Food and Farm Assessment for a Five-County Region in the Southern Appalachians:
Alleghany, Ashe, Watauga, Wilkes, and Johnson County

Prepared for: Seeds of Change Appalachia Coalition

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Introduction

This report provides the results of research conducted by the Local Food Research Center of ASAP (Appalachian Sustainable Agriculture Project) for the Seeds of Change Initiative project of Heifer International. The purpose of this research is to analyze agricultural production, local food consumption, and food spending for the five county region of Alleghany, Ashe, Watauga, and Wilkes counties in North Carolina and Johnson County in Tennessee. The assessment utilizes surveys and other data to analyze regional trends in agriculture and the food and farm products currently produced, as well as examine the relationship between foods grown in the region and consumption and spending by local residents and visitors. This report presents a wide-ranging analysis of information on the five county region's food and farm economy designed to inform efforts to address food access and the expansion of the local food system in this region.

The report summarizes agricultural statistics for a five county region in the Southern Appalachian area that includes Alleghany, Ashe, Watauga, and Wilkes in North Carolina and Johnson in Tennessee. This area will be referred to in the remainder of the report as the Five County Region. Report findings are based on the analysis of primary and secondary data and published statistics from the USDA 2007 Census of Agriculture, the U.S. Census Bureau, other relevant data sources, and on the results of surveys conducted by ASAP in 2012 with businesses and residents in the Five County Region.

The first three sections of this report focus on statistical data regarding farm and farmland trends in the region. These sections are followed by an analysis of food consumption and production patterns for the region. The last section of the report provides recommendations for strategic action and next steps for developing the local food and farm system of the Five County Region.

1. The Five County Region Food and Farm System

Farming in the Southern Appalachians has never been easy. In a land of fertile and loamy river valleys and craggy inhospitable highlands, the region's farmers have always been faced with unique challenges and blessings related to topography. Historically, just as today, farming in the mountains required balancing the limits of the land with the availability and demands of the market.

The Five County Region is classified as a rural area of the Southern Appalachians and is home to 177,059 residents.[1] As of the 2007 USDA Census of Agriculture, this region had 3,839 farms and a total of 384,403 acres of farmland, or 30% of the total land area of the region.

Table 1 illustrates the distribution of farm size in the Five County Region based on the 2002 and 2007 Census of Agriculture. Small to mid-sized farms between 10 and 180 acres were the most common in both Census years, though large farms (500+ acres) were the only category of farms to experience a growth in number between 2002 and 2007. With an average farm size of 101 acres, the table shows that the majority of farms in the Five County Region are smaller than the North Carolina and Tennessee state average sizes of 160 acres and 138 acres, respectively. This fact is attributable to the topography of the region's mountainous terrain, which makes expanding to the scale attained by farmers in Eastern North Carolina and Western Tennessee difficult for most farmers.

Table 1. Number of Farms by size in the Five County Region [2]

Size of farm (acres)	2002	2007	% Change
1 to 9 acres	427	367	-14%
10 to 49 acres	1,814	1,601	-12%
50 to 179 acres	1,591	1,371	-14%
180 to 499 acres	435	381	-12%
500 to 999 acres	73	79	+8%
1,000 acres or more	26	40	+54%
Total	***4,366***	***3,839***	***-12%***

Source: USDA Agricultural Census, 2002 and 2007

Section 1. Cash Receipts from Farming

For 2007, total agricultural receipts reported for the Five County Region were over $471 million, a 70% increase from total agricultural receipts reported in 2002. This increase is due in large part to the influence of production in Wilkes County, one of the top poultry producing counties in the eastern United States. If Wilkes County data is excluded, the region still experienced a sizable 14% increase in total agricultural receipts from 2002-2007. Table 2 provides a breakdown of

[1] Source: US Census Bureau Quickfacts (2010), http://quickfacts.census.gov/qfd/download_data.html

[2] The acreage designated as "land in farms" consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm operator's total operation. Land in farms also includes idle cropland, cropland not harvested, and land in government conservation programs.

selected farm products sold in 2002 and 2007. The cash receipts for Wilkes County have been broken out separately to clearly illustrate the county's influence upon total receipts for the region.

Table 2. Market Value of Agricultural Products Sold in the Five County Region ($1,000)

Market Value of Agricultural Products Sold	**Wilkes County**		**Five County Region Total**	
	2002	**2007**	**2002**	**2007**
Total value of agricultural products sold	207,506	**389,831**	279,136	**471,170**
Value of crops including nursery and greenhouse	5,150	**6,828**	48,829	**59,167**
Value of livestock, poultry, and their products	202,355	**383,003**	230,305	**412,003**[3]
Value of agricultural products sold directly to individuals for human consumption	436	**311**	852	**874**
Value by Group				
Grains, oilseeds, dry beans, & dry peas	1,048	**1,827**	1,093	**2,137**
Tobacco	1,697	**1,459**	8,000	**1,993**
Cotton and cottonseed	-[4]	**-**	-	**-**
Vegetables, melons, potatoes, and sweet potatoes	131	**42**	625	**784**
Fruits, tree nuts, and berries	840	**1,227**	974	**1,897**
Nursery, greenhouse, floriculture, and sod	428	**1,532**	7,580	**7,483**
Cut Christmas trees and short rotation woody crops	5	**60**	28,189[5]	**40,336**
Other crops and hay	1,001	**681**	1,996	**1,910**
Poultry and eggs	192,187	**362,449**	192,937	**362,530**
Cattle and calves	6,078	**14,103**	22,900	**34,061**
Milk and other dairy products from cows	3,809	**5,592**	13,206	**13,871**
Hogs and pigs	7	**5**	73	**227**
Sheep, goats, and their products	25	**64**	112	**259**
Horses, ponies, mules, burros, and donkeys	n/a[6]	**770**	n/a	**999**
Aquaculture	-	**-**	17	**14**
Other animals and other animal products	4	**20**	24	**46**

Source: USDA Census of Agriculture, 2007

While some of the data for specific products is not available, Table 2 shows the predominance of livestock, poultry, and their products in the region in both 2002 and 2007. Poultry and eggs accounted for the majority of these figures, though 88% of the cash receipts from poultry and eggs in 2002 and 93% in 2007 can be attributed to Wilkes County. In fact, poultry and egg receipts accounted for 70% of all agricultural receipts for the Five County Region in 2002 and

[3] The USDA Census of Agriculture suppressed specific monetary data for Watauga County, NC, regarding "Value of crops including nursery and greenhouse" and "Value of livestock, poultry, and their products." However the census does, provide the "Total value of agricultural products sold" for Watauga County. For this reason the "Value of crops" plus "Value of livestock" categories for 2007 do not add up to the "Total value of agricultural products sold."

[4] (-) denotes a value of zero in the Census of Agriculture.

[5] According to the 2002 Census of Agriculture, Ashe County accounted for over $16.8 million in cut Christmas tree sales. In 2007 this figure rose to nearly $26.2 million.

[6] This category was not included in the 2002 Census of Agriculture.

77% in 2007. Wilkes County is home to three chicken processing plants owned by Tyson Foods, Inc.

Poultry and eggs aside, Table 2 also shows the importance of cattle and calves, cut Christmas trees, and milk and dairy products for the region. Between 2002 and 2007, sales of Christmas trees increased 43% while the market receipts for cattle and calves increased by almost 50%. Milk and other dairy product sales grew a small amount, but their receipts still accounted for 3% of all agricultural receipts (of the remaining 23% after poultry and eggs receipts) for the Five County Region in 2007.

The largest declines in cash receipts came from tobacco with cash receipts falling 75% between 2002 and 2007 from $8 million to just under $2 million.

2. Trends in Farming and Farmland

Data from the preceding section provides a snapshot of agriculture in the Five County Region. A more complete picture emerges when regional trends and their effect on production are examined.

