Linking the Catawba Sustainability Center to the Local Food System

PREPARED BY: THE VIRGINIA TECH OFFICE OF ECONOMIC DEVELOPMENT
Acknowledgements

This report was prepared by the Virginia Tech Office of Economic Development, www.econdev.vt.edu. The Office of Economic Development (OED) connects Virginia Tech faculty, companies, and communities in ways that help create, retain, and enhance the quality of jobs and opportunities around the Commonwealth. OED provides training, applied research, and technical assistance services to increase clients’ abilities to prudently manage economic change and improve their quality of life. Examples of such services include completion of feasibility studies, economic impact analysis, industry and occupational analysis, strategic planning and community visioning, and performance management and benchmarking studies. OED faculty and staff who contributed to this report include Ebonie Atkins, Leeann Budzevski, Whitney Bonham, and Scott Tate.

The County of Roanoke and the Catawba Sustainability Center, with funding from the Governor’s Agriculture and Forestry Industries Development Fund (AFID), commissioned the report and contributed input and assistance throughout the process. Numerous individuals and organizations contributed information, resources or assistance through focus group sessions, survey responses, and individual discussions.
Introduction

In spring 2014 Roanoke County obtained a planning grant from the Governor’s Agriculture and Forestry Industries Development Fund (AFID), administered by the Virginia Department of Agriculture and Consumer Services (VDACS).

Roanoke County commissioned the Virginia Tech Office of Economic Development to explore strategies to increase the connectivity of the Catawba Sustainability Center (CSC) with the regional food system. This technical assistance included background data on regional demographics, a series of four focus groups, and an electronic survey instrument to identify existing characteristics of the regional food system, and explore needs and opportunities for potential collaboration with CSC.

The Catawba Sustainability Center (CSC) is a research and education center for sustainability that works to advance environmental stewardship, community engagement, economic growth, and innovative solutions to sustainability challenges. The CSC offers hands-on learning opportunities for faculty and students; serves as an outdoor classroom for field trips, graduate and undergraduate research with exposure to landowners, businesses, and environmental conservation programs; explores agri-business incubation projects; creates opportunities for corporate research; and develops and delivers educational and professional development programming. CSC projects focus on the future and increase community resilience. It is the mission of the Catawba Sustainability Center to inspire and discover solutions in environmental, social, and economic sustainability through research, education, and demonstration.

Through its diverse group of partners and advisors the CSC takes a collaborative approach to addressing specific needs in the region. These partners include local, state, and federal agencies, nonprofits, academic institutions, foundations, and community groups and businesses along with an advisory committee that aids in guiding future research and projects. CSC projects include establishing and supporting the Catawba Valley Farmer’s Market, advancing small farm incubation through leasing land to growers in need, organizing a Field to Fork event to increase networking between buyers and producers of local foods and publishing the bi-annual Roanoke Valley Locavore Directory.

These initiatives are all geared toward bolstering the local food system. A local food system is the network of activities that connect food production, processing, access, distribution, retail, marketing and consumption in a particular geographic region or place that has been deemed “local.” Some of the food chain actors include farmers, distributors, grocers, other specialty retail facilities, food pantries, CSAs (community supported agriculture), restaurants, food service providers and consumers. Research indicates that expanding the capacity of the local food system can increase employment and provide a stable source of income to community
members. Food manufacturing can provide area jobs while local food production, processing and distribution may offer small business opportunities to residents.

The phrases “local foods” and “food systems” are subjective and used in a number of different ways with no specific commonly accepted definitions. According to the Food, Conservation, and Energy Act of 2008, a local food product can be transported no further than 400 miles from its place of production, OR production and consumption of a food product must be within the same state for the item to be considered local. Other definitions of local food include direct-to-consumer and direct-to-retail/food service farmer sales. Proximity between producer and consumer may also be used to gauge local vs. non-local items. Additionally, definitions of local foods may be predicated on supply chain characteristics.

For the purposes of this project, OED specifically examined Roanoke County, and the surrounding municipalities most accessible to the Catawba location. In order to take a regional approach to examining the food system in and around the Roanoke County area, several counties and independent cities were included in the study area of this report. Taking into account the origin, production and processing of what could be termed the “local food supply,” the study area has been defined as the counties of Botetourt, Craig, Montgomery, Roanoke, and the cities of Roanoke and Salem. Inclusion of these cities and counties is consistent with the individuals, groups, and organizations that have participated in this study through focus groups, survey responses, conversations, and meetings.

The designated study area is based partly on geographical proximity to the CSC. By some measures, the regional food system may be considered as mirroring either the Roanoke-Alleghany Regional Commission or the New River Valley Planning District Commission service areas. Therefore, some information may be more applicable across the wider regional food system. For the data collection purposes of this project, however, OED mostly focused on the study area defined above but did include information on Floyd County and Franklin County, in some instances. This report incorporates a broad and general conception of “local food” as food and food products and inputs produced or processed locally. Similarly, the report defined “regional food systems” as the wide range of efforts to build more locally-based, self-reliant food economies.

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Regional Demographics and Economic Trends

Study Area

A general overview of population characteristics for the study area as well as the individual counties and cities helps form a general understanding of the population affected by the local food system. Demographic data in this section of the report represents age, race, and educational attainment, income and poverty information on the population residing in Botetourt County, Craig County, Montgomery County, Roanoke County, the city of Roanoke, the city of Salem, and the state of Virginia.

Figure 1: Study Area Map

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4 EMSI proprietary data and multiple US Census sources.
Over the past 10 years the population in the subject area has increased steadily. From 2004-2014 the population of the counties and cities in the study area combined has increased 7.3 percent. The majority of the population in the region resides in Montgomery County, Roanoke County, and Roanoke City; with 2014 population figures of 98,847; 93,642; and 98,125 respectively. The remaining municipalities in the subject area have a collective population of 63,599 people. In the past 10-year period Montgomery County has experienced the most population growth (13 percent or 11,561 people since 2004).

The largest age group is the 24 and younger group; comprising nearly 35 percent of the population. This group is followed by individuals age 65+ at 15.54 percent of the population. White, non-Hispanics make up 81 percent of the population in the target area. This is followed by black, non-Hispanic at 11 percent. Asians and Hispanics each comprise 3 percent of the population. Individuals of two or more races make up less than one percent of the population in the study area.

Within the study area, educational attainment rates for working-age adults as a whole are very similar to the state-wide rates, though there is greater variation when municipalities are viewed individually. Craig County and the city of Roanoke appear to have lower levels of educational attainment compared to the state, and the region as a whole. In Craig County, for instance, approximately 54 percent of the population aged 25-64 possess a high school diploma or less as their highest level of educational attainment. In Roanoke city, 48 percent of that age group have a high school diploma or less as their highest level of educational attainment.

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5Source: EMSI proprietary data and multiple US Census sources.

6 Source: EMSI proprietary data and multiple US Census sources.
According to US Census data, median income figures for the municipalities in the study area vary, ranging from $38,145 in the City of Roanoke to $65,935 in Botetourt County. As shown in Figure 3 below, all the municipalities in the study area with the exception of Botetourt County have lower median income levels than the state median income amount of $63,907.

**Figure 3: Median Income, 2014**

![Median Income Chart](chart.png)

**Figure 4: Percent of Population for Whom Poverty Status is Determined in Past 12 Months**

![Poverty Chart](chart2.png)

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7 EMSI proprietary data and multiple US Census sources.

When considering the entire population of each municipality in the service area, the localities with the highest percentage of persons in poverty are Montgomery County and Roanoke City. The City of Salem is the only other locality with poverty levels higher than the state, but the difference is less than 1 percent. The highest percentages of the population in poverty are seen among the under 18 years of age demographic. This is similar to state and national data. The only exception is in Montgomery County where the proportion of the overall population in poverty is higher than the proportion of minors living with poverty. Poverty levels in the population over 65 are fairly low for all locations.
Farming and Agriculture Data Overview

Based on data from the USDA Census of Agriculture, in 2012 the study area was occupied by 1,874 farms, encompassing 274,707 acres of farmland. The average farm in the area has been in operation for 26 years and the average age of farmers is 61 years old. Figure 5 indicates the study area has seen a slight increase in farming as a primary occupation between 2007 and 2012.

Figure 5: Total Number of Farms in Study Area

The study area has seen an increase in the number of farms between 1997 and 2012. However, the change in total acres of land used for farming has fluctuated over this same time period.

Figure 6: Total Acres of Land Used for Farming

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9 [http://agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Virginia/]
10 [http://agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Virginia/]
The study area has experienced an increase in total land in farms but average farm size has remained fairly stable. From 1997-2007 average farm size declined, decreasing an average 39 acres in the 10 year period. In 2012 the figure rose to 167 acres, an increase compared to data from the previous agricultural census in 2007.

**Figure 7: Average Farm Size, in acres**

![Average Farm Size Graph]

**Figure 8: Total Farms by Size**

<table>
<thead>
<tr>
<th>Farms by Size</th>
<th>2007</th>
<th>2012</th>
<th>% Change</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9 Acres</td>
<td>147</td>
<td>118</td>
<td>-20%</td>
<td>-29</td>
</tr>
<tr>
<td>10-49 Acres</td>
<td>620</td>
<td>518</td>
<td>-16%</td>
<td>-102</td>
</tr>
<tr>
<td>50-179 Acres</td>
<td>677</td>
<td>624</td>
<td>-8%</td>
<td>-53</td>
</tr>
<tr>
<td>180-499 Acres</td>
<td>262</td>
<td>304</td>
<td>16%</td>
<td>42</td>
</tr>
<tr>
<td>500-999 Acres</td>
<td>76</td>
<td>78</td>
<td>3%</td>
<td>2</td>
</tr>
<tr>
<td>1,000 Acres or More</td>
<td>22</td>
<td>32</td>
<td>45%</td>
<td>10</td>
</tr>
</tbody>
</table>

\[11 \text{ http://agcensus.usda.gov/Publications/2012/Full_Report/Volume_1_,_Chapter_2_County_Level/Virginia/} \]
Between the years of 2007 and 2012, the change in the number of farms correlated with the farm size. The smaller the farms, the larger the decline in number of farms and the larger the farm size the greater the increase. During this time period, farms between 1 and 9 acres decreased 20 percent and farms 1000 acres or more increased by 45 percent.

Figure 9: Total Farms by Size

Looking at non-manufacturing related agricultural employment in the study region, there were 380 jobs in 2014, a decrease of 26 percent since 2004. This total is 83 percent below the national average of jobs in this sector, suggesting a relatively low concentration. The total includes the following six digit NAICS code sectors:

- Crop Production (111000)
- Animal Production (112000)
- Timber Tract Operations (113110)
- Forest Nurseries and Gathering of Forest Products (113210)
- Cotton Ginning (115111)
- Soil Preparation, Planting, and Cultivating (115112)
- Crop Harvesting, Primarily by Machine (115113)
- Postharvest Crop Activities (except Cotton Ginning) (115114)
- Farm Labor Contractors and Crew Leaders (115115)
- Farm Management Services (115116)
- Support Activities for Animal Production (115210)
- Support Activities for Forestry (115310)

12 Source: EMSI data based primarily on the Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA).
Figure 10 below details the occupation titles and breakdown for these jobs in the region. Average earnings for the workers in these areas was $26,648 in 2014, less than the national earnings average for jobs in these fields of $31,514. In the localities examined for this study, males filled 71.8 percent of these positions and almost 30 percent of the workers in these positions were aged 55 or over.

**Figure 10: Occupations Employed by these Industries**

<table>
<thead>
<tr>
<th>Description</th>
<th>Employed in Industry Group (2014)</th>
<th>% of Total Jobs in Industry Group (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers, Ranchers, and Other Agricultural Managers</td>
<td>105</td>
<td>27.6%</td>
</tr>
<tr>
<td>First-Line Supervisors of Farming, Fishing, and Forestry Workers</td>
<td>18</td>
<td>4.6%</td>
</tr>
<tr>
<td>Farmworkers and Laborers, Crop, Nursery, and Greenhouse</td>
<td>107</td>
<td>28.1%</td>
</tr>
<tr>
<td>Farmworkers, Farm, Ranch, and Aquacultural Animals</td>
<td>28</td>
<td>7.5%</td>
</tr>
<tr>
<td>Forest and Conservation Workers</td>
<td>11</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Looking at some of the more prevalent sub-sectors, there were 156 workers employed in crop production in 2014, down from 255 workers in 2004, a decrease of 39 percent. There were 85 workers employed in animal production in 2014, down from 160 in 2004, a 47 percent reduction. In 2014, 48 workers were employed in support activities for animal production, an increase of 41 percent from 34 workers in 2004. Thirty-five workers were employed as farm labor contractors and crew leaders in 2014, a number that has remained stable since 2004.

