ASAP
Appalachian Sustainable Agriculture Project

2011 Food and Farm Assessment: Chattanooga, Tennessee

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Executive Summary

Across all Chattanooga markets – from direct to consumer to restaurants, grocery stores, and institutions – there is strong and growing demand for locally grown food. This study projects a potential of millions to hundreds of millions dollars in annual retail spending can be achieved for the 100 mile region around Chattanooga. High demand, combined with a long growing season, fertile soils, and a strong existing farming economy provides tremendous opportunities to strengthen and build the region's local food system and local food economy.

This report is the culmination of a research project commissioned by the Benwood Foundation of Chattanooga, whose goals include strengthening the Chattanooga community by supporting a local sustainable food system. This research explored: (1) what food and farm products are currently produced in the region; (2) the relationship between foods grown in the region and consumption by local residents; (3) the potential for increasing local consumption of locally-produced food and farm products as a way to strengthen the regional farm economy; and (4) points where investment of resources or other actions could eliminate barriers currently impeding the purchase of local food and the expansion of the local food economy. In this report, the emphasis on expanding local markets for local farm product is based on an underlying assumption that local markets can improve farm profitability. Profit potential lies in price premiums tied to strong demand for local food as well as the possibility for reduced distribution and transportation costs associated with selling to local markets. In this sense, local markets can exert a positive influence on farm profitability as well as contribute to regional economic wealth by keeping dollars spent on food circulating in the local economy.

The report is based on the results of six separate surveys conducted by ASAP between October 2010 and May 2011, as well as analysis of secondary data and published statistics including the 2007 USDA Census of Agriculture. Stakeholders surveyed and interviewed include area consumers, college foodservice directors, child nutrition directors in public school districts, hospital foodservice directors, grocery stores, and restaurants. The major geographic area studied is a 100 mile radius around Chattanooga, which includes 65 counties. Two other geographically defined areas, a 50 mile radius (27 counties) and the Greater Chattanooga region (17 counties), were also considered.

The region has a long farming tradition and, despite national trends of farm loss and agricultural consolidation, farming remains vital to this region of the Appalachian Mountains and Cumberland Plateau. In a snapshot, the 100 mile region is home to over 49,000 farms (73,000 farmers) producing a wide variety of fruits and vegetables, meat and dairy products, and non-food crops like cotton and cottonseed. Farms in the 100 mile radius occupy a third of the land in the region – 6 million acres.

Small farms predominate; the average farm size is 117 acres. In 2007 agriculture generated $3.5 billion in cash receipts, a 66 percent increase over 2002. Cattle, poultry and eggs dominate the market with 86 percent of sales. In the 100 mile region, eighty-five percent of farms had sales of less than $25,000 in 2007; accordingly, a small number of farms account for a disproportionate amount of agricultural earnings.

Farmland in the 100-mile region is suitable for growing 42 types of fruits and vegetables that are commonly exported and sold in retail outlets outside of the region. Yet, for most of these fruits and vegetables there is significantly more demand from the Greater Chattanooga population than the 100-mile region currently produces. To meet current consumption, acres in production would need to increase by 17 percent to 17,250 acres.

Beef, chicken, pork, and milk production in the 100-mile region significantly outpace consumption by Greater Chattanooga residents. However, most beef is produced in cow/calf operations and most poultry in confined animal feeding operations under contract for large food industry processors. The bulk of these products do not remain in regional markets, but are exported to out-of-region markets. Given increasing consumer demand for locally raised meats, there is potential for expanding grass-fed and pastured meats for local markets. Similarly, there are opportunities for dairy farmers to supply local markets with value-added and identity-preserved products like artisan cheese, butter, and yogurt.

ASAP's research with the region's markets and residents found strong interest in supporting local farms and sourcing locally-grown food. For this report, two approaches were used to calculate the potential economic impact of localizing Chattanooga's food system. The first approach begins with large scale market demand for local food. A considerable proportion of residents' food purchases occur at selected large scale markets—grocers, restaurants, universities, public schools, hospitals. Based on ASAP's market surveys as well as estimates from published government statistics, **maximum potential spending by selected Greater Chattanooga markets – grocers, hospitals, colleges, public schools, restaurants, major downtown businesses – on locally-grown fresh produce alone is calculated at $26.7 million**. While this calculation depends on significant improvements to infrastructure, distribution, and growing systems for locally-grown fresh produce, the $26.7 million dollar figure represents an achievable goal for area farms and businesses. Since the $26.7 million is a wholesale figure, it represents the amount of money going directly to local farmers and is a substantial opportunity. The retail equivalent of $26.7 million in fresh produce purchases is $101.5 million.

The second approach to calculating potential economic impacts from the localization of Chattanooga's food system is based on food consumption by residents. Utilizing food consumption and purchasing data, **maximum potential retail spending by Greater Chattanooga residents on locally grown fresh produce and artisan meat is calculated at $358 million dollars**. This figure assumes 100% of fresh produce (that can be grown in the region) and artisan meat purchases by residents could be sourced locally in all outlets. It also assumes significant improvements to infrastructure, distribution, and growing systems for locally-grown fresh produce as well as a shift in meat production practices.

Despite strong demand for local food and farm products, only a fraction of all food that is consumed locally is currently produced locally. This gap between supply and demand presents tremendous opportunities for local farmers. Expanding local consumption of local farm products will require restaurants, food stores, and other businesses and institutions that serve or sell food to modify food procurement and distribution systems, farmers to build their capacity to meet market desires and requirements, and Gaining Ground or another qualified intermediary to help facilitate suitable connections between farmers and buyers.

The recommendations in this report suggest a number of areas to expand current local food campaign activities and other areas where new initiatives and additional research are needed. Recommendations detailed in this report include:

- Provide support to small farms
- Conduct outreach and develop relationships with buyers
- Highlight and develop connections between farms and restaurants
- Support direct marketing channels
- Develop local branding and certification programs
- Conduct feasibility assessment for local meat processing
- Align tourism and agriculture
- Promote positive experiences around local food
- Support policies that favor local distribution, sales, and protecting farmland
- Foster collaboration around shared goals
- Evaluate local food campaign activities

Within these recommendations there are many action steps that can be taken. These recommendations are part of a broad agenda for expanding local markets for local farm products in the region. Achieving a strong and successful local food system is one way to improve the profitability of Chattanooga area farms and help maintain working farmland in the region.

Introduction

This report provides the result of research conducted by Appalachian Sustainable Agriculture Project (ASAP) for Gaining Ground, a program of the Benwood Foundation of Chattanooga, Tennessee. The purpose of the research is to: (1) explore what food and farm products are currently produced in the region; (2) examine the relationship between foods grown in the region and consumption by local residents; (3) consider the potential for increasing local consumption of locally-produced food and farm products as a way to strengthen the regional farm economy; and (4) identify points where investment of resources or other actions could eliminate barriers currently impeding the purchase of local food and the expansion of the local food economy. This report represents a systems research approach on the region's food and farm economy, which can form the basis for future efforts to expand local markets for local farm products.

Report findings are based on the analysis of secondary data and published statistics from the USDA 2007 Census of Agriculture, the US Census Bureau, other relevant data sources, and on the results of surveys conducted by ASAP between 2010 and 2011 with markets and residents in the Chattanooga region.[1,2] The largest geographical area studied is the 100-mile, 65 county region surrounding Chattanooga. Located within this region, the smaller 50-mile radius (27 county) and Greater Chattanooga (17 county) regions were also separately examined. The data compiled is intended to provide Gaining Ground with a baseline of information about the food and farming economy in the Chattanooga region, realistic projections related to the financial impact of shifts in farm production and consumption, and recommendations for strategic action in developing the local food economy.

[1] To assess current interest in purchasing local foods by Chattanooga's large markets, ASAP conducted an online survey of area restaurants, hospitals, major employers, school nutrition service directors, universities, and local grocers from April 14 to May 15, 2011. Key domains in the surveys focused on current local food purchasing, interest in and barriers to purchasing local, as well as familiarity with/interest in resources to facilitate local purchasing. For complete results please refer to the Gaining Ground Market Surveys Summary.

[2] To assess the Chattanooga community's perceptions of /interest in locally-grown foods ASAP conducted a web-based Community Food survey from October 1 to October 31, 2010. Key domains focused on participant's definition of local, perceived benefits and negatives of agriculture in the community, and purchasing habits for locally-grown foods. For complete results please refer to the Summary for Gaining Ground Community Food Survey.

1. The Chattanooga Food and Farming Economy

Agricultural production in Tennessee generates over $2.8 billion annually, and the state ranks 33rd nationally in farm income.[3] A total of 78,300 farms were operating in Tennessee in 2010 on 10.9 million acres.[4] The average farm size in Tennessee in 2010 was 139 acres.[5]

The city of Chattanooga is located at the intersection of three states: Alabama, Georgia, and Tennessee. It lies approximately 118 miles from Atlanta, Georgia and 112 miles from Knoxville, Tennessee. For this study, three different geographical regions are used to define and examine the Chattanooga local food system. The largest is a 100-mile radius surrounding Chattanooga and includes 65 counties in three states.[6] The second area, comprising a 50-mile radius, consists of 27 counties located in Tennessee, Alabama, and Georgia.[7] The 100 and 50-mile regions contain the majority of farms and farmland, and produce the highest agricultural receipts presented in this report. The third geographical area comprises the 17 counties that define the Greater Chattanooga region.[8] This region is considered the population center with the strongest potential for markets and the most heavily trafficked venues for local food purchasing.