Section 1. Decline in Farms and Acres of Farmland

Table 3 shows trends in farm numbers and farmland acreage in the Five County Region from 1992 to 2007. The total acreage of farmland declined three percent from 1992 to 2007, though the decrease from 1997 to 2007 was greater, showing a nine percent loss. The total number of farms in operation also decreased (-8%) between 1992 and 2007; however, over the same period the average farm size grew four acres to an average of 101 acres in 2007. While the number of farms nine acres or less declined significantly (from 573 to 367, or -36% from 1992 to 2007), the number of farms 1,000 acres or more experienced moderate growth with an increase from 26 to 40 farms (+54%). Even though very large farms experienced the most growth between 1992 and 2007, and very small farms experienced the greatest losses, the backbone of agriculture in the Five County Region still lies in small to medium sized farms (179 acres or less), which accounted for 87% of farms in the region in 2007.

Table 3. Five County Region Farms and Acres of Farmland, 1992 – 2007
(% change rounded to nearest whole number)

	1992	**1997**	**2002**	**2007**	**% Change 1992-2007**
Farms	4,163	4,111	4,366	3,839	-8%
Land in farms (acres)	393,397	424,297	405,574	384,403	-3%
Average size of farm (acres)	97	105	94	101	+4%
1 to 9 acres	573	487	427	367	-36%
10 to 49 acres	1,507	1,548	1,814	1,601	+6%
50 to 179 acres	1,543	1,493	1,591	1,371	-11%
180 to 499 acres	431	464	435	381	-12%
500 to 999 acres	91	87	73	79	-13%
1,000 acres or more	18	32	26	40	+122%

Source: USDA Census of Agriculture, 2007, 2002, 1997, 1992

Nationally, the number of farms increased 3.6% from 2002 to 2007. The majority of this increase occurred in small farms. Farms in the 1 to 9 acre category increased nearly 30% while those 10 to 49 acres rose 10%. Though the total number of farms decreased in the Five County Region—commensurate with the national trend—the area did experience a growth in smaller farms between 10 and 49 acres (+6%).

Section 2. Aging of the Farm Population

According to the USDA, the average age of farmers has increased every year since 1978. The average age of all U.S. farm operators has been greater than 50 years of age since at least the 1974 census. Between 2002 and 2007, the national average increased from 55.3 years of age to 57.1 years of age.[7] Farmers in the Five County Region are older on average than those across the country; the average age of farmers in the Five County Region is 58.[8]

Definite relationships exist between age of farm operator and particular farm characteristics. For example, family farms—small to medium sized operations of 179 acres or less—typically have older farm operators than corporate farms, and farms in smaller income classes typically have older farm operators than larger income class farms.[9] With the high percentage of family farms in the region, it is not surprising that the average operator age is greater than the national average.

Beginning in 2002, the USDA began gathering additional information about farm operator characteristics to help clarify issues related to the aging of the farm population, such as farm succession plans and the extent to which young farmers are replacing older farmers as they retire from farming. The new data indicates that only about 9% of all farms nationwide have multiple operators from different generations working on their farms as farm operators, and the likelihood of having multiple operators is significantly lower for lower income class farms that predominate in the Five County Region. In the 1997 Census of Agriculture, the average age of farmers in the Five County Region was 55.5. The 2007 average age of 58 suggest a need for new, younger farmers to enter farming as the area is at a crucial turning point where many farmers are approaching transition.

Section 3. The Tobacco Buyout and Related Shifts in Production

The single largest influence on the farm economy for the Five County Region in recent years is the end of the federal tobacco program, commonly referred to as the tobacco buyout. For farmers in the region, tobacco, specifically Burley tobacco, has been an immensely important crop. For 70 years, a federal price support system for tobacco provided mountain farmers with a profitable crop and reliable source of income.

The effects of the changes in tobacco policy began in the mid-1990s as growers began anticipating the end of federal tobacco support. Quota cuts, falling prices, and the 1998 Master Settlement Agreement contributed to a changing landscape of tobacco production in the region. In 2004,

[7] *Farmers by Age*, 2007 Census of Agriculture
[8] Sources: 2007 Census of Agriculture, U.S. Census Bureau Quickfacts (average ages)
[9] *What We Know About the Demographics of U.S. Farm Operators*, 2005, National Agricultural Statistics Service, USDA

Congress passed the Fair and Equitable Transition Act and eliminated federal price support and supply control programs, which had regulated tobacco production and marketing since the Great Depression era. Payments to growers and quota owners under the tobacco buyout are scheduled to take place over 10 years, which means that the full effects of the buyout are still to be actualized.

For North Carolina, the number one state in the U.S. in the production of tobacco (with 36% to 38% of total tobacco production), and Tennessee, which ranks fourth, the full impact of the buyout will and has been dramatic. Some experts have estimated that as many as five out of six farmers growing tobacco in the region will find another way to earn a living and that the majority of small-scale farms growing tobacco under the old system will no longer be viable in the tobacco market.[10]

Table 4 shows the decline in tobacco production for each of the five counties from the years 2002 to 2007. Not only did the value of tobacco sales fall 75%, the acres of land under tobacco production fell 57%, and the number of farms producing tobacco fell 87%. Though not shown in the table, between 1992 and 2007 the Five County Region lost 95% of farms growing tobacco. With many regional farmers exiting tobacco production, there is a tremendous need and opportunity to shift farm production into different crops and markets.

Table 4. Tobacco Production in the Five County Region 2002-2007

	# Farms 2002	**#Farms 2007**	**#Acres 2002**	**#Acres 2007**	**Value ($1,000) 2002**	**Value ($1,000) 2007**
Alleghany	108	32	251	389	695	(D)
Ashe	230	34	693	114	2,284	306
Watauga	187	11	495	24	1,703	(D)
Wilkes	17	7	431	385	1,697	1,459
Johnson	253	22	549	136	1,621	228
Total	*795*	*106*	*2,419*	*1,048*	*8,000*	*1,993*
% Change 2002-2007	**-87%**		**-57%**		**-75%**	

Source: USDA Census of Agriculture, 2007, 2002

Section 4. Consolidation of the Food System

Over the past 50 years, concentration in the ownership and management of food production and marketing has dramatically restructured the agricultural and food industries in the U.S. and globally. Horizontal and vertical integration, mergers and acquisitions, and the use of supply chain management strategies are mechanisms by which change has occurred. The result is that fewer but larger companies have come to dominate each stage of production, processing, and distribution. Consolidation in retail and wholesale markets in particular makes it increasingly difficult for small farmers to maintain their market share. Despite these trends, significant opportunities exist for Five County Region producers in local markets. Local markets present small producers in particular with increased market options, and they offer markets that are less

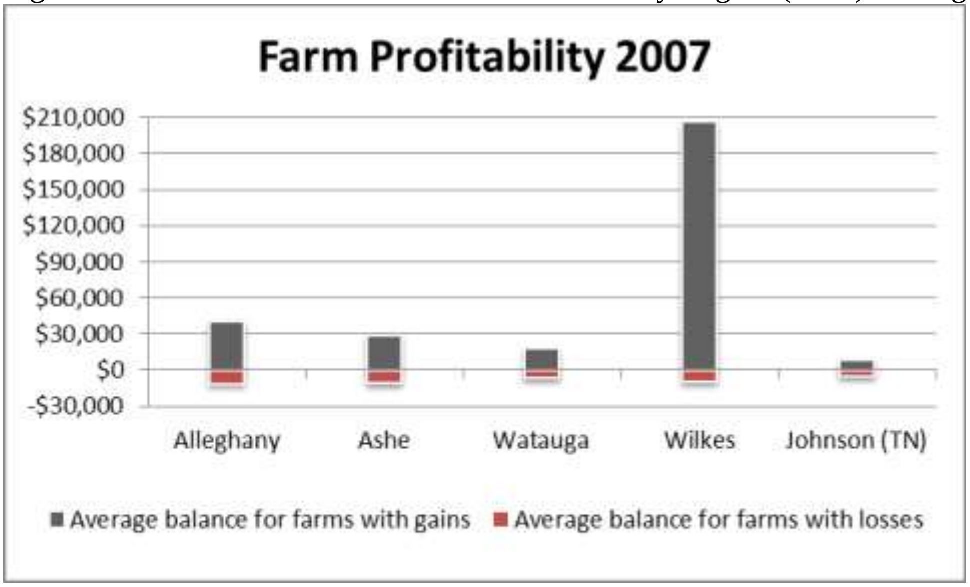
[10] *The Agricultural Reinvestment Report.* 2006. Rural Advancement Foundation International-USA.

vulnerable to global price fluctuations. High levels of consumer demand for locally grown food exist in the project region and interest by food retailers, wholesalers, and institutions in meeting consumer demand is increasing.