Industry requirements describe the purchases this industry makes from all other industries — an industry’s supply chain — and also estimates whether those purchases came from within or without the region of study. Also known as Gap Analysis, this figure is useful in considering import substitution strategies for the region. Looking, for instance, at the crop production sector the total purchases amount of the regional enterprises engaged in crop production is

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13 Source: EMSI’s proprietary employment data.

14 Source: EMSI’s proprietary employment data, incorporating Census’ Quarterly Workforce Indicators and American Community Survey.

15 Source: Primarily the national OES staffing pattern, combined with projections from the National Industry-Occupation Employment Matrix and EMSI’s proprietary employment data.
$8,399,475. However, only 8.7 percent of that amount is currently expended within the region, while 91.3 percent of the total is expended to suppliers outside of the region.\textsuperscript{16}

Figure 11 below depicts the market value of agricultural products sold for counties in the region (city-level information was not available). The table below includes Franklin and Floyd County. Interestingly, the two counties are the source of most agriculture products sold, at 43.2 percent and 22.9 percent of the regional totals.

\textbf{Figure 11: Agricultural Sales in Region}

<table>
<thead>
<tr>
<th></th>
<th>Market value of Agricultural products sold ($1000)</th>
<th>Percent of Study Area Agricultural Products Sold</th>
<th>Percent of State Agricultural Products Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia</td>
<td>3,753,287</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Botetourt County</td>
<td>18,704</td>
<td>12.3%</td>
<td>0.50%</td>
</tr>
<tr>
<td>Craig County</td>
<td>4,886</td>
<td>3.2%</td>
<td>0.13%</td>
</tr>
<tr>
<td>Floyd</td>
<td>34,701</td>
<td>22.9%</td>
<td>0.92%</td>
</tr>
<tr>
<td>Franklin</td>
<td>65,442</td>
<td>43.2%</td>
<td>1.74%</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>23,707</td>
<td>15.6%</td>
<td>0.63%</td>
</tr>
<tr>
<td>Roanoke County</td>
<td>4,140</td>
<td>2.7%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Total Ag Products</td>
<td>151,580</td>
<td>100%</td>
<td>4.04%</td>
</tr>
<tr>
<td>sold in Study Area</td>
<td>($1000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\textbf{Food-Related Industry Sectors}

OED utilized the North American Industry Classification System (NAICS) to define ‘food-related’ industry sectors. This market analysis uses the three-digit NAICS sector, Food Manufacturing (NAICS 311) as a base for analyzing food-related employment. A regional breakdown of industry employment at the four-digit NAICS level is also included that documents employment figures over the last 10 years. OED chose these sectors because the industry groups which comprise them reflect establishments primarily engaged in the production and processing of food products. Self-employed individuals and extended proprietors are included in the total...

\textsuperscript{16} Source: EMSI's model, incorporating data from the Bureau of Economic Analysis (BEA).
employment data, as small businesses may comprise a significant portion of food industry employment. A summary and descriptions of the NAICS 3-digit industry sector and 4-digit industry groups examined in this study is included in Appendix A.

While total sector employment in the study region has increased over the last four years, overall employment remains lower than the totals from a decade ago. In 2004, there were more than 1,000 employees in the region’s food manufacturing industry. By 2014, the region had 860 jobs in the industry, a 23 percent decrease. However, since its lowest point in 2010, regional food manufacturing employment has risen from 773 to 860 jobs, an 11 percent increase.

**Figure 12: NAICS 311 Food Manufacturing Employment within the Study Area, 2004-2014**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Botetourt County</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Craig County</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>246</td>
<td>290</td>
<td>298</td>
<td>21%</td>
<td>3%</td>
</tr>
<tr>
<td>Roanoke City</td>
<td>597</td>
<td>292</td>
<td>437</td>
<td>(27%)</td>
<td>50%</td>
</tr>
<tr>
<td>Roanoke County</td>
<td>44</td>
<td>66</td>
<td>117</td>
<td>166%</td>
<td>77%</td>
</tr>
<tr>
<td>Salem City</td>
<td>226</td>
<td>126</td>
<td>&lt;10</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>1,120</td>
<td>773</td>
<td>860</td>
<td>(23%)</td>
<td>11%</td>
</tr>
</tbody>
</table>

Source: EMSI data based primarily on the Quarterly Census of Employment and Wages (QCEW) from the Bureau of Labor Statistics (BLS) and the Bureau of Economic Analysis (BEA).
The regional breakdown shows the majority of food manufacturing employment in the study area is in Roanoke City. Montgomery and Roanoke Counties are the locations for the remainder of the jobs in the industry.

**Figure 15: Expanded Regional Breakdown NAICS 311 Food Manufacturing, 2014**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Botetourt County</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>&lt;10</td>
<td>--</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>Craig County</td>
<td>0</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>Floyd County</td>
<td>24</td>
<td>&lt;10</td>
<td>33</td>
<td>&lt;10</td>
<td>38%</td>
<td>6</td>
<td>$27,114</td>
</tr>
<tr>
<td>Franklin County</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>17</td>
<td>14</td>
<td>--</td>
<td>2</td>
<td>$14,937</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>290</td>
<td>16</td>
<td>298</td>
<td>13</td>
<td>3%</td>
<td>3</td>
<td>$64,900</td>
</tr>
<tr>
<td>Roanoke City</td>
<td>292</td>
<td>&lt;10</td>
<td>437</td>
<td>16</td>
<td>50%</td>
<td>4</td>
<td>$58,479</td>
</tr>
<tr>
<td>Roanoke County</td>
<td>66</td>
<td>11</td>
<td>117</td>
<td>21</td>
<td>77%</td>
<td>5</td>
<td>$49,529</td>
</tr>
</tbody>
</table>

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19 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.3 Class of Worker
20 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.3 Class of Worker
21 Reflects total wages and salaries including benefits/supplements
In 2014 Franklin and Floyd counties contributed an additional 50 jobs to the food manufacturing industry in the region. In Franklin County the majority of these jobs were from self-employment or individuals working in food manufacturing on a part-time basis. Over the last 5 years the food manufacturing industry in Floyd has grown 38 percent, yet this figure is still small when compared to employment totals in Montgomery County, Roanoke County and the city of Roanoke.

**Figure 16: Sub-sector Breakdown of Food Manufacturing Employment, 2014**

More detail on sub-sector employment is provided in the figure below.
## Figure 17: 4-Digit Food Manufacturing Industry Employment within the Study Area

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3111 Animal Food Manufacturing</td>
<td>238</td>
<td>&lt;10</td>
<td>270</td>
<td>&lt;10</td>
<td>230</td>
<td>0</td>
<td>(3%)</td>
<td>4</td>
</tr>
<tr>
<td>3112 Grain and Oilseed Milling</td>
<td>30</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>39</td>
<td>0</td>
<td>30%</td>
<td>1</td>
</tr>
<tr>
<td>3113 Sugar and Confectionery Product Manufacturing</td>
<td>15</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>20</td>
<td>0</td>
<td>33%</td>
<td>1</td>
</tr>
<tr>
<td>3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>3115 Dairy Product Manufacturing</td>
<td>222</td>
<td>&lt;10</td>
<td>108</td>
<td>0</td>
<td>106</td>
<td>&lt;10</td>
<td>(52%)</td>
<td>2</td>
</tr>
<tr>
<td>3116 Animal Slaughtering and Processing</td>
<td>124</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>3117 Seafood Product Preparation and Packaging</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>3118 Bakeries and Tortilla Manufacturing</td>
<td>401</td>
<td>24</td>
<td>349</td>
<td>12</td>
<td>420</td>
<td>28</td>
<td>5%</td>
<td>3</td>
</tr>
<tr>
<td>3119 Other Food Manufacturing</td>
<td>89</td>
<td>&lt;10</td>
<td>29</td>
<td>11</td>
<td>38</td>
<td>22</td>
<td>(57%)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1120</strong></td>
<td><strong>42</strong></td>
<td><strong>773</strong></td>
<td><strong>37</strong></td>
<td><strong>860</strong></td>
<td><strong>60</strong></td>
<td><strong>(23%)</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

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22 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.3 Class of Worker
Over the last 10 years the dairy sub-sector has lost over half of its employees (a 57 percent reduction since 2004), representing a large part of the decline in the food manufacturing industry as a whole. Other significant employment losses can be seen in Other Food Manufacturing, a catch-all for miscellaneous food production operations not captured in the other subsectors, and Animal Slaughtering and Processing.

Despite the overall decrease in food manufacturing employment, some subsectors experienced positive job change from 2004-2014 including Grain and Oilseed Milling, Sugar and Confectionery Product, and Bakeries and Tortilla Manufacturing.

A more detailed survey of food-related industries revealed twenty-three 6-digit NAICS codes that comprise the food processing and packaging industry in the study area. It is important to note that the North America Industry Classification System defines the food manufacturing industry as a subsector that “transform[s] livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products.”23

By this definition, and in accordance with available industry sectors that serve a processing function, “food manufacturing” and “food processing” should be considered synonymous terms. The packaging industry is broadly considered in the data as food-related packaging is not distinguished from general packaging and packaging material manufacturers. Employment figures below for packaging manufacturers will include products not solely used for food packaging. Full industry definitions are available in the Appendix.

---

### Figure 18: Food Processing and Packaging

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>115210 Support Activities for Animal Production</td>
<td>88</td>
<td>70</td>
<td>101</td>
<td>80</td>
<td>102</td>
<td>71</td>
<td>16%</td>
<td>6</td>
</tr>
<tr>
<td>311119 Other Animal Food Manufacturing</td>
<td>236</td>
<td>&lt;10</td>
<td>270</td>
<td>&lt;10</td>
<td>217</td>
<td>0</td>
<td>(8%)</td>
<td>4</td>
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<tr>
<td>311211 Flour Milling</td>
<td>30</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>37</td>
<td>0</td>
<td>23%</td>
<td>1</td>
</tr>
<tr>
<td>311511 Fluid Milk Manufacturing</td>
<td>216</td>
<td>&lt;10</td>
<td>45</td>
<td>0</td>
<td>81</td>
<td>&lt;10</td>
<td>(63%)</td>
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<tr>
<td>311513 Cheese Manufacturing</td>
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<td>63</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>--</td>
<td>1</td>
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<tr>
<td>311520 Ice Cream and Frozen Dessert Manufacturing</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>311611 Animal (except Poultry) Slaughtering</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>--</td>
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</tr>
<tr>
<td>311612 Meat Processed from Carcasses</td>
<td>124</td>
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<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>--</td>
<td>0</td>
</tr>
<tr>
<td>311612 Poultry Processing</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

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24 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.4 Class of Worker
25 Industry sectors with zero employment for the majority of the 10-year timeframe have been omitted. These include 311111 Dog and Cat Food Manufacturing; 311211 Rice Milling; 311213 Malt Manufacturing; 311221 Wet Corn Milling; 311313 Beet Sugar Manufacturing; 311411 Frozen Fruit, Juice, and Vegetable Manufacturing; 311412 Frozen Specialty Food; 311421 Fruit and Vegetable Canning; 311422 Specialty Canning; 311423 Dried and Dehydrated Food Manufacturing; 311512 Creamery Butter Manufacturing; 311514 Dry, Condensed, and Evaporated Dairy Product Manufacturing; 311613 Rendering and Meat Byproduct Processing; 311824 Dry Pasta, Dough and Flour Mixes Manufacturing; 311911 Roasted Nuts and Peanut Butter Manufacturing; 311942 Spice and Extract Manufacturing; 322299 All Other Converted Paper Product Manufacturing; 326111 Plastic Bag and Pouch Manufacturing; 326140 Polystyrene Foam Product Manufacturing; 327213 Glass Container Manufacturing; 332439 Other Metal Container Manufacturing; 333111 Farm Machinery and Equipment Manufacturing;