The 100 mile region has approximately 4 million[9] residents and more than 73,000 farmers.[10] This figure includes over 49,000 crop and livestock farms on 6 million acres.[11] The average farm size in the area is 117 acres,[12] with a predominant number of these farms dedicated to egg production and the raising of poultry and cattle. The 100-mile region generated $3.5 billion in agricultural receipts in the year 2007.[13]

The smaller 50-mile region has nearly 1.4 million[14] residents, including over 26,500 farmers.[15] The area contains just under 18,000 farms producing crops and livestock on 2.2 million acres.[16] With an average farm size of 124 acres, the 50-mile region reported over $1.8 billion in crop and livestock sales in 2007.[17]

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[3] The USDA Agricultural Census is conducted every five years. The most recently released data is from 2007. Throughout this report, data is from 2007 unless otherwise indicated.
[4] Ibid.
[5] Ibid.
[6] **100-mile radius counties**. Tennessee: Bedford, Bledsoe, Bradley, Cannon, Coffee, Cumberland, Dekalb, Fentress, Franklin, Giles, Grundy, Hamilton, Jackson, Lincoln, Loudon, Marion, Marshall, McMinn, Meigs, Monroe, Moore, Morgan, Overton, Polk, Putnam, Rhea, Roane, Rutherford, Sequatchie, Smith, VanBuren, Warren, White, Wilson, Georgia: Bartow, Catoosa, Chatooga, Cherokee, Dade, Dawson, Fannin, Floyd, Forsyth, Gilmer, Gordon, Haralson, Lumpkin, Murray, Paulding, Pickens, Polk, Towns, Union, Walker, Whitfield, Alabama: Calhoun, Cherokee, Cleburne, Dekalb, Etowah, Jackson, Limestone, Madison, Marshall, Morgan
[7] **50-mile radius counties**. Tennessee: Bledsoe, Bradley, Coffee, Franklin, Grudny, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, Sequatchie, VanBuren, Warren, Georgia: Catoosa, Chatooga, Dade, Fannin, Floyd, Gilmer, Gordon, Murray, Walker, Whitfield, Alabama: Cherokee, Dekalb, Jackson
[8] **Greater Chattanooga** region: Tennessee: Bledsoe, Bradley, Franklin, Grundy, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, and Sequatchie. Georgia: Catoosa, Dade, Walker, and Whitfield. Alabama: Jackson and DeKalb.
[9] US Census Bureau Quick Facts, 2009.
[10] USDA Census of Agriculture, 2007.
[11] Ibid.
[12] Ibid.
[13] Ibid.
[14] US Census Bureau Quick Facts, 2009.
[15] USDA Census of Agriculture, 2007.
[16] Ibid.
[17] Ibid.

The Greater Chattanooga region has a population of just over 1 million,[18] including nearly 18,000 farmers.[19] It contains 12,000 farms on 1.4 million acres of farmland, with an average farm size of 117 acres.[20] Significantly, 30 percent of the total land area for Greater Chattanooga is in farms. Though the leading industries in Greater Chattanooga are service, retail trade, and construction,[21] farming is a substantial contributor to the economy with over $1.1 billion in agricultural receipts reported in 2007.[22]

1.1 Cash Receipts from Farming

For 2007 total agricultural receipts reported for the 100-mile region were over $3.5 billion. In the 50-mile region, over $1.8 billion were reported. Receipts for farms in Greater Chattanooga accounted for 2.2 percent of the total receipts of the 100-mile area of study at $776,929.

A study conducted in 2008 by the Ochs Center for Metropolitan studies reported that in 2002, the 100-mile region produced $2.1 billion in cash receipts from agricultural products.[23] With a 2007 total of $3.5 billion, this represents a $1.4 billion increase over a 5 year period, or more than a 66 percent increase in cash receipts for the region.

The highest grossing products across all three regions (100-mile, 50-mile, Greater Chattanooga) were livestock, poultry, and their products, accounting for more than 85 percent of total sales receipts. This figure is higher than the 2007 national trend where 52 percent of agricultural sales came from livestock, poultry, and their products.[24]

For 2002 the Ochs Center reported that of the $2.1 billion in total sales, livestock and animal products accounted for 83 percent of sales, while all other crops accounted for 16 percent.[25] Results from ASAP's study show that the proportion of livestock and animal product sales continues to dominate, and in 2007 represented over 86 percent of total sales.

[18] US Census Bureau Quick Facts, 2009.
[19] USDA Census of Agriculture, 2007.
[20] Ibid.
[21] Chattanooga Area Chamber of Commerce Business Information Center, Economic Development Department, "Chattanooga Tennessee Business Demographics: Hamilton County," Chattanooga Area Chamber of Commerce, http://www.chattanoogachamber.com/PDF_Files/business_demographics.pdf. (accessed June 2011).
[22] USDA Census of Agriculture, 2007.
[23] *A preliminary Analysis of Food Production and Consumption in the Chattanooga Foodshed,* The Ochs Center for Metropolitan Studies. November 2008. http://growchattanooga.org/docs/2008OchsFoodshedAnalysis.pdf (accessed January 2011).
[24] Ibid.
[25] Ibid.

Table 1

Value of Agricultural Products Sold in 2007			
	100-mile Region	**50-mile Region**	**Greater Chattanooga Region**
Value of crops including nursery and greenhouse	$475,207,000	$215,111,000	$86,465
Value of livestock, poultry and their products	$3,026,165,000	$1,594,325,000	$690,464
Total	$3,501,172,000	$1,809,436,000	$776,929
% Livestock/poultry of total for region	*86%*	*88%*	*89%*

Source: USDA Census of Agriculture, 2007

Cash Receipts for the 100-mile Region

For the purposes of this report, the primary focus of agricultural production will be on the 100-mile region. For 2007 poultry and egg sales were the largest contributors to total agricultural receipts, accounting for 71 percent of all cash receipts from farming that year. Within the crop category, nursery products accounted for the largest portion of cash receipts, followed by vegetables, fruits, and tobacco. Table 2 shows a selection of agricultural products sold in the region in 2007.

Table 2

Value of Sales by Commodity Group for 100-mile Region		
	Total	**% of Total**
Aquaculture	$16,000	0.00%
Cut Christmas trees and short rotation woody crops	$292,000	0.01%
Other animals and other animal products	$1,353,000	0.04%
Sheep, goats, and their products	$3,463,000	0.10%
Tobacco	$4,406,000	0.13%
Fruits, tree nuts, and berries	$5,308,000	0.16%
Vegetables, melons, potatoes, and sweet potatoes	$15,823,000	0.46%
Horses, ponies, mules, burros, and donkeys	$20,068,000	0.59%
Hogs and pigs	$24,521,000	0.72%
Other crops and hay	$28,149,000	0.82%
Cotton and cottonseed	$31,940,000	0.94%
Milk and other dairy products from cows	$99,679,000	2.92%
Grains, oilseeds, dry beans, and dry peas	$118,310,000	3.47%
Nursery, greenhouse, floriculture, and sod	$247,665,000	7.25%
Cattle and calves	$395,291,000	11.58%
Poultry and eggs	$2,418,073,000	70.82%

Source: USDA Census of Agriculture, 2007

Farms by Sales Class

Though the 100-mile region reported $3.5 billion for cash receipts from agricultural products, there were far more farms in the area that reported small earnings than reported large earnings. Table 3 below shows that 32 percent of all farms in the 100-mile region had sales of less than $1,000; 85 percent of farms had sales of less than $25,000. For the 100-mile region, there are a small number of farms responsible for a disproportionately large amount of earnings.

Table 3

100-mile Region Farms by Value of Sales in 2007		
Value	**Number of Farms**	**Percentage of Total**
Less than $1,000	15,748	32%
$1,000 to $2,499	6,809	14%
$2,500 to $4,999	6,020	12%
$5,000 to $9,999	6,767	14%
$10,000 to $19,999	5,047	10%
$20,000 to $24,999	1,274	3%
$25,000 to $39,999	2,054	4%
$40,000 to $49,999	770	2%
$50,000 to $99,999	1,262	3%
$100,000 to $249,999	960	2%
$250,000 to $499,999	842	2%
$500,000 or more	1,888	4%

Source: USDA Census of Agriculture, 2007

Organic Production

Table 4 below provides a snapshot of certified organic farming for the 100-mile, 50-mile, and Greater Chattanooga regions. While additional farms may practice organic techniques, the USDA Census of Agriculture only reports on those farms that are part of the National Organic Program. The table shows that of the 49,445 farms in the 100-mile region 0.003% are nationally certified as organic.

Table 4

Organic Production by Region 2007			
	100-mile Region	**50-mile Region**	**Greater Chattanooga Region**
Organic Farms	120	37	25
Organic Acres	737	154	137
Total Organic Product Sales	$237,007	$154,007	$154,007

Source: USDA Census of Agriculture, 2007

Table 4 further shows that the 100-mile region contains 380% more organic acreage than the 50-mile region, though 300 of the 737 acres are in one county, Marshall County in Alabama. Total organic product sales in the region are largely underestimated due to the small number of farms in each county and the USDA's procedure of withholding figures that identify data about individual farms. However, organic product sales of $237,000 in 2007 are low compared to total sales of all other agricultural products.

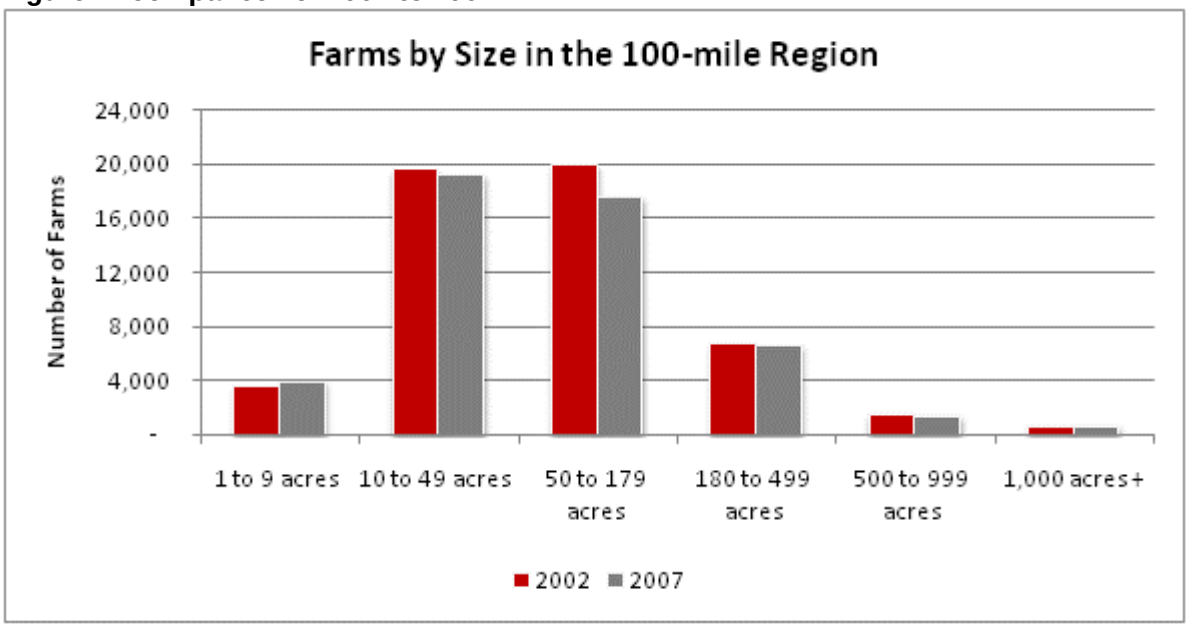
1.2 Trends in Farming and Farmland

The previous numbers give an overview of the 100-mile region's farm economy. A fuller picture emerges when regional trends and their effect on production are examined.