3. Economic Considerations

An analysis of current farm profitability is necessary to determine the long-term viability of the region's farms. The USDA reports that the net cash farm income for farmers in the Five County Region in 2007 was $23,333,000 with farms earning an average of $23,100. It should be noted that the average per farm earnings are highly influenced by farms in Wilkes County, and removing this county's data results in an average farm earning of $6,245. Even so, alone these averaged figures do not accurately represent the trends in farm profitability for the area. Figure 1 below is a graphic representation of the net cash farm income of farms in the Five County Region. The trend across all counties is the same; the average net profit earned by profitable farms ($60,558) far exceeds the average net loss of unprofitable farms (-$8,457).

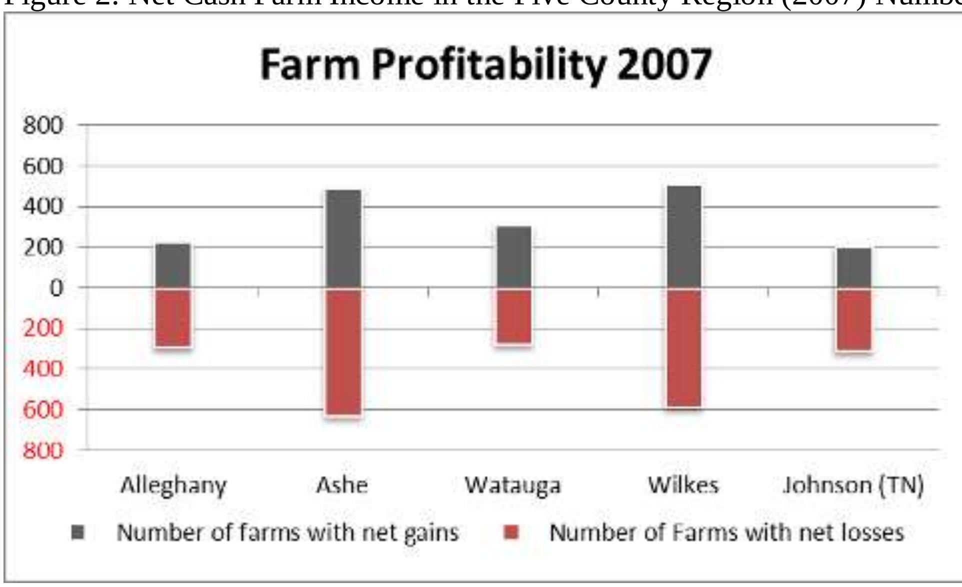
Figure 1: Net Cash Farm Income in the Five County Region (2007) Average Farm Dollars



Source: USDA Census of Agriculture, 2007

However, there are other important pieces to the farm income profile. Figure 2 below is similar to Figure 1 in that it depicts farm net cash income by county; however, the focus of Figure 2 is the *number* of farms reporting net gains or net losses for the year 2007. For the Five County Region, the total number of farms reporting net gains was 1,733. The total number of farms reporting net losses was 1.2 times higher at 2,106.

Figure 2: Net Cash Farm Income in the Five County Region (2007) Number of Farms



Source: USDA Census of Agriculture, 2007

Therefore, while the profitable farms (from Figure 1) in the area reported high average gains and gave the region an overall positive production balance, a much larger number of individual farms reported a net loss of money. It is not uncommon for small family farms to report a loss, but this does not mean that they are necessarily losing money. Farm operations are afforded many federal tax breaks and write offs, and small farms often maximize benefits, using business expenses to offset income.

The Census of Agriculture uses tax-based definitions to measure farm profitability and success, but these measures are not always accurate, nor are financial measures the only way to show success. There are a large number of farmers in the Census of Agriculture who do not farm as their primary occupation and who earn an undisclosed amount of money from off-farm jobs. In the 2007 Census of Agriculture 1,655 farmers in the Five County Region reported farming as their primary occupation while 2,184 reported "other" as their primary occupation. Some farms stay in farming for reasons other than supporting the family income, such as continuing a family tradition, maintaining a rural lifestyle, or so that they can access tax breaks given to farms through programs like Present Use Valuation, which taxes farm property at a significantly lower rate than non-farms.

The Census of Agriculture data does not account for the extra income earned from off-farm jobs or property tax savings. Therefore, it is difficult to determine which farms in the Five County Region are actually losing money overall and which farms are financially viable due to tax credits and outside income. Net cash farm income data is useful in understanding a broad pattern of the financial profile of the region's farms, but it is not the last word on farm profitability.[11]

Regardless, long term sustainability of the farm sector depends on the ability of regional farms to make money. The ability of individual farms to earn a profit depends on their ability to increase total revenues and/or lower total costs. Revenue streams and costs of production vary substantially by product. Meat prices, for example, are much higher per pound than vegetable prices, but the costs of production are also much higher. Revenues are driven by prices, which are largely out of producers' control. One bright spot is the rise in the popularity of local food and farm products, which can provide an avenue for increased prices and lower production and distribution costs for farmers.

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[11] Robert A. Hoppe, P. Korb, E. O'Donoghue, D. Banker, *Structure and Finances of U.S. Farms: Family Farm Report, 2007 Edition.* June 2007. Economic Research Service, USDA.

4. Opportunities in the Local Market for Locally Grown Foods

The emphasis on expanding local markets for local farm products in this report is based on an underlying assumption that local markets can both increase the market value of farm products – by enabling farmers to earn a premium for locally grown foods – and reduce total costs by shortening the transaction chain between farmers and end consumers.

Data released by the USDA Economic Research Service reports that local food sales through direct and intermediate markets grossed over $4.8 billion in 2008. For direct sales alone the 2007 Census of Agriculture reported $1.2 billion, a 50% increase from the direct sales total in 2002 of $812 million. Agricultural Census data for 2007 further shows an increase in the number of farms, particularly small farms (those less than 50 acres), which reverses a decades-long trend. Both trends reflect the rapidly growing consumer interest in knowing who is growing their food. National market research by firms like the Hartman Group and JWT Advertising have tracked the shift in consumer demand to favor locally grown foods and have identified "local" as one of the food attributes most highly valued by consumers nationwide. The USDA has predicted that the market for locally grown foods will reach $7 billion in 2012.[12]

ASAP recently calculated local food spending by residents of Western North Carolina (including the four North Carolina counties in the Five County Region) at $62 million in 2010. A 2011 consumer survey of Western North Carolina residents further showed strong demand for local products and a willingness to pay more for local food. For the vast majority of consumers surveyed, local food offered a fresher, tastier option to foods produced in more distant regions, as well as a way to support local farmers, local communities, a healthy environment, and the rural character of the region. By extension, these values shape the way residents shop for food and dine out: the survey found that over three-quarters of respondents (77%) deemed local food a somewhat or very important consideration in choosing a grocery store, and 64% viewed it as somewhat or very important when choosing a restaurant.

The research demonstrates that high levels of demand for local food exist, and interest by food retailers and wholesalers in meeting consumer demand is increasing.

[12] USDA Press Release No. 0094.11

5. Consumer Food Spending and Consumption Figures

Demographic and consumption statistics in the Five County Region plus two nearby urban areas are used to estimate potential markets for farm products produced in the Five County Region. The following measures pertain to the Five County Region plus the Metropolitan Statistical Areas (MSA) of Winston-Salem (NC) and Johnson City (TN).