* Employment figures were <10 from some years from 2004-2014.
<table>
<thead>
<tr>
<th>NAICS Code</th>
<th>Description</th>
<th>Percent1</th>
<th>Percent2</th>
<th>Percent3</th>
<th>Percent4</th>
<th>Percent5</th>
<th>Percent6</th>
<th>Percent7</th>
<th>Percent8</th>
<th>Percent9</th>
<th>Percent10</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>311710</td>
<td>Seafood Product Preparation and Packaging</td>
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<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>--</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>311813</td>
<td>Frozen Cakes, Pies, and Other Pastries Manufacturing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0%</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>311919</td>
<td>Other Snack Food Manufacturing</td>
<td>0</td>
<td>&lt;10</td>
<td>20</td>
<td>&lt;10</td>
<td>15</td>
<td>&lt;10</td>
<td>--</td>
<td>1</td>
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<td>0</td>
</tr>
<tr>
<td>311920</td>
<td>Coffee and Tea Manufacturing</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>--</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>311930</td>
<td>Flavoring Syrup and Concentrate Manufacturing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>--</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>311941</td>
<td>Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing</td>
<td>82</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>--</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>311991</td>
<td>Perishable Prepared Food Manufacturing</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>--</td>
<td>0</td>
<td></td>
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<td>0</td>
</tr>
<tr>
<td>311999</td>
<td>All Other Miscellaneous Food Manufacturing</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>--</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>322212</td>
<td>Folding Paperboard Box Manufacturing</td>
<td>29</td>
<td>0</td>
<td>38</td>
<td>0</td>
<td>33</td>
<td>&lt;10</td>
<td>14%</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>322219</td>
<td>Other Paperboard Container Manufacturing</td>
<td>17</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>70</td>
<td>0</td>
<td>312%</td>
<td>1</td>
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<td></td>
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</tr>
<tr>
<td>332431</td>
<td>Metal Can Manufacturing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>&lt;10</td>
<td>0</td>
<td>--</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Overall, the processing and packaging industry group lost 24 percent of its employees from 2004-2014. The greatest employment losses were in NAICS 311511 Fluid Milk Manufacturing; NAICS 311612 Meat Processed from Carcasses; and 311941 Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing.

Industries that experienced employment gains were 115210 Support Activities for Animal Production, 322212 Folding Paperboard Box Manufacturing and 333993 Packaging Machinery Manufacturing. Employment in NAICS 322219 Other Paperboard Container Manufacturing increased by 312 percent from 17 jobs in 2004 to 70 jobs in 2014.

Many other sub-sectors show zero to very minimal employment figures in the 10-year timeframe. As indicated in the figure below, the processing and packaging industry group has experienced 7 percent job growth in the last 5 years, with the largest total change in Botetourt County. The city of Salem had the largest percent change. Franklin and Floyd Counties brought an additional 72 jobs in processing and packaging to the region.
Figure 19: Expanded Regional Breakdown of Food Processing and Packaging

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Botetourt County</td>
<td>84</td>
<td>22</td>
<td>122</td>
<td>32</td>
<td>45%</td>
<td>3</td>
<td>$42,029</td>
</tr>
<tr>
<td>Craig County</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>0%</td>
<td>0</td>
<td>$11,660</td>
</tr>
<tr>
<td>Floyd County</td>
<td>30</td>
<td>&lt;10</td>
<td>40</td>
<td>&lt;10</td>
<td>33%</td>
<td>7</td>
<td>$20,336</td>
</tr>
<tr>
<td>Franklin County</td>
<td>63</td>
<td>15</td>
<td>32</td>
<td>23</td>
<td>(49%)</td>
<td>4</td>
<td>$27,268</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>318</td>
<td>36</td>
<td>342</td>
<td>23</td>
<td>8%</td>
<td>8</td>
<td>$61,252</td>
</tr>
<tr>
<td>Roanoke City</td>
<td>120</td>
<td>10</td>
<td>87</td>
<td>&lt;10</td>
<td>(28%)</td>
<td>2</td>
<td>$73,909</td>
</tr>
<tr>
<td>Roanoke County</td>
<td>73</td>
<td>17</td>
<td>105</td>
<td>26</td>
<td>44%</td>
<td>7</td>
<td>$43,751</td>
</tr>
<tr>
<td>Salem City</td>
<td>10</td>
<td>&lt;10</td>
<td>19</td>
<td>&lt;10</td>
<td>90%</td>
<td>1</td>
<td>$29,409</td>
</tr>
<tr>
<td>Total</td>
<td>709</td>
<td>125</td>
<td>759</td>
<td>136</td>
<td>7%</td>
<td>32</td>
<td>$51,994</td>
</tr>
</tbody>
</table>

As with packaging industries, food-related distribution and warehousing is not readily distinguished from the transport and storage of other products in the region. The trucking industries listed below were selected for their relevance to the distribution of food products to destinations throughout the region and beyond.

---

26 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.4 Class of Worker
27 Reflects total wages and salaries including benefits/supplements
## Figure 20: Food Distribution and Warehousing

<table>
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<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>484110 General Freight Trucking, Local</td>
<td>428</td>
<td>93</td>
<td>414</td>
<td>112</td>
<td>426</td>
<td>85</td>
<td>(0%)</td>
<td>27</td>
</tr>
<tr>
<td>484121 General Freight Trucking, Long-Distance, Truckload</td>
<td>620</td>
<td>203</td>
<td>441</td>
<td>213</td>
<td>403</td>
<td>173</td>
<td>(35%)</td>
<td>21</td>
</tr>
<tr>
<td>484122 General Freight Trucking, Long-Distance, Less than Truckload</td>
<td>545</td>
<td>41</td>
<td>534</td>
<td>23</td>
<td>654</td>
<td>24</td>
<td>20%</td>
<td>16</td>
</tr>
<tr>
<td>484220 Specialized Freight (Except Used Goods) Trucking, Local</td>
<td>536</td>
<td>40</td>
<td>559</td>
<td>33</td>
<td>478</td>
<td>27</td>
<td>(11%)</td>
<td>26</td>
</tr>
<tr>
<td>484230 Specialized Freight (Except Used Goods) Trucking, Long-Distance</td>
<td>67</td>
<td>&lt;10</td>
<td>116</td>
<td>&lt;10</td>
<td>65</td>
<td>&lt;10</td>
<td>(3%)</td>
<td>4</td>
</tr>
<tr>
<td>493110 General Warehousing and Storage</td>
<td>1,521</td>
<td>26</td>
<td>1,274</td>
<td>24</td>
<td>1,586</td>
<td>14</td>
<td>4%</td>
<td>19</td>
</tr>
<tr>
<td>493120 Refrigerated Warehousing and Storage</td>
<td>109</td>
<td>0</td>
<td>451</td>
<td>0</td>
<td>334</td>
<td>&lt;10</td>
<td>206%</td>
<td>2</td>
</tr>
<tr>
<td>493130 Farm Product Warehousing and Storage</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>

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28 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.4 Class of Worker
From 2004-2014 employment in food distribution and warehousing increased by 4 percent. Most of the employment can be found in 493110 General Warehousing and Storage, although this industry subsector can encompass a wide range of products and functions outside of food storage.

Employment in most trucking industry sub-sectors decreased, while warehousing and had the most growth. Other Warehousing and Storage (NAICS 493190) and Refrigerated Warehousing and Storage (NAICS 493120) each increased by more than 200 percent.

**Figure 21: Expanded Regional Breakdown of Food Distribution and Warehousing**

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Botetourt County</td>
<td>482</td>
<td>103</td>
<td>772</td>
<td>91</td>
<td>60%</td>
<td>20</td>
<td>$47,098</td>
</tr>
<tr>
<td>Craig County</td>
<td>19</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>(47%)</td>
<td>0</td>
<td>$17,394</td>
</tr>
<tr>
<td>Floyd County</td>
<td>83</td>
<td>58</td>
<td>82</td>
<td>63</td>
<td>(1%)</td>
<td>11</td>
<td>$54,138</td>
</tr>
<tr>
<td>Franklin County</td>
<td>273</td>
<td>108</td>
<td>330</td>
<td>110</td>
<td>21%</td>
<td>27</td>
<td>$37,815</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>209</td>
<td>103</td>
<td>227</td>
<td>86</td>
<td>9%</td>
<td>17</td>
<td>$41,768</td>
</tr>
<tr>
<td>Roanoke City</td>
<td>1,766</td>
<td>67</td>
<td>1,951</td>
<td>60</td>
<td>10%</td>
<td>43</td>
<td>$47,595</td>
</tr>
<tr>
<td>Roanoke County</td>
<td>875</td>
<td>107</td>
<td>784</td>
<td>68</td>
<td>(10%)</td>
<td>26</td>
<td>$57,691</td>
</tr>
<tr>
<td>Salem City</td>
<td>466</td>
<td>23</td>
<td>237</td>
<td>22</td>
<td>(49%)</td>
<td>12</td>
<td>$54,477</td>
</tr>
<tr>
<td>Total</td>
<td>4,173</td>
<td>585</td>
<td>4,393</td>
<td>511</td>
<td>5%</td>
<td>156</td>
<td>$48,700</td>
</tr>
</tbody>
</table>

---

29 QCEW Employees, Non-QCEW Employees, Self-Employed & Extended Proprietors - EMSI 2014.4 Class of Worker
30 Reflects total wages and salaries including benefits/supplements
A regional breakdown of distribution and warehousing, which includes Floyd and Franklin, shows a 5 percent increase in employment from 2009-2014, though Craig County, Floyd County, Roanoke County and Salem City all experienced job losses. Employment in Botetourt County increased by 60 percent. In both 2009 and 2014 a significant number of jobs were from self-employment and extended proprietors.

Focus Groups

OED conducted four focus groups as a part of this project. Dates, locations and target group information were as follows:

- May 20, 2014, Institutional Consumers of Regional Agricultural Products; Roanoke Higher Education Center located in Roanoke, Virginia
- June 12, 2014, Market/Other Consumers of Regional Agricultural Products; Roanoke Higher Education Center located in Roanoke, Virginia
- July 29, 2014, Regional Producers; Catawba Sustainability Center located in Catawba, Virginia
- September 25, 2014, Organizations with Food Related Initiatives; Roanoke Higher Education Center in Roanoke, Virginia

Focus Group 1: Institutional Consumers of Regional Agricultural Products (May 20, 2014)

Focus group 1 targeted educational institutions, large facilities and/or residential food service providers in Roanoke and the surrounding area. The meeting began with general perceptions, then explored institution-specific information concerning local food, followed by the challenges and opportunities for utilizing local foods. The discussions incorporated a semi-structured, non-directive design, allowing participants the opportunity to share perspectives and concerns on any aspect of the region’s food system.

General Perceptions:

When group participants were asked to define local, the participants all agreed that local food included both locally produced and processed foods, however the lack of a precise geographic definition led to a “flexible” interpretation. Most participants in this group used a 250 mile radius for produced or processed foods in defining local foods. However, members agreed that it largely depended on the geographic location of the market and their proximity to agricultural areas. Participants stated that this flexible interpretation of local can lead to misleading marketing of products. One member stated that agricultural food sales could benefit from a “local” labeling system as a marketing technique.
- “The definition of local is somewhat flexible from a buyer’s standpoint.”
- “Bananas can be labeled as local because they are delivered to local port”
- “Coca Cola is labeled local in North Carolina because a plant is located in Charlotte. Is that local?”

General Information:

Participants were asked to identify desirable characteristics of food when choosing a vendor. One attendee stated that the most important characteristic of food is consistency. Consistency of quality, grading, and availability were all listed as paramount. Another attendee stated that she/he uses the Association for the Advancement of Sustainability in Higher Education (AASHE) program criteria as a guide. The AASHE provides sustainability star ratings to organizations and outlines a volume of local food percentages for the organization; requiring that food be grown and produced within 250 miles of the institution. Another group member stated that because of food safety concerns, food safety audits and gap certification is extremely important.

- “They have to be specifically audited for safety...GSFI, SQF.”
- “Farms have to be GAP certified.”

This group expressed a strong interest in incorporating local foods in their food preparation and supporting local producers. The attendees stated that utilizing local foods provides clear benefits to consumers, as well as the local economy. These benefits include: better nutrition, reduced food insecurity, sustainability and support of local farmers.

- “People want to eat better.”
- “Parents are getting more vocal about wanting organic and local food.”

Attendees voiced a willingness to promote greater awareness and increase food services that highlight locally produced and processed foods. Members then discussed current institutional practices that promote local foods. A group member from a k-12 educational institution stated that the school works to make their dishes colorful and appealing to children. One participant from a higher education institution described a shop on their campus that serves entirely local and organic products. Two members from higher education institutions stated that their campuses offer several local features and a local foods weekly menu. As part of their marketing strategy signage is used to tag foods with local origins, however, one participant expressed concerns stating that when dealing with bulk quantities it is often difficult to track what comes from where.