Decline in farms and acres of farmland

The study by the Ochs Center found that in 2002 the 100-mile region included 51,803 farms with 5.9 million acres. Data from the 2007 Agricultural Census reports a drop in the number of farms counting 49,445 farms with 6 million acres. This change represents a 4.6 percent decrease in the number of farms operating in the 100-mile region and a 1.7 percent increase in farm acres. Figure 1 below graphically depicts the change from 2002 to 2007 in the number of farms by size. It shows that, though the number of farms has not decreased significantly, the farms most affected are smaller farms (less than 179 acres).

Figure 1: Comparison of 2002 to 2007



Source: USDA Census of Agriculture, 2002 and 2007

The trend of a decrease in number of farms and increase in farm acreage is linked to consolidation among farms. Despite the slight increase in farm acreage for the 100-mile region over the past few years, the overall trend of farm acreage in Tennessee has been an 8 percent decrease from nearly 12 million acres in 1997 to just under 11 million acres in 2007.

Aging of the farm population

According to the USDA the average age of farmers has been increasing every year since 1978. In 2002, the national average was 55.3. That average increased to 57.1 for the 2007 census.[26] The average age of farm operators in the 100-mile and 50-mile Chattanooga regions were just at the national age, averaging 57 and 57.4 years respectively.[27] This trend suggests that the aging of the farming population will be a top issue affecting the future of farming in the region.

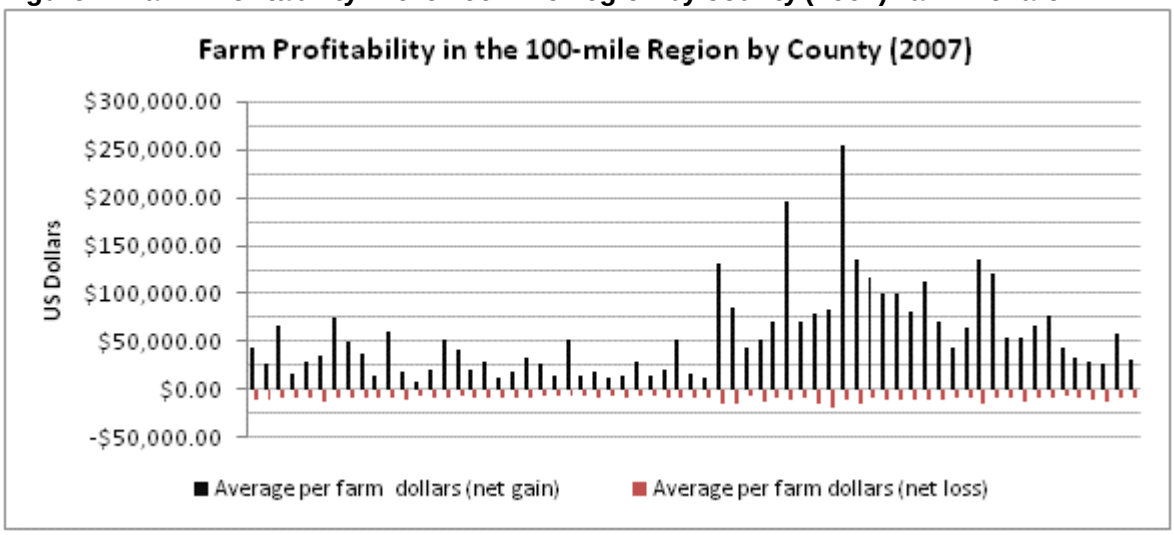
Definite relationships exist between age of farm operator and certain farm characteristics. For example, family farms typically have older farm operators than corporate farms, and farms in smaller income classes typically have older farm operators than larger income class farms.[28] In 2002, 83 percent of the farms in the 100-mile region had sales totaling less than $25,000. In 2007, this percentage increased to 85 percent. With the high concentration of small family farms in the region of study, it is not surprising that the average operator age matches the national average.

1.3 Economic Considerations

An analysis of current farm profitability is necessary to determine the long-term viability of the region's farms. Figure 2 below is a graphic representation of the net profitability of farms for each county in the 65 county (100-mile) region. Each black bar and the corresponding red bar below it represent one county.[29] For instance, the first black bar on the far left of the graph and the red bar below it correspond to Bedford County, TN. The black bar ($44,042) shows the average profit for farmers in the county who reported a net gain. The red bar below (-$11,019) shows the average loss for farms in the county who reported net losses. For Bedford County, the average farm earning for profitable farms is much greater than the average losses for unprofitable farms. The trend across all counties in the region is the same. Overall, Figure 2 shows that the average net profit earned by profitable farms ($55,764) far exceeded the average net loss of unprofitable farms (-$9,777).

[26] USDA Census of Agriculture, 2007.
[27] Ibid.
[28] 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.
[29] The order of the counties represented by the bars is exactly the same as the order which was first reported in footnote 2.

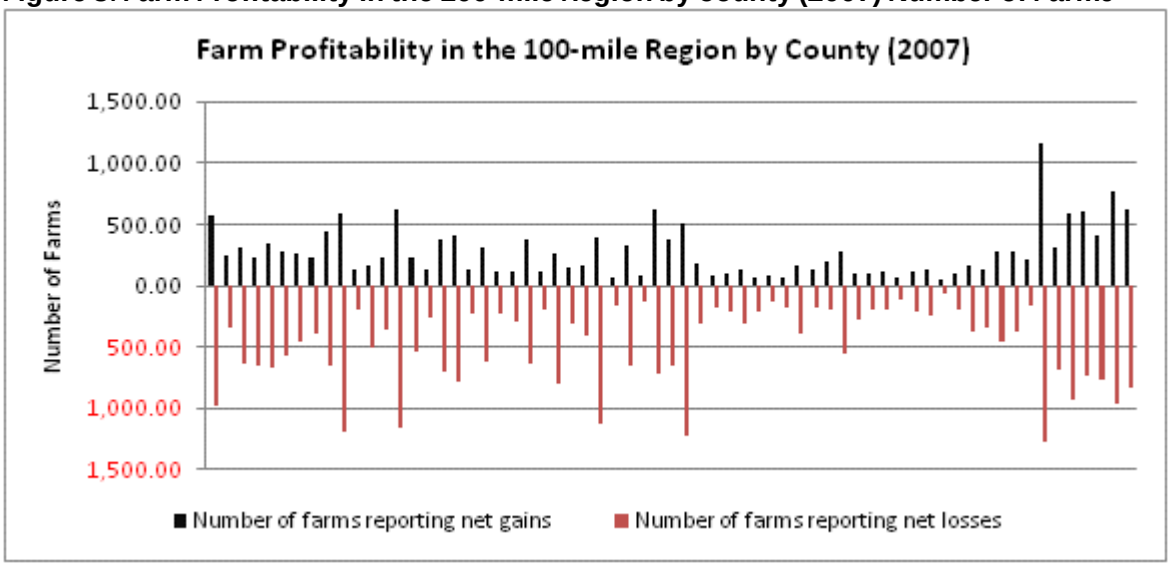
Figure 2: Farm Profitability in the 100-mile Region by County (2007) Farm Dollars



Source: USDA Census of Agriculture 2007

There is a second important piece to the profitability profile. Figure 3 below is similar to Figure 2 in that it depicts farm profitability by county. Each black bar and the corresponding red bar below it represent one county in the 65 county (100-mile) region. The distinction is that Figure 3 shows the *number of farms* in each county that have reported net gains or net losses, regardless of the total of those gains/losses. For example, the first black and red bars on the far left of the chart correspond to Bedford County, TN. The black bar represents the 568 farms in Bedford who reported net gains in 2007; the red bar represents the 986 farms who reported net losses. Across all 65 counties for 2007, the total number of farms reporting net gains was 17,663. The total number of farms reporting net losses was 31,402.

Figure 3: Farm Profitability in the 100-mile Region by County (2007) Number of Farms



Source: USDA Census of Agriculture, 2007

Therefore, while the profitable farms (from Figure 2) in the region reported high average gains and gave the region an overall positive production balance, a much larger number of individual farms lost money. It is not uncommon for small family farms to lose money. In fact, some small farms stay in farming for reasons other than profitability, such as continuing a family tradition or maintaining a rural lifestyle.[30] Long term sustainability of the farm sector, however, depends on improving the ability of regional farms to be profitable.

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, but it is possible for producers to earn higher prices in local markets if buyers are willing to pay a premium for locally-grown food, if costs of reaching markets is lowered, if direct markets are available, and if multiple market options are available.

Farmers have the potential to earn higher prices by selling directly to buyers – consumers or businesses – rather than to intermediaries, such as packers, wholesalers and distributors. Whether or not that translates into higher profits depends on the extent to which transaction costs also increase. Transaction costs include everything from harvesting to packaging to marketing farm products and vary according to how or where products are sold.

