco.

	Virginia	**Bedford**	**Botetourt**	**Franklin**	**Floyd**	**Craig**	**Montgomery**	**Roanoke Local Region***
Crops	1,360,146	6,950	6,063	14,726	14,354	1,299	6,694	50,086
Livestock, Poultry, & Products	2,393,141	21,333	12,641	50,716	20,347	3,587	17,013	125,637

* Data for Roanoke County was withheld to not disclose data for individual farms.

Table 3: Value of Sales for Each County ($1,000) (2012 USDA Census of Agriculture)

Category of Production	Acreage
Acres of Farmland	790,442
Total Cropland (acres)	234,240
Farmland, not Cropland (acres)	556,202
Harvested Cropland (acres, broken down by category below)	205,893
Forage Crops (hay, haulage, grass silage, greenchop)	*167,416*
Vegetables	*554*
Orchards	*1,397*
Other crops harvested (including corn, wheat, oats, barley, & sorghum for grain, soybeans, and tobacco)	*36,526*

Table 4: Regional Cropland Production in Acres and by Category (2012 USDA Census of Agriculture)

In line with the regional trends in cropland usage (see Table 4), in the 2015 Botetourt County Agriculture Development Strategic Plan, Botetourt County was recognized as a leading state producer of beef cattle and related forage crops. Per this report, Botetourt County has approximately 270 beef cattle farms, primarily cow and calf operations by small, part-time farmers with an average of 66 head per farm and 11 dairy farms. Though the county was identified as a leading producer, the authors recognized that the overall production trend had been downward from about 26,500 head of cattle in 1975 to about 21,500 in 2013. Farm employment has also decreased in the county from about 19% of the total county employment in 1969 to about 4% in 2013.

In Virginia, the top three products sold by value (see Table 5) are broilers, cattle and calf, and turkeys. The Roanoke Local region represents 12.6% of Virginia cattle and calf farms and only 4.6% of broilers farms in 2012 (USDA Census of Agriculture), suggesting that the state-wide numbers do not necessarily correspond to the top agriculture products in the region. However, the region does parallel statewide agriculture products in that animal agriculture dominates crop production while forage and grain production far surpass that of fruit and vegetables.

Further, the following excerpt from The Economic Impacts of Agriculture and Forest Industries in Virginia, a 2013 report, offers an explanation for why regional numbers might not parallel statewide numbers and why vegetable production may be limited in the Roanoke Local area.

“Generally speaking, crop farming is more prevalent in the eastern half of the state where growing conditions are better, while livestock and poultry farming is more common in the west where steeper slopes are less suitable for intensive cultivation. Cattle and dairy farming occurs more often in the Shenandoah Valley and Southwest” (Executive Summary).

Top 35 Products Sold by Virginia Farmers (Based on 2015 cash receipts)			
Rank	**Commodity**	**State receipts ($1,000)**	**% of State Receipts**
	All commodities	*3,780,015*	*100.0*
	Animals and products	*2,568,995*	*68.0*
	Crops	*1,211,020*	*32.0*
1	Broilers	791,775	20.9
2	Cattle and calves	676,037	17.9
3	Turkeys	373,628	9.9
4	Dairy products, Milk	342,022	9.0
5	Miscellaneous crops	302,411	8.0
6	All other animals and products	210,000	5.6
7	Soybeans	207,745	5.5
8	Corn	169,674	4.5
9	Chicken eggs	122,456	3.2
10	Hay	121,325	3.2
11	Tobacco	111,869	3.0
12	Wheat	75,492	2.0
13	Cotton lint, Upland	55,941	1.5
14	Hogs	47,352	1.3
15	Apples	34,465	0.9
16	Tomatoes	34,100	0.9
17	Peanuts	20,722	0.5
18	Grapes	17,940	0.5
19	Potatoes	17,245	0.5
20	Cottonseed	10,903	0.3
21	Corn, Sweet	7,342	0.2
22	Peaches	6,834	0.2
23	Beans, Snap	4,979	0.1
24	Barley	3,696	0.1
25	Watermelon	3,586	0.1
26	Cabbage	2,624	0.1
27	Farm chickens	2,576	0.1
28	Trout	1,610	0.0
29	Honey	1,293	0.0
30	Cucumbers	1,280	0.0
31	Oats	427	0.0
32	Mushrooms	421	0.0
33	Wool	152	0.0
34	Mink pelts	87	0.0
35	Mohair	6	0.0

Table 5: Top 35 Products sold by Virginia farmers, 2015 (USDA ERS Farm Income and Wealth Statistics)

Agriculture Industry Demographics

Data obtained by the Virginia Tech Office of Economic Development offers insight on crop production, animal agriculture, and aquaculture in the Roanoke Local region. It should be noted that the USDA Census of Agriculture recorded 4,929 farms in 2012 (see Table 2) and the following statistics are based off 56 establishments in 2015. The data set included a jobs multiplier of 1.21 as related to these operations. Also from this data set, between 2014 and 2015, related jobs decreased by 0.7%.

In 2016, 83.4% of the related jobs were described as "Farmers, Ranchers, and Other Agricultural Managers," 7.9% were "Farmworkers and Laborers [for] Crop, Nursery, and Greenhouse [Industries]", and 0.9% were "Farmworkers [for] Farm, Ranch, and Aquacultural Animals [Industries]." An overwhelming 74.4% of those in agriculture were male and 94.6% were white. Not surprisingly, 71.4% of workers were 45+ years old, while only 13% were 19-34 (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Sets, September 2016). Paralleling these findings, the 2012 Census of Agriculture reported the typical Virginia farmer was 59.5 years old.

From these statistics and the recent reduction in agricultural jobs, it is easy to see there is a need for agricultural programming and recruitment, specifically targeted to younger generations, women and people of color.

Direct Markets

Large scale animal and crop production in this region is typically structured for wholesale markets. For fruit and vegetable production (also referred to as "specialty crops"), many Roanoke Local regional farmers rely on local wholesale accounts and retail direct markets. In the Roanoke Local region, farms with direct sales have increased between 2007 and 2012 from 5.25% to 8.12% of total farms (see Table 6). From this same data set, direct sales have increased from 1.27% to 1.42% of the total market value of sales. Direct sales include roadside stands, farmers markets, pick-your-own, and door-to-door sales, but not craft items or processed products such as jellies, sausages, and hams.

	2007	**2012**
Number of Farms	5,139	4,929
Number of Farms with Direct Sales	270	400
Percent of Farms with Direct Sales	5.25%	8.12%
Total Market Value ($1,000)	$163,905	$179,863
Direct Sales ($1,000)*	$2,082	$2,548
Percent of Direct Sales	1.27%	1.42%

Table 6: Roanoke Local Regional Farms with Total Market Value vs. Direct Sales, 2007 & 2012 (USDA National Agriculture Statistics Service Quick Stats)

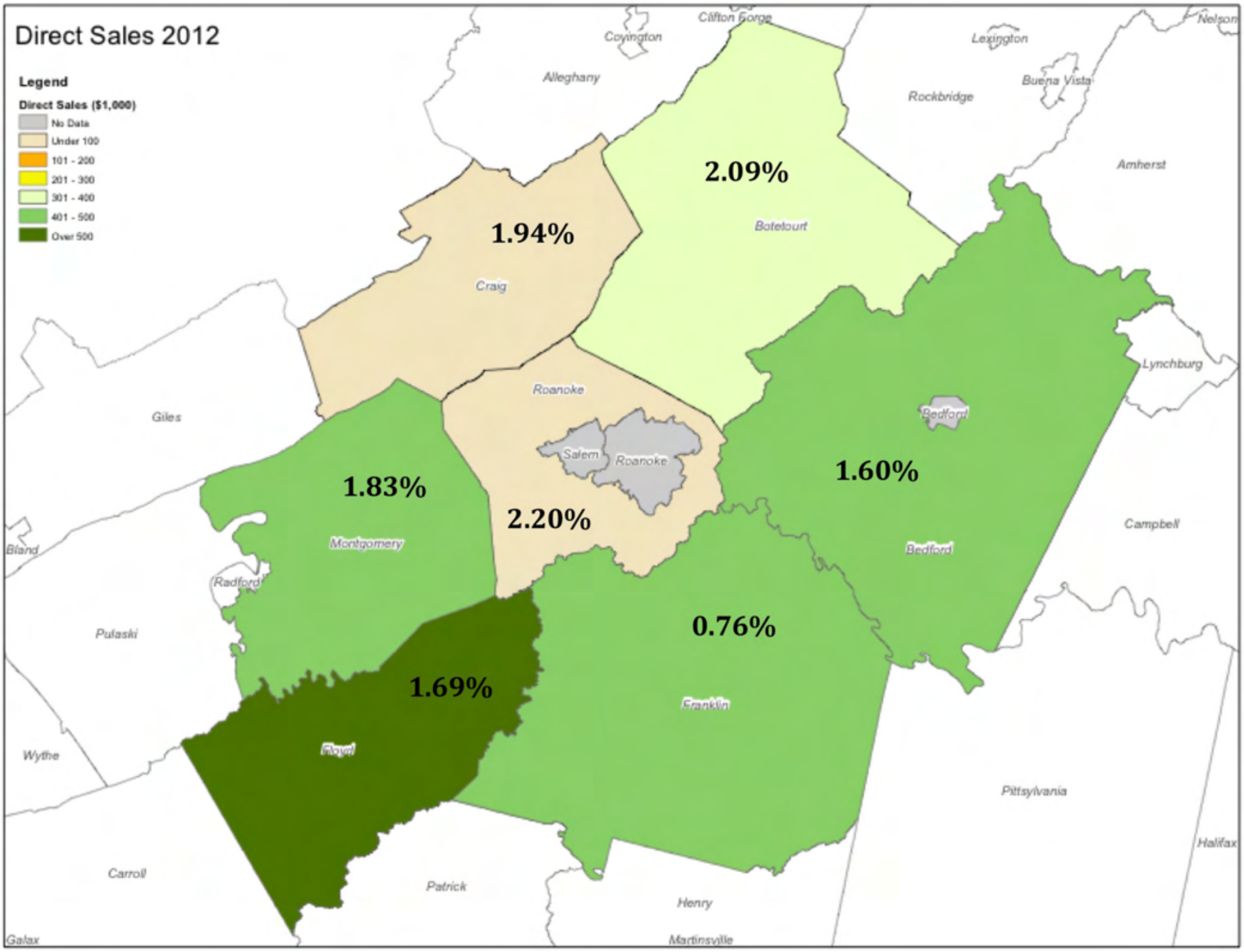

Figure 7: Regional Breakdown of Direct Sales by County with Percent of Sales from Direct Sales, 2012 (USDA Census of Agriculture; RVARC, 2016) any way to make key bigger?

The 2015 report to congress, "Trends in Local and Regional US Food Systems," states that farm business survival rate is low. The report also mentions that census data showed that farmers with direct marketing to consumers had a greater chance of reporting positive sales in 2007 and 2012 than those who marketed through traditional channels. Direct marketing was also associated with higher business survival rates among beginning farmers; however, in both cases, the businesses grow much slower. As the average farm only received $0.17 of every dollar spent on domestically produced foods in 2014 (USDA ERS, Food Dollar Series, 2016), there is potential for direct markets to shorten the food value chain and increase the farmer's share of food dollars.

Economic Impact of Local Food Purchases

In studying the economic impact of local food purchases, there are numerous models and multiplier numbers used across the US. These multipliers are based off the assumption that local farmers and businesses are more likely to make purchases through other local businesses than are the larger more corporate agriculture businesses. For example, if each local farmer or business owner reinvests 40% of their income in the local economy, that offers a multiplier of 1.66 (Example: farmer receives $1 in local food purchases, the farmer then reinvests $0.40 of the original dollar in a local business, that business owner then reinvests $0.16 of the original dollar in another local business, etc. until a total of $1.66 is circulated throughout the economy). The numbers 1.65 and 1.35 are often quoted as the difference in impact of local versus more conventional grocery chains, including direct and indirect benefits (E. Bendfeldt, personal communication, 2016).

In a 2006 study on Black Hawk County, Iowa regional farmers, the Leopold Center for Sustainable Agriculture researchers found that for every $1 spent on research and outreach about local food systems, $14.70 worth of local food was then purchased. The study also found that local restaurants that bought more than 70 percent of its food items from Iowa farms had a job income multiplier of 1.54, compared to 1.2 for the typical Iowa restaurant. In the 2011 report to Congress on US local food trends, they showed that the multiplier impacts in New York State from increased demand for food hub goods and services ranged from 1.82 to 1.63. The report noted these multipliers were higher than those of industries such as wholesale trade and truck transportation.

For economic impacts related to jobs, a 2015 report called "The Economic Contribution of the Dairy Industry in Virginia" has shown that for every $1 million of output in dairy cattle and milk production, over 16 dairy industry jobs are supported (including 77% direct employment and 23% employment through value-added businesses) (Rephann, 2015). The Virginia Poultry Federation has shown that for each on-farm job, the poultry industry supports 7 off-farm jobs (E. Bendfeldt, personal communication, 2016). From the 2013 report on the economic impact of agriculture and forestry in Virginia, every job in these industries (a total impact of $70 billion providing nearly 415,000 jobs) supports 1.6 jobs elsewhere in Virginia's economy. From the 2011 report to Congress on US local food trends, farmers markets can produce a job multiplier effect ranging from 1.41 to 1.78, meaning that each full-time position created by the market supports a part-time job in another sector.

In the Roanoke Local region, there are a number of existing local food markets and related infrastructure components (see Figure 8). Figure 8 reflects opportunities for regional farmers to sell to the local market through food hubs, farmers markets, and restaurants. A list of markets in Figure 8 is included in the appendices.