- “One day there is a Virginia case of apples, the next day it is a Washington case of apples.”
Challenges:

The central concern for utilizing local food among all group members was food safety.

- “Are there any public outreach efforts to assist farmers with this? To make sure farmers are following food safety procedures?”

Participants mentioned Good Agricultural Practices (GAP) certification as being important due to food safety concerns. Good Agricultural Practices (GAP) and Good Handling Practices (GHP) focus on best agricultural practices to verify that fruits and vegetables are produced, packed, handled, and stored in the safest manner possible to minimize risks of microbial food safety hazards. Attendees commented on several challenges to GAP certification and organic farming.

- “It is difficult to go organic.”
- “Organic can be difficult to market because of quality and in some ways less tasty.”

Participants cited lack of consumer education as a major challenge.

- “Any food scare creates a consumer ripple effect.”
- “Consumer ignorance is a challenge in supply chain issues. They don’t understand seasonality.”

Participants described difficulties with ensuring consistency in food grade, quality, quantity, and delivery.

- “The local food industry lacks a grading system to indicate the quality, size, condition, and ripeness of products. Asparagus may be pencil thin in one crate and thicker in another crate. The grading system needs a system similar to the commercial food market. In commercial foods higher grade produce may be sold on the market for more money. When local food is purchased with mixed grades the bruised fruit may not be selected by the consumer. Food services then has to figure out what to do with the undesired fruit.”
- “When we are not able to get enough produce to meet demand, we have to truck product in from other areas.”
- “Deliveries direct from farmers can be inconsistent.”

Group participants also reported challenges associated with seasonality, and with perishability of products. Some attendees observed that food service needs and food-based culinary programming does not always align with local produce seasonal availability.

- “Produce is seasonally driven”
- “[K-12] the academic year ends during peak harvest time.”
- “Earth week is in April. Local produce is not usually available at that time.”
- “Educating farmers on hoop houses and extending the season would help.”
- “We buy in bulk and want to use the produce as soon as possible.”
Attendees noted price differential as a challenge. However, most focus group participants agreed that if the price differential was relatively small, many consumers would still buy local given the opportunity.

- “If local is within 10% price differential then they will go with local.”

One participant stated that local foods could be utilized more in food preparation, but the products were sometimes more labor and time intensive. The commenter felt that canned and pre-processed foods help cut preparation time.

- “[K-12] Have worker turnover because shifts are only 5 hours per day. They are not trained in food service and do not have time to process foods. Prepackaged, prepped foods would be helpful.”

Opportunities:

The challenges above were followed by suggestions for increasing the stakeholders’ use of local products. In response to the above mentioned time and labor intensity of products challenges, a processing facility was suggested to can, prepackage and prep local foods for easier incorporation of local products.

- “Prepackaged food would make it more viable to use...like canned food. Because utilizing food that is not prepackaged increases labor needs”

Several different educational initiatives were discussed as potential opportunities, such as business, food safety, consumer and staff educational programs.

- “A workshop to educate staff on local foods.”
- “A chef training as well. Chefs are fed info through periodicals. There may be a need for training.”

Attendees strongly supported the development of a collaborative, networking entity to connect, communicate and network. Participants also suggested a marketing initiative involving labeling. The group identified ways in which labeling can be used to market products by defining the term local, giving a farm history and providing grading system for products.

- “Any initiative that connects buyers, producers and consumers.”
- “Virginia Tech should promote alumni products, like North Carolina does.”
- “Not as intense as USDA grading.”

Participants ended the conversation stating that farmers need assistance to increase scale and diversity of products, this will lower the price and make more products available to the market.
Closing:

Participant closing statements reiterated the need for a local processing facility and a marketing initiative involving labeling as discussed earlier in the meeting. The participants also restated the need for programmatic educational initiatives and creation of a grading system for local produce.

Focus Group 2: Retail Markets/Other Consumers of Regional Agricultural Products (June 12, 2014)

Focus group 2 included food retail markets, food and beverage manufacturing establishments, and public agencies in Roanoke and the surrounding area. The meeting first sought participants’ overall perceptions, then explored general information concerning local food, followed by the challenges and opportunities for accessing and using local foods before closing discussion.

General Perceptions:

Participants in this group defined local as being within a 100, 250 or 500 mile radius. Most attendees stated they personally define local food as being produced or processed within a 100 mile radius of the locality. However, one member stated that markets often stretch the mile radius in defining local when unable to meet consumer demand. Another member stated that farmers may “import” nonlocal products to meet demand.

- “Coffee that is roasted locally is a local food.”
- “I mark a 100 mile radius from Roanoke, not part of a rating system. I just picked 100 miles.”
- “In my opinion 250 miles is just too far. Some larger corporations consider 250 miles as local”
- “There needs to be some enforcement and verification work to make sure farmers are growing what they say they are growing. There is some risk that farmers are importing from other areas and falsifying info. Some markets don’t care about this and customers may not know it. This is still an issue during early growing season.”

General Information:

Participants identified the following food characteristics when choosing a vendor: freshness, consistency of source, and consistency of product. Relationships with farmers was also mentioned as an important factor when choosing a vendor. When asked about consumer inquiries concerning origin of food the members stated that responses vary.

- “Consistent and timely delivery is important. We don’t want to be perceived as inconsistent.”
- “I try to buy from family run famers instead of large growers.”
Challenges:

The discussion also focused on market and consumer challenges for utilizing local food. One member mentioned that product availability is a challenge due to producers’ inability to produce a large enough quantity (scale) or overcome seasonality issues. In addition, consistency of quality and pricing was also mentioned as a consumer challenge.

- “Markets often truck in non-local produce to meet demand.”
- “It is hard for consumers to understand seasonality issues. That is why consumer education is important.”
- “People often don’t buy local because they are able to get more consistency of quality grading and availability at retail stores.”
- “Historically there was a resistance of paying farmers more for local foods. This is now shifting.”

Members mentioned that it is challenging to create an emotional connection between farmers and consumers and suggested labeling products with farm location or farm history information along with whether the product is organic. This way consumers will see who their food comes from and be more inclined to purchase foods from a farmer they are familiar with.

- “I have noticed that organic is important but more important is knowing the grower.”

Attendees discussed the challenges that producers face in promoting the utilization of local foods.

- “Farms either got bigger for corporations or they got smaller.”

Due to the importance of food safety, one member stated that producers may need help with a general safety plan. There is also a need to help farmers access an affordable general liability policy.

- “One food safety problem is with the barcodes on crates, which creates food safety issues when reused.”
- “GAP certification is good if you have a market, but it costs $10,000 per year sometimes. USDA audits can be one tenth the cost.”
- “For some producers GAP certification benefits don’t meet the cost. Food safety plan and general liability is just as good.”
- “The premium here is placed on local over organic. USDA did a study on this. Organic in the west costs less because it is grown at a larger scale. In the south there is actually a decline in organic growers.”

The group also discussed harvesting complications that producers face. Lack of a skilled workforce was cited as a major harvesting challenge, along with cold storage, food safety, and aggregation standards.

- “Finding labor is an issue.”
Historically harvest challenges involved immigration labor, housing, food safety and regulatory hoops to jump through. Now the issues involve cold storage, food safety and aggregation.

Aggregation is starting but food safety is throwing a wrench in this. If one farmer is not safe then all are affected.

Though participants were interested in promoting awareness of local foods, they also cautioned that it can be a difficult task due to conflicting goals and values and a lack of regional communication.

Opportunities:

The group agreed that efforts should be made to help producers increase in scale and production. One individual suggested any activity that increases the connectivity between producers, vendors and manufacturers should be encouraged. Another attendee discussed outreach and education initiatives that may encourage growers to enter the market. The group discussed access to affordable ingredients, labels and containers as an important part of helping develop a profitable local foods business. Attendees proposed educational programs as a way to model food safety and good practices. Barcoding studies was also suggested, but members cautioned that this endeavor may be too expensive. Food incubators and community kitchens were also suggested.

Food incubator entrepreneurship hub should be used to help (small businesses) with the ‘soft launch’. How to develop the product, try selling it at market then maybe move to a larger market. There are inspected kitchens in the home with business at a capacity to sustain a family.

Containers are also an issue. Some producers are paying $1 per container, this adds to the cost of the product.

Closing:

Suggestions by the group included educational programs to assist with marketing plans for local foods, ways to diversify production, labor pipeline initiative, using school greenhouses as educational tools and creating an “interconnection continuum used to help understand the process.” Another individual discussed a lack of connectivity amongst regional resources and suggested region-wide website that acts as a resource broker; though others cautioned that this would be difficult to maintain. A marketing initiative was also discussed to promote awareness of local grows and produce available locally.

Would like to see Catawba as an education facility where they could come down with farmers and exhibit good practices. Another example is in Huron, OH. Chef’s Garden.”
“Helping people with successful business plans, and how to diversity production. Help farmers increase scale of production. Create a labor force—something similar to AmeriCorps to get people into farming. We need to have additional part-time farming.”

“Linking elementary schools to food system to know how and where this is coming from. This could also be for parents. There is a lot of this going on in Roanoke. Community Gardens in Roanoke is doing cooking demonstrations.”

“There’s not continuous connection from producer to processor to store. Straighten the line so farmers understand where they fit in, how to start their process.”

“The Regional Planning Commission wants to start a local food policy council.”

“Flyers can be put up to indicate where food comes from. In larger cities even menus indicate where food is from. This creates a connection. Signs may say ‘This salad contains lettuce from...’”

**Focus Group 3: Regional Producers (June 29, 2014)**

Focus group 3 was targeted toward crop farmers, livestock farmers, producers and harvesters of edible land or forest based products. Due to the unique challenges that producers face the outline for this group meeting was structured slightly different from the previous groups. The group first discussed current perceptions of farming, then producer challenges and opportunities, followed by future aspirations, then closing comments. The discussion framework was semi-structured and non-directed.

**Current Perceptions:**

This group was the least optimistic concerning the ability to expand the local food market. When members were asked how they saw the current state of farming, the responses were grim.

- “No one is going to take over small farming. The work is hard for little pay. This will create a food security issue because large producers are all that will remain.”
- “There is a disconnection with nature and education. The old ways of knowledge are disappearing.”

**Challenges**

When asked to identify the single greatest challenge to being a regional producer, participants unanimously cited the financial risk related to “Mother Nature”. Attendees also mentioned lack of a skilled labor force and seasonality concerns, followed by issues related to the perishability of products.

- “There is a huge financial risk involved in every planting.”
“No one wants to get involved with farming. It is hard work with little pay and high financial risk.”
- “It is hard to get seasonal help.”
- “People don’t understand the seasonal nature of produce.”

Participants then discussed other challenges related to market sales and lack of marketing opportunities. Responses included difficulty competing against larger producers, along with the challenges associated with increasing the scale of production. Some group members shared their own difficulties with securing enough product diversity or volume to meet consumer demand.

Several comments concerned the inability of producers to access larger markets. One farmer stated he only sold to wholesalers. Another farmer discussed the importance of building community and personal relationships with consumers. The producer identified that type of relationship-building as a key element for success in farmer markets, and the absence of such connection might be a barrier for farmers wanting to join the market. Another member shared challenges related to transporting produce to certain geographic locations. Attendees referred to regulatory issues related to zoning, food safety and inspector availability as “hoops to jump through.”

- “Small farms can’t compete.”
- “Farmers need help scaling up production and diversity of products.”
- “Places like Walmart want too high a percentage of sale.”
- “It is hard to enter farmer market because friendships and relationships must be made to sell produce.”

The group discussed barriers to production expansion in more detail. Participants most frequently cited the shortage of labor and lack of marketing opportunities. One individual also cited land availability and zoning as barriers. The discussion again included perishability challenges, along with issues of storage. Farmer income was discussed as a challenge to expansion. Consumer education about local food was reported to be a necessity.

- “Where will I store it [produce]. When will I get rid of it?”
- “There is no money in farming, this is causing people to leave farming. Family taught knowledge is lost.”
- “People treating farmers market as if it should be a grocery store.”