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.

1.4 Regional Strengths and Resources

This section reviews conditions that can be considered strengths or resources for advancing the development of the local food system in the Chattanooga area. The information comes from data from the USDA as well as from community and market surveys.

Community Support for Local Food and Farms

The USDA reports that direct sales of agricultural products to consumers in the 100-mile region increased from $7,668,000 in 2002 to $10,384,000 in 2007, a total increase of 35.4 percent. The results of the community survey and market surveys confirm this growth in demand for locally-grown food.

In the market surveys, the majority of businesses state that they purchased local food in 2010 and planned to purchase the same amount or more local food in the coming year. The overall trend in responses is 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 they choose to purchase.

[30] 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.

The majority of respondents in the community survey indicated that they routinely purchase local products and expressed a desire for more locations where they could purchase locally-grown food. One respondent, when asked how likely he/she would be to buy local food if it was available at specific types of markets responded, "I'm all for purchasing local food anywhere." Another participant, when asked why he/she would choose NOT to buy locally-grown food responded, "Need more access to variety of farmer's markets, in my local grocers, food stands within my community." These responses represent the attitudes of the majority of respondents: a desire for more vendors, greater access, increased variety of product, and better labeling of local foods.

In describing farmers as a source of strength for the regional food system, the majority of community survey respondents noted the appeal of the region's farming heritage and the community value of producing their own food. More than half of the respondents strongly agreed that a benefit of local agriculture is that it provides valuable employment opportunities for farmers and farm workers. Survey participants also noted the work ethic of the region's farmers, and the role that farmers play in helping to preserve the scenic beauty, rural character, and environmental sustainability of the region. The overall opinion of those surveyed is that the farms and farmers of the region are an important asset.

Characteristics of the Regions Farmland and Farms

Situated in the area between the Appalachian Mountains and the Cumberland Plateau and covering nearly 28,000 square miles, the 100-mile region's rich soils and mild climate produce farmland suitable for growing a wide variety of crops. The beauty of the farms and farmland is a feature of the region particularly noted by survey respondents to the community survey as a strong regional asset.

There are over 42 types of fruits and vegetables that thrive in the region. The area also contains stretches of pastureland suitable for a wide variety of livestock and other farm animals. Chattanooga farmers boast an array of specialty animal products from grass fed local beef to artisanal goat cheeses. Many respondents to both the market surveys and community survey noted the uniquely fresh taste of food grown or raised in the region and the quality of the region's produce in particular. Both market and community survey respondents noted their willingness to pay more for all of these types of high-quality local foods.

The scale of family farms provides them with the ability to respond more easily to the demands of the local market. Factoring in the regions optimal growing environment with small farm sizes gives local farmers opportunities that would be impossible in harsher climates or with large-scale farming. Being able to rely on less costly infrastructure (due to small farm size), and having a diverse crop base to choose from gives regional farmers adaptability. Smaller farms producing an assortment of products can more easily incorporate new techniques and skills to increase profitability. This gives the region's farmers resiliency to changing market demands and fluctuations in market prices.

Nonprofits and Farm Support Services

A number of both market survey and community survey respondents recognized the strong network of nonprofit and government based organizations working on local food issues as a strength for the region in terms of rebuilding local food systems.

What type of support is available for farmers in Tennessee?

Government Agencies

United States Department of Agriculture (USDA). The USDA is the Federal executive department charged with developing and executing policies on farming, agriculture, and food. Specific agencies focus on agricultural research and education; marketing of U.S. agriculture products; food safety and inspection; natural resource protection and conservation; health and care of animals and plants; economic support of U.S. producers; collecting and publishing statistical information relevant to the agricultural sector; and rural development.

Farm Service Agency (FSA). FSA is the USDA lead agency that manages and administers farm commodity, crop insurance, credit, environmental, conservation, and emergency assistance programs for farmers and ranchers through a network of federal, state, and county offices. State and county offices certify farmers for farm programs and pay out farm subsidies and disaster payments.

Natural Resources Conservation Service (NRCS). NRCS is the USDA lead agency that assists with the conservation, maintenance, and improvement of natural resources and the environment. Farmland protection is one major NRCS activity area. County-based NRCS staff works directly with farmers, ranchers, land-owners, and divisions of state and local government. In Tennessee, the state office is located in Nashville. An area office is located in Chattanooga and county offices are located throughout the state.

Tennessee Department of Agriculture (TDA). Based in Nashville, the TDA provides a variety of services, programs, and technical assistance to farmers and agribusinesses with the goal of improving the overall state of agriculture in TN. Specific divisions collect, prepare, and disseminate statistical information relative to Tennessee agriculture; work to improve production efficiency and protect natural resources; offer services to mitigate the impact of natural and man-made disasters; coordinate the collection, storing, and distribution of USDA donated foods to primary and secondary schools, private schools, charitable institutions, and needy households; work to develop and expand markets for TN products; and protect public health and safety by regulating industries involving agricultural products.

University of Tennessee Extension. With an office in every county, University of Tennessee Extension delivers information to citizens throughout the state of Tennessee. Extension agents provide education to both the general public and the agricultural community through print materials, web-based resources, one-on-one technical support, business planning services, conferences, workshops and seminars. Working with farmers, families, youth, and communities, Extension helps address problems and issues at the local, state, and national levels.

Continued on next page…

Non-Profit Organizations

Tennessee Farm Bureau. The Tennessee Farm Bureau (TFB) is a private, non-profit organization that promotes farm and rural issues in Tennessee through government relations, marketing, field representation, agricultural education, member services, and other programs. Organized in 1921, the TFB is the largest Farm Bureau in the nation, and has the goal of protecting the interests of farmers and rural families and has served as a policy advocate – on behalf of farmers and private landowners – on commodity, environmental, and regulatory issues. TFB has a large educational component that provides opportunities to broaden the knowledge and leadership capabilities of farmers, with special programs directed toward young farmers, ranchers, and women.

Tennessee Agriculture Production Association (TAPA). Located in Lavergne, TN, TAPA promotes, coordinates and disseminates information related to current recommended agricultural production practices among those engaged in research, education, manufacture, distribution and regulation of Tennessee agriculture.

Other nonprofit organizations. Many nonprofit organizations are working to support farmers in the region through a variety of programs and services including: farmer education and capacity-building; referral and debt management services to small farmers; policy advocacy; public educational activities to raise awareness about issues affecting local farms; work to develop collaborative marketing, distribution, and processing channels; assistance to landowners to protect farmland, wild habitats, and watersheds, and rural economic development activities.

Commodity Associations

Tennessee commodity associations represent the interests of producers and work variously to improve TN agriculture through public promotion and education activities, policy advocacy, and educational programs for growers. There are dozens of associations representing commodities produced in TN.

2. Market Survey Results: Demand by Large Scale Markets

"Scaling up" refers to efforts to increase local food sales by reaching larger markets than are available through traditional direct sales categories.[31] There is a practical limit to how much food can be sold through direct markets, and the largest share of most consumers' food spending will continue to be in grocery stores and supermarkets. Larger scale markets include grocery retailers, restaurants, institutions, and other businesses that serve or sell food.

2.1 Large Scale Markets: Potential and Maximum Spending

To forecast economic impacts of a more fully developed Chattanooga local food system, this section calculates potential spending by select larger scale markets on locally-grown goods. Potential spending and maximum spending categories are more realistic and immediately achievable for fresh produce, which requires less infrastructure than meat, poultry, etc. Therefore only locally-grown produce is considered; meats, cheeses, poultry, eggs, etc. are not included. Infrastructure requirements for scaling up production of meats and dairy and other animal proteins for local consumption require time and planning as well as significant investments.

The following definitions will be used to describe potential spending and maximum spending:

> **Potential spending** assumes that businesses buy 100 percent of regionally available fresh produce from local venues when in season. The figure also assumes some improvements to infrastructure and distribution systems and continued increases in demand for locally-grown food.
>
> **Maximum spending** is the highest possible level of spending for each type of business. It assumes significant improvements to infrastructure, distribution, and growing systems for locally-grown fresh produce in addition to continued and increased demand so that all businesses buy regionally available fresh produce from local venues year round.

Dollar values for these two levels of spending are generated in different ways throughout this section. The calculations for each market segment are based on published statistics. To calculate the amount of money larger markets paid for their produce, this report uses a formula in which the wholesale value (also known as the farmshare value) is 26.2 percent of the retail value of food. In other words, the price a business sets for fresh produce is calculated as 3.8 times higher than the amount they paid for the produce for.[32] Formulas are included in many places for clarity.

[31] Lindsey Day-Farnsworth, B. McCown, M. Miller, A. Pfeiffer, *Scaling Up: Meeting the Demand for Local Food.* December 2009. UW- Extension Ag Innovation Center and UW-Madison Center for Integrated Agricultural Systems.

[32] Farmshare value was calculated based on ERS/USDA market basket statistics. 26.2% represents the 2009 weighted average percent of the dollar a farmer receives from the sale of fresh fruit and fresh vegetables. On average, for every pound of fruit Americans purchase, they purchase 1.4 pounds of vegetables. According to the ERS market basket statistics for 2009, the farm share for fruits was 28% of every dollar spent, and 25% for vegetables. Therefore, ((28x1)+(25x1.4))/2.4 = 26.2%

Table 5 summarizes the potential and maximum spending on locally-grown produce by select larger-scale buyers in the region.

Table 5

A Summary of Select Large-Scale Markets for LOCAL PRODUCE in the Chattanooga Region (chart excludes meat and dairy)

	Potential Spending	Maximum Spending
Full service groceries	$5.1 million	$15.4 million
Full-service restaurants	$2.7 million	$8 million
Public Schools	$825,000	$2.5 million
Colleges/Universities	$250,000	$757,000
Hospitals	$25,700	$77,700
Total (wholesale spending)	*$8.9 million*	*$26.7 million*
Total (retail equivalent)	*$33.8 million*	*$101.5 million*

There are some business categories not accounted for in Table 5—hotels, convenience stores, fast food restaurants, and recreational facilities that sell food, for example. These particular types of businesses were presumed to have a lower potential for buying local food and are not included in calculations. Other businesses such as summer camps, specialty food stores, and major employers are presumed to have a high potential for buying local food, but these types of business were not included due to the limited scope of this report. Including these groups would result in higher estimates of the potential for local produce purchases by larger scale buyers in the region.