Section 1. Market Demographics

- The 2010 total population for the Five County Region was 177,059. Winston-Salem is the closest metropolitan area to the Five County Region and in 2010 had a population of 229,617. For the same year, Johnson City had a population of 63,152.[13]

- The per capita personal income for residents of the Five County Region in 2010 was $19,255. For Winston-Salem per capita income was $24,472; for Johnson City it was $25,575.[14]

- In 2010, 76.9% of Five County Region residents 25 years of age or older had completed high school compared to 85.5% of Winston-Salem residents and 85.6% of Johnson City residents. In the Five County Region, 20.2% of residents had attained a bachelor's degree or higher, compared to31.8% of Winston-Salem residents and 35.2% of Johnson City residents.[15]

Section 2. Consumer Food Spending

Based on 2010 consumption estimates, the residents of the Five County Region spent $410 million on food.[16] Winston-Salem residents spent a total of $532 million, and Johnson City residents spent $146 million. Together, the two metropolitan regions and the Five County Region spent over $1 billion on food in 2010. Regional estimates indicate that the average household in the southern U.S. spends 59% of total food expenditures on food consumed at home and the remaining 41% on food consumed away from home. For the Five County Region where 177,059 residents equals 70,823.6 households, this figure breaks down to $241 million spent on food consumed at home and $169 million spent on food consumed away from home. For Winston-Salem residents, spending breaks down to $313 million on groceries and $219 million on food outside the home; in Johnson City, the totals were $86.1 million on groceries and $60 million on food consumed outside the home.

The percentage of each dollar spent on food that goes directly to the farmer who produced it differs depending on where food is purchased. For instance, if a farmer sells a product directly to a consumer rather than wholesale—at a farmers market, through a CSA (Community Supported Agriculture), or at a roadside stand—the farmer retains all earnings from that product (though they may have more costs in labor and marketing, for example). On the other hand, in the case of

[13] Source: U.S. Census Bureau Quickfacts (2010), http://quickfacts.census.gov/qfd/download_data.html
[14] Source: U.S. Census Bureau Quickfacts, http://quickfacts.census.gov/qfd/download_data.html
[15] Source: U.S. Census Bureau American Factfinder, http://factfinder.census.gov/
[16] Bureau of Labor Statistics Table 33. Southern region by income before taxes: Average annual expenditures and characteristics, Consumer Expenditure Survey, 2009-2010.

grocery store spending, approximately $0.18 of every dollar spent on food goes to the farmer.[17] The rest of the dollar pays for the processing, energy, packaging, advertising, salaries, and other expenses that went into getting the product from the farm to the grocery store. For away-from-home spending, including food purchases at restaurants, hospitals, parks, workplaces, etc., the proportion of each food dollar that goes directly to the farmer decreases significantly to just $0.03. The majority of the food dollar that makes up away-from-home spending goes toward labor ($0.74). In terms of the local economy, this means that significant percentages of every retail dollar spent in a local restaurant or grocery store is in the local economy in the form of payroll for local employees.

The implications of consumer food spending by the Five County Region residents and the Winston-Salem and Johnson City residents are twofold. First, local producers can capture more of the food dollar by strategically marketing their products to the local population of consumers and buyers. When farmers are able to sell their products locally, they increase their share of the food dollar. Second, the nearby metropolitan areas of Johnson City and Winston-Salem represent higher volume market opportunities for Five County Region producers, including the ability to capture food spending in area restaurants, schools, institutions, and major employment centers.

Tourism is also important for the farm and food economy in the Five County Region, as it is a major economic driver. In 2010, visitor to the five counties spent an estimated $107 million on food and beverages.[18] This figure represents a significant opportunity for local producers to market authentic High Country food experiences to tourists. Visitors to the Five County Region come to the area to experience rural heritage and scenic vistas. Marketing the region as a food and farm destination can entice visitors to come to the region to experience local food activities (shopping at tailgate markets, participating in local food festivals, eating at food venues that feature locally grown farm products) and capture some of their away from home food spending in the form of tourism food dollars.

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[17] Canning, Patrick. "A Revised and Expanded Food Dollar Series: A Better Understanding of Our Food Costs." (2011): n. pag. Web. 24 Jan. 2012.

[18] The Economic Impact of Travel on Tennessee Counties 2009: A Study Prepared for the Tennessee Department of Tourist Development by the Research Department of the U.S. and
The Economic Impact of Travel on North Carolina Counties 2010: A Study Prepared for the
North Carolina Division of Tourism, Film and Sports Development by the U.S. Travel Association

Section 3. Consumption Estimates

The market potential for locally grown foods in the large metropolitan areas near the Five County Region is large. However, in considering consumption and production of fresh produce, meats, and dairy products, this report focuses on the Five County Region alone. This area more realistically represents the scope of consumption that Five County Region- based local food production would expect to meet.

Fruits and Vegetables

Table 5 shows consumption estimates for a selection of 30 different fresh fruits and vegetables that can be grown in the Five County Region. Column 1 in the table shows the amount of each product that is consumed in the Five County Region. Column 2 shows acreage needed to grow those amounts, and Column 3 shows how many acres were devoted to growing the crops in the Five County Region in 2007. County-level production acreage data is inexact. In some cases, the USDA suppresses county-level data; for example, when production is limited or only one or two farms report growing a particular crop. In other cases, reported acreage may be higher than actual acreage because of formulas used by the USDA to create county profiles that are based on limited information. All estimates should be viewed in this context.

Even with incomplete data, what is clear from Table 5 is that there is significantly more demand (consumption) than supply for nearly every type of fresh fruit and vegetable grown in the region. There are exceptions, including apple, berry, cabbage, mushroom, and pumpkin production. Achieving a level of supply equal to the level of consumption in this region for all available produce (i.e., matching Column 3 with Column 2) is not realistic because it assumes year-round production of fresh fruits and vegetables. Rather, there is some point between Columns 2 and 3 that represents a practical target for local production in a strong local food system.

Table 5: Comparison of Consumption and Production of Selected Fresh Fruits and Vegetables that can be Grown in Five County Region[19]

	Column 1: Consumption (lbs)	*Column 2: Acres need to produce that amount*	*Column 3: Acres production*
Apples	2,863,044	130	405
Berries (other than strawberries)	93,841	10	73
Cantaloupe	1,572,284	150	(D)
Cherries	177,059	-[20]	3
Grapes	1,510,313	170	118[21]
Peaches	897,689	100	45
Pears	552,424	-	2
Plums	162,894	-	1
Strawberries	1,142,031	90	(D)
Watermelon	2,735,562	110	7
Asparagus	208,930	90	2
Beans	377,136	60	29
Beets	-	-	(D)
Broccoli	1,051,730	160	(D)
Cabbage	1,450,113	50	153
Carrots	1,428,866	60	(D)
Corn	1,630,713	280	27
Cucumbers	1,193,378	90	4
Garlic	490,453	140	2
Green Onion	-	-	1
Greens	244,341	-	(D)
Herbs	-	-	(D)
Mushrooms	432,024	1.7	61
Lettuce (Leaf + Head)	4,954,111	200	2
Peppers (Bell)	1,744,031	160	2
Potatoes	6,498,065	400	67
Pumpkins	864,048	40	677
Squash	738,336	20	4
Sweet Potatoes	890,607	60	(D)
Tomatoes	3,275,592	130	25

Source: [Column 1] ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid (2010); [Column 2 and 3] USDA Census of Agriculture, 2007.

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[19] Table 5 represents a selection of fruits and vegetables grown in the region. While there are other types of fruits and vegetables produced in the region, specific data is unavailable (ex: nectarines, beets, leeks, sprouts, herbs, green onion, peas, romaine).

[20] Some acreage calculations could not be completed due to insufficient data on average crop yields per acre for certain fruits and vegetables.

[21] 111 acres of the 1118 acres of grape production come from Wilkes County. According to the County Extension Director for Wilkes County, the bulk of this production is in vineyards, and therefore would not contribute towards meeting Five County resident fresh grape consumption figures.

While Table 5 shows overall production for fresh fruits and vegetables in the Five County Region, it does not differentiate between farms that sell their products to local markets and those that do not. A better picture of local production for local consumption comes from ASAP's *Local Food Guide*, an annually updated directory of Southern Appalachian farms and the businesses that support them. The guide lists a total of 66 farms in the Five County Region that focus on selling their fresh farm products to local markets. These farms sell a wide variety of fresh produce, meats, and cheeses, though their production tends to be in smaller overall quantities and produced on small to mid-sized farms. Data from sources like the *Local Food Guide*, more than the Census of Agriculture, showcase the true capacity for local foods to supply local demand in the Five County Region.

Production data is not available for processed products; however, Table 6 shows consumption of processed fruits and vegetables in the Five County Region. The American diet relies heavily on processed fruits and vegetables. With strong demand for ready-to-eat foods, processing locally grown fruits and vegetables may be one way to expand consumption of local farm products.