Opportunities:
The participants made several suggestions related to increasing food sales and expanding production. Education was reported to be the most important factor. Consumer education on food characteristics and seasonality issues were discussed, including consumers’ willingness to
“accept blemished products”. Other education-related suggestions included initiatives to help farmers enter the market. Participants expressed strong interest in collaborative marketing efforts. One member reported the benefits of using social media to market. Another member suggested providing history of farms at farmer’s markets and retail locations to increase the farmer and consumer emotional connection. Having a community introduction through events was also discussed as a way to build consumer relationships. Postharvest considerations included creating a market for “b” grade quality produce. The members stated that their production capacity needed to increased, along with more diversification of produce.

When participants were asked to rank what they felt would help them the most the responses were as follows: Education, Skilled Workforce, Financial Assistance, and Marketing.

Closing:

Attendees closed the session by suggesting community supported agriculture and cooperatives as regional strategies for expanding the local foods market. Discussion reiterated the need for increased consumer education as well as farmer training on ways that technology can simplify processes. Participants suggested a co-operative marketing initiative as a helpful tactic which would include sharing of marketing expenses as a way to maximize the benefits for everyone.

Focus Group 4: Food-Related Initiatives (September 25, 2014)

Focus group 4 targeted organizations with interest in food-related initiatives such as food security and poverty alleviation in Roanoke and surrounding areas. The meeting began with general perceptions, then explored existing information concerning local food, followed by the challenges and opportunities for the local food system. The discussion incorporated a semi-structured, non-directive design, allowing participants the opportunity to share perspectives and concerns on any aspects of the region’s food system.

General Information:

The group expressed interest in supporting the expansion of the regional local food system. Attendees identified the benefits of local foods as: nutrition, food security, and supporting local farmers and businesses. Most participants stated the term “local” does not come up in their work often, however local foods are a part of their nutritional interest. Several members commented on challenges and barriers to increased local food consumption.

When asked about the sources of local food purchases, participant responses varied. Some group members discussed a need for disadvantaged populations to gain increased access to adequate food in general, before this population should consider increasing purchase of local foods. Group members also stated that some of their organizations received local products
from “reject loads of produce”, “plant a row and plant an acre” farmer partnerships and other farmer donations. Participants felt most of the community members with whom they worked purchased local produce from roadside stands as well as personal and acquaintances’ gardens. Participants emphasized that economically disadvantaged populations have many barriers to accessing local foods.

**Challenges:**

When discussing accessibility of local foods, participants suggested better understanding of poverty in the region. One participant elaborated by describing how economically disadvantaged individuals often lack the time or the resources to access local foods. Some individuals may not own land to grow their own food, or may lack the equipment or materials necessary to garden. Discussants named additional barriers such as inadequate kitchen space and equipment for preparing local foods.

Group members repeatedly listed transportation issues as a barrier for low income populations. One participant cited the geographic challenges of rural communities which lack many of the alternative transportation options found in more urban places. One individual suggested that many individuals live in food deserts. Another member characterized individuals with better access to public transportation possessed significantly more opportunities to acquire local foods.

Participants discussed the time and transportation constraints of many community members. The constraints discourage people from travelling to multiple places to purchase groceries, and lead to individuals more often buying products most easily available and affordable. One participant commented how a community resident’s “mindset” was the largest hurdle in promoting local foods. The participants indicated that consumer education and marketing efforts were needed to educate the public about the benefits of local foods.

- “It is important to understand the cycle of poverty.”
- “For poor communities it is about food in general”
- “Not everyone buys into the mindset of local foods. It is hard to change mindsets.”
- “Individuals on bus routes have more access to local foods and the ability to go to food markets.”

In addition, individuals characterized food banks as containing mostly boxed, dry and non-perishable goods. One member expressed how their organization partnered with local farmers and utilized local produce when able, pointing out that “fresh produce is a desire but their organization operates on a very large scale”. Another organization representative described how they distribute “reject loads” of produce, but getting the product out to the public is a problem, along with perishability issues.
One participant’s organization partnered with farmers to “add a row” or “add an acre”, but concerns of scale and lack of farmer participation incentives were significant obstacles.

- “It is difficult for struggling farms to donate out right.”

Group members reported a willingness to use lesser grade products, but an inability to obtain the quantity needed and an inability to then move the product to clients within the perishability timeframe.

**Opportunities:**

The participants suggested access to local foods could be increased by helping producer increase in scale, which would reduce the price of local products. To meet this goal, attendees proposed programs that offer financing opportunities, self-sufficiency education, marketing assistance, increased access to labor, and advocacy of land use policies that benefit farming.

Other suggestions included encouraging farmer markets to accept SNAP and offer SNAP discount benefits. One participant stated they were unaware of discounts provided at Roanoke food markets. Another member suggested raising money or grant-funding to subsidize SNAP discounts. Blacksburg’s farmer’s market was an example given in which SNAP shoppers spend “$10 and get an extra $10 to spend”.

One participant mentioned a cooperative model, in which clients could pay for a box of produce to be delivered. This would be a way to overcome transportation constraints and increase access to local produce. Members also indicated that increasing accessibility requires local foods to be available in stores, suggesting a “one-stop shop” for convenience factors and that would assist individuals with transportation or time constraint issues access to local foods.

- “A one-stop shop is needed.”

**Closing:**

Focus group attendees cited marketing as the area’s greatest need, followed by education. Participants reported an interest in partnerships that promote educational health factors. One member provided the example of a Carillion initiative for prescribing healthy diet options. Participants discussed difficulties in changing consumer behavior and some suggested the importance of a change in “mindset” that education could help provide.

Attendees expressed a need to increase infrastructure for food businesses by providing business incubators, small scale distribution and perhaps a mobile processing unit. The group also discussed the creation of coordinating and intermediary entities and processes, to assist with distribution and access. To assist farms increase in scale, group members suggested developing an organization to help farmers create business plans, secure loans and financing, and obtain certifications.
Participants also stated the need for an organization to create a coordinated and collective impact. The discussion included comments on the importance of having one entity to function more strategically in increasing the connectivity of the food chain actors and serving as a networking agency. One focus group member suggested initiating a new networking opportunity, to be held biannually, and focused around strategic goals. Group members proposed these meetings be task oriented and centered around resource and work groups. Discussants also suggested creating a virtual presence to catalogue resources and promote interactions among food chain actors.

Local Food Survey

In November 2014, OED, in collaboration with Roanoke County and the Catawba Sustainability Center, created and distributed a survey to over 100 regional stakeholders to help assess the regional food system and gauge the assets and needs of food-related entities in the area to better position the Catawba Sustainability Center (CSC) to serve as a resource for the region. This section of the report provides a general overview of the survey responses as well as some key comments from respondents.

OED distributed the survey as an electronic link in an email to individuals in the pre-harvest, post-harvest, and service and consumption fields of the local food system. Survey respondents were free to leave questions unanswered, and this may be reflected in the differences in total response values. At the close of the survey, OED received a total of 35 responses. Individuals in the Service and Consumption area made up the majority of the responses (70 percent/23 responses), followed by Pre-harvest (27 percent/9 responses), and Post-harvest (3 percent/1 response) professionals.

As mentioned previously in this report one of the primary difficulties in identifying the needs of the local food system is determining an accurate, yet inclusive, definition of “local” that encompasses the current practices of vendors, consumers, and organizations. As indicated by the table below, the majority of survey respondents defined local as within a radius of 100-miles or less. In the open answer portion of this question one respondent’s definition of local reflected sentiments of attendees of the focus groups held earlier in the year sharing that they “have a very difficult time defining local and regional since even national and regional entrepreneurs provide local community viability.” While some products may not be grown locally, their processing and even sale contribute to the local economy.
Figure 22: How would you/your organization define “local”?

<table>
<thead>
<tr>
<th>Distance (miles)</th>
<th>Percent of Respondents</th>
<th>Number of Respondents</th>
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</thead>
<tbody>
<tr>
<td>&lt;50 miles</td>
<td>27%</td>
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<tr>
<td>Total</td>
<td>100%</td>
<td>33</td>
</tr>
</tbody>
</table>

When presented with options for which counties should be included in the local food system, responses closely matched the counties and cities we identified for this study. Franklin County was not included in the definition of local utilized in other portions of this report, yet 81 percent of those surveyed would include Franklin County in the study area.

In addition to the counties of Botetourt, Floyd, Franklin, Montgomery, Roanoke and the cities of Roanoke and Salem, in the open-ended portion of this question some survey respondents indicated they would include the counties of Alleghany, Bedford, Giles, Pulaski, and the City of Radford in the local food system. One respondent expanded the local food system to include all of southwest Virginia and another considered the entire state of Virginia. The most conservative definition limited local to a 10 mile radius. This variance in response to the question “How would you define local?” is indicative of the need for a flexible, fluid approach to the local food system that extends beyond county borders.

The remaining portions of the survey asked respondents to prioritize the existing needs in the region with respect to 1) business and production management, 2) market development, 3) planning, management and policy and 4) food security, food safety, diet and health. Lists of potential needs in these four areas were presented and respondents were asked to indicate the importance of addressing the issue on a scale of 1-4, where 1 is not important, 4 is very important, and 5 is not needed.

The topics presented in each subject area were provided to help guide decision making regarding the future mission and purpose of the Catawba Sustainability Center. Topics and initiatives with strong public support will be viewed as useful areas in which the Catawba Sustainability Center can potentially fill any gaps in the regional food system, and pinpoint targeted actions for strengthening the local food system.
Business and Production Management Needs

Eight potential needs were listed related to the business and production management needs of the region. The items below are listed in order of which received the most “very important” responses. While all of the areas listed were found to be important/very important for business and production management needs by one or more of the individuals surveyed, “Training and support for alternative food safety models, procedures and programs” (20 out of 32) and “Training, knowledge, and support for business planning and farm management” (17 out of 31) were two areas that received the most priority responses. Areas that received the least support were “Knowledge of land purchase agreements and renting options specific to Virginia” (12 out of 30) and “Educational programs and technical assistance in animal/livestock husbandry” (11 out of 31).

1. Training and support for alternative food safety models, procedures and programs.
2. Training, knowledge, and support for business planning and farm management.
3. Availability of suitable land for new farm start-ups or specialty crop production.
5. Training, knowledge, and support to obtain loans for long-term and short-term financing.
6. Educational programs and technical assistance in whole-farm planning.
7. Knowledge of land purchase agreements and renting options specific to Virginia.
8. Educational programs and technical assistance in animal/livestock husbandry.

These topics, though broad, were further reiterated by survey respondents in the comment section. In this section respondents were encouraged to offer suggestions for improving business and production management needs in the region. Two recurring themes in these comments were education and networking. Responses also called for an individual to help coordinate the various initiatives in the area, as well as help with the education piece. Two respondents indicated lack of an extension agent dedicated to this task was an issue that needs to be addressed.

Comments relating to education emphasized the need for educating farmers and consumers alike. Farmer educational opportunities would focus on a particular aspect of the industry, such as permaculture training and certification, aggregation of small farming operations, or building capacity for a farm-tourism business. As noted in the comment quoted below, respondents indicated a need for educating individuals who are considering entering the farming industry. Respondents shared a concern for educating and supporting recent college graduates as well as seasoned farmers with land and equipment acquisition and financing.

- “Educational opportunities for individuals with the want but not necessarily the knowledge or means to begin their own food production enterprise.”
Concern for consumer education focused on teaching the public about the importance of local food and sustainable agriculture.

- “Get to know local farmers and you get to know your food!”

Respondents highlighted the value of networking amongst farmers, organizations, and institutions in the regional food system. Comments in this area emphasized the need for a space to share ideas, resources and identify a “unified vision” for regional food initiatives.

- “A local producers group to meet and discuss issues and production practices...Some type of website or chat group to share questions.”

Market Development Needs

The Market Development section listed eight topics for respondents to rate by importance using the same rating system described earlier. The items below are listed in order of which received the most “very important” responses. While all of the areas listed received a number of “very important” ratings, “Year-round local food production and availability” (21 out of 30) received the most support from survey respondents. “Implementing a tracking system for products as they travel through the supply chain” (7 out of 28) was least supported.

1. Year-round local food production and availability.
2. Training, knowledge, and support to develop and expand markets for local and regional food products.
3. Development of markets for local and regional foods.
4. Cost, supply, and knowledgeable workforce to prepare local, fresh, value-added foods.
5. Greater availability of USDA- and state- approved processing capabilities (ex. Flash-freeze, canning, meat processing, and community kitchen).
6. Training, knowledge, and support for marketing and product pricing.
7. Cost and availability of insurance for producers directly selling local food products.
8. Implementing a tracking system for products as they travel through the supply chain.