Full-Service Groceries

Full-service groceries represent a potentially large market for growers in the 100-mile region. The ability of regional growers to satisfy this demand will depend on their ability to meet the terms of the retailers regarding packaging and delivery of farm products as well as product quantities and quality.

ASAP surveyed the cheese and produce buyers from a local grocery store that is part of a national chain. According to the responses, one of the most important issues influencing the ability of regional farmers to sell to full-service groceries concerns the quality of food and food safety. This includes increasingly complex government requirements for certifying the safety of food as well as the need for producers to carry liability insurance. Other important issues for grocers relate to coordinating the advanced ordering and purchase of farm product in set quantities.

According to the responses, between $10,000 and $20,000 was spent on local cheese and between $30,000 and $40,000 was spent on local produce for the grocery store in 2010. The store primarily relied on farmers markets and local wholesalers for local product. Retailers often assume that all produce provided by local or regional distributors and wholesalers is locally-grown, though in reality such companies often source food from other regions to supplement the local products they offer in order to maintain a consistent, year-round supply. While the specific details of local food purchasing by other grocery retailers in the region are not available, this report presumes high interest among all of the region's full service grocery retailers. National market research has

identified local as a top trend that will affect the food industry in the coming years,[33] and this fact is supported by the emergence of "buy local" programs by retailers in the Chattanooga region including Earth Fare, Fresh Market, and BI-LO.

There is an upper limit to the amount of produce retail food stores can buy from regional growers based on climate and soil-related limitations. Farmers of the 100-mile region could not supply 100 percent of produce to local retailers because they cannot grow pineapples, bananas, or lemons, for example. They can, however, grow each of 42 different types of fruits and vegetables that accounted for 75.7 percent of produce sales in retail outlets nationwide in 2010. In Table 6 these 42 items are listed along with their corresponding share of total retail produce sales.

Table 6

$ Share of Retail Produce Sales for Selected Fruits and Vegetables

Vegetables	% of Total Produce Sales in 2010	Vegetables (Continued)	% of Total Produce Sales in 2010	Fruits	% of Total Produce Sales in 2010
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 & vegetables that can be grown in 100-mile region: **75.7%**					

Source: The Packer

Based on the table and adjusting for seasonality, farmers of the 100-mile region could grow 75.7 percent of retail produce items for a third of the year, or 25 percent of total annual produce purchases (75.7% x 33% = 25%). In other words, farmers can grow all of the items listed in Table 5, but some items are limited to the months of the summer season and others to the winter season. Without being able to calculate exactly how many months each item would be available to local

[33] *What Makes Local Special?* 2007. The Hartman Group, Inc: Bellevue, WA.

markets, the 25 percent ratio is intended to provide a reasonable adjustment for the seasonality of production in the region.

To calculate the amount of money grocery stores spend on produce, the total annual sales for all grocery stores in the Greater Chattanooga region was gathered from the US Census Bureau's 2007 Economic Census; it equals approximately $777.5 million. According to the Census, produce accounts for 10 percent of all sales for supermarkets and supercenters. Therefore, the approximate total produce sales for grocery stores in Greater Chattanooga in 2007 were $77.8 million. For the report, since wholesale spending is calculated to equal 26.2 percent of retail spending, the amount of money the grocery stores paid for produce in 2007 is $20.4 million.

- **Potential spending** for local produce is calculated at $5.1 million. This figure represents 25 percent of total yearly produce purchases for all full service grocery stores in the region. The figure is the assumed amount these stores could buy given improvements in local food distribution and infrastructure but recognizing limitations associated with climate and growing conditions. (25% x $20.4 million = $5.1 million)
- **Maximum spending** is calculated at $15.4 million, which is 75.7 percent of annual fresh produce purchases for all full-service groceries in the region. This figure does not take seasonality into account, but assumes that the 42 types of local produce would be available year round. This could be accomplished through advanced storage techniques, extended growing seasons, or the utilization of indoor growing practices. It is a long-term objective and assumes that the local food economy will continue to develop, interest in local food continue to rise, and purchasing of local products continue to increase. (75.7% x $20.4 million= $15.4 million)

Restaurants

In exploring the potential of restaurants as a market channel for local farmers, the following analysis is limited to full-service restaurants, those that provide food services to patrons who order and are served while seated.[34] Using this category of restaurant excludes the majority of fast food chains and franchises within the region. Chains and franchises, compared to restaurants that are independently owned and operated, are more often limited in their ability to choose where and how they obtain food.

ASAP surveyed 102 full-service restaurants in downtown Chattanooga; 22 responded for a response rate of 21 percent. Restaurants who participated in the survey reported steady growth in local food purchasing over time, with 75 percent of restaurants reporting that they purchase locally-grown food when it is available. The amount of money restaurants spent on locally-grown food varied widely with a third spending $1 to $1,000, a third spending $1,000 to $20,000, and a third spending over $20,000. Overall, restaurants reported that seasonal availability, the ability to find farmers and local product, coordinate purchase and delivery, and price impact their ability to source food from local growers.

According to the U.S. Economic Census, there were more than 384 full service eating and drinking places in the Greater Chattanooga region in 2007. The high concentration of restaurants in the region is due in part to a strong tourism industry. For the same year these restaurants had

[34] Definition for NAICS Code 722110, "Full-service restaurants."

combined estimated sales of $348 million. Total produce spending by Greater Chattanooga restaurants was calculated by first multiplying the $348 million in total sales by 34 percent, which represents restaurant food costs as a percentage of total sales.[35] Total food costs for Greater Chattanooga restaurants equals $118.3 million ($348 million x 34% = $118.3 million). Produce spending varies considerably from restaurant to restaurant, but on average represents 9 percent of total food purchases for foodservice establishments.[36] Therefore, total estimated produce spending by Greater Chattanooga restaurants is $10.6 million ($118.3 million x 9% = $10.6 million).

- **Potential spending** is calculated at $2.7 million. This reflects an assumption that all full service restaurants have high interest in buying locally-grown food when it is in season. (25% x $10.6 million = $2.7 million).
- **Maximum spending** is calculated at $8 million, which involves all of the region's full-service restaurants buying the maximum 75.7 percent of their produce from local sources year round. (75.7% x $10.6 million = $8 million).

Public Schools

To determine the extent to which public school districts in the area currently purchase locally-grown food and to gauge regional interest in farm-to-school programming, a survey of Child Nutrition Directors (CND) representing Chattanooga area public schools was distributed online. The survey was completed by one of seven CNDs.

Around $1.5 million of locally-grown food was purchased for the school district in 2010. Of that percentage, 99.5 percent was spent on milk from Mayfield Dairy, and 0.5 percent was spent on produce. The CND described strong interest in expanding local purchases, but named issues such as coordinating purchase and delivery and need for standardized packaging as barriers. Longer term, the CND acknowledged that growth will depend on resolving storage and delivery infrastructure challenges, such as the need for refrigerated trucks or warehouse space.

Institutions like public schools represent an important potential market channel for local growers because of the large volume of food they serve. Though some counties in the Greater Chattanooga region contain more than one school district, for the purpose of this study, only the main public county school district for each county was taken into consideration. City districts and private schools were excluded.

The 17 county school districts in Greater Chattanooga served 134,108 students in 2007.[37] With an average spending of $270.17 per student, the 2007 total food budget for Greater Chattanooga school districts was $36,231,504.[38] An estimated 9 percent[39] of a school district's total food budget is spent on produce, which makes the approximate total dollar amount spent on produce in Greater Chattanooga public county school districts $3.3 million (9% x $36.2 million = $3.3 million).

[35] National Restaurant Association.
[36] Produce Marketing Association.
[37] Federal Education Budget Project. Last modified April 2011. http://febp.newamerica.net/k12/TN/4701590 (accessed June 2011).
[38] Ibid.
[39] Institutional food spending tends to be similar across the board. For this report it is assumed that schools, universities, and major employers tend to spend similar proportions of their food budgets on produce. The original 9% figure comes from research done by the Produce Marketing Association and referred to "institutional spending."

- **Potential spending** of $825,000 reflects local food purchases by all county school districts using the adjustment for seasonality. Although public schools are not able to purchase many items that must be harvested during summer months, they are able to purchase other items (apples, cabbage, potatoes, spinach, e.g.) that can be stored well, harvested during the school year or grown successfully in greenhouses. (25% x $3.3 million = $825,000).

- **Maximum spending** of $2.5 million involves all of the 17 public county school districts buying the maximum 75.7 percent of their produce from local sources year round. (75.7% x $3.3 million = $2.5 million).

Colleges and Universities

Colleges and universities have strong potential for local food because of student activism. Students often have high interest in issues related to buying locally-grown food, such as the environmental benefits associated with reduced food transport. To determine the extent to which Chattanooga area colleges and universities purchase locally-grown food a survey of nine colleges and universities in the region was conducted. Three responded for a response rate of 33 percent.

All three schools reported purchasing local farm products, mostly fresh fruits and vegetables. Top concerns regarding local purchasing identified through the survey include quality of food, coordinating purchase and delivery, a need for standardized packaging, food safety, and product price. As expected, perceived demand from students is a strong motivator for school foodservice directors to purchase locally-grown foods. More than that, foodservice directors completing the survey were motivated by a desire to support Chattanooga farmers and the economy of Chattanooga.

In dollars, college food spending varies widely based on the type of foodservice provided, whether the school is privately or publicly funded, and how many students are enrolled. For this study, only 4-year colleges were considered. It is presumed that 2-year technical colleges and vocational schools would have similar high interest in purchasing local foods, but these types of schools were excluded due to time and resource constraints. Using college food spending estimates from two different sources (and confirmed by this study's survey data) the following table was developed to estimate food spending by schools in the region.[40,41]

[40] *Farm –to-College Survey.* 2004-present Community Food Security Coalition. www.farmtocollege.org. (accessed June 2011).
[41] *Industry Census: Campus Dining Revenues.* February 15, 2006. Foodservice Director Magazine.