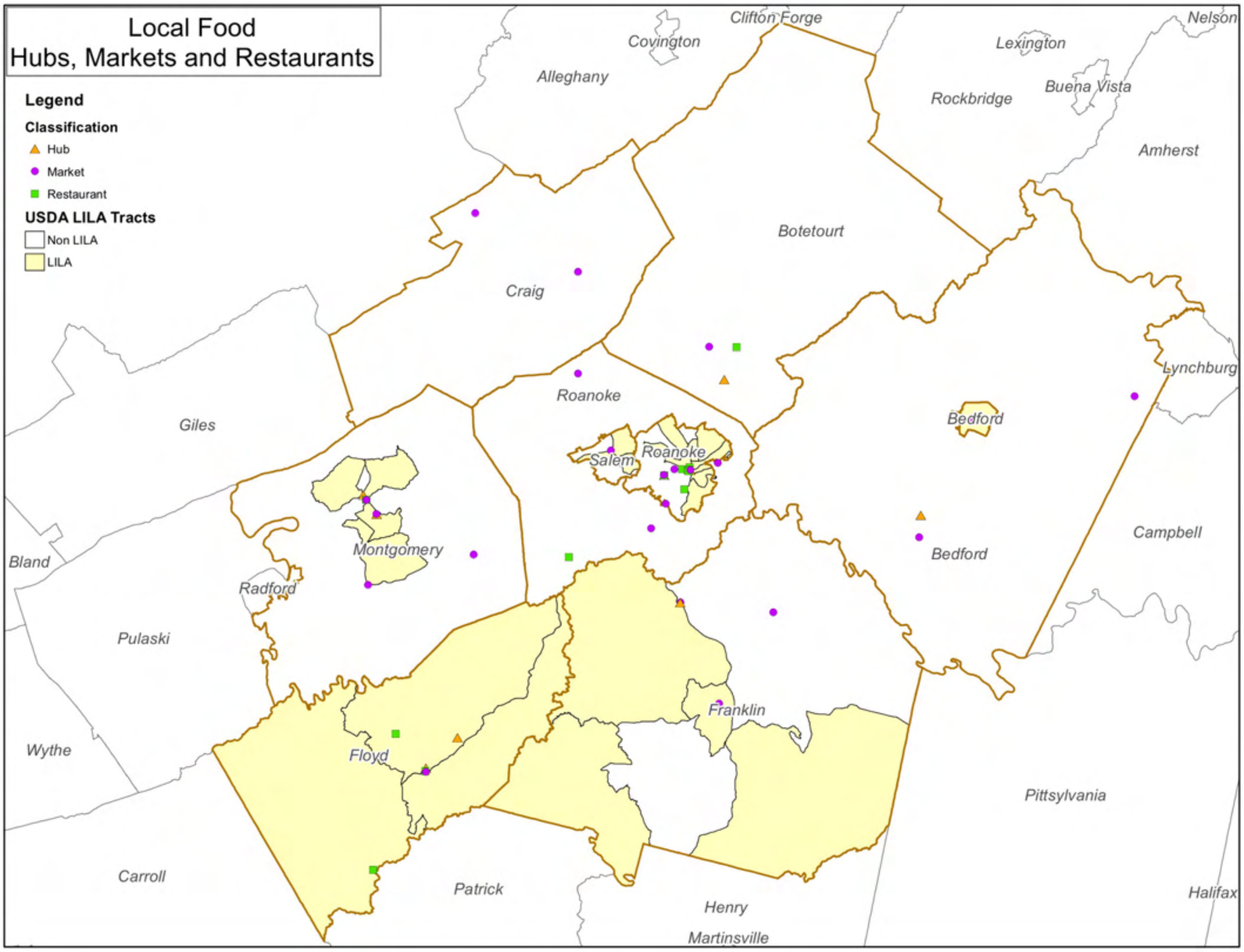

Figure 8: Local Food Hubs, Farmers Markets, and Locally-Sourcing Restaurants in the Roanoke Local Region (RVARC, 2016)

With existing and successful regional food markets (see Figure 8) but less than 2% of regional sales coming from direct sales (see Table 6), there is tremendous potential to redirect existing agriculture efforts toward supplying the Roanoke Local foodshed. Further, increased success rates of farms with direct sales coupled with the existing research on the positive economic impacts of agricultural development should persuade regional planners to include local food systems and agriculture in future economic development strategies.

Section 3: Processing and Distribution

Processing

Displaying data obtained by the Virginia Tech Office of Economic Development, Tables 7 and 8 show an overview of food processing in the Roanoke Local region by industry and then by county. It is interesting to note that there are no Fruit and Vegetable Preserving and Specialty Food Manufacturing industries in the entire region. Further, with aquaculture as an up and coming industry in the region, there are no Seafood Product Preparation and Packaging businesses.

Description	Current Total Earnings	2015 Establishments	2014 Jobs	2015 Jobs	2014 - 2015 Change	2014 - 2015 % Change
Animal Food Manufacturing	$52,351	6	172	179	7	4%
Grain and Oilseed Milling	$48,180	3	34	41	7	21%
Sugar and Confectionery Product Manufacturing	$63,886	1	44	23	-21	-48%
Fruit and Vegetable Preserving and Specialty Food Manufacturing	Insf. Data	0	<10	<10	Insf. Data	Insf. Data
Dairy Product Manufacturing	$28,815	2	25	19	-6	-24%
Animal Slaughtering and Processing	$13,443	5	33	47	14	42%
Seafood Product Preparation and Packaging	Insf. Data	0	<10	<10	Insf. Data	Insf. Data
Bakeries and Tortilla Manufacturing	$42,701	4	478	503	25	5%
Other Food Manufacturing	$30,107	4	103	110	7	7%
Beverage Manufacturing	$51,615	13	409	552	143	35%
TOTAL		37	1,313	1,490	177	13%

Table 7: Food Processing Earnings, Establishments, and Jobs in Roanoke Local region by Industry (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016)

To frame the 2015 job market in food processing, it is interesting to note that 33.75% of regional jobs are in only 4 bakeries (10.81% of total establishments). Additionally, 37.05% of jobs are employed by beverage manufacturing industries. With Pepsi potentially employing a large number of those jobs, this leaves many processing employees vulnerable to mass layoffs through plants closing. Further, there are few job opportunities listed in whole food processing.

Locality	Current Total Earnings	2015 Establishments	2014 Jobs	2015 Jobs	2014 - 2015 Change	2014 - 2015 % Change
Floyd County, VA	$25,479	7	95	108	13	14%
Roanoke City, VA	$51,330	6	629	723	94	15%
Botetourt County, VA	$49,279	4	81	147	66	81%
Montgomery County, VA	$44,394	5	212	206	-6	-3%
Bedford County, VA	$37,049	6	122	125	3	2%
Roanoke County, VA	$44,257	6	122	125	3	2%
Franklin County, VA	$21,914	3	31	34	3	10%
Salem City, VA	$59,324	0	20	23	3	15%
Craig County, VA	$0	0	0	0	0	0%
TOTAL		37	1,313	1,490	177	13%

Table 8: Food Processing Earnings, Establishments, and Jobs in Roanoke Local region by County and City (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016)

As seen in Table 8, Craig County does not host any processing businesses. Salem shows no businesses, but it does show income from food processing. The source of this discrepancy is unclear. Both Table 7 and 8 show that between 2014 and 2015, there has been an increase in food processing jobs in the region.

From expanded industry data that included 90 food processing businesses (excluding the discrepancies of a corporate office and therapeutic massage business), 11 wineries, 7 breweries, one coffee and tea manufacturer roaster, and one cider business were found in the region. Table 9 shows the breakdown of livestock and livestock product industries in the region, though it is unclear if these businesses cater to regional farmers or not. Interestingly, there seems to be one Other Animal Food Manufacturing business in Craig County, contrary to the previous table.

Locality	Animal (except poultry) Slaughtering	Meat Processed from Carcasses	Rendering and Meat Byproduct Processing	Fluid Milk Manufacturing	Other Animal Food Manufacturing
Roanoke City	(1) Beef Products Venture; (2) Valleydale Foods; (3) Overstreet Food, Inc	(1) Wheat First Butcher Singer		(1) Pet Dairy	
Salem City			(1) Valley Proteins, Inc		
Franklin County		(1) J & P Meat Processing			
Bedford County	(1) Pride of Virginia*				
Floyd County	(1) Willis Village Market, Inc; (2) Thompson Meat Processing, Inc				(1) Vaughns Mill, Inc
Montgomery County					(1) Big Spring Mill, Inc
Craig County					(1) Thorvin Kelp Usa

* Evington, Virginia is technically in Campbell County why included here instead of below?
Table 9: Breakdown of Animal Processing in Roanoke Local Region (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016)

Not included in this data set from Virginia Tech Office of Economic Development are a handful of other slaughterhouses in and around the region. Bedford County has hosted Ecofriendly Foods, LLC, a USDA-inspected processing facility that sourced locally and redistributed through farmers markets and retail outlets. While this business has worked with LEAP in the past, it is currently unclear how active the facility is. New in 2016, a mobile poultry processing unit is now available in the region for small to mid-sized producers to help increase profits and market access. Per conversations with regional farmers, many also process animals at Allegheny Meats in Monterey and Seven Hills Food (opened in 2015) in Lynchburg who sells to Local Food Hub in Charlottesville.

The Region 2000 Strategic Plan for Agriculture and Forestry Economy (2014) indicated that “the Region currently has access to a small variety of meat processing facilities for various livestock… However, as more producers examine expanding their direct to consumer offerings in meats, the current processing capacity will be strained or potentially inadequate.” It is unclear the impact of Seven Hills Food has had on regional producers and other meat processing facilities. Included in the Region 2000 study was Peak’s custom-only slaughterhouse as well as Schrock’s USDA-inspected and custom beef and deer slaughterhouse, both near Lynchburg in Campbell County.

The Appalachian Rising Farmers Cooperative will be developing procedures and doing test runs in the fall of 2016. Further, the Blue Ridge Plateau group is updating a USDA-inspected slaughterhouse plan with the support of Downstream Strategies. The research includes some of the Roanoke Local counties and continues into North Carolina. With additional input from the Virginia Tech Meatlab and Agricultural Economics department, the group hopes to start reaching out to investors in Summer 2017 for the facility's construction near exit 19 on I-77 in Virginia. The Blue Ridge Plateau group is also working with the Virginia Tech Department of Food Technology with hopes of creating a local company to conduct food handling and processing technology trainings in the region. Currently, most of these companies have to be flown in from out of state for necessary trainings. For more information on what the Blue Ridge Plateau group is working on, see Appendix C.

Finally, the River Ridge Land and Cattle Company has received funding from both the Governor's Agriculture and Forestry Industries Development fund and the Virginia Tobacco Region Revitalization Commission to jump-start construction on a beef and pork processing plant in Independence (Grayson County). This will be the first plant in Virginia able to provide local farmers value-added processing such as jerky and smoked meats, but will have no kill-floor. With investor buy-in, construction should be complete by February or March of 2017.

As for produce processing and preservation, The Kitchen in Roanoke City (run by LEAP), the New London Community Cannery in Bedford County, and the Carol County Cannery in Hillsville all offer a space for community members or business owners to process value-added goods. For an example of a large-scale cannery and commercial kitchen promoting local food processing, the Prince Edward County Cannery and Commercial Kitchen located in Farmville offers a space for home users as well as commercial businesses. Franklin County hosts two community canneries, and there was once a community cannery in Riner; however, it's been closed for a number of years.

Virginia Produce Company, Inc. and the Southwest Virginia Farmers Market (SWVA FM), both in Hillsville (Carol County), are currently purchasing produce from Virginia farmers. However, due to seasonality and other factors, also purchases from other producers when necessary. As SWVA FM packages over $40 million of food each year and Virginia Produce Company is even larger, these two organizations are mainly large packaging facilities. Interestingly, local food aggregator Good Food Good People does sometimes purchase local products from SWVA FM. (J. Moles, personal communication, 2016).

In 2011, Sustain Floyd proposed a large value-added processing facility for Floyd County; however, the project was not carried forward. For a small-town non-profit, the construction and management needs were found to be beyond capacity, and the project lacked the promise of positive cash-flow for such a large undertaking. Therefore, it was determined that local-regional government and private sector support would be essential for success. Also realized was that most value-added producers do not use local ingredients, thus the local farmer would not necessarily benefit from construction. An interesting corollary, stakeholder conversations lead a number of individual organizations (including Floyd EcoVillage, Beegle Barbecue, Riverstone Organic Farm, and Plenty!) to build their own kitchens to start experimenting on a small-scale and local level.

In 2016, funding was awarded to convert the former Prices Fork kindergarten, cafeteria, and gymnasium into what is being named the Old School Food Center (Food Center). The Food Center will host five projects: (1) a Commercial Incubator Kitchen available for rent to create or expand value-added food businesses, (2) a Farm-to-Table Restaurant committed to sourcing 50-80% of it's ingredients locally, (3) a Retail Market for products created in the Kitchen and Restaurant as well as from other local businesses, (4) an on-site production operation for Rising Silo Brewery to sell through the Restaurant and Retail Market, and (5) a Business Competition and Support Services program to provide workshops, consultation, start-up funds, and potentially a space in the Food Center to operate out of. This last program is designed to support food-related ventures in or from low-income communities.

There is clearly food processing happening in the Roanoke Local region; however, many businesses are not necessarily using locally grown or raised agricultural products. For example, Pepsi Bottling Group has two locations, Reddy Ice has three locations, and Kroger Bakery has 14 locations in the region. Of the 90 processing industries listed, 53 (59%) were listed as either soft drink manufacturing (Pepsi and Deb's Frozen Lemonade), other snack food manufacturing (Utz and Pretzel Twister), commercial bakeries (including Bimbo), or retail bakeries (44 of the 53). Again, 13 (14%) were listed as animal processing facilities and 0 (0%) businesses were listed under fruit or vegetable processing (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016).

It is important to note that extra foods from these processing businesses are then distributed through the emergency food security safety net, including food banks. This redistribution of high-calorie, nutrient-poor foods disproportionally affects low-income and food insecure individuals.

Distribution

Tables 10 and 11 provide an overview of distribution and transport in the Roanoke Local region by industry and then by county. This data does not separate out non-food related distribution.