While the prioritization of topics in this section point to the expansion of markets, the comments in relation to market development stressed the need to further evaluate the current market and steer efforts toward strengthening existing food related enterprises. Again the need for networking was reinforced; calling for greater connectivity between farmers and institutional buyers. One respondent contested framing the food system in a “regional” context, suggesting that this terminology speaks to supporting distributors and threatens the ability of farmers to get fair prices for their produce.

- “There needs to be an honest assessment of current facilities, needs, and projected capacity for facilities prior to funding more construction.”
Food System Planning, Management, and Policy

Respondents were presented eight strategies to address the needs related to food system planning, management, and policy. Respondents again rated the strategies by importance. The most favored strategies were “Understanding by government officials of the economic, environmental, and social issues surrounding local food systems” (18 out of 29) and “Local food system planning in the localities’ comprehensive plans” (17 out of 29). Both of these strategies point to a need for government involvement in the local food system. Strong respondent ratings of these topics allude to a desire for more awareness in food system planning and polices and consequently call for the incorporation this awareness into governing documents.

1. Understanding by government officials of the economic, environmental, and social issues surrounding local food systems.
2. Local food system planning in the localities’ comprehensive plans.
3. Environmental impacts of local and regional food systems on localities.
4. Economic impacts of local and regional food systems on localities.
5. Managing or disposing of the non-consumable (waste) products generated during the food production and consumption process.
6. Land-use planning and zoning considerations for food system needs.
7. Planning, financing and operations support for local food system infrastructure.
8. Access to food system market research for localities.

Although survey responses indicate an overall support of government education and involvement in local food system planning, comments from one respondent called for eliminating government and academic institutions from the equation. The same respondent also criticized the lack of development and general underutilization of the Catawba site.

Other comments emphasized the need to focus on the regional approach to the local food system.

“Local food systems can[not] function and sustain as its own silo and needs to be connected to the whole food system....an innovation district model where a district is defined as a geographic concentration of food-oriented businesses, services and community activities supported locally through planning and economic development initiatives.”

Food security, food safety, diet, and health

Seven initiatives for food security, food safety, diet, and health were presented in the survey and rated by importance as listed below. Survey responses indicated the most support for “Consumer education programs on healthy eating and cooking with local and regional foods” and “Food safety practices for local foods.” These topics point to the public support for education on consumer processing and preparation of local foods.
1. Consumer education programs on healthy eating and cooking with local and regional foods.
2. Food safety practices for local foods (food storage, preparation, preservation, targeted at consumers.)
3. Local or regional food systems impact on the diet and health of consumers.
4. Consumer education on the cost of local and regional foods.
5. Consumer education and training on food budgeting and food assistance programs.
6. Commercial education about safely producing, preparing and storing local and regional foods.
7. Research on food safety risks to consumers within a local or regional food system.

The comment section of this topic area further supported consumer-focused initiatives, pointing out the need to make local foods accessible to all members of the community.

“More emphasis should be placed on making local food spaces more inclusive for people from different classes and races, than education people on their behaviors...Education is important but somewhat pointless if people can’t afford food, don’t feel comfortable in local food spaces, and/or don’t have transportation to local food spaces.”

Comments from one responded aimed at clarifying that food safety education should be a priority regardless of the origin of the product. The same food handling processes apply to large and small scale produces, whether growing locally or outside of regional boundaries.

- “There is a general misunderstanding about food safety issues being different for local food producers. Food produced or grown unsafely no matter the location can cause illness.”

**Ranking of Possible Catawba Initiatives**

In one of the final sections of the survey respondents were asked to rank the most impactful way the Catawba Sustainability Center could support and strengthen the regional food system. Respondents were asked to drag each of the fourteen topics and place them in order of which would be most useful to the local food system. Each completed survey assigned a value to the topics from 1-14 depending on the final position of the topic, and this was used to calculate the mean ranking for each topic.

1. Champion sustainable agriculture/sustainability practices as a model or advocate.
2. Train, incubate or support new producers.
3. Better assist producers with business planning and operations management.
4. Enhance support for farmer’s markets & other direct marketing.
5. Help scale-up promising agricultural & food enterprises.
6. Workshops and training on food safety, marketing or other topics.
7. Technical assistance & training to producers on specialty crops, etc.
8. Facility development – processing, distribution, other.
9. Engage in food policy issues, support the development of regional food policy council.
10. Provide market research, food system data, and other services to producers and food system stakeholders.
11. Serve as catalyst/connector for food system issues/stakeholders.
12. Enhance research & demonstration activities.
13. Serve as agritourism/cultural heritage/outdoor recreation venue or anchor.
14. Better connect VT students & faculty to food system needs.

Based on rankings of the proposed roles the CSC could play in the regional food system, survey respondents were most inclined to support farmer-focused initiatives. In addition to serving as a model for sustainable food production practices, the top action items called for aiding producers, in both new and existing farms, in operating a successful agricultural business.
Synthesis and Recommendations

One motivating purpose for this study concerned connecting the Catawba Sustainability Center more closely to the local food system. Input from focus group participants and survey respondents indicated that differing definitions and conceptions of the “local food system” represents a challenge to be considered and addressed.

Report findings, including focus group responses and survey input, pointed to a number of suggestions for optimizing the impact of the Catawba Sustainability Center on the regional food system. This section synthesizes report data in order to identify recurring and particularly promising areas in which the CSC might help address needs or develop opportunities to strengthen the regional food system. The possible tactics include a wide range of efforts to build more locally-based, self-reliant food economies.

Findings are grouped into three overarching thematic areas that may help the future selection of specific goals and objectives. For now, some possible tactics are outlined. Though the following recommended tactics do not encompass every suggestion or proposed initiative, the community input was extremely valuable in offering potentially actionable ideas to address current needs while also advancing opportunities for future growth of the regional food system.

The three thematic areas include incubation and acceleration, interconnectivity and capacity-building, and innovation and experimentation. Details and possible tactics and next steps related to these thematic areas is included below.

Thematic Area 1: Incubation and Acceleration

Support newer and emerging farmers and agriculture-ventures and offer programming and resources to assist with scaling up, profitability and sustainability of local food producers and ventures.

The CSC has contributed to this area in a number of ways, including developing and supporting the Catawba Farmers Market and piloting small-scale farmer incubation practices.

Still, there is a continuing need for more services and support of this kind in the region that provide assistance and resources for beginning farmers and smaller-scale agriculture enterprises. Incubation services are typically intensive and provide the surrounding supports necessary for newer farmers and agriculture-related venture operators to weather the challenges associated with entry and start-up. Acceleration ventures offer second-stage level of assistance in connection to markets, specialized training, and related services.

It is important to note that established farmers beginning a new agriculture-related venture beyond the scope of existing operations may be “newer” to that venture, and often require incubation-type supportive services in order to enhance their success.
CSC possesses a number of key incubation resources for new farmers including land and expertise. CSC staff and partners, including Virginia Cooperative Extension faculty, also possess expertise in agriculture production and operations. While CSC is offering many of these resources, the opportunity exists to better leverage and solidify existing efforts and available resources into a more concerted and recognizable program of incubation support, with a wider range of identifiable affiliated participants and program graduates.

For possible models and resources, CSC staff may consider learning more about the Hudson River Farm Incubator project (http://www.glynwood.org/incubator/) as well as other possible program model examples, located in Appendix A of this report.

<table>
<thead>
<tr>
<th>Possible Tactics</th>
<th>Description</th>
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<tbody>
<tr>
<td>Develop recognizable, branded and comprehensive programming offerings for local food enterprise incubation and acceleration.</td>
<td>Offer a recognizable brand and set of resources to accelerate and support local food producers and enterprises. Some of the existing activities are impactful but may be offered more sporadically and may be less clearly linked into a structured program of support. The CSC should leverage the wealth of available resources to offer a regionally-based, CSC branded incubation effort.</td>
</tr>
<tr>
<td>Offer on-going business development and management assistance to local food producers and enterprises</td>
<td>Partner with VCE, SBDC, VT Knowledge Works and other resource providers to offer CSC branded workshops and individualized assistance on business planning, financial management, marketing and related topics to regional producers and local food enterprises.</td>
</tr>
<tr>
<td>Offer specialized training, demonstration programs, and technical assistance in specialty crops and other areas.</td>
<td>Examples are numerous, but include training and resources for produce growers on hoop-house construction and maintenance, and related production methods for extending the growing season and expanding yield.</td>
</tr>
<tr>
<td>Offer education, training and resources related to food safety and producer certification.</td>
<td>Navigating food safety concerns and securing and maintaining required certifications is a challenge for producers in both the start-up and growth phases. CSC can help reduce these barriers through producer training, mentoring, and materials, in conjunction with VCE, VDACS, and other partners.</td>
</tr>
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</table>
Thematic Area 2: Interconnectivity and Capacity Building

Food systems that thrive and grow possess multiple catalyst organizations, which help champion local foods, support producers, and connect local food entities and advocates. The CSC is well-positioned to serve this function on a larger scale, and can help leverage Virginia Tech and Virginia Cooperative Extension resources and expertise for the benefit of the regional food system, while becoming a more visible champion and connector itself, through the activities of its staff and board.

Community connection was a recurring theme throughout this study. Moving beyond this broad term, there are a number of specific ways the Catawba Sustainability Center can serve as resource for enhancing the connections and capacities of the regional food system and its stakeholders at various levels.

<table>
<thead>
<tr>
<th>Possible Tactics</th>
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<tbody>
<tr>
<td>Build on the CSC experience and relationship with the Catawba Farmer’s Market to provide networking and support for regional farmers markets and market managers.</td>
<td>While LEAP already serves some part of this function in Roanoke City, CSC can explore partnerships that build on the experiences of both and provide models and resources for a wider collection of farmers markets in the larger region.</td>
</tr>
<tr>
<td>Provide other direct marketing assistance to regional local food producers and businesses and explore collaborative marketing possibilities.</td>
<td>Examples may include assisting producers and local food entities with e-business strategies. CSC could play a role in experimenting with collaborative marketing efforts with producer or local foods sub-groups to help reduce costs for local food enterprises and enhance regional marketing initiatives.</td>
</tr>
<tr>
<td>Serve as a convener and catalyst for bringing together regional producers and institutional buyers</td>
<td>CSC can offer recurring activities that connect producers and purchasers such as the Field to Fork events. Services considered may also include workshops and other methods for enhancing the knowledge and abilities of producers and of institutions to form productive and ongoing business relationships.</td>
</tr>
<tr>
<td>Explore the feasibility of CSC developing the infrastructure for functioning as a regional physical foods hub.</td>
<td>Activities may include distribution, warehousing, sorting, transportation, and related functions for a group of area producers. Scale issues challenge farmers’ ability to meet the regional demand for local produce. Commercial food service providers, local markets, and food businesses require diverse produce in large volumes that may be difficult fill for smaller producers. Food aggregation allows farmers to pool resources. CSC may also play a role in</td>
</tr>
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</table>
providing labelling and packaging assistance or coordination.

**Function as a virtual Local Food Hub**

Foster collaboration among food systems and public health systems by serving as a conduit of information, helping connect producers to buyers and consumers, and promoting cross-fertilization of ideas, activities and information across system levels.

**Develop activities and programs to strengthen and enhance leadership and organizational capacities of local food entities.**

CSC can offer leadership training or organizational development sessions and experiences for local food leaders, in the local region and beyond. Many organizations are smaller or emergent with leaders that may or may not be experienced and versed in organizational management best practices. Programming possibilities include organizational financial management, strategic planning, and board development.

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**Thematic Area 3: Innovation and Experimentation**

The CSC is uniquely situated as a multi-faceted entity operated in partnership between Virginia Tech and Roanoke County. With its mission of sustainability, its research university placement, and the agricultural and natural resource connectivity of its rural geography, the CSC is well positioned to experiment with innovative programming and operating models and initiatives that champion sustainable agriculture and strengthen the local foods economy.

The CSC has developed unique models including small-scale farm incubation with resettled refugees and a farm acceleration model. The Catawba Sustainability Center could elect to pilot, assess, and disseminate a number of small-scale innovative measures to strengthen the local economy, serving as a state and regional model.