Table 6. Consumption of Selected Categories of Processed Fruits and Vegetables in the Five County Region

		Pounds consumed in Five County Region
Processed fruits		
	Canned apples/applesauce	780,800
	Canned peaches	527,600
	Apple juice	4,546,900
	Frozen berries	602,000
	Canned pears	396,600
	Grape juice	876,400
	Other processed fruits	14,083,300
Processed vegetables		
	Canned tomatoes	11,898,400
	Pickles (cucumbers)	628,600
	Canned snap beans	586,100
	Canned carrots	170,000
	Other canned vegetables	3,573,100
	Frozen vegetables	13,491,900
	Dehydrated vegetables	5,258,700

Source: ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid (2010)

Meat and Dairy

Unlike the case of fresh fruits and vegetables, the yearly reported production of meat products in the Five County Region is generally much higher than consumption, particularly for poultry products (Table 7). The Five County Region (primarily Wilkes County) produces 35 times the amount of chicken that residents of the five counties consume.

It is important to note that the majority of the region's meat production is not marketed for local consumption. However, shifts are occurring with the emergence of grassfed, artisanal, and niche markets. ASAP's *Local Food Guide* lists a variety of local meat producers growing for local markets in the Five Country Region, including 14 beef producers, 8 lamb producers, 11 chicken producers, 7 hog producers, and 3 goat producers. The USDA estimates that the percent of meat and poultry producers who target direct and specialty meat markets is about one percent.[22,23] Access to a government-inspected processing facility is the principal infrastructure obstacle for any type of meat. Artisanal meat producers also require land for pasture, on-farm animal handling facilities, and adequate cold storage for processed meat products. To shift into this type of production, producers would need to learn and adopt new practices, including more closely managed grazing and pasture management.

Table 7. Comparison of Consumption and Production of Selected Meats in the Five County Region

	Pounds consumed	Pounds produced
Beef	15,386,400	32,718,749
Chicken (broilers)	16,484,200	575,407,915
Pork	11,314,100	438,480
Lamb	194,800	313,281
Turkey	2,974,600	873

Sources: The figures in the table are based on a series of calculations combining data from the 2007 Census of Agriculture and the USDA Economics, Statistics, and Market Information System.

As with meat production, dairy production is a dominant feature of agriculture in the region. Table 8 shows that an estimated 5,947,436 pounds of cow's milk were produced in the Five County Region in 2007, a 71% drop from production in 2002. Some portion of the six million pounds is marketed as fluid milk, and some is used to make cheese and other processed dairy products. No information is available from government sources detailing the end uses of milk produced in the area.

Large scale local cheese production in the area occurs primarily through the Ashe County Cheese Store, the Carolinas' oldest cheese plant, which produces around 2.3 million pounds of cheese per year. However, many small local dairy farmers like Heritage Homestead, for example, have focused on reaching niche markets with production of value-added products including artisan goat cheeses, yogurt, butter, and frozen dairy products. These producers typically sell directly to consumers at tailgate markets or on-farm stores or by delivering directly to restaurants or local retail grocery outlets. Though not depicted in Table 8, the 2007 Census of Agriculture recorded 58 farms in the Five County Region reporting milk goats on farm. However, as with other meat and dairy production, the U.S. Census of Agriculture does not differentiate between goat products marketed towards local versus non local markets. It is also difficult to estimate the level of production or consumption of dairy goat products, as the Census does not report goat milk

[22] USDA (2011), *Small-Scale U.S. Cow-Calf Operations*. USDA–APHIS–VS, CEAH. Fort Collins, CO #596.0411
[23] Lev, Larry, and Lauren Gwin. "Filling in the Gaps: Eight Things to Recognize about Farm-Direct Marketing." *Choices Magazine*. 2010. Web. 15 June 2012.

production or sales figures, nor does the USDA Economics, Statistics, and Market Information System report consumption figures for dairy goat products.

Table 8. Comparison of Consumption and Production of Dairy Products in the Five County Region[24]

	Pounds consumed	Pounds produced
Fluid cow's milk	31,445,700	5,947,436
All cheese	5,364,900	(NA)
All frozen dairy	4,320,200	(NA)
Yogurt	2,213,200	(NA)
Butter	867,600	(NA)

Source: Production data for milk is derived from 2007 Census of Agriculture data combined with production statistics provided by the USDA Economics, Statistics, and Market Information System.

6. Five County Region Consumer Preferences for Local

To assess the views Five County Region residents and businesses associate with locally grown foods, two separate surveys targeted toward each group were conducted. Specific points of interest explored by the community and business surveys included local food purchasing habits, perceptions of locally grown foods, and barriers to purchasing and accessing fresh local products.

The USDA reports that direct sales of agricultural products to consumers in the Five County Region increased from $419,000 in 1997 to $874,000 in 2007, a total increase of 109%. The results of the business surveys and community survey confirm this growth in demand for locally grown food.

In the business surveys—which gathered input from 30 area restaurants, hospitals, school districts, universities, and grocers[25]—the majority of businesses stated that they purchased local

[24] Milk derivatives including cheese, frozen dairy, yogurt, and butter were all calculated based on dairy cow production. Dairy goat production is not included in any of the figures in Table 8.

food in 2011 (77%) and planned to purchase the same amount or more local food in 2012. The overall trend in responses was one of high interest in purchasing local foods, high interest in receiving information on how to access more local products, and high interest in diversifying the types of local food products businesses choose to purchase.

When asked why they chose to purchase locally grown foods, businesses cited supporting local farmers as the strongest motivator, closely followed by a desire to support the local economy. Other reasons for purchasing local included the freshness, flavor, and health benefits of local foods and, to a lesser extent, the positive environmental impacts associated with local foods as compared to non-local foods.

Businesses did, however, indicate barriers to sourcing local product. The barriers named most frequently included finding product that was available in consistent volume and problems with delivery timing. The hospitals who participated in the surveys demonstrated the highest number of barriers, citing quality, packaging, safety, delivery timing, liability insurance, communication, volume, price, and lack of demand as barriers. Hospitals were also the only businesses to name contracts and company practices as obstacles. When asked what forms of assistance would be the most helpful in overcoming these barriers, most businesses indicated that increased and extended food production from farmers, as well as farm food safety certifications, would be instrumental in alleviating purchasing barriers. Local food campaigns, farmer training, and help finding local products were also listed as desirable interventions.

Five County Region community residents, like the businesses, support local food.[26] Primarily defining "local" as the High Country Region or within 50 miles of their home, the 257 community survey participants strongly valued the availability of locally grown food (82.4%) and the "ability to produce our own food" (83%). When asked why they purchase locally grown foods, survey respondents gave their top three reasons as: "it helps support our local farms" (86.2%), "it greatly contributes to the local economy" (80.8%), and "it lets you know where your food comes from" (80.7%). When asked for reasons why they would choose NOT to buy locally grown food, respondents said that they believe the prices are too high (44%) or that they grow most or all of their own food (28.4%). However, 34.1% of respondents indicated that there "are no reasons why I would not buy locally grown food."

Five County Region residents purchase local food primarily at their local farmers markets, roadside stands, grocery stores, and on the farm. They further indicated that it is very important that locally grown food be available at local restaurants, public schools, hospitals, colleges and universities, grocery stores, and at the workplace.

The community survey further asked Five County Region residents about access to fresh fruits and vegetables by low-income individuals in the area. On a scale of 1 to 5 with 1 indicating little to no access to fresh fruits and vegetables and 5 indicating plentiful access, Five County Region

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[25] Target businesses were identified by ASAP through web searches utilizing Google Maps and ASAP's existing contact database, and was therefore not a random, representative sample of the overall business population in the area. Participation in the survey was voluntary.

[26] ASAP conducted a voluntary web-based survey of residents in the Five County Region. 257 residents participated in the survey. Survey results should not be considered to be scientifically representative of the population of the region.

residents rated food access in the community a 2.83. In their open-ended responses to questions about access, some survey participants further noted a need for more fresh local foods at area food banks, the Samaritan Kitchen, children's homes, senior centers, and retirement centers.