Description	**Current Total Earnings**	**2015 Establishments**	**2014 Jobs**	**2015 Jobs**	**2014 - 2015 Change**	**2014 - 2015 % Change**
General Freight Trucking, Local	$41,415	43	669	677	8	1%
General Freight Trucking, Long-Distance, Truckload	$44,003	37	742	685	-57	-8%
General Freight Trucking, Long-Distance, Less Than Truckload	$71,470	19	707	782	75	11%
Specialized Freight (except Used Goods) Trucking, Local	$57,553	40	709	691	-18	-3%
Specialized Freight (except Used Goods) Trucking, Long-Distance	$66,280	15	146	160	14	10%
General Warehousing and Storage	$39,469	20	1,489	1,400	-89	-6%
Refrigerated Warehousing and Storage	$51,190	2	326	331	5	2%
Farm Product Warehousing and Storage	Insf. Data	0	<10	<10	Insf. Data	Insf. Data
Other Warehousing and Storage	$22,747	4	35	33	-2	-6%
TOTAL		180	4,823	4,761	-62	-1%

Table 10: Distribution Earnings, Establishments, and Jobs in Roanoke Local region by Industry (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016)

County	Current Total Earnings	2015 Establishments	2014 Jobs	2015 Jobs	2014 - 2015 Change	2014 - 2015 % Change
Botetourt County, VA	$49,220	17	771	766	-5	-1%
Roanoke City County, VA	$51,879	42	1,850	1,768	-82	-4%
Franklin County, VA	$38,367	28	363	361	-2	-1%
Roanoke County, VA	$60,086	26	811	824	13	2%
Floyd County, VA	$25,435	12	85	86	1	1%
Bedford County, VA	$44,927	24	422	454	32	8%
Salem City County, VA	$51,142	14	275	277	2	1%
Craig County, VA	$20,137	0	<10	10	Insf. Data	Insf. Data
Montgomery County, VA	$37,432	18	237	214	-23	-10%
TOTAL		180	4,823	4,761	-62	-1%

Table 11: Distribution Earnings, Establishments, and Jobs in Roanoke Local region by County and City (Virginia Tech Office of Economic Development, Emsi Q2 2016 Data Set, September 2016)

From Tables 7, 8, 10, and 11, the distribution sector employs over three times the number of people as the processing sector. Interesting to note from Table 10 is the lack of Farm Product Warehousing and Storage and minimal Refrigerated Warehousing and Storage (2 establishments).

The Botetourt County Agricultural Development Strategic Plan indicated that manufacturing employment increased by over 1,000 jobs between 1990 and 2013. The plan indicated that warehouse and transportation firms have sprouted up along the interstate corridors of I-81 and I-64 and that industrial recruits and expansions have been planned for the future. While there is room for the processing and farm product storage sector to grow and be utilized by local farmers, there may be opportunities to tap the existing and future local freight trucking and warehousing resources for local food aggregation and distribution.

For an example of existing distribution resources that could be leveraged, Produce Source Partners of Virginia is a wholesale produce distributor for the state of Virginia providing fresh fruits and vegetables to local restaurants, schools, and institutions. As a company, Produce Source Partners has roughly $100 million each year in sales throughout the state including the Roanoke, Ashland, and Hampton Roads communities. In 2014, the company spent over $4.5 million on Virginia Grown fruits, vegetables, cheese, and honey, and spent over $4.7 million in 2015 (B. Wilkerson, personal communication, 2016). With roughly 5 - 6% of 2015 food purchases certified as Virginia Grown, (B. Wilkerson, personal communication, 2016), there seems to be tremendous potential for this large wholesale distributor to support regional farmers while continuing to supply Salem and Roanoke Cities.

Section 4: Access

Based on the research for this report, there seems to be more existing information and research on consumer access to local food than on production, processing, or distribution of local food.

Roanoke residents spent $229 million buying food in 2008, including $131 million (57%) to eat at home. These numbers are very comparable to Virginia residents spending $11 billion (58%) of $19 billion to eat at home (Meter, 2011). Table 12 reveals a breakdown of money spent on various categories of foods by Roanoke residents in 2008. From these numbers, there are potential sales that could be redirected toward regional farmers. Even if Roanoke residents only spent 10% of their existing food budget on locally sourced foods, $13 million could be directed to regional farmers. For comparison, Table 6 indicated that just over $2 million in direct sales occurred in 2007.

	Estimated money spent by Roanoke residents in 2008 to "eat at home"	Potential farm income if Roanoke residents spent 10% of their food directly from regional suppliers
Meats, poultry, fish, and eggs	$ 31.6 million	$ 3.2 million
Fruits and vegetables	$ 21.7 million	$ 2.2 million
Cereals and bakery products	$ 17.7 million	$ 1.8 million
Dairy products	$ 14.7 million	$ 1.5 million
"Other," incl. sweets, fats, & oils	$ 45.3 million	$ 4.5 million
Total	$ 131 million	$ 13.1 million

Table 12: Estimated Consumer Expenditures in Roanoke City (Bureau of Labor Statistics Consumer Expenditure Survey, 2008, via Meter, Highlights of Martinsville/Henry County Local Farm & Food Economy, 2011)

Again, there is tremendous potential to build upon existing successes to continue redirecting consumer food expenditures toward regional producers. According to the 2015 Botetourt County Agriculture Development Strategic Plan, consumers are starting to care more about the "story behind the food" (p. 15). Further, according to the 2011 ASAP Survey of Consumer Behavior and Perceptions in western North Carolina, 78% of survey respondents said "buying locally grown food lets you know where your food comes from" and 88% indicated they "would buy more locally grown foods if they were labeled as local."

In 2007, VCE Specialists Matt Benson and Eric Bendfeldt compiled the annual community food dollars generated if each household in Virginia spend $10 per week on fresh, local, and farm-based Virginia products. The potential economic impact by county and city in the Roanoke Local region is compiled in Table 13. The annual economic impact calculated for the region is over $108 million, further supporting the need to include local food in economic development planning. Related to this study, Virginia Department of Agriculture and Consumer Services started the "Farm. Fresh. Pledge." campaign asking consumers to pledge to spend $10 per week on Virginia grown projects to help grow Virginia's economy. There is a pledge card for consumers to sign and get punched at the time of each $10 purchase. There are monthly prizes for those who submitted their cards.

County/City	Annual Economic Impact
Bedford County	$15,435,160
Botetourt County	$7,147,400
Craig County	$1,423,760
Floyd County	$3,775,200
Franklin County	$13,055,120
Montgomery County	$18,261,880
Roanoke City	$24,042,200
Roanoke County	$20,140,120
Salem City	$5,538,000
Roanoke Local Region	**$108,818,840**

Table 13: $10 per Week Campaign Annual Economic Impact in Roanoke Local Region (Benson & Bendfeldt, 2007)

Food Insecurity and Food Access

Food insecurity exists when households have limited or uncertain access to adequate food for a healthy, active life, while hunger is the individual-level physiological condition that may result from food insecurity (USDA ERS). Feeding America generates food insecurity rates for each county throughout the US. Table 14 and Figure 9 reflect these rates as well as the estimated number of food insecure individuals within the Roanoke Local region and compared to the state of Virginia for 2014.

	Estimated number of food insecure individuals (rounded)	Food Insecurity Rate
Roanoke City	16,930	17.3%
Salem City	2,800	11.1%
Roanoke County	8,190	8.8%
Botetourt County	2,430	7.3%
Craig County	510	9.8%
Franklin County	6,150	10.9%
Floyd County	1,380	8.9%
Montgomery County	14,000	14.6%
Bedford County	6,980	9.2%
Roanoke Local Region	**59,370**	**10.9%**
State of Virginia	8,326,289	11.8%

Table 14: Food Insecurity in Roanoke Local Region (Feeding America, 2014)

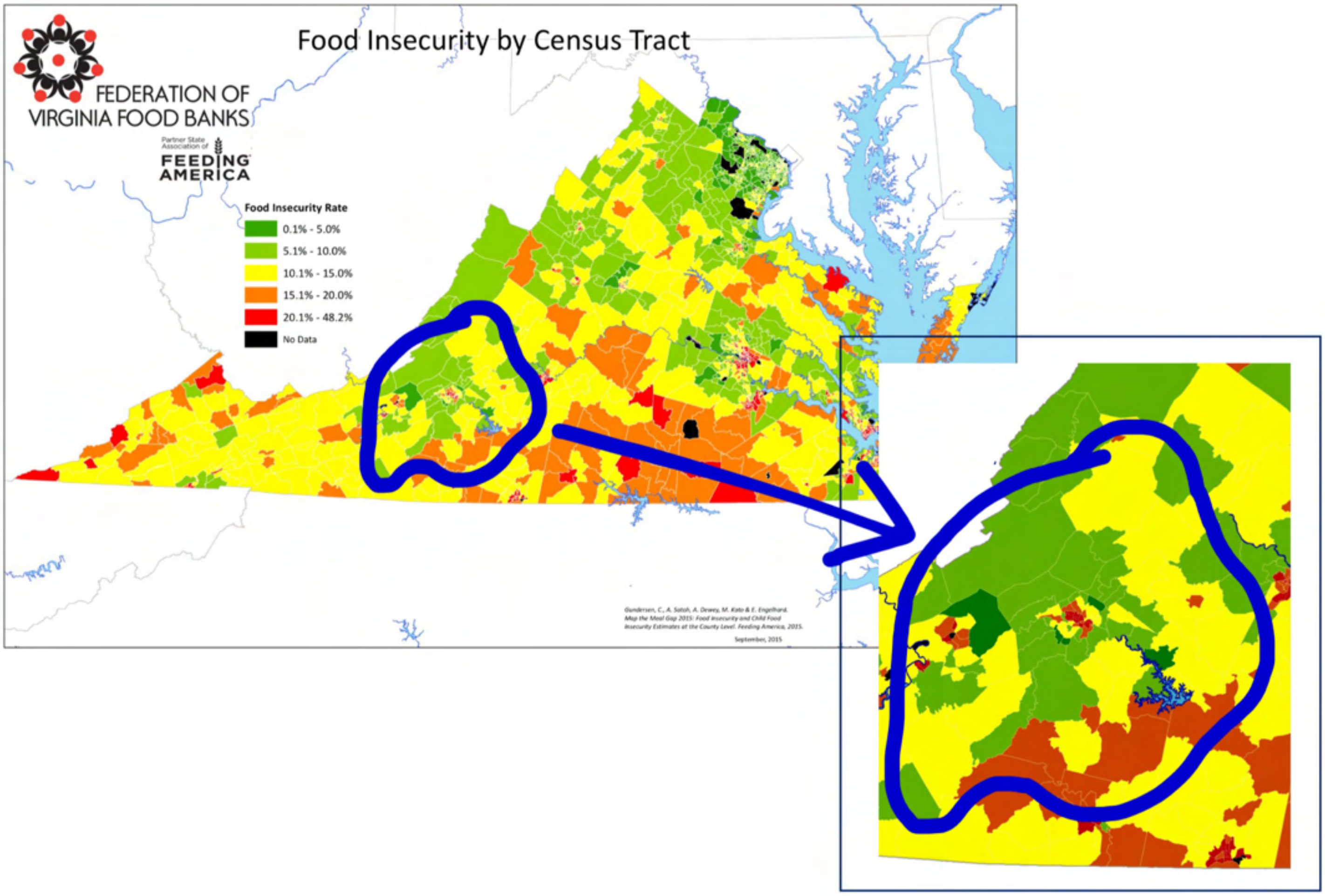

Figure 9: Food Insecurity by Census Tract in Virginia with the Roanoke Local Region Circled in Blue (Federation of Virginia Food Banks, 2015, edited)

In the Roanoke Local region, the average food insecurity rate is 10.9%, which is slightly below the statewide average of 11.8% (see Table 14). Roanoke City (17.3%) and Montgomery County (14.6%) have rates higher than the statewide rate. Again, Virginia Tech students may help explain these numbers for Montgomery County. Food insecurity is not equally distributed over any of these political subdivisions, and many cities, counties, and towns have regions or areas of high need that surpass statewide or regional food insecurity rates. For example, southern Franklin County and the town of Bedford, though not in Table 14, have high rates of food insecurity (see Figure 9).

A review of existing data by the Food Desert Task Force in 2014 suggested "a strong relationship between food deserts and food insecurity" (p. 4) and between poverty and food deserts. The term "food desert" describes an area that is considered low-income and has low food-access. Compared to the state, the average income in Roanoke Local is significantly lower ($50,440 compared to $64,792) and the percent of persons in poverty is higher (13.73% compared to 11.2%) (see Table 15). Almost a quarter of residents in Roanoke City (20.4%) and Montgomery County (24.8%) live in poverty (see Table 15). All cities and counties in the region have median household incomes below the state average and Roanoke City is over $25,000 below state average.

	Population, 2010	Median Household Income (in 2014 dollars), 2010-2014	Persons in Poverty, 2015
Roanoke City	99,897	$39,530	20.4%
Salem City	25,432	$50,590	10.2%
Roanoke County	92,376	$60,950	8.2%
Botetourt County	33,148	$63,011	7.8%
Craig County	5,190	$46,658	12.4%
Franklin County	56,159	$44,827	16.3%
Floyd County	15,279	$47,543	14.1%
Montgomery County	94,392	$44,810	24.8%
Bedford County	68,676	$56,043	9.4%
Roanoke Local Region	**490,549**	**$50,440**	**13.73%**
State of Virginia	8,001,024	$64,792	11.2%

Table 15: Overview of Demographic and Economic Information (United States Census Bureau QuickFacts)

The second half of the food desert definition, food access, is an important component to understand why households may be food insecure. The USDA considers a household to have low food-access if the nearest grocery store is 1 or more miles from a significant portion of the population in an urban setting and 10 or more miles in a rural area. In understanding what food sources are available to Virginians, the Food Desert Taskforce revealed that there were 6 times the number of convenience stores (4,016) and fast food restaurants (5,908) than there were grocery (1,532) and super stores (122) in the state of Virginia in 2013. Further, the Taskforce stated that for localities with low food-access, the concentration of fast food restaurants and convenience stores per 1,000 residents is greater than that of grocery and superstores with fresh produce.

Figure 10 shows the areas with low food-access designated by the USDA, and Figure 11 reflects numbers of those with limited access to healthy food retrieved from the Roanoke Valley Community Health Needs Assessment (conducted by Carilion Clinic 2015). It is important to note that food security data is based on consumption of food while food access data is based on the spatial distribution of food sources throughout a community.