<table>
<thead>
<tr>
<th>Possible Tactics</th>
<th>Description</th>
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<tbody>
<tr>
<td>Organize periodic study tour for local food system leaders and producers in region</td>
<td>CSC can leverage relationships and explore funding support through SARE and other sources to conduct tours to visit and learn about innovative food entrepreneurship and sustainable agriculture programs in other states.</td>
</tr>
<tr>
<td>Organize an annual regional conference or workshop on food systems innovation.</td>
<td>CSC can play a lead role, perhaps in partnership with VCE, COTA and VT Roanoke Center in hosting and organizing a regional conference or major educational event on food systems innovation.</td>
</tr>
<tr>
<td>Develop a food systems innovation challenge</td>
<td>In conjunction with VT Knowledge Works, SBDC or other partners, CSC can organize and conduct an annual</td>
</tr>
</tbody>
</table>
innovation challenge for food-system entrepreneurial ventures, based on existing entrepreneur challenge, “pitch”-style competitions.

| Explore promising new-product and value-added product development activities. | CSC can help identify promising value added local food products, conduct market research and explore processing and production facilities development. |
| Engage in strengthening value chain relationships to produce more exchange among producers and businesses within the region. | Abundant opportunity exists for enhanced local purchasing, such as in the case of larger farms or agricultural manufacturing operations. CSC can help map value chain relationships and explore import substitution strategies, for increasing the amount of purchasing from local entities. |
| Consider opportunities for maximizing CSC’s location to support sustainable agritourism and ecotourism venture development. | CSC borders the Appalachian Trail and is in close proximity to multiple outdoor recreation sites. Examples are numerous. For instance, CSC can explore possibilities for attracting outdoor-oriented individuals for short-term stays, new farmer development, or sustainable agriculture-oriented “fellowship” or immersion experiences. CSC can also offer workshops or resource assistance for agritourism and ecotourism business development in the region. |

Conclusion

As evidenced by the themes and possible associated tactics listed above, increasing the connectivity of the Catawba Sustainability Center to the regional food system can be approached in a number of ways.

This study has not performed an in-depth analysis of CSC organizational capacity. An important initial action might involve such an assessment of organizational strengths and weaknesses coupled with an update of the organization’s strategic plan. The themes and tactics suggestions offered here would provide a foundation for an in-depth discussion of organizational strategic directions and internal resource needs.

Another pertinent step might involve the CSC playing a larger leadership role in regional food systems activities such as the food policy council and in constructing a comprehensive assessment of current stakeholders, organizations, and initiatives already working in a food-related capacity. Still, it is important to work within a partnership framework, recognizing the valuable and distinct contributions of other local food stakeholders while avoiding over-engagement. As a whole, the directions above offer a number of possibilities for helping the CSC enhance its role in the regional food system.
Appendix A: Example Program Resources List

Blue Ridge Food Ventures


Blue Ridge Food Ventures is an organization that provides business development support, shared food processing equipment, and marketing assistance for entrepreneurs interested in starting a food-based business or natural product line. The organization assists clients in all stages of business development, from business design, product launch, and manufacturing.

Chef’s Garden

http://www.chefs-garden.com/

The Chef’s Garden is a working farm in Huron, OH that uses traditional farming practices to supply produce to chefs around the world. The focus on quality over quantity has led to innovative farming and food safety methods. This work along with the work of other individuals in the regional and national food system is shared at an annual conference for farmers, food advocates and restaurateurs.

Common Wealth Kitchen Incubator

http://localfoodsystems.org/content/common-wealth-kitchen-incubator

The Common Wealth Kitchen Incubator is one of many initiatives of the Northeast Ohio Local Food Systems project. It assists future entrepreneurs, primarily low-income Youngstown Residents, with food-related micro-enterprises. Through providing a commercially licensed kitchen, commercial processing facility, co packing services beginning entrepreneurs are better position to overcome many of equipment issues that inhibit their business’ success. Through its work Common Wealth has provided jobs and new energy to the Youngstown community.

Good Food Business Accelerator

http://www.goodfoodaccelerator.org/

The Good Food Business Accelerator is a Chicago-based business accelerator focused on building supply chains and farm and food business potential. Its fellowship program was recently launched to educate entrepreneurs on business planning financing (connecting them with private and public capital sources), market development. The program also pairs fellows with “super mentors” who are already successful leaders in food and finance businesses.
Groundswell Center for Local Food & Farming

http://www.groundswellcenter.org/

The Groundswell Center for Local Food & Farming is an agriculture education resource for future farmers in the Ithaca, NY region. The organization uses collaborations with experienced farmers, educational institutions and other agencies to provide experience-based education programs for individuals wishing to operate small and mid-sized farms. Other programs include an incubator farm, farm business planning course, organic orchard management, and farming education for new Americans immigrants and refugees.

Hudson Valley Farm Business Incubator

http://www.glynwood.org/incubator/

The Hudson Valley Farm Business Incubator is a program of Glynwood Farm a 225-acre farm with convention space and a demonstration farm in Cold Spring, NY. The incubator provides business mentorship and training, equipment sharing, capital resources, and land for aspiring farm business entrepreneurs. Perfectly suited for livestock grazing, the Hudson incubator will have a strong livestock production emphasis.

Intervale Center

http://www.intervale.org/what-we-do/farms-program/

The Vermont-based Intervale Center works to strengthen their region’s food system through farm incubation, business development, agricultural market development, food research, and other areas. Their farm incubation program offers land for lease, equipment, greenhouses, and storage facilities for small farmers in the Burlington, VT region. The program also offers business startup services to help farmers overcome the challengers to entering the agricultural market.

Local Food Lab

https://www.localfoodlab.com/

Local Food Lab is an online showcase as well as educational resource for food entrepreneurs working within the food system in various capacities. In cities across the country, Food Lab offers intensive one-day business courses to aid in business planning and investor recruitment for food and farm entrepreneurs.
Loudoun Incubator Farm

http://www.pecva.org/our-mission/working-farms-and-food/904-loudoun-farm-incubator-draft

With support from the Piedmont Environmental Council, farmers in Loudoun County are working to actualize a plan for an incubator farm to assist qualified individuals in entering the agricultural market. Through equipment sharing and land leasing, experienced farmers will be able to come together and share knowledge of farming practices and other resources. This will facilitate the success of new farm ventures and help strengthen the local food network.

Michigan Food Innovation District (MI-FID)

http://www.mifoodinnovationdistrict.com/

The MI-FID provides physical space as well as business support for food, beverage and agricultural businesses. In partnership with Michigan State University, the MI-FID offers services to fulfill business needs such as planning, market research, and branding as well as space for corporate and production operations of food-related enterprises. In addition to product design and business development, the MI-FID assists in the business start-up state; helping to secure capital resources and establish relationships with angel investors and other sources of financing.

NextFarm Agricultural Innovation Accelerator

http://www.ntecconnect.com/ag-tech2.html

The NextFarm Agricultural Innovation Accelerator is a start-up business accelerator in Northwest Tennessee that uses a cohort model to educate future entrepreneurs on farming, commercialization, and proliferation of products to market. Through mentorship and coaching, entrepreneurs are given the support and tools to optimize their business plan and refine their strategies for food-based business. The program is part of the Connect and Grow Northwest TN Entrepreneur Center, a business accelerator for entrepreneurs in TN agricultural and rural communities.

Northern Colorado Food Incubator (NCFI)

http://www.nocofoodincubator.com/

As a support organization for food-related businesses, the Northern Colorado Food Incubator provides resources for business start-up, education for beginner farmers, and maintains a
website for connecting community members with locally grown and produced food. The NCFI website serves as a hub for information on food regulation, food testing, business regulations and houses a host of links to other organizations and events concerned with the local food system in the Northern Colorado region. Partnering organization include Colorado State University Extension Agents, the Center for Collaborative Conservation, the Northern Colorado Food Cluster, and the Colorado Fruit & Vegetable Growers Association.

Pennsylvania Association for Sustainable Agriculture (PASA)

https://www.pasafarming.org/

The Pennsylvania Association for Sustainable Agriculture (PASA) is a statewide organization operating under a member-based structure to promote economic viability, sustainability, and social responsibility of food systems at a state and national level. This mission is accomplished through a number of PASA initiatives including Farm-based education program, coordination of state “Buy Fresh, Buy Local” chapters, a community outreach program that connects farmers, businesses and consumers.

Purdue Plant Sciences Research and Education Pipeline Initiative

https://ag.purdue.edu/plantsciences/pages/default.aspx

The Purdue Plant Sciences Initiative is a research-based facility created to further understanding of the molecular mechanisms behind plant growth. This knowledge is then used to strengthen industry practices and assist with successful operation of agricultural enterprises. A strong student education arm of the initiative will help foster student innovation and advancement of technological discoveries for plant development, crop growth and product commercialization.

Rutgers Food Innovation Center

http://foodinnovation.rutgers.edu/incubatoroverview.html

The Rutgers Food Innovation Center houses is a food business incubation center in Southern New Jersey that supports new food business ventures by offering space, equipment and service for business development. The facility is broken into two areas: a client services area that has resources for all stages of product development and a shared use processing area that houses cold, hot, and dry press food preparation and processing equipment.
SustainFloyd Working Model Farm

The Working Model Farm in Floyd County was established 2013 to test a high yield method for crop production called, “pocket farming”. The goal is for one and a half acres of land to yield enough for one person to make a living. Educational classes were offered to farmers wishing to participate in the program that covered topics such as spacing, yield, and wholesale pricing. Still in its introductory phase, as the working model farm plan is refined, more land will be available to farmers interested in the model.

http://sustainfloyd.org/agriculture/working-model-farm/

Appendix B: Food Manufacturing\textsuperscript{31}

Food Manufacturing (NAICS: 311)

Industries in the Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included. Establishments primarily engaged in manufacturing beverages are classified in Subsector 312, Beverage and Tobacco Product Manufacturing. A description of food manufacturing subsectors is includes in the appendix.

4-Digit NAICS Industry Groups- Food Manufacturing\textsuperscript{32}

Animal Food Manufacturing (NAICS: 3111)

This industry group comprises establishments primarily engaged in manufacturing food and feed for animals, including pets.

Grain and Oil Seed Milling (NAICS: 3112)

This industry group comprises establishments primarily engaged in milling grains and oilseeds; refining and blending fats and oils; and making breakfast cereal products. Excluded from this subsector is milling grain to make animal feed (see 3111 Animal food manufacturing).


Sugar and Confectionery Product Manufacturing (NAICS: 3113)
This industry group comprises (1) establishments that process agricultural inputs, such as sugarcane, beet, and cacao, to give rise to a new product (sugar or chocolate), and (2) those that begin with sugar and chocolate and process these further.

Fruit and Vegetable Preserving and Specialty Food Manufacturing (NAICS: 3114)
This industry group includes (1) establishments that freeze food and (2) those that use preservation processes, such as pickling, canning, and dehydrating. Both types begin their production process with inputs of vegetable or animal origin.

Dairy Product Manufacturing (NAICS: 3115)
This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

Animal Slaughtering and Processing (NAICS: 3116)
This industry group comprises establishments primarily engaged in manufacturing meat products.

Bakeries and Tortilla Manufacturing (NAICS: 3118)
This industry group comprises establishments primarily engaged in manufacturing baked goods. Establishments primarily engaged in manufacturing bakery products, for retail sale, but not for immediate consumption, are included.

Other Food Manufacturing (NAICS: 3119)
This industry group comprises establishments primarily engaged in manufacturing food (except animal food; grain and oilseed milling; sugar and confectionery products; preserved fruit, vegetable, and specialty foods; dairy products; meat products; seafood products; and bakeries and tortillas). The industry group includes industries with different production processes, such as snack food manufacturing; coffee and tea manufacturing; concentrate, syrup, condiment, and spice manufacturing; and, in general, an entire range of other miscellaneous food product manufacturing.

Appendix C: Processing and Packaging\textsuperscript{33}

6-Digit NAICS Industry Groups

Support Activities for Animal Production (NAICS: 115210)
This industry comprises establishments primarily engaged in performing support activities related to raising livestock (e.g., cattle, goats, hogs, horses, poultry, sheep). These establishments may perform one or more of the following: (1) breeding services for animals, including companion animals (e.g., cats, dogs, pet birds); (2) pedigree record services; (3) boarding horses; (4) dairy herd improvement activities; (5) livestock spraying; and (6) sheep dipping and shearing.

Other Animal Food Manufacturing (NAICS: 311119)
This U.S. industry comprises establishments primarily engaged in manufacturing animal food (except dog and cat) from ingredients, such as grains, oilseed mill products, and meat products.