Overall, it is apparent that the residents and local business community in the Five County Region value access to local food and local farms. Not only do they believe that local agriculture and local food is a benefit to the local economy but also a boon to local health, community building, environmental preservation, and cultural identity. The attitudes and perceptions about local food and local farms indicated by residents and buyers in these surveys show the commitment by the local community to support initiatives to strengthen and build the Five County Region's local food and farm economy.

7. Local Production

There is an upper limit to the amount of produce consumers and businesses can purchase from regional growers based on climate and soil-related limitations. Local farmers could not supply 100% of produce to local buyers because they cannot grow avocados, lemons, or bananas, for example, no matter how much local food infrastructure is improved. They can, however, grow each of 42 different types of fruits and vegetables that accounted for 75.7% of produce sales in retail outlets nationwide in 2011. In Table 9, these 42 items are listed along with their corresponding share of total retail produce sales.

Farmers in the Five County Region can grow all of the items listed in Table 9, but some are limited to the months of the summer season and others to the winter season. Some items, like apples, can be supplied to local markets for more than six months of the year and others for less. In order to conservatively estimate the amount of local production, an estimate to account for seasonal limitations is employed. Based on the Southern Appalachian region's produce availability calendar, on average local farmers can grow 75.7% of the area's most popular retail produce items for 50% of the year, and therefore supply 38% of the total yearly produce purchases of residents (75.7% x 50% = 38%). Taking these variations into account, 38% represents a reasonable adjustment for the seasonality of production.[27]

[27] The calculation of seasonality is based on the average growing season length for all 42 fruits and vegetables in Table 9.

Table 9: Dollar Share of Retail Produce Sales for Selected Fruits and Vegetables

Fruits	**% of Total Produce Sales in year**	**Vegetables**	**% of Total Produce Sales in year**	**Vegetables (Continued)**	**% of Total Produce Sales in year**
Apples	7.1%	Asparagus	1.4%	Leeks	0.1%
Berries	2.8%	Beans	0.8%	Mushrooms	2.2%
Cantaloupe	1.7%	Beets	0.1%	Onion	4.3%
Cherries	1.9%	Broccoli	1.7%	Lettuce	2.2%
Grapes	6.4%	Cabbage	0.7%	Peas	0.3%
Nectarines	0.8%	Carrots	2.5%	Peppers (Bell)	2.6%
Melons	0.7%	Cauliflower	0.6%	Potatoes	5.7%
Peaches	1.2%	Celery	1.5%	Pumpkins	0.2%
Pears	1.1%	Corn (Sweet)	1.2%	Radishes	0.2%
Plums	0.6%	Cucumbers	1.7%	Romaine	1.1%
Strawberries	4.9%	Eggplant	0.2%	Spinach	0.6%
Watermelon	2.4%	Garlic	0.5%	Sprouts	0.1%
		Green Onion	0.5%	Squash	1.4%
		Greens	0.3%	Sweet Potatoes	1.0%
		Herbs	1.0%	Tomatoes	7.5%
Column Totals	*31.6%*		*14.7%*		*29.4%*
Total share of produce accounted for by fruits and vegetables that can be grown in the Five County Region**: 75.7%**					

<u>Section 1. Summary of Local Market Potential for Locally Grown Foods</u>

This section calculates potential local food spending based on the Five County Region resident consumption figures. A local potential spending figure assumes significant improvements to infrastructure and distribution systems for locally grown produce in addition to changes in tastes and preferences so that all residents in the Five County Region choose to purchase local food when it is available. Though this figure takes into account the growing season of local produce, it still assumes the use of practices like extending growing seasons, greenhouse production, and improved storage and processing techniques to maximize production potential and meet local demand. These projections are grounded in measured consumption and production figures for the region.

Table 10 below shows potential retail spending on local produce and meat based on the Five County Region resident consumption figures. The total local spending potential figure of $24.6 million represents the economic impact to the region if local farms were to supply all of the current artisanal meat and fresh produce needs of the Five County Region during the growing season.

Local Spending Potential for Fruits and Vegetables

The local spending potential for fresh fruits and vegetables is $23 million and is calculated as total consumption multiplied by the average retail price per pound for each of 42 types of fruits and vegetables multiplied by the 38% seasonality multiplier. The total $23,079,875 is the potential retail spending by Five County Region residents for the 42 fruits and vegetables grown in the region. (44,783,533 lbs of produce x $/lb for each type of produce x 38% seasonality multiplier = $23,079,875spending).

Local Spending Potential for Meat

The local potential spending for artisanal meat (beef, chicken, pork, turkey) is $1.5 million and is calculated as total consumption multiplied by the average retail price per pound of each meat. Local artisanal meats represent approximately 1% of this total.[28][29] $1,470,873 represents the maximum retail spending potential for locally raised meat in the region. (46,159,300lbs of meat consumed x $/lb for each type of meat x 1% = $1,470,873 spending).

Table 10: Local Spending Potential for Produce and Artisan Meats in Five County Region

	Total Consumption (lbs.) 2010	**Total Retail Spending**	**Local Spending Potential**
Fresh Fruits & Vegetables[30]	44,783,533	$60,736,513	$23,079,875
Meats (beef, chicken, pork, turkey)[31]	46,159,300	$147,087,336	$1,470,873
Total Retail Spending: $207.8 million			
Potential Local Spending: $24.6 million			

Source: The figures in the table are based on a series of calculations combining data from the 2007 Census of Agriculture the ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid, and The Packer which provided the 2010 average price per pound for produce.

Combined Spending Potential

An important note about local spending potential detailed in this section is that there are significant types of infrastructure improvements needed to achieve these dollar figures. For example, moving fresh produce from farm to market may require refrigerated trucks and storage facilities; moving meat from farm to market will require those things plus facilities for

[28] Large corporate livestock and poultry operations in the region are not likely to convert their production to support local market sales. Instead, smaller operations with greater infrastructure flexibility are likely to supply local markets. According to a report published by the USDA the percent of livestock operations that tend to target direct markets is about 1%. Small Scale U.S. Cow-calf Operations, April 2011. USDA, Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System.
[29] Michael Melusky (2006) *Niche beef products comprise small share of retail beef sales.* Issues Update research brief. http://www.beef.org/uDocs/nichebeefproducts.pdf
[30] Estimates are based on the calculations presented in Table 4 and come from the ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid and USDA Census of Agriculture, 2007.
[31] Ibid.

processing. To achieve maximum access to the 42 fruits and vegetables, creative innovations will need to be instituted, like extending crop seasons, developing storage techniques, and utilizing alternative indoor growing methods. The $24.6 million figure should be regarded as a long-term goal linked to substantial changes in local food production and distribution systems plus increased spending linked to increased interest in local food.

8. Bridging the Gap Between Demand and Supply

The gap refers to the fact that there is more potential and real demand than supply for many types of food produced in the Five County Region and that many consumers, businesses, and organizations indicate a desire for more locally grown food than they can currently buy. Supply in this case includes all facets of food procurement and distribution, including issues involving equipment, facilities, and processes for moving food from farm to market. This chapter draws on research and information presented throughout the report to generate recommendations and make conclusions about bridging the gap between demand and supply of locally grown food in the Five County Region.

The following recommendations reflect an underlying assumption that the local food system will change incrementally over many years; aiming for maximum potential will require a long-term perspective. Each recommendation is intended to provide insight into current opportunities for supporting and advancing the local food system, as well as recommendations for points of action. They are based on the findings of the assessment and surveys, the experience of the researchers, and the guidance of the Seeds of Change steering committee.

Many of the recommendations should occur concurrently. Balancing demand should occur in recognition of existing supply and available market outlets. Building farmer and buyer capacity must occur alongside the development of new market opportunities. Maximizing existing resources in the community should correspond to the development of new initiatives. Communities should weigh the competing demands with existing resources in making decisions on how best to proceed.

9. Recommendations

A key finding from the business and community surveys is the need for greater consumer awareness and demand for locally grown food. Demand is the foundation of the movement and provides the market support that will lead to the sustainability of the transition to a more locally based food system. Local food campaigns and initiatives exist in the region and they need to better coordinate and intensify their efforts.

Support of direct to consumer markets is a good starting place. Direct markets provide farmers an easy point of entry into local markets, they build consumer awareness and loyalty, raise the visibility of agriculture, and build demand across a variety of local market segments. Direct markets also have the added potential to increase access to fresh foods to communities with food needs.