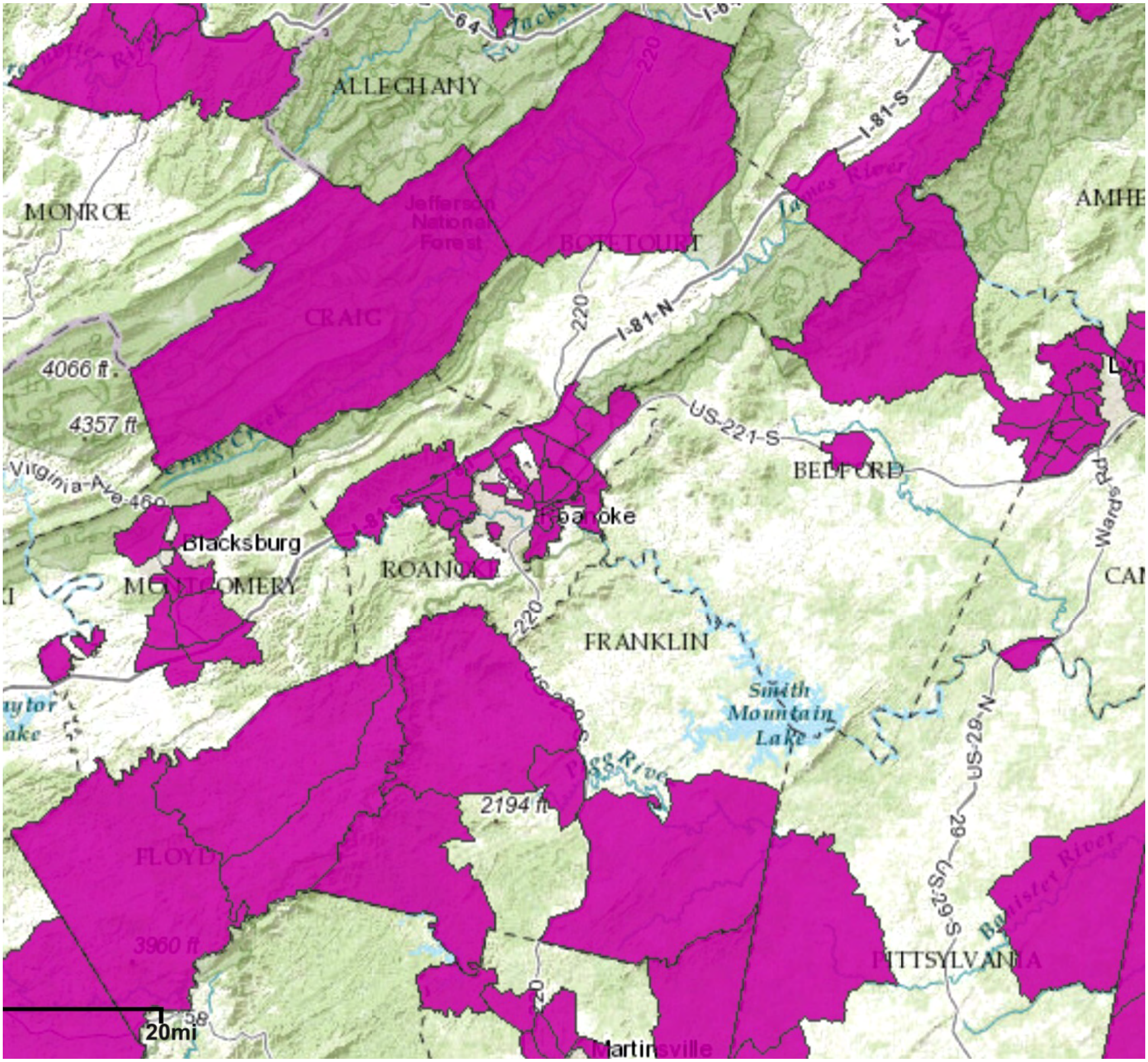

Figure 10: Food Access in Roanoke Local Region (USDA Economic Research Service Food Access Atlas)

Access to Healthy Foods

(USDA Food Environment Atlas, Map the Meal Gap. (2012). Retrieved from http://www.countyhealthrankings.org/app/virginia/2015/downloads)

Locality	# Limited Access	% Limited Access
Botetourt	974	3%
Craig	216	4%
Franklin	3988	7%
Roanoke City	10400	11%
Roanoke	2706	3%
Salem City	2757	11%
Virginia	395610	4%

Figure 11: Access to Healthy Foods in Select Cities and Counties in Virginia (Community Health Needs Assessment, 2015)

Based on two reports by The Reinvestment Fund for Virginia Community Capital (VCC) on supermarket access in Virginia, both out in February 2015, Bedford County was ranked 7th among the counties and cities in Virginia for it's high population living with "Limited Supermarket Access" (LSA). The report highlighted the positive impacts of financing healthy food access projects, including improved access to fresh food at lower costs to the consumer, increased demand for food, increased job opportunities, and increased tax revenues.

In addition, the Roanoke metro area was indicated as one of the regions exhibiting the most potential for VCC fresh food financing due to the food access problems disproportionately affecting low-income and/or minority populations. Low-income residents constitute 63% of LSA residents compared to 26% of the general population, and minority populations exhibit a share of the LSA population that is 1.5 times that of the general population. The report suggests Metro Roanoke as a candidate for food access intervention yet warns of the uncompetitive food retail market due to the oligopoly of Kroger and Wal-Mart.

The Food Desert Taskforce emphasized that access to reliable transportation may be "the best marker for access to healthy and affordable food, regardless of… socioeconomic status" (p. 11). For those with low incomes, it is even more challenging to obtain food in areas with low food access because of transportation costs, among other factors. From the 2015 Assessment of Food Access in Roanoke City, current rates of low food access reflect the importance of expanding geographical access through increased food access locations, addressing issues of transportation and disability, the need to consider local demographics for outreach and education, as well as the role of economic status in determining food access and driving market locations.

Figures 12 and 13 show where residents in the Roanoke Local region are able to obtain food, including groceries, convenience stores, pharmacies, and gas stations with convenience stores. It also shows what areas of the region the USDA deems low-income with low food-access. Interesting to note are the areas with low-income and low food-access (beige) that have many gas stations with convenience stores (orange dots), but limited grocery stores (yellow dots).

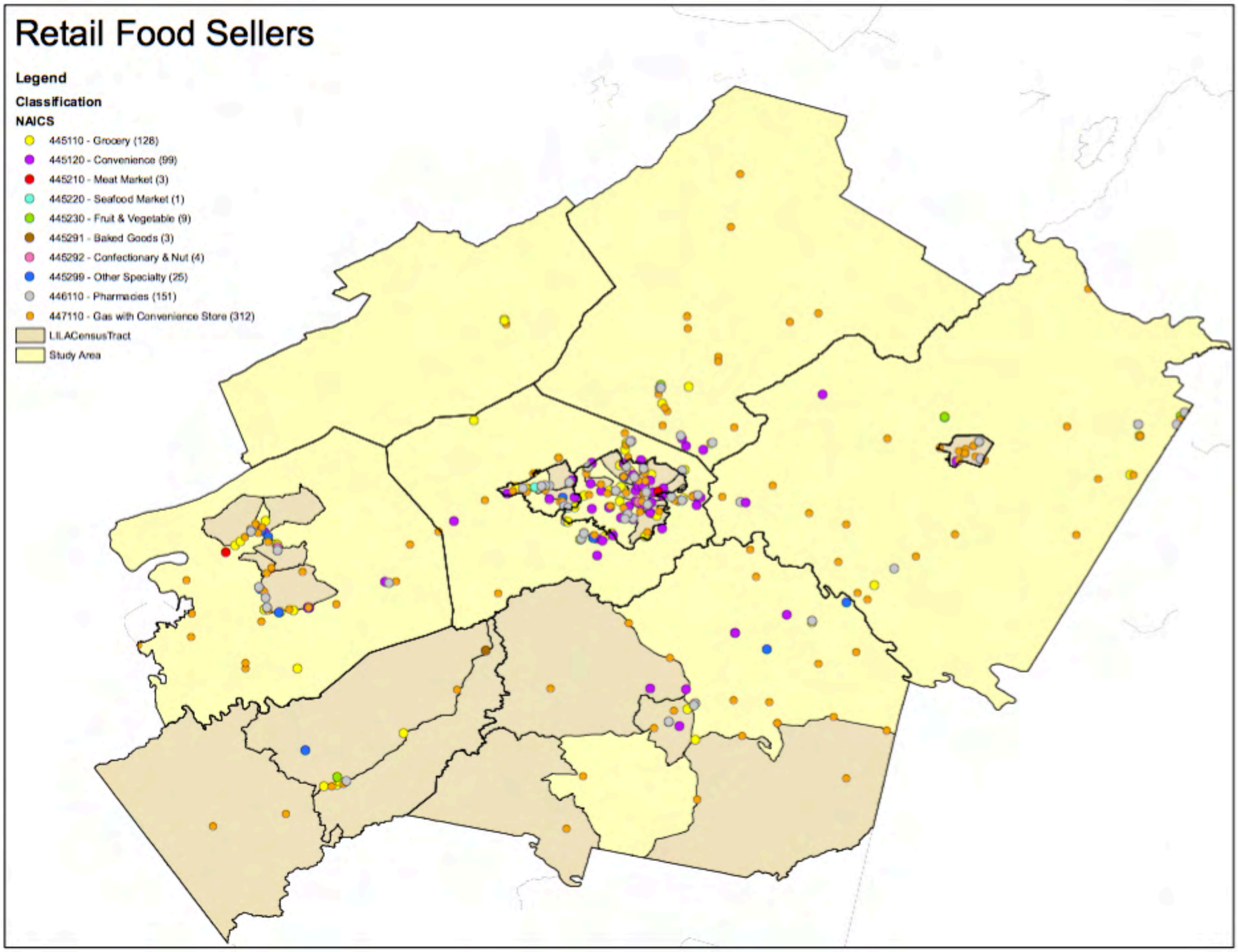

Figure 12: Roanoke Local Food Retail Sellers over Low-Income & Low-Access (RVARC, 2016)

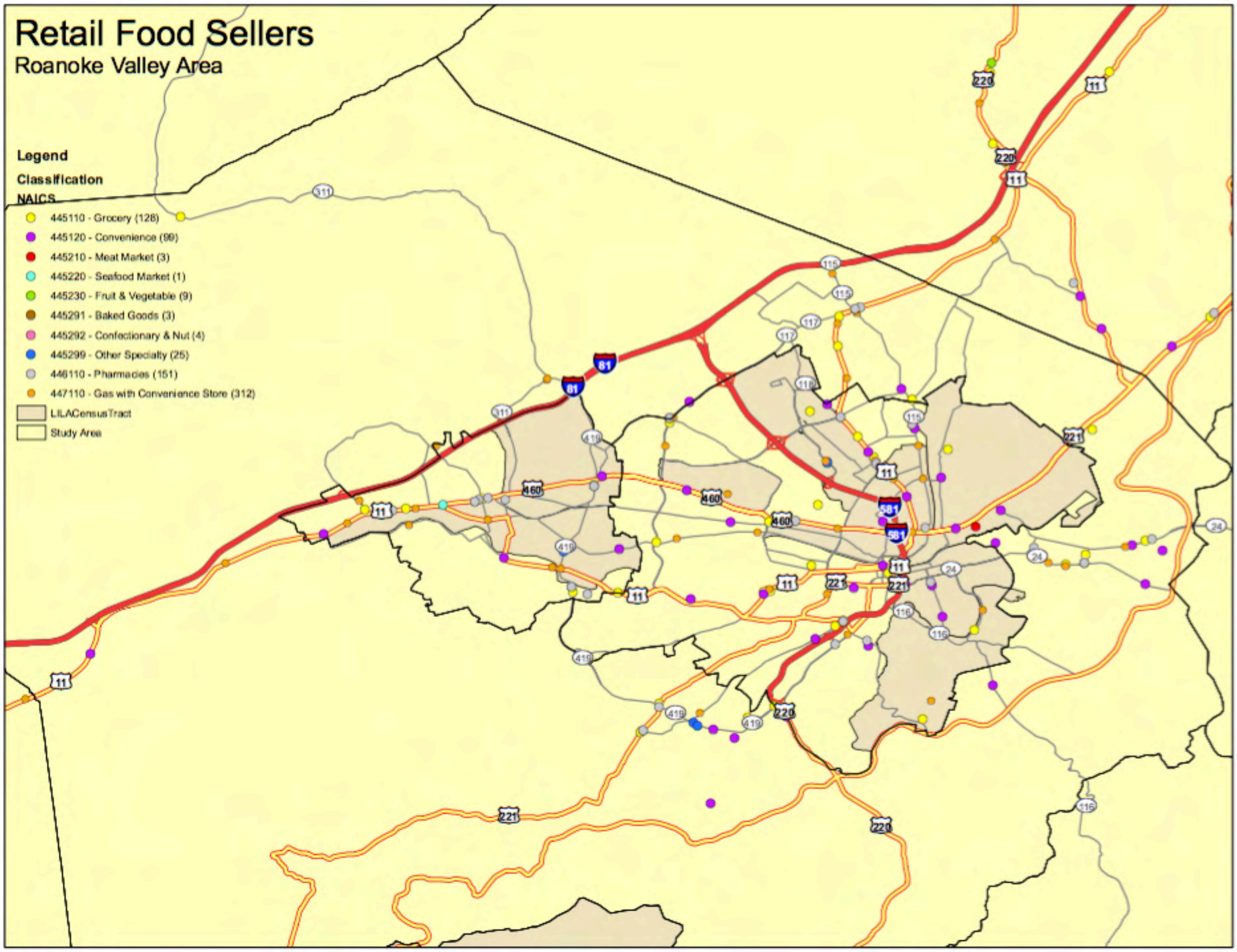

Figure 13: Roanoke Valley Food Retail Sellers over Low-Income & Low-Access (RVARC, 2016)

Carillon Clinic and Healthy Roanoke Valley organized the Community Health Assessment Team to identify the needs and barriers to healthy living in the cities of Roanoke and Salem as well as the counties of Roanoke, Franklin, Botetourt, and Craig. After all the data was collected and presented, the assessment team members ranked the top ten pertinent community needs. From the 2015 Roanoke Valley Community Health Needs Assessment final report, "poor eating habits/lack of nutrient dense foods in diet" was the most frequently ranked need, and eventually became one of priority areas for regional health work. Stakeholders indicated access to healthy food as a barrier to healthy living. "Wellness" initiatives were identified as having the second greatest impact on health. Of these initiatives, "Food & Nutrition" was indicated as the second most impactful category, including promoting local and whole foods, especially in schools.

Community focus groups identified "Lack of Access to Healthy Food" as second largest barrier to optimal health. Online survey identified "access to healthy foods" and "poor eating habits" as the 3rd and 7th most important issues that affect health in the community. Further, just under half of the respondents claimed their neighborhood did not support healthy eating habits with community gardens, farmers markets, etc, and about a third of respondents claimed it was not easy to get affordable fruits and vegetables. While most of the respondents indicated they purchase most of their food from a grocery store, the farmer's market was the third most prevalent food source outside Roanoke City and fourth (tied with emergency food programs) within Roanoke City.