Flour Milling (NAICS: 311211)
This U.S. industry comprises establishments primarily engaged in (1) milling flour or meal from grains (except rice) or vegetables and/or (2) milling flour and preparing flour mixes or doughs.

Fluid Milk Manufacturing (NAICS: 311511)
This U.S. industry comprises establishments primarily engaged in (1) manufacturing processed milk products, such as pasteurized milk or cream and sour cream and/or (2) manufacturing fluid milk dairy substitutes from soybeans and other nondairy substances.

Cheese Manufacturing (NAICS: 311513)
This U.S. industry comprises establishments primarily engaged in (1) manufacturing cheese products (except cottage cheese) from raw milk and/or processed milk products and/or (2) manufacturing cheese substitutes from soybean and other nondairy substances.

Ice Cream and Frozen Dessert Manufacturing (NAICS: 311520)
This industry comprises establishments primarily engaged in manufacturing ice cream, frozen yogurts, frozen ices, sherbets, frozen tofu, and other frozen desserts (except bakery products).

Animal (except Poultry) Slaughtering (NAICS: 311611)
This U.S. industry comprises establishments primarily engaged in slaughtering animals (except poultry and small game). Establishments that slaughter and prepare meats are included in this industry.

Meat Processed from Carcasses (NAICS: 311612)
This U.S. industry comprises establishments primarily engaged in processing or preserving meat and meat byproducts (except poultry and small game) from purchased meats. This industry


Prepared by: VIRGINIA TECH OFFICE OF ECONOMIC DEVELOPMENT
includes establishments primarily engaged in assembly cutting and packing of meats (i.e., boxed meats) from purchased meats.

**Poultry Processing (NAICS: 311615)**
This U.S. industry comprises establishments primarily engaged in (1) slaughtering poultry and small game and/or (2) preparing processed poultry and small game meat and meat byproducts.

**Seafood Product Preparation and Packaging (NAICS: 311710)**
This industry comprises establishments primarily engaged in one or more of the following: (1) canning seafood (including soup); (2) smoking, salting, and drying seafood; (3) eviscerating fresh fish by removing heads, fins, scales, bones, and entrails; (4) shucking and packing fresh shellfish; (5) processing marine fats and oils; and (6) freezing seafood. Establishments known as "floating factory ships" that are engaged in the gathering and processing of seafood into canned seafood products are included in this industry.

**Frozen Cakes, Pies, and Other Pastries Manufacturing (NAICS: 311813)**
This U.S. industry comprises establishments primarily engaged in manufacturing frozen bakery products (except bread), such as cakes, pies, and doughnuts.

**Other Snack Food Manufacturing (NAICS: 311919)**
This U.S. industry comprises establishments primarily engaged in manufacturing snack foods (except roasted nuts and peanut butter).

**Coffee and Tea Manufacturing (NAICS: 311920)**
This industry comprises establishments primarily engaged in one or more of the following: (1) roasting coffee; (2) manufacturing coffee and tea concentrates (including instant and freeze-dried); (3) blending tea; (4) manufacturing herbal tea; and (5) manufacturing coffee extracts, flavorings, and syrups.

**Flavoring Syrup and Concentrate Manufacturing (NAICS: 311930)**
This industry comprises establishments primarily engaged in manufacturing flavoring syrup drink concentrates and related products for soda fountain use or for the manufacture of soft drinks.

**Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing (NAICS: 311941)**
This U.S. industry comprises establishments primarily engaged in manufacturing mayonnaise, salad dressing, vinegar, mustard, horseradish, soy sauce, tartar sauce, Worcestershire sauce, and other prepared sauces (except tomato-based and gravy).
Perishable Prepared Food Manufacturing (NAICS: 311991)
This U.S. industry comprises establishments primarily engaged in manufacturing perishable prepared foods, such as salads, sandwiches, prepared meals, fresh pizza, fresh pasta, and peeled or cut vegetables.

All Other Miscellaneous Food Manufacturing (NAICS: 311999)
This U.S. industry comprises establishments primarily engaged in manufacturing food (except animal food; grain and oilseed milling; sugar and confectionery products; preserved fruits, vegetables, and specialties; dairy products; meat products; seafood products; bakeries and tortillas; snack foods; coffee and tea; flavoring syrups and concentrates; seasonings and dressings; and perishable prepared food). Included in this industry are establishments primarily engaged in mixing purchased dried and/or dehydrated ingredients including those mixing purchased dried and/or dehydrated ingredients for soup mixes and bouillon.

Folding Paperboard Box Manufacturing (NAICS: 322212)
This U.S. industry comprises establishments primarily engaged in converting paperboard (except corrugated) into folding paperboard boxes without manufacturing paper and paperboard.

Other Paperboard Container Manufacturing (NAICS: 322219)
This U.S. industry comprises establishments primarily engaged in converting paperboard into paperboard containers, (except corrugated, solid fiber, and folding paperboard boxes) without manufacturing paperboard.

Metal Can Manufacturing (NAICS: 332431)
This U.S. industry comprises establishments primarily engaged in manufacturing metal cans, lids, and ends.

Food Product Machinery Manufacturing (NAICS: 333241)
This U.S. industry comprises establishments primarily engaged in manufacturing food and beverage manufacturing-type machinery and equipment, such as dairy product plant machinery and equipment (e.g., homogenizers, pasteurizers, ice cream freezers), bakery machinery and equipment (e.g., dough mixers, bake ovens, pastry rolling machines), meat and poultry processing and preparation machinery, and other commercial food products machinery (e.g., slicers, choppers, and mixers).

Food Product Machinery Manufacturing (NAICS: 333241)
This U.S. industry comprises establishments primarily engaged in manufacturing food and beverage manufacturing-type machinery and equipment, such as dairy product plant machinery and equipment (e.g., homogenizers, pasteurizers, ice cream freezers), bakery machinery and equipment (e.g., dough mixers, bake ovens, pastry rolling machines), meat and poultry
processing and preparation machinery, and other commercial food products machinery (e.g., slicers, choppers, and mixers).

**Other Commercial and Service Industry Machinery Manufacturing (NAICS: 333318)**
This U.S. industry comprises establishments primarily engaged in manufacturing commercial and service industry equipment (except optical instruments and lenses, and photographic and photocopying equipment).

**Packaging Machinery Manufacturing (NAICS: 333993)**
This U.S. industry comprises establishments primarily engaged in manufacturing packaging machinery, such as wrapping, bottling, canning, and labeling machinery.
Appendix D: Distribution and Warehousing

484110 General Freight Trucking, Local
This industry comprises establishments primarily engaged in providing local general freight trucking. General freight establishments handle a wide variety of commodities, generally palletized and transported in a container or van trailer. Local general freight trucking establishments usually provide trucking within a metropolitan area which may cross state lines. Generally the trips are same-day return.

484121 General Freight Trucking, Long-Distance, Truckload
This U.S. industry comprises establishments primarily engaged in providing long-distance general freight truckload (TL) trucking. These long-distance general freight truckload carrier establishments provide full truck movement of freight from origin to destination. The shipment of freight on a truck is characterized as a full single load not combined with other shipments.

484122 General Freight Trucking, Long-Distance, Less than Truckload
This U.S. industry comprises establishments primarily engaged in providing long-distance, general freight, less than truckload (LTL) trucking. LTL carriage is characterized as multiple shipments combined onto a single truck for multiple deliveries within a network. These establishments are generally characterized by the following network activities: local pickup, local sorting and terminal operations, line-haul, destination sorting and terminal operations, and local delivery.

484220 Specialized Freight (Except Used Goods) Trucking, Local
This industry comprises establishments primarily engaged in providing local, specialized trucking. Local trucking establishments provide trucking within a metropolitan area that may cross state lines. Generally the trips are same-day return.

484230 Specialized Freight (Except Used Goods) Trucking, Long-Distance
This industry comprises establishments primarily engaged in providing long-distance specialized trucking. These establishments provide trucking between metropolitan areas that may cross North American country borders.

493110 General Warehousing and Storage
This industry comprises establishments primarily engaged in operating merchandise warehousing and storage facilities. These establishments generally handle goods in containers, such as boxes, barrels, and/or drums, using equipment, such as forklifts, pallets, and racks. They are not specialized in handling bulk products of any particular type, size, or quantity of goods or products.

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493120 Refrigerated Warehousing and Storage
This industry comprises establishments primarily engaged in operating refrigerated warehousing and storage facilities. Establishments primarily engaged in the storage of furs for the trade are included in this industry. The services provided by these establishments include blast freezing, tempering, and modified atmosphere storage services.

493130 Farm Product Warehousing and Storage
This industry comprises establishments primarily engaged in operating bulk farm product warehousing and storage facilities (except refrigerated). Grain elevators primarily engaged in storage are included in this industry.

493190 Other Warehousing and Storage
This industry comprises establishments primarily engaged in operating warehousing and storage facilities (except general merchandise, refrigerated, and farm product warehousing and storage).

Appendix E: Focus Group Invitation List – Organizations and Entities

**Focus Group: 1**
- Catawba Hospital
- Lewis Gale Hospital
- Roanoke College
- Roanoke County Schools
- Burton Technology Center Culinary Arts Program
- Roanoke Natural Foods Co-Op
- Produce Partners of Virginia
- Richfield Retirement Community
- Friendship Retirement Community
- Veteran’s Administration Hospital
- Carillion Roanoke Memorial Hospital
- West End Community Market
- USDA
- Virginia Tech Dining Services
- Warm Hearth Village
- Virginia Western Community College
- Hollins University
- Roanoke County
Focus Group: 2
USDA-Rural Development
Roanoke Fruit and Produce
Bread Craft Bakery
The Homeplace Restaurant
Southwest Area Food Safety Extension Agent-Wythe County Extension Office
Virginia Department of Health
Historic Roanoke City Market
Salem Farmers Market
Shawsville Farmers Market
Troutville Farmers Market in the Park
Vinton Farmers Market
Blacksburg Farmers Market
Food Service Partners
EcoFriendly Foods
Grandin Village Community Market
West End Community Market
Local Roots Café
Lucky
The Regency Room
Blue Ridge Catering, Inc.
Wildflower
Firefly Fare
Roanoke Natural Foods Coop

Focus Group: 3
Black Diamond Ranch
Blue Ridge Marketing Network
Catawba Valley Farms
Round Hill Farm and Lick Run
Walnut Hill Farm
EcoFriendly Foods
Walnut Ridge Farm and Cattle
Garrett Farms, Inc.
Bramble Hollow Farm
Nassau Farm
Sweet Providence
Morris Farm Lamb
Brambleberry Farm
Broadview Ranch
Buffalo Creek Beef
Craig Creek Gardens
Martin Farms
Otterdale
Sterling Bridge Dairy Farms, LLC
Howard and Chris Thompson’s
RTS Farms
Beanhead Produce
Blue Ridge Poultry Co-op
Bright Farm
Catawba Meadow Farm
Cedar Ridge Farm
Charis Eco-Farm
Eagle Ridge Farm, LLC
Five Penny Farm
Forever Young Farm
Grateful Harvest
Highland Farm
Homestead Creamery
King Brothers Farms and Orchard
Leaping Waters Farm
Maker’s Acres
Mountain Meats, Inc.
Paint Bank Pepper Farm
Professor’s Garden
Shadowchase Farm
Sinking Creek Grass-fed Beef
Sizer Farm
Sunray Growers
Tender Grass Farm
Virginia Tech Fresh Produce Food Safety Team Coordinator
Weathertop Farm, LLC
Wipledale Dairy Farm
Charlie Lavinder
Joe Light
William Mosler
Charles Wood
Spencer and Elizabeth Kohl

Focus Group: 4
Roanoke Community Garden Association
Roanoke County Department of Social Services
Feeding America Southwest Virginia
Roanoke Rescue Mission Ministries
Virginia Tech, Sustainable Food Systems
Total Action for Progress
Roanoke Area Ministries (RAM House)
Bonsack Baptist Church
Vinton Baptist Church
Life Tabernacle Church
Presbyterian Community Center
The Salvation Army
St. Mark’s Lutheran Church
Light of Salvation International Ministries
Celebration Church of Good
Military Family Support Center
Salem/Roanoke County Food Pantry
Manna Ministries
Council of Community Services
Here for you Ministries of the Glorious Church of God in Christ
Trinity Lutheran Evangelical Church
LOA Area Agency on Aging
Healthy Happy Cooks