Building capacity – of farmers and buyers – is another important starting place. Farmers need training and technical assistance in order to access and succeed in local markets, many of which require different skills and resources for marketing and production than conventional markets. As demand for locally grown food increases, larger market outlets – restaurants, grocers, institutions, and other non-direct market outlets – will become increasingly viable for farmers, and in this context both farmers and buyers need training and technical assistance to make relationships work.

As the local food system grows, the gaps in the infrastructure for processing and distribution will need to be addressed. A key question for the High Country communities is: Can infrastructure that may be proposed generate enough income to pay for operating costs? If infrastructure projects are unable to pay for operating costs, then income streams need to be determined in advance for long term sustainability. If subsidized processing, aggregation, and distribution are deemed worthy of continued financial support, analyses should be done on the impact of such "market distortions" on the long-term viability of local food. When commercial ventures sell product below their costs it is considered "dumping" and is generally used to eliminate competition. This is unlikely to be the desired results of establishing local aggregation, processing, and distribution.

Generally, as a comprehensive approach, it is recommended that initiatives designed to build strong and sustainable local food systems "publicize, don't subsidize." Publicize in the sense of promotion and raising value of locally grown foods through campaigns and consumer connections to local food. Don't subsidize in the sense of endeavors that act like a business and compete in a business environment should not distort markets by unsustainably lowering prices. In the long run, all initiatives need to succeed in the marketplace.

Following are 11 separate recommendations for consideration as the Seeds of Change Appalachian Initiative moves forward in building a strong and sustainable local food system in the High Country region.

Promote and support direct-to-consumer outlets

Direct markets can provide the highest return to farmers in comparison to other markets. They provide an easy entry point for farmers new to marketing because of the minimal cost required for entry, and in providing a direct connection between consumer and farmer, they cultivate customer loyalty and advocacy for local farms and food generally. ASAP's surveys of farmers market shoppers demonstrate that markets are supported by an expanding base of repeat customers who shop there not just for food but for the experience of interacting directly with the people that grow their food and for a sense of community. Between 2002 and 2010, the number of farmers markets and CSAs in the Southern Appalachian region has increased 80%.[32] This growth echoes the data from the 2007 Agricultural Census, which shows 49% increase nationally in direct food sales from $812 million in 2002 to $1.2 billion in 2007.

Direct markets can also play a role in addressing food access. Helping farmers markets overcome the hurdles of accepting Electronic Benefits Transfer (EBT) and WIC and Seniors Farmers Market Nutrition Program (where available) simultaneously draws new customers into purchasing local food while giving greater access to neighborhoods with low food security. Dedicated outreach efforts to low-income communities should promote the availability of that technology to potential users. Outreach efforts to low income communities can, for example, conduct campaigns in schools and through local media. Promotional programs can use coupons to provide potential customers with an incentive to visit farmers markets. Cooking demonstrations at markets or in areas of low food security with fresh, seasonal ingredients are a means to engage low income (and all) participants with unfamiliar ingredients and address the loss of cooking skills.

[32] Based on data from ASAP's *Local Food Guide*.

Participate in local marketing programs

ASAP's consumer research in Western North Carolina shows the importance of local labeling. A 2011 survey of Western North Carolina residents shows that 88% of consumers say that they are more likely to purchase local products if they are labeled as local. Labeling is crucial because it allows consumers to act on their preference for locally grown food, and it allows any price premiums associated with local food to accrue to producers. Local branding is a way to add value to local farm products and provide farmers with a means to increase their marketing power. ASAP's Appalachian Grown™ regional branding and certification program provides farms in the region with a means to enhance the visibility of their products in the area's local markets and, accordingly, their ability to compete more effectively. The Appalachian Grown region serves all of the counties in the Five County Region. High Country Local First's High Country Grown initiative is another branding program (not certification), which promotes local food and farm products in the High Country of North Carolina.

Provide training and support to the region's farmers

To access the opportunities in local markets successfully, farmers need a combination of skills, resources, and support in multiple areas. Farmers need training and expertise in business and market planning to effectively diversify their farm businesses and market their farm products locally. Farmers need to understand industry standards for different types of local market outlets: packaging, labeling, food safety requirements, distribution, quality standards, traceback standards, etc. Furthermore, farmers need assistance determining what types of market outlets are a good match for the capacity of their farm. For retail and institutional outlets in particular, farmers need assistance developing relationships with buyers and information specific to market requirements and desires. This combination of assistance provides farmers with the support needed to make decisions and implement practices based on careful planning. Decisions based in planning reduce risk and increase the likelihood that strategies are successful. Successful farmers attract new farmers into the market outlets.

Highlight and develop connections between farms and restaurants

In the community survey, 92% of residents in the Five County Region said that having locally grown food available at restaurants was somewhat or very important to them. In the survey of businesses, 69% of restaurants said that a strong motivator for them to purchase locally grown food is to meet the desire and demand of their customers. When diners learn that food on their plates comes from a nearby place—a farm and a farmer with a name and a face—it gives the meal and the visit more meaning.

The region has a growing independent restaurant sector and increasing interest by chefs and restaurant owners in sourcing fresh, local food. Efforts focused on deepening connections between local farms and restaurants might include a farm to chef promotional campaign, organizing farm fieldtrips for chefs and foodservice and farmer-buyer meetings, and utilizing ASAP's *High Country Mixing Bowl* farm-to-chef trade directory to help connect chefs to local producers. The combination of these activities will simultaneously connect local farms to this market sector, increase the visibility of local food in the community and build awareness, and provide farmers and chefs with practical information about how to build business relationships that last.

Explore the viability of larger scale retail and institutional market outlets

As a market venue for farmers, larger retail and institutional markets should be part of an overall strategy of market diversification and growth. Larger markets require greater production while also expanding access to locally grown food. Larger markets are not for everyone - they can not only be difficult for farms to access because of specific institutional and infrastructure requirements, but they typically have the lowest price point. Business survey respondents from institutional markets identified the most barriers to purchasing locally grown food, including obtaining consistency in volume of product and the product delivery timing.

Despite the challenges, there are opportunities for farmers in the region with larger-scale markets. There are several regional grocery store chains with local food purchasing programs including Ingles, Lowes, and Food City. Equipped with the knowledge of market standards and desires, these larger scale outlets provide Five County Region farms with potential marketing options.

Organizations such as ASAP and Cooperative Extension have relationships with many larger buyers and can facilitate suitable market connections. Across all categories of markets surveyed, businesses expressed high interest in receiving assistance in sourcing locally grown food. In an expanding local food system, the suitability of this connection is crucial to ensure the satisfaction and sustainability of these relationships. Farmers need specific information about what markets are available to them and how to access them. Food businesses need to understand the qualities of local product and how they can adapt their procurement and distribution systems to accommodate local.

With the growth of the local food movement, there has also been increasing interest by institutions, schools, hospitals, and colleges in providing fresh, local options to students, staff, patients, and employees. Institutional market settings like schools and hospitals provide opportunities to highlight the connections between food, food access, and health; nurture healthy eating habits in kids and families; and, over the long term, build support and appreciation for local farms and food. Moreover, schools and hospitals, because they reach broad constituencies and reach across socioeconomic and other cultural lines, provide opportunities to increase the distribution of fresh, local food to vulnerable children and families. Public schools in particular provide farms in rural settings with market options. Rural areas often lack sufficient market outlets, but school systems exist in every county and have the potential to provide a steady market for farmers. All school districts in North Carolina are eligible to participate in the North Carolina Department of Agriculture's Farm to School program, which makes this statewide program the most accessible option for many county school districts. Information on the program and its requirements can be found on the NCDA Farm to School program website: http://www.ncfarmtoschool.com/index.htm.

Promote positive experiences around local food

Taking a longer view of the development of the local food system, implement strategies in local food campaign activities in the Five County Region that promote positive experiences with local food and farms. Farm tours, food and farm festivals, meet the farmer events, food tastings, Farm to school and hospital programs provide participants with the means to engage with local farms in meaningful ways, cultivating an appreciation for this resource. Furthermore, more and more research from the health sciences demonstrates that food habits and preferences are directly impacted by experiences. Preferences for food develop in positive contexts, and aversions to foods develop in negative contexts. Children and adults that have positive experiences with local farms and food develop an appreciation for local food and farms.