Poverty Status in the Past 12 Months by Race/Ethnicity, 2009-2013

(U.S. Census Bureau, 2009-2013 5-Year American Community Survey, Table S1701. Retrieved from http://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t#none)

Geography	White			Black/African American		
	Population	Number in Poverty	Percent	Population	Number in Poverty	Percent
Virginia	5477811	491024	9%	1491461	294800	19.8%
Botetourt County	31046	2229	7%	1156	220	19%
Craig County	5028	393	8%	2	2	100%
Franklin County	49367	6840	14%	4216	656	15.6%
Roanoke County	81853	4111	5%	4838	1108	22.9%
Roanoke City	62536	10,650	17.%	26112	8,664	33.2%
Salem City	20375	2,082	10.2%	1803	521	28.9%

Geography	American Indian/Alaskan Native			Asian			Native Hawaiian and Other Pacific Islander		
	Population	Number in Poverty	Percent	Population	Number in Poverty	Percent	Population	Number in Poverty	Percent
Virginia	23536	3478	14.8%	449879	37249	8.3%	5215	673	12.9%
Botetourt County	38	0	0%	46	0	0%	0	0	0%
Craig County	0	0	0%	21	21	100%	0	0	0%
Franklin County	70	0	0%	110	0	0%	0	0	0%
Roanoke County	64	0	0%	2428	265	11%	0	0	0%
Roanoke City	267	60	22.5%	1876	778	41.5%	129	0	0%
Salem City	0	0	0%	446	58	13%	0	0	0%

Geography	Some Other Race			Two or More Races		
	Population	Number in Poverty	Percent	Population	Number in Poverty	Percent
Virginia	175056	29497	16.9%	231178	30874	13.4%
Botetourt County	21	0	0%	430	73	17%
Craig County	0	0	0%	114	33	28.9%
Franklin County	122	14	11.5%	721	116	16.1%
Roanoke County	198	7	3.5%	1483	498	33.6%
Roanoke City	884	307	34.7%	3639	901	24.8%
Salem City	277	0	0%	163	32.00	19.6%

[23] US Census Bureau, American Community Survey, 1-year estimates, 2010

Figure 14: Poverty Status in the Past 12 Months by Race/Ethnicity, 2009/2013 (Roanoke Valley Community Health Needs Assessment, 2015)

From Figure 14, taken from the Community Health Needs Assessment Report, it is clear that people of color are disproportionately affected by poverty. With poverty being a barrier to health and access to healthy food, there is a need to reach out to communities of color.

Carilion Clinic's Local Food Program

In addition to external community health programming, Carilion Clinic has also prioritized wellness, local food, and health initiatives in their internal operations. In response to the 2012 Community Health Needs Assessment that identified "wellness" as a priority area, Carilion Clinic developed its local foods program. As mentioned previously, the top identified health need on the 2015 Roanoke Valley Community Health Needs Assessment was poor eating habits, specifically a lack of nutrient dense foods in diets, strengthening Carilion's resolve to support this movement. Carilion provides financial and in-kind support for many local programs focused on improving access to and education about local, nutrient dense foods.

Additionally, Carilion Clinic has partnered with Good Food Good People in Floyd, Virginia to provide a CSA (Farmshare) program pickup location that is convenient for employees and community members in the Riverwalk Parking Garage next to Carilion Roanoke Memorial Hospital. Since 2012, Carilion Clinic has been able to offer the opportunity for employees to utilize payroll deduction to purchase Farmshares, spreading the cost out for employees and making it more feasible to buy and consume local produce. In 2016, Carilion expanded this offering to Carilion New River Valley Medical Center, making this program available to more employees. Since 2012, this program has grown by 79%.

In May 2015, Carilion's senior leadership team signed the Healthier Hospitals Initiative's executive commitment statement. The Healthier Hospitals Initiative was developed by 12 of the largest health care systems in the United States and provides a guide for hospitals to reduce energy and waste, choose safer and less toxic products, and purchase and serve healthier foods.

SNAP and Local Foods

Over $74 million in federal Supplemental Nutrition Assistance Program (SNAP, formally foodstamps) dollars were dispersed throughout the Roanoke Local region in 2015 (see Table 16). Based on the 2012 Agricultural Census, over $3 million in government payments went to regional farmers in 2012. Involving SNAP recipients in the regional food market could substantially increase the federal dollars already entering the regional food system.

Locality	**Annual Total**
Bedford County	$8,069,876
Botetourt County	$2,431,043
Craig County	$727,676
Floyd County	$2,248,433
Franklin County	$9,948,765
Montgomery County	$9,302,562
Roanoke County	$10,044,188
Roanoke City	$32,024,504
Salem City	$7,151
Roanoke Local Total	**$74,804,198**
Virginia Total	$1,216,121,066

Table 16: 2015 SNAP Issuance
(http://www.dss.virginia.gov/geninfo/reports/financial_assistance/fs.cgi)

Agriculture is Virginia's largest industry. In Virginia, direct sale outlets, which tend to support small-medium size farms, are on the rise with 226 farmers markets in 2016. Of those, 110 are authorized to accept SNAP and 61 processed SNAP transactions in 2016. While less than 0.01% of the total SNAP disbursement in Virginia was redeemed at farmers markets in 2015, the USDA Food and Nutrition Service report shows that SNAP spending at farmers markets in Virginia is on the rise. Comparing January-September in 2015 and 2016, there was a 35% increase from $92,892 in 2015 to $125,008 in 2016.

From January-September 2016, an overwhelming 20% ($24,740) of statewide SNAP at farmers markets came from eight Roanoke Local farmers markets (Blacksburg, Salem, Floyd, Catawba Valley, Vinton, and LEAP's three Roanoke markets). While SNAP purchases at farmers markets are increasing in Virginia and a significant percentage is occurring in the Roanoke Local region, there remains tremendous potential to tap into the almost $75 million annual benefits dispersed throughout the Roanoke Local Region.

Figure 15 reveals the farmers markets (purple dots) available throughout the Roanoke Local region, including low-income areas with low food-access (yellow). The LEAP Mobile Market, with 9 weekly or biweekly stops in Roanoke City; are not included in the map. See Appendix B for the list of markets reflected in Figure 15.

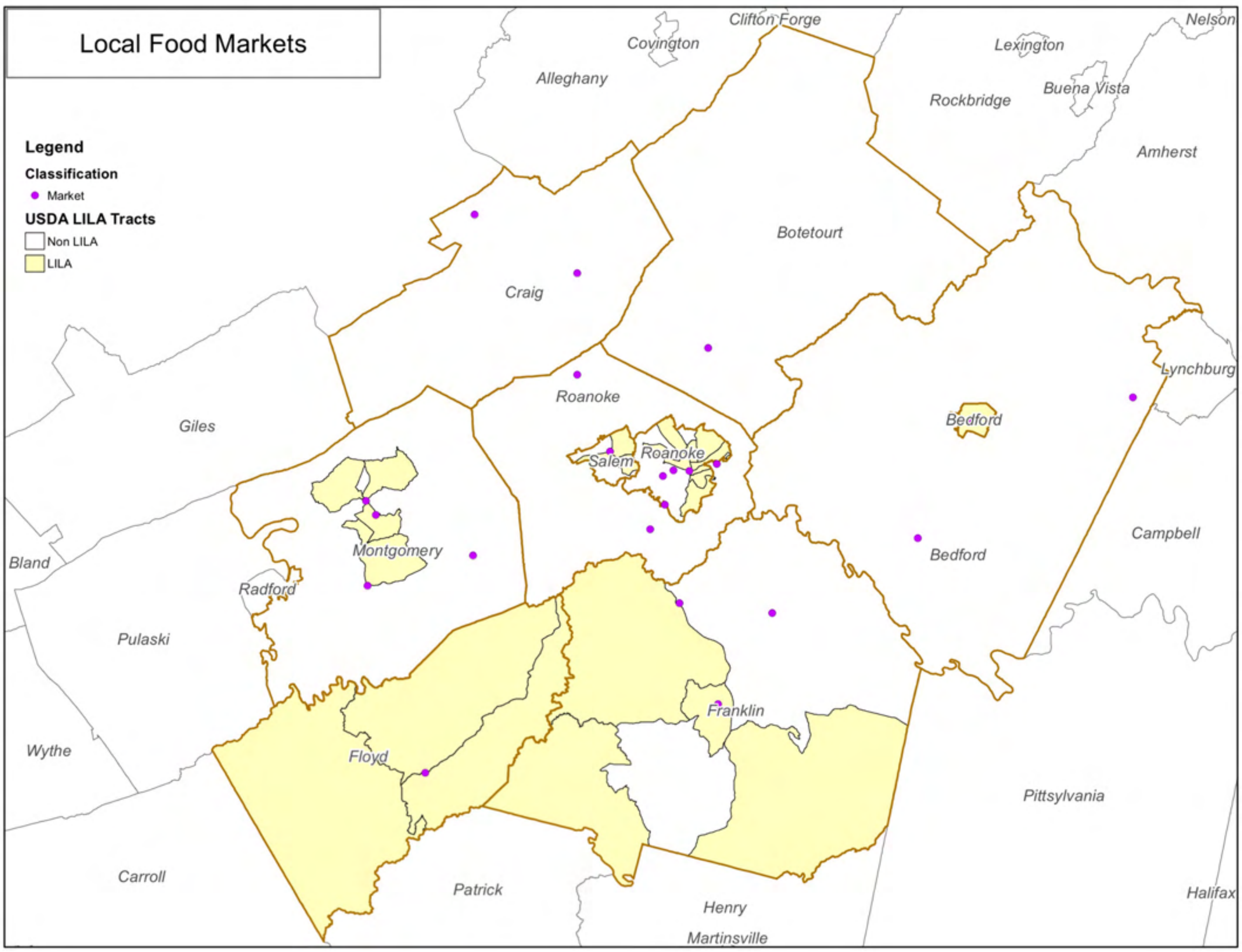

Figure 15: Farmers Markets in the Roanoke Local Region Mapped over Low-Income Ares with Low Food-Access (RVARC, 2016)

Nutrition incentive programs (e.g. doubling SNAP at farmers markets) increase the purchasing power of low-income market customers, stimulate local food production, build farmer income, and provide access to affordable, nutritious, fresh food for all community members. As a health and innovation leader, Carilion Clinic, through their Community Grant program, began funding incentive programs at markets in the Roanoke Valley in 2011. Grants, sponsorships, and donations have been used to fund incentive programs at markets across the Roanoke Local area (Blacksburg, Salem, Catawba Valley, Downtown Roanoke, LEAP Markets, Vinton, Bedford, Floyd).

In 2015, LEAP, as sub-grantee of Wholesome Wave's large scale USDA Food Insecurity and Nutrition Incentive (FINI) grant, has begun to coordinate some of the regional efforts around incentive programs. Building on the strong relationships between farmers markets in the Blue Ridge Farmers Market Manager group, farmers markets continue to share resources to support production and consumption of local food. Incentive programs in the region include SNAP Double Value (all markets listed above), Bonus Bucks (LEAP, extra incentives at month-end), SNAPShare (LEAP, CSA share at 50% discount for SNAP), Bonus Bags (Salem, extra bag of produce and recipe when purchase produce with SNAP at market), Fresh Foods Prescription program (LEAP, prescription for fresh food to be redeemed at Mobile Market), incentives for Head Start families and low income seniors. In 2017, LEAP will pilot an incentive program for people who are on Medicaid to incentivize fruit and vegetable consumption at markets.

Survey data from the 2016 LEAP Market season indicated that 75% of Healthy Food Incentive participant survey respondents reported (strongly agree or agree) that "we eat more fruits and vegetables now than we did before shopping at the market." In addition, 77% indicated (strongly agree or agree) "we eat more variety of fruits and vegetables now than we did before we began shopping." The incentive programs make a difference in people's shopping/purchasing decisions in that 57% of respondents said that the SNAP Double Value Program was very important in their decision to spend their SNAP benefits at the market and they wouldn't have otherwise. Further, 55% reported that outside the market, it was difficult or very difficult to shop for fresh produce in their neighborhood. Almost all survey respondents (94%) agreed with the statement, "As a result of shopping at the farmers market this season, it is easier for me to buy fruits and vegetables."

LEAP's Roanoke markets have seen a 39% increase from 2014 to 2015 in overall redemption of SNAP tokens with an additional projected increased for 2016. As a small subset of all the markets in the region, LEAP Market data exemplifies the potential impact of SNAP and incentive programs at farmers markets. LEAP's markets, despite their size, represent 8.6% of Virginia farmers market SNAP transactions in 2015 and the LEAP markets continue to attract new customers (17% of SNAP transactions were from first time customers in 2016).

Based on LEAP-collected data from the previously mentioned eight markets in the region, in addition to the SNAP benefits used at the market from January-September 2016 ($24,740), these markets also provided SNAP-incentives ($25,057). Just SNAP and SNAP incentives brought an additional $50,000 in sales to local farmers. Market data is not collected regionally; however, for reference, LEAP's three relatively small markets, support over 80 producers within 100 miles of Roanoke (direct and aggregators).

Farm to School

From the 2011 report to congress on US local food trends, 4 in 10 public school districts reported participating in farm to school activities during the 2011-2012 school year or starting during the 2012-2013 school year. Most of the farm to school districts procuring local food sourced from distributors (65%), directly from producers (44%), and directly from food processors and manufacturers (40%).

Based on the 2015 Farm to School Census conducted by the USDA through self-reported surveys, 105 schools in five Roanoke Local counties and including Roanoke City served local food in the 2013-2014 school year. Montgomery and Craig Counties as well as Salem City indicated that they did not have any farm to school programming and no plans for the future. Participating schools served fruits and vegetables including apples, Asian pears, tomatoes, lettuce, cabbage, peppers, cucumbers, corn, spinach, broccoli, potatoes, and herbs for breakfast, lunch, summer meals, and the Fresh Fruits and Vegetables Program. Floyd County schools indicated that locally-sourced ground beef was served occasionally. Table 17 reveals local food spending from select districts.

County/City	Total Spending	Spending on Local Foods
Floyd	$300,000	$2,000
Franklin	$1,400,000	$10,000
Roanoke City	$2,400,000	$75,000

Table 17: Farm to School Spending in Floyd County, Franklin County, and Roanoke City (USDA Farm to School Census, 2015)

The 2015 Botetourt County Agriculture Development Strategic Plan indicated that county public schools sourced 5% of it's total $760,000 school food budget from local sources.