Table 7

Estimated Spending on Food by Type of College			
	Estimated Average Annual Food Budget	**Number in Greater Chattanooga**	**Total**
Small scale 4-year colleges (1,200 or fewer students)	$500,000	3	$1,500,000
Medium scale 4-year colleges (1,20 to 4,000 students)	$1,000,000	5	$5,000,000
Large-scale 4-year colleges (more than 10,000 students)	$5,000,000	1	$5,000,000
TOTAL	--	9	$11,500,000

Universities Included: Southern Adventist University, Tennessee Temple University, Tennessee Wesleyan College, the University of the South, University of Tennessee at Chattanooga, William Jennings Bryan University, Covenant College, Dalton State College, Lee University

In Table 6, total annual spending on food by colleges and universities in the region is calculated at $11.5 million. Produce purchases are a subset of that, estimated at $1 million, or 9 percent of the total based on the Produce Marketing Association estimate.

- **Potential spending** for local food in this market is calculated at $250,000. This figure represents 25 percent of total annual estimated produce purchases for all nine universities in the region. (25% x $1 million = $250,000).
- **Maximum spending** among regional colleges and universities is calculated as 75.7 percent of total annual produce purchases for all 4-year schools in the region. This figure assumes year-round access and purchasing of the 42 top fruits and vegetables purchased by consumers. (75.7% x $1 million = $757,000)

Hospitals

Like public schools and universities, hospitals are a natural fit for local food. Providing more nutritious food choices falls within the overall mission of a health care facility to promote health and wellness for both patients and staff. Hospitals use a variety of approaches to incorporate locally-grown food into foodservice. Examples include purchasing local food available through contracted suppliers, working with out-of-contract percentages to maximize local food purchases, offering expanded nutrition education that focuses on consumption of fresh fruits and vegetables, and operating farmers' markets on hospital grounds.[42]

To determine the extent to which regional hospitals are interested in making connections with local farmers a survey of area hospitals was conducted. The online survey, which targeted hospital Foodservice Directors (FSD), was completed by 6 of 12 hospital FSDs for a response rate of 50 percent.

[42] *Healthy Food, Healthy Hospitals, Healthy Communities: Stories of Health Care Leaders Bringing Fresher, Healthier Food Choices to their Patients, Staff and Communities.* May 2005. Institute for Agriculture and Trade Policy.

Overall, 33.3 percent of hospital FSDs reported that they had purchased some locally-grown food in the past year, all of it produce. Those items were purchased in relatively small quantities relative to the total amount of food purchased, averaging between $1,000 and $20,000. Across differences in hospital size, self-operated or contract managed cafeterias, and publicly or privately operated facilities, there was a high degree of consistency among responses regarding interest in buying locally-grown food.

Overall, 4 of 5 hospital FSDs who answered questions about interest in purchasing locally-grown produce expressed high interest. Despite this interest, FSDs gave high ratings to nearly every barrier named by the survey. The highest rating was given to the category of price and quality of food. The health benefits of fresher food and supporting the local economy were two top-rated reasons for interest in buying locally-grown food.

The U.S. Census Bureau reports that there were 15 general medical and surgical hospitals in the Greater Chattanooga region in 2007 but only reports detailed revenue figures for the six hospitals located in Hamilton County—the county in which Chattanooga proper resides. According to these statistics, in 2007 these six hospitals grossed $979,343,000 in total revenue. Food and beverage revenue equals 0.5 percent of total revenue, meaning that the six hospitals had $4,896,715 in food and beverage sales in 2007. The total produce budget is estimated as 8 percent of total food purchases based on information provided by Foodservice Director Magazine. This amount equals $391,737. Since wholesale spending is calculated as 26.2 percent of this spending, the total wholesale spending on produce by all six hospitals in Hamilton County for the year 2007 is $102,635. (8% x $4,896,715 x 26.2% = $102,635)..

- **Potential spending** for this market channel is calculated at $25,700 which represents 25 percent of total produce purchases for the six Hamilton County hospitals, using the seasonality adjustment. (25% x $102,635 = $25,700)
- **Maximum spending** is calculated at $77,700 which is 75.7 percent of total annual produce purchases for all six Hamilton County hospitals. This figure assumes year-round access to the 42 top fruits and vegetables purchased by consumers. (75.7% x $102,635 = $77,700)

Final Summary

Table 4 has been reprinted from page 13 of the report to summarize potential and maximum spending for local produce in larger-scale markets in the region.

Table 5

A Summary of Large-Scale Markets for LOCAL PRODUCE in the Chattanooga Region
(chart excludes meat and dairy)

	Potential Spending	Maximum Spending
Full service groceries	$5.1 million	$15.4 million
Full-service restaurants	$2.7 million	$8 million
Public Schools	$825,000	$2.5 million
Colleges/Universities	$250,000	$757,000
Hospitals	$25,700	$77,700
Total (wholesale spending)	*$8.9 million*	*$26.7 million*
Total (retail equivalent)	*$33.8 million*	*$101.5 million*

Source: Various surveys and other research described throughout this section

From the table, **potential** wholesale spending of $8.9 million represents the amount of locally-grown produce Greater Chattanooga businesses could buy from local producers if they showed unlimited interest in purchasing fresh local produce when it is in season, and if improvements were made to the way food moves from farm to market in the region.

Longer term, **maximum** wholesale spending of $26.7 million represents the amount of spending that could occur if changes in tastes and preferences accompanied improvements to local food infrastructure and distribution systems. In other words, it reflects the increased spending linked to year-round increased interest in local food. It is calculated as the maximum amount that could be spent on local fresh produce by the types of buyers examined in this report.

3. Supplying Locally-Grown Food to Local Markets

The previous chapter used spending as a proxy for demand. This chapter uses food consumption estimates to look at potential demand. Comparing consumption and production of various types of food helps answer questions related to the capacity of the region's farms to supply local food to its residents.

The USDA Economic Research Service maintains the Food Guide Pyramid Servings dataset, which provides per capita consumption estimates for most categories of foods. The series includes adjustments for losses in weight that occur along the chain from farm to retailer/foodservice to consumer.[43] Throughout this chapter, food consumption estimates for the region's consumers are based on this dataset, updated to reflect 2010 levels of consumption. However, as the population estimates for this report are based on 2009 statistics, reports of consumption will be cited as 2009 figures.

Based on the Bureau of Labor Statistics Consumer Expenditure Survey for the Southern Region[44], the residents of the Greater Chattanooga region spent over $2.3 billion on food in 2009. For Greater Chattanooga where 1,018,347 residents equals 407,339 households, this figure breaks down to over $1.3 billion spent on food consumed at home and over $1 billion spent on food consumed away from home.

3.1 Production and Consumption Data: Fruits and Vegetables

Of the 6 million acres of land in farms in the 100-mile region that were in production in 2007, 14,738 acres were devoted to growing the 42 fresh fruits and vegetables representing 75.7 percent of produce sales in 2010. The total acreage required to produce enough of these fruits and vegetables to meet consumption rates by the Greater Chattanooga population is 17,250 acres. The amount of acreage needed exceeds the amount actually in production by 17 percent.

Table 8 shows that for most fresh fruits and vegetables, there is significantly more demand from the Greater Chattanooga population than the 100-mile region currently supplies. There are a few exceptions; acres devoted to the production of apples, berries, beans, tomatoes, pumpkins, and squash outpace consumption.

[43] *Food Guide Pyramid Servings Dataset.* Last Updated February 1, 2010. NASS, USDA. (accessed January 2011).
[44] Bureau of Labor Statistics (2011), *Consumer Expenditure Survey: Southern Region* (2008-2009), Department of Labor, U.S. Government Printing Office, Washington D.C. http://www.bls.gov/cex/2009/CrossTabs/regbyinc/xregns.PDF.

Table 8

Comparison of Consumption and Production of 42 Selected Fruits and Vegetables Grown in Greater Chattanooga[45, 46,47]

	Pounds consumed in Greater Chattanooga (rounded to nearest hundred)	Acres needed to produce that amount	Acres devoted to the crop in 100-mile Region
Apples	16,466,700	770	1,180
Berries and Strawberries	539,700	50	497
Cantaloupe	9,042,900	880	149
Cherries	1,018,300	*	7
Grapes	8,686,500	1,000	414
Nectarines	*[48]	-	-[49]
Melons	1,680,300	160	-
Peaches	5,163,000	550	147
Pears	3,177,200	*	56
Plums	936,900	*	5
Watermelon	15,733,500	640	257
Asparagus	1,201,600	510	-
Beans	2,169,100	330	7591
Beets	*	*	2
Broccoli	6,049,000	950	5
Cabbage	8,340,300	310	19
Carrots	8,218,100	360	2
Cauliflower	1,598,800	230	-
Celery	6,344,300	180	-
Corn (sweet)	9,379,000	1,630	964
Cucumbers	6,863,700	500	51
Eggplant	875,800	30	-
Garlic	2,820,800	820	-
Green Onion	*	*	1
Greens	1,405,300	*	53
Herbs	*	*	-

[45] For some types of fruits and vegetables (Nectarines, Beets, Green Onions, Herbs, Leeks, Peas, Romaine, Sprouts) the ERS/USDA Food Guide Pyramid does not provide per capita consumption data. These items were intentionally left blank.
[46] Table provides estimates. Reliable data does not exist for some categories of fruits and vegetables. When reviewing the chart, please note that 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. In many cases where there is a " –" in the Acres Devoted to the Crop in the 100-mile Region the USDA does list the number of farms producing a crop, but suppresses the acreage (ex: nectarines).
[47] For some types of fruits and vegetables, data on the average yield in pounds per acre harvested was unavailable.
[48] A * was used in this report to indicate that a value could not be calculate due to lack of data.
[49] A – is used by the USDA to indicate a value of zero.