In Farm to School, Farm to Hospital, and Farm to College support/promote program activities that emphasize the experiential aspects: farm field trips, cooking demonstrations with seasonal ingredients, tastings, meet the farmer events, school gardens, etc. These hands-on activities engage participants positively with local agriculture. Kids and adults participate in planting and harvesting activities, learn to cook with seasonal ingredients, learn about the cycles of agriculture and the seasonality of crops, meet farmers growing food in their communities, and try new fruits and vegetables. These types of positive experiences influence the formation of eating habits and preferences, create healthier individuals and communities, and develop local food and farm advocates.

Promote local food and farms to tourists

Tourism is a major economic driver in the Five County Region and generated an impact of $320 million in 2010.[33] While promoting experiences that bring agriculture and tourism together—agritourism—is not a new idea, an expanded notion of agritourism includes experiences with the region's agriculture that happen off-farm as well as on-farm. Off-farm connections might involve eating at a restaurant or staying at a Bed & Breakfast that features locally grown food, attending a festival or event celebrating regional cuisine, going to a farmers market, or traveling a scenic trail through the region's farmland. These kinds of experiences are important because, while not all farms can welcome tourists, all farms can benefit from the tourism dollars spent on local food and local food activities.

Consider aggregation and distribution options

The Five County Region currently supports local networks of distributors who work with local producers, including New River Organic Growers (NROG) and Lett-US Produce. Working within these existing channels to help connect local farmers to new markets not only provides new opportunities for local food producers, but will help your organization better understand the complexities of food distribution networks within the region. If after working within the local system there appears to be an opportunity for a food hub model, carefully research the feasibility of such a plan within the framework of the Five County Region's supply and demand dynamic

[33] North Carolina Department of Commerce 2011 Travel Economic Impact Model. http://www.nccommerce.com/tourism/research/economic-impact/teim. (accessed June 2012).
The Economic Impact of Travel on Tennessee Counties 2011. http://www.tnvacation.com/industry/toolkits-research/. (accessed June 2012).

(e.g. the ability of the market to support product at certain prices), as context should always guide decision-making.

Understand the opportunities and challenges of local meat processing

As the local food system continues to mature in the Five County Region, producers, processors, agricultural professionals, food and farm organizers, and others will have to address gaps in regional infrastructure that contribute to gaps between supply and demand and create barriers to further localization efforts. Feasibility assessments for small and large animal processing facilities have become a go-to method for addressing infrastructure issues. However, the failure rate of small, regional processing facilities is very high. Regulatory issues, siting difficulties, and extraordinary capital requirements hinder many facilities from opening, and high operating costs that outstrip revenue plague facilities that are able to open. The building of a meat processing facility is a large undertaking and is often not the best first option. Research into the infrastructure gaps in the Five County Region should be designed to determine the most economically viable means to expand the region's animal processing capacity, which might take multiple forms: the development of new infrastructure, the expansion of existing infrastructure, or the conclusion that it is not currently economically viable.

Tap into ASAP's resources

The recommendations in this report cite many ASAP resources and tools available to farmers in the Five County Region. This recommendation summarizes these resources and lists additional resources available to Five County Region farms. This list is not exhaustive; investigate other types of assistance and resources available through farm support services and other organizations in the region.

- ASAP's *Local Food Guide* and *Mixing Bowl*: Encourage more farms and businesses in the Five County Region to get listed in the *Local Food Guide*. Basic farm listings are free and business listings are very affordable. Registering for the guide also provides farms with the ability to list their business in the *Mixing Bowl*, a farm-to-business trade directory. ASAP has printed and distributed over one million Local Food Guides and annually prints and distributes 100,000 copies throughout the region.
- Appalachian Grown: Utilize ASAP's Appalachian Grown regional certification and branding program. The logo provides farms with a way to distinguish their products in the marketplace and businesses with a way to promote their support of the region's farms. ASAP has stock marketing materials available (bags, twist ties, case stickers, etc.) and also creates custom materials (farm profiles, table tents, posters, etc.).
- ASAP's Business of Farming Conference: Annually, ASAP hosts a conference for farmers at Warren Wilson College in Swannanoa. Annually, ASAP hosts a conference for farmers at Warren Wilson College in Swannanoa. The conference is a full day of workshops and resources designed to provide farmers with the skills and information needed to tap into growing demand for locally grown food and make their farm enterprises profitable. The conference offers over a dozen workshops on market and business planning for a range of direct (tailgate markets and CSAs) and non-direct markets (grocers, institutions, restaurants) and opportunities for farmers to meet individually with buyers in the region.

- ASAP's Cost Share Program: Currently ASAP, through the support of the GoldenLEAF Foundation and the North Carolina Tobacco Trust Fund Commission, has funds available for farmers and farmer groups to use in the promotion of local food and farm products. Contact ASAP for information about how to participate in this program or visit http://www.asapconnections.org/agmaterials.html.
- One-on-one assistance and market connections: ASAP offers individual assistance to farmers and businesses in market and business planning as well as introductions and connections between farmers and buyers.

Support policies that favor local sales and protecting farmland

By working with policymakers at both state and local levels, local food advocates can not only pursue changes in policies affecting producers in the region, but keep agriculture issues at the forefront of the many regional planning and promotion efforts. Policy advocacy is also important as it relates to expanding the reach of local markets into low-income market segments. Below is a sample of policies other regions around the country have endorsed to help develop local food:[34]

- Food Policy Councils- A food council should serve as a way for people and organizations concerned about food access, food production, and food processing to interact and advocate for change.[35]
- Voluntary Agricultural Districts (VADS)- A specialized area where bona fide agriculture production is encouraged. Districts may require minimum acreages and enrollment periods for inclusion as a district. In general,

Cost of Community Services (COCS) Studies

The American Farmland Trust research division conducts fiscal analyses that focus on the way different types of land use affect local government taxation and spending. Nearly 20 years of data show that residential development is a fiscal net loss for communities due to expenses related to traffic congestion, water and air pollution, and increase in demand for costly public services. Farmland, on the other hand, often generates a fiscal surplus that helps offset the deficit created by residential demand for public services.

There is a common misconception among local development planners that open land should be developed for its "highest and best use," that agricultural lands receive unfair tax breaks, and that residential development will lower property taxes by increasing the tax base. Results from COCS studies show that, based on cost per dollar of revenue raised to provide public services to different land uses, commercial and industrial development are the least costly form of development (median cost per dollar: $0.29) followed closely by working and open land (median cost per dollar $0.35). Residential development comes in at a distant third (median cost per dollar $1.16). In other words, when considering development plans, planning departments should note that preserving farmland and open space is often a profitable strategy in the long run. For more information, visit http://www.farmland.org/

[34] Unless otherwise footnoted, this list is adapted from *Planning for an Agricultural Future: A Guide for North Carolina Farmers and Local Governments*. 2007. American Farmland Trust.
[35] Casey Dillon, *Counties and Local Food Systems: Ensuring Healthy Foods, Nurturing Healthy Children.* July 2007. National Association of Counties. E-Text Link: http://www.farmtoschool.org/files/publications_133.pdf. (accessed May 2011).

districts are established to reduce conflicts between rural and urban landowners.

- Present Use Value (PUV)- The value of land based on its current use as agricultural land and assuming that there is no possibility of the land being used for another purpose.
- Extraterritorial Jurisdiction (ETJ)- Allows a municipality to ensure that developments within a designated planning region are compatible with zoning standards inside the city. Including farming as an allowed use in a zoning district can provide the flexibility needed to change a farming operation in the future.
- Comprehensive Farmland Preservation Plan- Comprehensive farmland preservation plans identify agricultural resources and outline efforts and funding opportunities to ensure that farming has a continued place in the community. Land preservation efforts strive to preserve strategically located parcels utilizing local funding to leverage available funding from the county and state.
- Purchase of Agriculture Conservation Easement (PACE)- Landowners sell agricultural conservation easements to a government agency or private conservation organization. In exchange, farmland is permanently maintained for farming purposes and protected from development.