The following challenges were indicated in the 2015 Farm to School Census to hinder farm to school purchases in the region:

- Local producers do not bid
- Hard to find year-round availability of key items
- Hard to coordinate procurement of local with regular procurement
- Local items not available from primary vendors
- Higher prices
- Unstable product prices
- GAP (Good Agricultural Practices) or other food safety requirements
- Inability to pay farmers according to farmers' needs due to school district payment procedures
- Getting product delivered that meets your quality requirements & other specs (i.e., size)
- Hard to find new suppliers/growers or distributors
- Time spent to resolve problem deliveries
- Lack of reliability in delivering ordered items

Cabell County and Tucker County schools in West Virginia have been considered successful farm-to-school models in the region (E. Landseidel, personal communication, 2016). Cabell County school system have purchased fresh eggs from students, transitioned to cooking from scratch in the kitchens, and grown vegetables specifically for the school on farmland in Milton, West Virginia. Through the school agriculture program, Tucker County students have grown hydroponic lettuce to sell and serve in the school cafeteria. With similar rurality, landscape, and agricultural history, these models could potentially be utilized for farm-to-school work in the Roanoke Local region.

Farm-to-college is happening in Montgomery County at Virginia Tech through the Dining Services Farm at Kentland and the on-campus Farms and Fields Project in Owens Food Court. Located in The Dining Services Farm is a 3-acre vegetable and herb farm where students and dinning services staff act as the farm crew. All produce is harvested and sent directly to Dining Services to be served in Virginia Tech dining halls, mainly the Farms and Fields Project in Owens Food Court. According to the 2011 Martinsville area study, Ferrum College in Franklin County serves produce grown by students on a garden located at Titmus Agricultural Center. Further, TAP Headstart Centers in Roanoke are currently operating a Farm-to-Preschool program purchasing from Produce Source Partners. Farm-to-school and -college is happening in the region, and these successful models show there is room for growth.

Existing Local Food Guides and Maps

Roanoke Valley-Alleghany Regional Commission Local Foods Map
This interactive GIS map includes farms and markets in the entire region.
http://www.arcgis.com/home/webmap/viewer.html?webmap=9fca12e000094c6a817ed8585f887b9c&extent=-80.2086,37.1539,-79.5848,37.3765
http://rvarc.maps.arcgis.com/apps/Viewer/index.html?appid=945afb808fa8408099151f86eeee85c8

SO Fresh interactive online SWVA Local Foods Guide
This map includes producer information in Montgomery, Floyd, and Franklin counties.
http://nrvrc.org/Agritourism/SWVA_Local_Foods/

Roanoke Valley Locavore Food Directory
Online and print versions include producer, supplier, and market information throughout the region.
http://roanokevalleylocavore.com/wordpress/

Franklin County Fresh Foods Local Foods and Gardening Directory
Guide created by The Franklin County Master Gardener Association.
http://www.franklincountyfreshfoods.org

SWVA & NETN 2016 Local Food Guide
This guide created by Appalachian Sustainable Development and Rooted in Appalachia includes markets, grower associations, and producers in Floyd County.
http://asdevelop.org/wp-content/uploads/2016/03/2016FoodGuide_FINAL-1.pdf

ArcGIS: NRV Local Food
This map includes producer and market information in Montgomery, Floyd, Roanoke, Franklin, Craig counties as well as Roanoke and Salem Cities.
https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=f5adc0ea40ac4e24b64114923797f53e

2015 Shenandoah Valley Buy Fresh Buy Local Guide
The state Buy Fresh, Buy Local campaign indicates this chapter covers Botetourt county, however the chapter page doesn't include Botetourt (or Alleghany).
https://www.buylocalvirginia.org/chapters

The Eat Well Guide
This guide offers information on farms and markets across the US.
http://www.eatwellguide.org

There will be a state-wide agritourism mapping effort underway organized by the New River Valley Regional Commission. The map is a component of an economic impact study on Virginia Agritourism.

In review, $131 million was spent by Roanoke City residents on food eaten at home in 2007, almost $75 million in SNAP was distributed to the Roanoke Local region in 2015, and less than 2% of total regional agricultural sales (just under $180 million) resulted from direct sales in 2012. This paints a dramatic picture reiterating the economic potential to connect regional producers to regional consumers.

Section 5: Recommendations and Suggested Projects

An Overview of Select Reports, Studies, Plans, and Assessments

The 2016 **Appalachian Virginia Community Food Security Assessment** (AV Assessment) found that numerous organizations and individuals were focused on agriculture as economic development in southwest Virginia. The assessment captured dialogue around local processing and cost-saving programs for local farmers and access to capital for new and beginning farmers. The authors indicated that regions with successful agricultural economies may be due to the two main factors: community involvement in supporting vibrant farms and outside funding. The assessment provides recommendations for how to build on communities' existing strengths and ideas for how to develop regional connections (such as regional convenings, digital platforms, and a culture of open-information sharing). The AV Assessment also discussed the importance of developing relationships between organizations that share similar values, even if these organizations do not work directly with food systems.

The Food Desert Taskforce 2014 report, **Food Deserts in Virginia**, recommendations included providing incentives for small businesses to develop local and healthy food enterprises in food desert areas, assessing the potential for mobile markets in both urban and rural areas, and exploring tax incentives to encourage small businesses to invest in infrastructural changes to sell fresh and healthy foods in local markets. All of the Food Desert Task Force recommendations intend to develop and promote sustainable community food systems.

The 2015 study, **Linking the Catawba Sustainability Center to the Local Food System** (CSC Study)**,** analyzed existing data (agriculture, processing, and distribution) and results from four focus groups and a quantitative survey (n=35) of regional stakeholders. The qualitative portion of the report offered three main areas for development as well as possible tactics:

1. Support new and emerging farmers and agriculture-ventures through comprehensive programming on enterprise incubation and acceleration, business development and management, training and technical assistance in specialty areas, as well as food safety trainings and certifications.
2. Use the CSC to provide networking and support for regional farmers and markets, offer direct marketing assistance and explore collaborative marketing possibilities, potentially become a physical and virtual food hub, as well as strengthen leadership and organizational capacities of local food entities.
3. Use the CSC to experiment with innovative programming to champion sustainable agriculture and strengthen the local foods economy by researching existing innovations, encouraging innovations in the region, and helping increase connections through convenings and value chain relationships.

The study also recognized that the CSC could play a leadership role in regional food activities like participating in a food policy council or constructing a comprehensive assessment of current stakeholders, organizations, and initiatives already working in a food related capacity. In the producer focus group, participants ranked education, skilled workforce, financial assistance, and marketing as the four main topics that would help them the most.

The 2015 **Botetourt County Agriculture Development Strategic Plan** (Botetourt Plan) discussed the importance that county residents placed on agriculture in the region. The Botetourt Plan recommended specific actions around improving policy coordination for agriculture, preserving farmland, facilitating farmer training and technical assistance, promoting innovative agricultural enterprises, expanding local food marketing opportunities, enhancing marketing opportunities in general, and improving farm viability. The plan specifically addressed the need for farmer technical assistance, regional branding, and the establishment of a food hub.

The 2014 **Region 2000 Strategic Plan** for the agriculture and forestry economy surrounding Lynchburg included goals to coordinate regional marketing and outreach, strengthen resources for producers, and promote enterprise development opportunities. Specific projects outlined in the plan included developing a regional website, promoting locally grown foods through a collaboration of food system stakeholders, developing healthy food retail at convenience stores, conducting a food hub feasibility study, adding verb county cattleman association meetings, encouraging connections among producers and buyers, and developing regional young farmers trainings and agriculture awareness.

As per suggestion of the aforementioned plan, the **Region 2000 Local Food Hub Study** released a draft business plan in February 2016. This plan stated that food hub models have been established throughout the region to answer the problems of wholesale relationship management, quality assurance, transactions, logistics, inventory tracking, retail merchandising, etc. The Region 2000 Food Hub study indicates the Local Food Hub in Charlottesville as a well known example. This example food hub is a facility-based aggregator of regional food products that resells products within Central Virginia and the DC metropolitan market.

> "The Local Food Hub [in Charlottesville] is a not-for-profit entity that relies heavily on subsidies to maintain its operational capacity. Farmers selling through the Local Food Hub, and similar operations, are quite supportive of the model, but worry that it lacks operational sustainability due to the high overhead expenses—from large staff, facility costs, and low through-put—to be a long-term answer to their needs" (p. 2).

The Region 2000 Food Hub is envisioned as a multi-function organization that enhances the value of foodstuffs produced by farmers and food entrepreneurs in Amherst, Appomattox, Bedford, and Campbell Counties, town of Bedford, and city of Lynchburg. This hub is proposed to offer food safety, transaction management, and marketing support services. As the Region 2000 Food Hub proves its ability to operate such programs, the model will expand to include more asset-based services such as warehousing, repacking, processing, and similar operations. The Region 2000 Food Hub would include three main programs to start with improving:

1. F**ood safety** by creating and managing a collaborative **quality assurance** program that qualifies under the Food Safety Modernization Act as a GroupGAP program
2. Transparency in the local food system at the transaction level by designing and implementing an **electronic tracking system** with the purpose of food safety
3. Economic conditions at the farm level by promoting agricultural and food products produced in the Region 2000 counties through **merchandising programs**

The 2014 **Montgomery County Farm to Community Planning Project Final Report** (MC Report) summarized results from an online producer survey (n=33) and an in-person low-income consumer survey (n=55) about local food in Montgomery County. The majority of consumers indicated that a community garden or farmers market in their neighborhood would result in them eating healthier and most believed that a food business incubator and community kitchen would benefit the community. 76%

of producers indicated that they want to expand their operations, focusing first on direct and restaurant outlets, and then on institutional buyers. Producer barriers included marketing, aggregation, and distribution. The report concluded that a food hub or a farmer co-operative may ameliorate issues of scale and marketing.

The **Floyd Growers Roundtable** was organized by SustainFloyd in February 2016 to assess and address challenges facing local farmers. Priorities identified from the roundtable (85 participants) included consumer education program around local food, an information hub for growers, regular food system convenings, a value-added food proceeding center, a Floyd regional brand, and marketing workshops for farmers.

The **New River Valley Agriculture & Agritourism Strategic Plan** (NRV Plan) was developed for Giles, Montgomery, Pulaski, and Floyd Counties to offer a plan of work to support and enhance agriculture and agritourism in the region. Recommendations (collected in 2014 and 2015) included an agriculture development board, production infrastructure opportunities for meats and produce, establishing a producer network, identifying opportunities for beginning farmers, and creating teams to assist with whole farm planning. With respect to agritourism, recommendations included enhancing marketing strategies, creating an interactive web-based tool, providing agritourism education, and supporting local farms with on-farm direct sales. Strategies to move forward included a USDA-certified slaughterhouse within a 60-minute drive of producers, a packaging facility for meats and produce, farmer networking events, an online resource guide, GAP trainings, and technical assistance for farmers to help with business planning and marketing.

The 2011 study, **A Community-based Food System: Building Health, Wealth, Connection and Capacity as the Foundation of Our Economic Future** (Martinsville Study) looked at the food and farm economy of the Martinsville, Virginia region. The study covered two cities and eight counties in Virginia and North Carolina, including Floyd and Franklin Counties. From this study, four overarching goals were identified to guide their work in developing local food systems: health, wealth, connection, and capacity. Recommendations included establishing a coalition of stakeholders to steer food systems work, increasing connection to community networks, connecting producers with market opportunities, developing a producer network, offering GAP and organic certifications, compiling a database of producers and value-added entrepreneurs, developing local brand identity, and providing small business technical assistance. The study concluded that the Martinsville region was "well-positioned to expand local farm and food production to serve retail markets in the surrounding metro areas" (p. 11) including Roanoke. The study noted that the region, inclusive of Floyd and Franklin Counties, has market access to 60% of the US population within a day's drive; a characteristic which adds to the tremendous potential for regional agriculture to grow and succeed.

Virginia Cooperative Extension (VCE) Units organize **Situation Analysis Reports** (SA Reports) for their areas that include priority issues determined primarily by key informant interviews, focus groups, and surveys. The last round of reports were released in 2013, and all Roanoke Local counties participated (except Botetourt County). Roanoke and Salem Cities were included in the Roanoke County report. Five of the six reports included developing profitable and/or sustainable agriculture businesses as a priority. Topics such as economic development, job creation, small business development, entrepreneurship, farm transition, marketing, and agricultural infrastructure were all listed as needs within regional food production. Over half the reports included local food system development as an avenue to support regional farmers. Further, five of the six reports discussed nutrition, health, and/or obesity as issues VCE could support with relevant programming. Agriculture education and awareness were listed as potential solutions to these issues.

The 2011 **Virginia Farm to Table Strategic Plan** recommends business and production management training for farmers. The report also notes that in order to determine where to focus regional efforts, we should assess the needs of local farmers, including infrastructure and education.

In the presentation by Eric Bendfeldt and Martha Walker, "**Local foods: Economic Impact**," They offer the following keys to scaling up to meet the increasing demand for local food in Virginia:

- Aggregation
- Controlling product quality and consistency
- Seasonality
- Matching supply and demand
- Food identity and product differentiation
- Supply chain infrastructure
- Capital
- Capacity and beginning farmer development
- Information flow and transparency

Suggested Projects for the Region

1.) Regional Branding and/or Co-operative Marketing Initiative

Regional branding is becoming more common across the country including Appalachian Harvest in southwestern Virginia, Greenbrier Valley Grown in southeastern West Virginia, and Appalachian Grown in western North Carolina. In a similar economic and agricultural area, the 2011 Appalachian Sustainable Agriculture Project (ASAP) Survey of Consumer Behavior and Perceptions in western North Carolina revealed that 88% of survey respondents would buy local if labeled as local. A 2015 survey report from ASAP on the Appalachian Grown program showed that 85% of farmers who used the logo indicated that it was important in helping them increase sales. The Botetourt County Agriculture Strategic Plan mentioned the county benefited from local food promotion through the Buy Fresh Buy Local for Shenandoah program. As marketing is often a challenge for farmers, co-operative marketing could help farmers share the marketing expenses. Local food labeling systems have come up in the CSC Study, AV Assessment, Botetourt Plan, Floyd Growers Roundtable, Martinsville Study, and was an issue identified by the RVARC Regional Local Foods Planning Committee (Local Foods Committee) in January 2016.

2.) Low-cost or Free GAP and/or other Food Safety Certification Trainings

With the Food Safety Modernization Act signed into law in 2011, fresh produce is now subject to federal regulation. With partial support from the FDA and USDA, the Good Agricultural Practices (GAP) program was established to educate growers and packers on how to reduce microbial risks in fruits and vegetables. Many institutional and wholesale buyers, including Producer Source Partners (B. Wilkerson, personal communication, 2016) and regional school systems, require producers to be GAP-certified. This need has been documented in the CSC Study, AV Assessment, Region 2000 Food Hub Study, NRV Plan, Martinsville Study, and Farm to Table Plan. One participant from the CSC Study mentioned "GAP certification… costs $10,000 per year sometimes. USDA audits can be one tenth the cost." In the CSC Study, survey respondents ranked "workshops and training on food safety" as part of the sixth most impactful way the CSC could support and strengthen the regional food system.