Leeks	*	*	*
Mushrooms	2,484,800	10	(D)[50]
Onion	19,552,300	670	1
Lettuce (Leaf + Head)	28,493,300	1,180	4
Peas	*	*	82
Peppers (Bell)	10,030,700	940	82
Potatoes	37,373,300	2,310	164
Pumpkins	4,969,500	240	1,163
Radishes	529,500	130	-
Romaine	*	*	-
Spinach	1,649,700	140	1
Sprouts	*	*	*
Squash	4,246,500	140	401
Sweet Potatoes	5,122,300	330	118
Tomatoes	18,839,400	760	1,322
Total	***257,570,400 lbs***	***17,250***	***14,738***

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

Table 9 shows consumption of processed fruits and vegetables in the Greater Chattanooga region. Given consumer (intermediate and end consumers) demand for convenience and ready-to-eat foods, there is a clear market for processed products. An improvement to growers' abilities to process fruits and vegetables for local sale may be one way for growers to tap into these markets.

[50] (D) Indicates that specific data has been withheld by the USDA to avoid disclosing data for individual farms.

Table 9

Consumption of Selected Categories of Processed Fruits and Vegetables in Greater Chattanooga	
	Pounds Consumed in Greater Chattanooga (rounded to nearest hundredth)
Processed fruits	
Canned apples/applesauce	4,490,900
Canned peaches	3,034,700
Apple juice	26,151,200
Frozen berries	3,462,400
Canned pears	2,281,100
Grape juice	5,040,800
Other processed fruits	80,999,300
Processed vegetables	
Canned tomatoes	68,432,900
Canned cucumbers (pickles)	3,615,100
Canned snap beans	3,370,700
Canned carrots	977,600
Other canned vegetables	20,550,200
Frozen vegetables	77,598,000
Dehydrated vegetables	30,244,900

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

3.2 Production and Consumption Data: Meat and Poultry

Table 10 clearly shows the importance of beef, poultry, and their respective products in the Chattanooga region for both producers and consumers. Across all categories, production in the 100-mile region exceeds Greater Chattanooga consumption rates. However, it is important to note that the majority of the 100-mile region's beef production is in cow/calf operations; poultry is produced from confined animal chicken operations.

Shifts are occurring in the region with the emergence of grass-fed, artisanal, and niche markets. In 2011 there are 25 Chattanooga area farms listed in the TasteBuds Guide that raise beef for local markets; nine farms specialize in free range, locally processed chicken. Given increasing consumer demand, overall there is tremendous potential for expanding local markets for locally-produced meat and poultry. Access to a government-inspected processing facilities for poultry, but especially beef, is the principal infrastructure obstacle for any type of meat. Grass-fed and grass-finished beef 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, cow/calf producers would need to learn and adopt new practices, including more closely managed grazing and pasture management.

Table 10

Comparison of Consumption of Meat in Greater Chattanooga with Production in 100-mile Region

	Pounds Consumed in Greater Chattanooga (2009) rounded to nearest hundred	**Pounds Produced in 100-mile (2007)** rounded to nearest hundred
Beef	93,178,800	466,295,992
Chicken (broilers)	99,390,700	747,840,293
Pork	64,155,900	101,934,756
Lamb	1,120,200	832,400
Turkey	17,922,900	50,895

Source: The figures in the table are based on a series of calculations combining data from the 2007 Census of Agriculture, Source: ERS/USDA Data Food Availability (Per Capita) Data System, and the Agriculture Statistics divisions of the Tennessee Department of Agriculture, Alabama Department of Agriculture and Georgia Department of Agriculture.

3.3 Production and Consumption Data: Dairy Products

Table 11 shows the amount of milk and other dairy products consumed in the Greater Chattanooga region, as well as an estimate of the amount of milk produced.[51] The table shows that approximately 187,597,600 pounds of milk were produced in the Greater Chattanooga region in 2007. This amount barely surpasses the 182,385,900 pound consumption figure.

Table 11

Comparison of Consumption of Dairy Products in Greater Chattanooga with Production in 100-mile Region

	Pounds Consumed in Greater Chattanooga (2009) rounded to nearest hundred	**Pounds Produced in 100-mile (2007)** rounded to nearest hundred
Fluid milk	182,385,900	629,566,000
All cheese	30,448,600	N/A
Ice cream	25,458,700	N/A
Yogurt	12,016,500	N/A
Butter	5,091,700	N/A

*Production data for milk is derived from USDA Census of Agriculture data combined with the Source: ERS/USDA Data Food Availability (Per Capita) Data System and production statistics provided by the Tennessee Department of Agriculture, Alabama Department of Agriculture, and Georgia Department of Agriculture.

Large scale milk and cheese production in the area occurs primarily through the Mayfield Dairy company, which has nearby processing plants in Athens Tennessee and Braselton Georgia. Milk and dairy products, just like meat products, are a major part of the Chattanooga food and farm economy, and represent an enormous opportunity for local dairy farmers to supply local markets with identity preserved products.

[51] National Agriculture Statistics Service, 2009.

Some small local dairy farmers have focused on reaching niche markets with production of value-added products like artisan cheese, butter, and yogurt, though the total amounts produced are very small. The local Taste Buds guide lists four Chattanooga-based farms that produce these types of dairy products. Smaller farmstead operations typically sell directly to consumers at farmers markets, or on-farm stores, or by delivery directly to restaurants or local retail grocery outlets.

3. 4 Summary of Local Market Potential for Locally-Grown Food

This section is similar to the section that calculates potential spending by large markets; however projections are made for local food spending based on Greater Chattanooga consumption figures. This section is broader in scope as it includes local artisan meat products as well as fresh local produce in its calculations. Positioning these projections at the end of the section is a way to acknowledge that they depend on major changes to the food production and distribution system. These projections imply substantial changes to infrastructure systems but are grounded in measured consumption and production figures for the region. The same formula used throughout the report – in which wholesale prices are estimated to equal 26.2 percent of retail prices for produce, and 50 percent for meat[52] – is used to equate the wholesale spending figures to retail equivalent values.

Table 12 shows maximum potential wholesale and retail spending on local fresh produce and meats based on Greater Chattanooga consumption figures. Total retail spending of $358 million represents the amount spent in markets selling local fresh produce and artisan meats and takes into account mark-ups and overhead costs. Total wholesale spending of $95.9 million represents the potential dollar impact for local farms and producers in a more fully developed local food and farm system.

An important note about potential and maximum spending detailed in this chapter 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, but moving artisan meat from farm to market could require those things plus local facilities for processing. To achieve year-round access to the 42 fruits and vegetables, creative innovations will need the be instituted like extending crop seasons, developing storage techniques, and utilizing alternative indoor growing methods. The figure further assumes that all fresh produce and artisan meats purchased by residents will come from local sources. The $95.9 million figure should be regarded as a very long-term goal linked to substantial changes in local food production and distribution systems plus increased spending linked to increased interest in local food.

[52] Statistical data on the retail to wholesale price spread for the combined meats presented in this report is unavailable. The 50% spread is the best fit based on available data.

Table 12

A Summary of Total Market Potential for Local Food in Greater Chattanooga[53]

	Total Consumption (lbs.) 2009	Potential Spending (Retail)	Potential Spending (Wholesale)
Fruits and Vegetables[54]	257,570,500	$349,323,400	$91,522,731
Meats (beef, chicken, pork, turkey)[55]	274,648,300	$8,746,800[56]	$4,373,400[57]
Total (retail spending): $358 million			
Total (wholesale spending): $95.9 million			

Source: The figures in the table are based on a series of calculations combining data from the 2007 Census of Agriculture and the Agriculture Statistics divisions of the Tennessee Department of Agriculture, Alabama Department of Agriculture and Georgia Department 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 each of the 42 vegetables considered.

Maximum Spending Potential for Fruits and Vegetables

Maximum potential spending for fruits and vegetables of $349,323,400 is calculated as total consumption multiplied by the average retail price per pound for each of 42 types of fruits and vegetables. The total of these dollar amounts is $349,323,400 and is approximate retail spending by Greater Chattanooga residents. This figure also represents the maximum retail spending potential for the key 42 fruits and vegetables grown in the region. (70,444,600 lbs of produce x $/lb for each type of produce = $99,265,189 spending).

Maximum Spending Potential for Artisan Meat

Maximum potential spending for artisan meat (beef, chicken, pork, turkey) of $8,746,800 is calculated as total consumption multiplied by the average retail price per pound of each meat. Local artisan meats represent approximately 1 percent of this total.[58] $8,746,800 represents the

[53] All figures are rounded to the nearest hundred.
[54] Estimates are based on the calculations presented in Table 8 as well as the ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid and USDA Census of Agriculture, 2007.
[55] Estimates are based on the calculations presented in Table 10 as well as the ERS/USDA Data Food Availability (Per Capita) Data System: Food Guide Pyramid and USDA Census of Agriculture 2007.
[56] According to the USDA report *Small Scale US Cow-calf Operations* (2011), small-scale niche meat farmers make up about 1% of total meat production. Therefore, in order to realistically predict the possible market share for local meat products in the region of study, the larger figure of $874,680,000 which equals total meat spending (based on consumption) by the residents of Greater Chattanooga must be multiplied by this 1% figure.
[57] This figure is intended to give a rough estimate of farmshare dollars for artisan meat producers. It should be viewed in context as the 1% market share figure is unable to take into account market factors which can change the value of the product sold and/or the farmshare of the meat dollar. For instance, increased processing and production costs are associated with artisan production as is higher retail cost per pound of meat. Additionally, artisan meat producers often sell directly to consumers and receive 100% of the dollar share for their products.
[58] 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 will be the target producers 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 US Cow-calf Operations,* April 2011. USDA, Animal and Plant Health Inspection Service, Veterinary Services, National Animal Health Monitoring System.

maximum spending potential for locally raised artisan meat in the region. (274,648,300 lbs of meat consumed x $/lb for each type of meat[59] x 1% = $2,909,414 spending).