Virginia Cooperative Extension (VCE) organized three hands-on workshops across southwest Virginia for produce growers to provide a risk-based framework to increase food safety from farmer to consumer. The "Food Safety Best Practices for Farmers Market Growers" were held in Christiansburg on November 2 (cancelled for lack of participants), Abingdon on December 1, and the third is planned in Roanoke on Jan 25. Certifications for participation will be awarded, however may not increase market access as much as GAP certification.

3.) Technical Assistance and Business Training to Scale up Production, Ensure Produce Consistency, as well as Support Marketing and Pricing

Many institutional and wholesale buyers, such as Produce Source Partners, require large quantities of product and find difficulty in working with small to medium-sized farmers (B. Wilkerson, personal communication 2016). Similarly, farmers have indicated that producing large enough quantities for buyers is challenging given their current operations. Regular and cold storage is also a concern potentially related to scaling up. Many institutional and wholesale buyers also require product consistency including food grade, quality, quantity, and delivery. Farmers have indicated seasonality limits product consistency, and season extension assistance has been suggested to mitigate these issues. Farmers have also called for assistance in market expansion, product pricing, enterprise diversification, and AgTech. These issues were identified in the CSC Study, Botetourt Plan, MC Report, Floyd Growers Roundtable, NRV Plan, Farm to Table Report, Martinsville Study, and the Local Foods Committee in January 2016. In the CSC Study, survey respondents stated that one of the most important ways that the CSC could support and strengthen the regional food system would be to assist producers with technical assistance including business planning, operations management, direct marketing, and scaling-up.

4.) Regional Aggregator, Distributor, and/or Networking Entity, Potentially a Local Food Hub

The 2015 report to Congress (Trends in U.S. Local and Regional Food Systems) identified barriers for institutions purchasing locally which include inadequate availability, inconvenience, and not knowing where to purchase local food or what is available. A food hub could address some of the concerns of institutional buyers (regarding quantity) and some of the concerns of farmers (regarding aggregation, storage, and distribution). The report to congress also identified 302 food hubs in the US in 2014: 40% privately held businesses, 30% nonprofits, and 20% cooperative models. Further, over 40% of the hubs offered technical assistance, including business management and food safety training. The 2015 Botetourt Plan suggested that "the Roanoke Valley should be able to support a local food hub" (p. 38).

A networking entity could connect producers, buyers, and consumers more easily. The Region 2000 Plan suggests holding regular meetings to facilitate local food purchases. The Martinsville Study recommends creating a network between buyers and producers. The CSC Study , Botetourt Plan, Region 2000 Plan, MC Report, and Local Foods Committee in January 2016 all suggested a food hub. The Region 2000 Food Hub Study provides a business plan for a food hub in the area around Lynchburg. Challenges related to aggregation, storage, and distribution have been included in the CSC Study, AV Assessment, Botetourt Plan, and MC Report.

5.) Local USDA- and State-Approved Produce Processing and/or Slaughter Facility

According to the 2015 report to Congress, even though the demand for locally sourced animal products has increased, the number of small federally inspected cattle slaughtering plants has declined by 12% from 2011 to 2013. Small slaughterhouses are important to a local food system because small facilities can cater to the needs of small producers in a number of ways, including custom cuts and processing animals of different sizes. There are a limited number of slaughter facilities in the region, and many reports suggest constructing additional operations in and around the Roanoke Local region.

Also suggested, though not as frequently as the abovementioned, were produce processing facilities. Prepackaged and canned foods can increase the marketability of produce. However, SustainFloyd highlighted the challenges of constructing larger operations in the region (see p. 19), and on-farm USDA-approved kitchens may prove more useful to local produce farmers. There has been a call for added processing facilities (meat and/or produce) in the CSC Study, AV Assessment, Botetourt Plan, Floyd Growers Roundtable, NRV Plan, and was an issue identified by the Local Foods Committee in January 2016. It may be appropriate to consider this recommendation as a facet of recommendation 4, "Regional Aggregator, Distributor, and/or Networking Entity, Potentially a Local Food Hub"

6.) Beginning Farmer Education, Outreach, and Financial Assistance

The average age of farmers is getting older and few young people are entering farming as a career path. Given these demographic trends, as a region, we need to understand the barriers for people entering the field and how we can better support young/new farmers. The Botetourt Plan mentioned the county had not hosted a beginners farm program to teach the skills needed to launch a successful farming operation. Often times, farmers experience low economic returns for hard labor due to market trends and consumer preferences. Existing farmers experience challenges with a lack of experienced and reliable labor force. The CSC Study, Botetourt Plan, and Region 2000 Plan all suggest beginning farm and workforce training. In the CSC Study, survey respondents ranked "train, incubate, or support new producers" as the second most impactful way the CSC could support and strengthen the regional food system, after "champion sustainable agriculture/Sustainability practices as a model or advocate." The Martinsville Study recognized a need to attract young people to a farming career. To reach youth, FFA and 4-H groups could be targeted for farm apprenticeships, and the potential to give school credit to those who participate in farm internships might be explored.

Virginia Tech hosts the Virginia Beginning Farmer and Rancher Coalition Program (VBFRCP), an excellent resource for this work that is already organizing a number of relevant trainings across the state. The coalition has also organized focus groups and surveys to gather information from new farmers. The 2012 "Virginia Beginning Farmer and Rancher Coalition Survey Final Report" and the 2014 report, "An Evaluation of Program, Training, and Resource Needs of Virginia Beginning Farmers and Ranchers" together indicated top priorities and challenges for new farmers. The 2014 report offers a list of recommendations from farmers including an online technical assistance program, alternative learning opportunities, and whole farm planning. The 2012 report offers preferences for educational program delivery with "one-day workshop" and "online materials" ranked first and second. It is clear that these two reports could be useful when pursuing recommendation 3, "Technical Assistance and Business Training to Scale up Production, Ensure Produce Consistency, as well as Support Marketing and Pricing."

7.) Consumer Education and Outreach

Farmers have called for consumer education on the "true cost" of farming, food characteristics (such as blemishes), seasonality, and the importance of buying locally grown foods. This may help customers understand why locally-grown produce may look and be priced differently compared to produce from a grocery store. Also, additional outreach on existing incentive programs and SNAP-acceptance at farmers markets may increase the consumer base for local foods. Consumer education and outreach was recommended in the CSC Study , AV Assessment, Floyd Growers Roundtable, NRV Plan, SA Reports, and Martinsville Study.

8.) Virtual Local Food Guide and Networking Platform

There have been calls for a virtual platform to catalogue and share resources as well as promote interactions among producers, consumers, and other food chain actors. Coordinated local food guide/network was part of the CSC Study, Botetourt Plan, Region 2000 Plan, Floyd Growers Roundtable, NRV Plan, Martinsville Study, and the 2014 VBFRCP report. In 2016, LEAP applied for funding to retool the existing online Roanoke Valley Locavore Food Directory, though funding was not awarded. Various other platforms have been organized, including Facebook pages by the Virginia's Community, Local, and Regional Food Systems Team and the Appalachian Virginia Food System Council – Network as well as a local foods webpage by the Roanoke Valley-Alleghany Regional Commission. These existing models could be built upon to cater the needs of regional food system stakeholders.

9.) A Local Food Council or Working Group

Most of the studies reviewed for this assessment identified the need for regional collaboration and government involvement to promote local food. The Martinsville Study offers forming a policy council, coalition, or working group that represents all food system stakeholders as a strategy to move forward with local food work. In the CSC Study, survey respondents ranked "serve as catalyst/connector for food system issues/stakeholders" as one of the most impactful way the CSC could support and strengthen the regional food system. Both the NRV and Botetourt Plans recommend creating an Agricultural Development Board or other organization to facilitate community and regional collaboration. The 2015 Assessment of Food Access in Roanoke City recommended that the existing Roanoke Local Foods Committee could be used to form a food policy council for the region.

Both the Virginia Food Systems Council and the Appalachian Virginia Food Systems Council–Network connect food systems stakeholders throughout the region. Therefore, it may not be necessary to create an additional network model. Based on Burgan and Winnie's 2012 publication, "Doing Food Policy Councils Right: A Guide to Development and Action," a policy council's primary goals include:

- connect economic development, food security efforts, preservation and enhancement of agriculture, and environmental concerns
- support the development and expansion of locally produced foods
- review proposed legislations and regulations that affect the food system
- make recommendations to government bodies
- gather, synthesize, and share information on community food systems

In food policy councils, these goals are typically carried out through policy work and education rather than projects. While policy reform or creation is often imperative to, and can even be a more sustainable route to, local food system development, many of the recommendations gathered from across the Roanoke Local region are project-based. Therefore, a broad council model with working groups could allow members to pursue tangible results and still support and guide these projects through policy development and information gathering.

Many stakeholders currently participate in the Local Foods Committee, and part of this assessment was to ensure that stakeholders are representative of regional food system players. The Local Food

Committee has worked to increase connections between groups working on food systems issues in the region, and has included:

- Appalachian Foodshed Project
- Blue Ridge Soil & Water Conservation District
- Botetourt County – Tourism
- Carilion Clinic Outreach
- Catawba Meadow Farm
- City of Roanoke – Economic Development
- City of Roanoke – Planning
- City of Salem
- County of Roanoke – Planning
- County of Roanoke – Economic Development
- Feeding America Southwest Virginia
- Flying Pigs Farm
- Food Writer – Roanoke Times
- Four Corners Farm
- Freedom First
- Grandin Gardens
- Group Epignosis
- Healthy Roanoke Valley
- Jeter Farm
- LEAP
- Lick Run Farm
- Local Roots
- Local Table
- Mountain Castles Soil & Water Conservation District
- Private Citizens
- VT Students
- Roanoke Community Garden Association
- Roanoke Natural Foods Co-op
- Town of Vinton
- United Way of Roanoke Valley
- USDA, Rural Development
- Virginia Cooperative Extension
- Virginia Tech (VT) Agriculture & Applied Economics
- VT Office of Economic Development
- VT Planning, Governance, and Globalization
- VT Catawba Sustainability Center
- VA Western Community College

The following stakeholders should also be prioritized in the formation of a Local Food Council or Working Group:

- Agriculture Development Boards
- Appalachian Rising Farmers Cooperative
- Appalachian Virginia Food Systems Network (avfsn@googlegroups.com)
- Blue Ridge Market Manager Group
- Colleges and Universities
- Community, Local, and Regional Food Systems Stakeholders (clrfs-vce-g@vt.edu)
- Economic Development and Planning Offices
- Farmers Markets (listed in Appendix B)

Food Hubs and Aggregators (listed in Appendix B)
Locally-sourcing Restaurants (listed in Appendix B)
New London Community Cannery
Peaks Slaughterhouse
Plenty!
Produce Source Partners
Seven Hills Food
School System Food Service Directors
Schrock's Slaughterhouse
SustainFloyd
Soil & Water Conservation Districts
Virginia Cooperative Extension Agents
- Craig – Andy Allen, geallen@vt.edu
- Botetourt – Mary Kate Lawrence, mcl87@vt.edu
- Bedford – Scott Baker, scbaker@vt.edu
- Roanoke – Kathleen Reed, reedka@vt.edu
- Franklin – Chris Brown, cbrown04@vt.edu
- Floyd – John Vest, jmvest@vt.edu
- Montgomery – Kelli Scott, kescott1@vt.edu

Virginia Farmers Market Association
Virginia Agricultural Development Officers Group (which includes Botetourt County)

Farmers are important, if not the most important, players in the local food system. Farmers can be reached through farmers markets, VCE, and existing local food and farm directories.

The Johns Hopkins Center for a Livable Future's Food Policy Networks project supports the development of effective state and local food policy through networking, capacity building, research, and technical assistance. The organization works directly with food policy councils, national organizations, and other groups seeking to improve the food system through public policy. The recently published resource, "Framing the Future: A planning resource for food policy councils," and the aforementioned 2012 publication by Burgan and Winnie could be utilized by the Local Foods Committee during the strategic planning stage.

10.) Farmer Listening Sessions

The VCE Community, Local, and Regional Food Systems team works statewide and organized six sessions for VCE professionals October through November and two community-focused listening session at the Virginia Farmers Market Association Conference in November and the Farm to Table Conference in December. These sessions were designed as focus groups to determine how VCE is working, or could work, to enhance and support local food systems programs across the state. The sessions targeted questions such as "what does community, local, and regional food systems work look like in your community?" and "how can VCE best support your work?"

While this important work is underway, there has also been a call to gather farmers for networking and to discuss possible solutions to the challenges they face. Reports from farmer-focused listening session can help inform local government officials about economic, environmental, and social issues that affect local agriculture and food systems. A good example of a more regional farmer-focused listening session conducted in the area is the Floyd Growers Roundtable. In the Botetourt Plan focus groups, a lack of cohesion between the agriculture community and county government was mentioned, and some participants suggested creating an advisory council to bring farmers together to help solve local agricultural problems and improve policy making. The Region 2000 Plan recommended county cattlemen's association meetings to discuss direct marketing within and outside of the region.

Farmer- and community-focused listening sessions throughout the Roanoke Local region could be the first platform for communication to help inform the design and implementation of the above suggested projects. LEAP, in partnership with VCE will hold Farmer Listening Sessions in the Roanoke Local Region in January-March 2017. The information from these Listening Sessions will be shared widely.

These ten recommendations were consolidated from existing documents, and LEAP is only committed to the final suggested project, "Farmer Listening Sessions." This report has been developed with the intention of being used by a wide array of organizations to inform and guide food systems work in and around the Roanoke Local region.

Appendices

Appendix A: Select Reports, assessments, plans, and studies reviewed for this document

2011 Virginia Farm to Table Strategic Plan

2011 A Community-based Food System: Building Health, Wealth, Connection and Capacity as the Foundation of Our Economic Future (Martinsville/Henry County region)

2012 Virginia Beginning Farmer and Rancher Coalition Survey Final Report

2013 VCE Situation Analysis Reports for Roanoke County/Roanoke and Salem, Bedford County, Franklin County, Floyd County, Montgomery County, and Craig County

2014 An Evaluation of Program, Training, and Resource Needs of Virginia Beginning Farmers and Ranchers: Virginia Beginning Farmer and Rancher Coalition Program

2014 Region 2000 Strategic Plan (Lynchburg region)

2014 Montgomery County Farm to Community Planning Project Final Report

2014 Food Deserts in Virginia, Report by the Food Desert Taskforce

2015 Trends in U.S. Local and Regional Food Systems, Report to Congress

2015 A Food Access Assessment: Mapping food access in the City of Roanoke

2015 Linking the Catawba Sustainability Center to the Local Food System

2015 Botetourt County Agriculture Development Strategic Plan

2015 Roanoke Valley Community Health Needs Assessment, Carilion Clinic

2015 Food Access Market Analysis for Virginia, The Reinvestment Fund for Virginia Community Capital

2015 Retail Grocery Market Structure Analysis of Virginia Metropolitan and Metropolitan Areas, The Reinvestment Fund for Virginia Community Capital

2016 Region 2000 Local Food Hub Study draft business plan (Lynchburg region)

2016 Floyd Growers Roundtable Report

2016 New River Valley Agriculture & Agritourism Strategic Plan

2016 Appalachian Virginia Community Food Security Assessment

Appendix B: Regional Markets for Producers, Reflective of Figure 8

Regional Farmers Markets

Name	Address	City
Bedford Farmers Market	220 W Washington St	Bedford
Blacksburg Farmers Market	110 Draper Rd NW	Blacksburg
Botetourt County Farmers Market	90 Town Center St	Daleville
Catawba Valley Farmers Market	4965 Catawba Creek Rd	Catawba
Christiansburg Farmers Market	Hickok St NW	Christiansburg
Craig County Farmers Market	204 Main St	New Castle
Farm to Table Market at Greenbrier Nurseries	5881 Starkey Rd	Roanoke
Floyd Farmers Market	205 S Locust St	Floyd
Forest Farmers Market	15583 Forest Road	Forest
Grandin Village Market	2080 Westover Avenue SW	Roanoke
Homestead Creamery Farmers Market	7254 Booker T Washington Hwy	Wirtz
Moneta Farmers Market	11739 Moneta Rd	Moneta
Roanoke City Market	Market St	Roanoke
Salem City Market	14 Main St	Salem
Shawsville Farmers Market	267 Alleghany Spring Rd	Shawsville
South Roanoke County Market	4420 Electric Rd	Roanoke
The Community Farmers Market of Blacksburg	1411 S Main St	Blacksburg
The Depot Market of Boones Mill	359 Boones Mill Road	Boones Mill
Town of Rocky Mount Farmers Market	435 Franklin St	Rocky Mount
Vinton Farmers Market	204 W Lee Ave	Vinton
West End Market	1210 Patterson Avenue SW	Roanoke

Regional Local-Sourcing Restaurants and Catering

Name	Address	City
Alexanders Restaurant	105 South Jefferson St	Roanoke
Bent Mountain Bistro	9607 Bent Mountain Rd	Bent Mountain
Blue Ridge Catering	522 Salem Ave SW	Roanoke
Chateau Morisette Restaurant	287 Winery Rd SW	Floyd
Firefly Fare	16 Church Ave SW	Roanoke
Gillies Restaurant	153 College Ave	Blacksburg
Local Roots	1314 Grandin Rd	Roanoke
Lucky Restaurant	18 Kirk Ave SW	Roanoke
Oddfella's Cantina	110A N Locust St	Floyd
Pomegranate Restaurant	106 Stoney Battery Rd	Troutville
River and Rail	2201 Crystal Spring Ave SW	Roanoke
Rockfish Food & Wine	1402 Grandin Rd SW	Roanoke
The Black Hen & Bar Blue	126 Jackson St NW	Blacksburg
The Bread Basket	2167 Webbs Mill Rd N	Floyd
The Regency Room	110 Shenandoah Ave NE	Roanoke
The Swinging Bridge Restaurant	16071 Paint Bank Rd	Paint Bank

Regional Local Food Hubs and Distributors

Name	Address	City
Annie Kay's Main Street Market	1531 S Main St	Blacksburg
Eats Natural Foods	708 N Main St	Blacksburg
EcoFriendly Foods	3397 Stony Fork Rd	Moneta
Foothills Produce Auction	50 Church Hill St	Boones Mill
Good Food Good People	320 Fork Dr	Floyd
Harvest Moon Food Store	227 North Locust St	Floyd
Roanoke Natural Foods Co-op (Downtown)	1 Market Square	Roanoke
Roanoke Natural Foods Co-op (Grandin Village)	1319 Grandin Rd SW	VA
Southern States Roanoke Co-op	8649 Cloverdale Rd	Troutville

Appendix C: Select Excerpts from a Statement on the Blue Ridge Plateau Initiative

Investments in agriculture are coming to the Southern Appalachians. The Blue Ridge Plateau Initiative is engaged in taking advantage of new opportunities for specially produced foods. We are from this place and wish to share what we know about how water flows through our land, the changing of the seasons, and what we've learned from farming for decades. Beyond this, we are organized in collaborative and cooperative ventures and are clear minded about how best to benefit from investments that serve the triple bottom-line (1) financial security for the people in our communities, (2) capacity to meet shared needs (food, education, health, security), and (3) vibrant and healthy watersheds (no losses for subsequent generations).

Agriculture as practiced here is guided by an eye for quality and high value markets. With multiple collaborative ties with Virginia Tech, Virginia Farm Bureau, EcoVillage, River Ridge Land & Cattle Company, Four Winds Farm, Riverstone Farm, Wagon Wheel Farm, Virginia Department of Agriculture & Consumer Services, USDA -- a very long list -- we are a research and coordinating body supplying expertise for program design and implementation.

People along the Blue Ridge Plateau have taken positive steps in establishing a profitable and enduring agriculture service center. Two counties, Carroll and Grayson, and the City of Galax have joined in declaring that through the Blue Ridge Crossroads Economic Development Authority agriculture is the future, now and forevermore. Virginia Cooperative Extension organizes group meetings to take advantage of new opportunities. Carroll County High School has a STEM laboratory designed to serve agriculture and introduces students in vocational agriculture to the latest in testing and evaluation. Two exceptional civic organizations, Grayson LandCare and SustainFloyd, have organized farmers markets and completed feasibility plans for next steps. Farm fresh produce arrives at the docks of SW Virginia Farmers Market and Virginia Produce throughout the year to be consumer packed and sent on its way along the East Coast and into the Midwest. The Plateau is at the junction of Interstates 77 and 81.

The investment in Southern Appalachian agriculture can be successful if an appropriate range of services are available to link farmers to market supportive of costs plus profits making possible descent livelihoods. We must look at progress to date at ground level and the geographic distribution of successful projects that exemplify what is possible. Beyond this, we must think regionally in terms of natural resource endowments, human capacities, transportation, and market locations.

ASSUMPTIONS

Asking farmers to change practices and inviting veterans and others to become farmers requires time. Wendell Berry notes that it takes at least six years for an experienced farmer to learn how to tend a new piece of land. For new farmers, both the required skills and a particular plot of land are learning challenges. Our focus is on the steps required to establish profitable farming operations and, at the same time, create the needed infrastructure to support these operations.

While farmers markets are helpful and can generate some income, these usually fall short of what is needed to support a household, especially in isolated regions. In Appalachia the demand for food is limited and complicated because of meager incomes. Thus, as we create a financially viable agriculture, we're dependence on consumers in more densely populated areas requiring volume and uniform quality. An evaluation of the existing services and infrastructure supporting agriculture is required as we devise means to link natural resources through skillful farmers, packagers, processors, and transporters to consumers. As production increases, additional services requiring new and improved infrastructure can be put in place.

PLAN TO DATE: **The Blue Ridge Plateau Investment & Development Strategy**

The Blue Ridge Plateau area of Virginia is rich with good soil, adequate rainfall and hardworking people. Many of the people of this region have been involved in agriculture for generations. The food grown here is healthy, nutrient dense food farmed with low amounts of pesticides, antibiotics and chemical fertilizer.

Sustainable agricultural practices are the norm for this area. However, with the dominance of large scale, industrial food production around the world and the globalized corporate food industry, many of our local farmers are struggling to make a living. Cheap food made with massive amounts of chemicals, of poor nutritional quality, using unsustainable amounts of water and contributing to one third of the excess carbon leading to climate change is the national norm and a national problem. We in Southwest Virginia are prepared to lead the change toward growing an abundance of healthy food using techniques that do not contribute to climate change or to national obesity. To do this we need to create a quality, integrated food system in our region. We have all of the needed components here but they must be supported and managed. The gaps in the system will need investment to reach the potential we have to supply food for the east coast where one third of the U. S. population live.

We work with a broad community bringing together (1) local fertile land, (2) skillful farmers, (3) government (local, state, and national), (4) local knowledge, wisdom, and entrepreneurial spirit, (5) Virginia Tech, our land grant university, and (6) a major injection of social entrepreneurial capital to create a productive and profitable LOCAL FOOD SYSTEM.

Our vehicle is two parallel corporations, one for profit and the other a non-profit The for-profit engages directly in creating and managing businesses that produce for the people and preserve the place. The non-profit is responsible for organizing the community and maintaining a sense of responsibility for our resources while coordinating the myriad parts of a food system and its needs. It calls people together to respond to new opportunities and challenges. It monitors our health and happiness and serves as a feedback loop so we know the impact on the lands, water, and finances so corrections can be made when required. Finally, the non-profit engages in education with all of its partners, e.g., local schools, community colleges, Virginia Tech, University of Virginia, Radford University, USDA, Commonwealth agencies, so that we and our children know how best to protect our interests.

<u>The For-Profit</u>: Engages in building businesses and partnerships, taking advantage of existing opportunities. Some of the possibilities:

- Food Safety Service: Major changes are underway in protecting the nation's food supply and new regulations take effect next year. All food handlers must participate from the farmer in the field to the clerk in Kroger. For food safety training programs, testing services, and certification, people are now engaging companies in California. In cooperation with the people in food innovation at Virginia Tech, we will establish a regional food safety service.
- Marketing Company: A cheese and vegetable provider to upscale restaurants in NYC visited to develop closer relations with farmers. Already, there are weekly shipments of cheese by a local dairy to this market. Already, high-end specialty crops are produced based upon our highland growing season bolstered by the greenhouses and high tunnels.
- An Abattoir: Based on a high-priority need expressed by farmers in Southwest Virginia, Western North Carolina, and Southern West Virginia, two grants (one a USDA feasibility study and the second jointly supported by the Appalachian Regional Commission and Virginia Tobacco Commission) developed facility and business plans. Possible sites have been evaluated and the next step is to engage investors and establish a business structure.
- Land Management and Marketing Service: Many parcels of land in our region are relatively unproductive. In demonstrations jointly administered by Virginia Tech and Grayson LandCare, Inc., soils become more productive, and profits increase per acre when forage is appropriately managed. Land can be placed under contract for the time required to begin producing crops for existing market demands. The landowner or a designate can be trained in ongoing management and production. The marketing service will continue irrespective of management changes.
- Model profitable training farms recruiting and training apprentices in the best practices of sustainable agriculture meeting the demand for farm. It's important that the next generations know how to produce food meeting both locally defined (local branding) and nationally and internationally recognized certification standards.

- An Investment Management Service: With the capacity to respond to the needs of smaller enterprises into the several million dollars, the fund will support sound business plans to add value to crops and items of local. The appeal is to a sophisticated community of investors. To protect their wealth over the longer haul and escape the volatility of speculative capital markets, there is interest in stable and long enduring enterprises. Food production can be seen as the most safe because, over the long haul, everyone must eat. The natural resources required to produce the food will be protected at all cost so investment in productive, efficient, and proven technologies utilizing renewable energy makes sense.
- In surveys of the large lumber mills in our area, we found considerable expense is involved in moving wood chips and sawdust outside the region. We're searching for partners to explore alternatives uses for energy, soil amendments, and other value-added products from these "waste products."
- With the assistance of a graduate student from Virginia Tech, we're developing non-timber forest products for herbal, medicinal, food, and decorative markets.

<u>The Non-Profit</u>: Organizes the community to work collaboratively and cooperatively. People and organizations join in projects that benefit themselves as well as the common good. The discussion of the state of our lands and waters are coordinated by the non-profit as to needs expressed by farmers, businesses, governments, agencies, churches, and other interested parties.

The non-profit enjoys close working relations with private enterprises, the banking industry, Virginia Tech, Virginia Departments of Agriculture & Consumer Services, Conservation and Recreation, and Forestry. Local and state governments, USDA offices, Forest Service, community colleges, local schools, etc., are engaged in our search for the clearest possible understanding of local circumstances and the possibility of collaborative programs.

Care is taken to keep careful records as to consequences of human activities upon the health and viability of our natural resources.

The non-profit will host special events and education programs relevant to the health, wellbeing, and enjoyment of the community.

<u>We Are Already Underway</u>: Following the March 31st meeting on "Agriculture Along the Blue Ridge Plateau," we are in the process of searching for funding. Local leadership joined with us in meeting Mr. Minot Weld of Boston to explore our capacities to profitably absorb sums in the range of $20 to 30 millions of dollars. We visited the Wildwood 300 acre site owned jointly by the counties of Carroll and Grayson and the City of Galax. These communities have invested in excess of $23 millions in leveling the ground and making available 3-phase electricity, natural gas, and sewage and water services. Mr. Weld then linked us to Mr. Peter Lampesis who joins investors, technologies, and communities together in highly productive and energy efficient companies that respond to the growing demands for food and fiber. On a fact find mission, Lampesis met with county administrators, the city manager, their attorney, and representatives of the Virginia Department of Agriculture & Consumer Services, and the office of U.S. Senator Mark Warner, and Grayson LandCare. The visit has resulted in New England Ovis beginning the production of sheep for medical research on four farms in Grayson County with expectations of rapid growth once the needed infrastructure is in place.

We're exploring the restoration of watercress ponds for the east coast market. At the same time, we're engaged in exploring a farm management opportunity to create a profitable livestock venture on large acreage plus a management service for private forestland owners who wish to enrich the productivity of their lands through the a range of timber and non-timber products. We've explored with potential small investors possible projects that serve the health of landscapes, the local economy, and a sustainable quality of life.

We live within 500 miles of more than half of the USA consumer base. We're practiced in safeguarding our landscapes and our farmers are skillful and adaptable. Scientific agriculture is practiced from high schools forward. Moreover, the rain still falls across our lands. We invite you to engage with us in our mission.

Organizing group: Danny Boyer, Jack Wall, and Jerry Moles June 20, 2016