As before, the significance of any spending on locally-grown food lies in its potential to increase returns to individual farmers and generate additional economic impact to the region.

The Multiplier Effect

The local multiplier effect (LME) is a term first used by economist John Maynard Keynes in his 1936 book *The General Theory of Employment, Interest, and Money* to describe the way that dollars are re-circulated within a local economy before leaving through the purchase of an import. According to the theory, $95.9 million of spending on local farm products would add more than that to the local economy as local farmers re-spend the money on products and services in the local community.

There are many factors which influence the number of times dollars are thought to re-circulate, but LME's are commonly reported to range from 1.5 to 3.0. Within that range, the impact to the local economy of $95.9 million in spending on local farm products would be between $268.5 million and $537 million.

[59] From Economic Research Service, USDA and Bureau of Labor Statistics, U.S. Department of Labor. Price of meat per pound for 2011: Beef ($4.87), Chicken ($1.70), Pork ($3.48), Turkey ($1.60).

4. Bridging the Gap between Supply and Demand

The gap refers to the fact that there is more potential demand than supply for many types of food produced in the Chattanooga 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 final 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 Chattanooga region.

The following recommendations reflect an underlying assumption that the local food system will change incrementally over many years and that 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.

4.1 Recommendations

Provide Support to Family Farms

In the context of a developing local food economy, providing family farms with support is strategic. Supplying local food products to Greater Chattanooga residents will require a diversity of farms (defined by size and production capacity, products grown or raised, farm infrastructure, etc.), to supply a diversity of market outlets with different requirements.

Small family farms – 1 to 9 acres – are emerging in an environment of increasing demand for locally grown food and interest in experiencing local agriculture. Small farms have the capacity to be innovative and respond to the demands of the local market. Often relying on direct sales, small farms supply their products to residents and visitors via farmers markets, CSAs, roadside stands, and small businesses. At the same time, the data show that a large proportion of the region's small farms are losing money. While the emergence of small farms offers a promising counter trend to the aging farm population by bringing in the next generation of family farmers, the increase will only be maintained if farms can stay successful and profitable.

Medium and larger sized family farms – 50+ acres – have the production capacity to reach larger retail markets like grocery stores and schools. These farms are important to a developing local food system because they are able to supply the markets where the majority residents and visitors purchase food. However, local trends show that the number of farms between 50 and 179 acres are declining in the region.

Across farms, 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. 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.

Conduct Outreach and Develop Relationships with Buyers

Across all categories of markets surveyed, businesses expressed high interest in receiving assistance in sourcing locally grown food. Expanding on the previous recommendation, farmers need help developing business relationships with local buyers and vice versa. 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.

In assuming a role as a mediator between farms and food businesses, it is important to understand the desires and requirements of particular market outlets and the capacity of different types of farms to meet those requirements. Outreach to buyers across market segments to assess market desires and industry requirements for things like packaging and labeling, food safety certification, quality standards and traceback, product quantities and distribution. Meet with local farmers to assess the capacity of their operations and to direct them to suitable market outlets, and prepare them to meet industry standards.

The knowledge that you develop about your region's food system and the trust and relationships that you develop with buyers and farmers will play a crucial role in the region as demand and awareness continue to increase with local food campaign activities. Buyers will look to Gaining Ground for help finding suitable and reliable sources of local product. Farmers will have a community resource to help them develop the skills, knowledge, and connections to access opportunities in local markets.

Highlight and Develop Connections between Farms and Restaurants

Following the previous recommendation, dedicating time and resources to cultivate deeper connections between local farms and restaurants is a good place to start. Chattanooga has a vibrant independent restaurant sector and increasing interest by chefs in sourcing fresh, local food. To build on this interest, develop a farm to chef business directory to connect producers to restaurant chefs. A local food business trade directory provides a practical means for farms to market their products and for restaurants to source local ingredients and advertise the local products they are interested in finding. Furthermore, the directory provides farmers and food businesses with the means to post business requirements and mitigate potential misunderstandings and frustrations. For example, chefs post product volume, delivery, and the vendor approval process; farmers post the minimum order required, their distribution area, and production practices.

Other efforts focused on deepening connections between local farms and restaurants might include a farm to chef promotional campaign using Harvested Here – Chattanooga Grown™ branding and marketing materials, farm fieldtrips for chefs, and farmer-buyer meetings. 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.

Support Direct Marketing Channels

Direct markets 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. People shop at farmers markets not just for food but for the experience of interacting directly with the people that grow their food and for the sense of community. Direct markets put a face on food and bring heightened visibility to local farms and food, benefitting agriculture as a whole. Accordingly, direct markets are an important piece of ongoing local food campaign activities that work synergistically with efforts to mainstream local food and expand their distribution into non-direct market outlets.

Demand for direct market products in the study region is evident from the 2007 Agricultural Census, which shows a 34.5 percent increase in direct food sales to $10.4 million in 2007 from $7.7 million in 2002. Support might be in the form of the promotion of existing direct-to-consumer outlets—farmers markets, CSAs, on-farm stores and stands; workshops and training for farmers on relevant topics—salesmanship and display, best food safety practices, food regulation, marketing and promotion, etc; or in the form of assistance with the expansion of outlets.

Local Branding and Certification Programs

A clear barrier to the purchase of locally grown food indicated by Chattanooga residents is knowing where to find locally grown food. With more and more interest by consumers in supporting local farms and buying local food, it is vital that consumers know specifically where to find local food and, in non-direct market settings in particular, be able to identify it in the midst of a crowded market environment.

Demand for local can only be realized if consumers can find and identify local products. Labeling is important both because it allows consumers to act on their preference for locally-grown food and it allows any price premiums associated with the 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 to compete more effectively with non local items in the marketplace.

Research shows the willingness of consumers to pay more for local food and the significance of informational labels to identify locally produced products. The launch of the *Harvested Here-Chattanooga Grown* labeling initiative is an opportunity for local producers and markets to take advantage of the "local" trend. In the community survey, respondents noted their reasons for purchasing local food: it supports their neighbors and local economy (63.7%); it's fresher (56.6%); and it's healthier (48.5%). As it moves forward the Harvested Here brand should clearly communicate these values to the public.

Conduct Feasibility Assessments for Local Meat Processing

Of the approximately 466 million pounds of beef produced in the 100-mile region, only a small proportion of it is actually finished and processed in the region and marketed locally. The beef finished and processed in the region is often grass-fed or grass-finished beef and sold directly from on-farm stores and area farmers markets. Similarly, poultry producers in the region selling to local

markets raise birds in small quantities on pasture and can sell direct to consumers at farmers' markets or from on-farm stores.

Despite interest by producers and consumers, the infrastructural obstacles for proper meat handling and distribution are considerable. Grass-fed and grass-finished beef requires not only land for pasture but on-farm animal handling facilities, access to a USDA-inspected processing facility that adheres to all of the federal regulations from animal treatment to water quality to packaging and labeling, transportation to and from meat processing facilities, and adequate cold storage for processed meat products. Tennessee does not have a state poultry inspection program. However, anyone interested in processing and/or selling food must first obtain approval from and be licensed by the Tennessee Department of Agriculture. As with beef, poultry farmers need assistance in accessing the proper equipment and training to provide high quality product to sell to local markets.

As the local food system continues to mature in the Greater Chattanooga 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 in the region will provide producers, agricultural professionals, and local food and farm organizers with the information needed to develop informed strategies for addressing the processing limitations. Feasibility studies 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.

Align Tourism and Agriculture

Promote Chattanooga food and farms to tourists. Tourism is a major economic driver in the region generating an impact of nearly $762 million in 2010.[60] 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, or traveling a scenic trail through the region's farmland. These kinds of experiences are important because, while not all farms can welcome tourists to their farm for events and activities, all farms can benefit from the visibility and excitement generated.

To align tourism and agriculture a first step might be to conduct a needs assessment with tourism authorities and economic development officials in your region to gauge interest and assess opportunities. What do they need to promote local farms and food? What tools, resources, and support would be most useful to them? What ideas do they have to highlight the farms and distinct food ways in their communities? This information will help you to focus your efforts and resources and develop a strategy grounded in industry feedback. Tourism and agriculture activities might include an outreach campaign to tourism authorities about existing resources (e.g. the Taste Buds Guide) or the re-packaging of existing resources in a more tourism friendly format (e.g., visitor center rack cards) or the creation of new promotional tools and resources (e.g. materials that are

[60] *Recreation Destinations: 2010 Annual Report.* (2010). City of Chattanooga Parks and Recreation Department. http://www.chattanooga.gov/Files/2010OpeningPage.pdf. (accessed July 2011).

specific to county, food and farm trip planners and maps, etc). ASAP's *Farm Promotion and Support: Ideas and Tools for Economic Development and Tourism Development Authorities* is a good resource to get started thinking about accessing and building the potential of farm tourism. Access this document at http://www.asapconnections.org/ farmpromotionandsupport.pdf

Promote Positive Experiences around Local Food

With the growth of the local food movement, there has been increasing interest by schools, hospitals, and colleges in providing fresh, local options to students, staff, patients, and employees. The results of the Chattanooga surveys show strong interest by the region's hospitals, schools, and colleges. While these market segments can provide farmers with increased marketing options and can be integrated into an overall strategy of market diversification, institutional market settings like schools and hospitals in particular 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. With schools and hospitals, because they reach broad constituencies and reach across socioeconomic and other cultural lines, these outlets provide opportunities to increase the distribution of fresh, local food to vulnerable children and families.

Taking a longer view of the development of the local food system, develop/integrate strategies in local food campaign activities that promote positive experiences with local food and farms. Research from the health sciences demonstrates that food habits and preferences are directly impacted by positive and negative experiences. Preferences for food develop in positive contexts and aversions to foods develop in negative contexts. Following, 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.

Support Policies that Favor Local Distribution, 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:[61]

[61] 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.

- 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.[62]
- 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, 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. Present use value is determined by the state DPA using the statutory formula found in Tenn. Code Ann. §67-5-1008 (c).
- 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.
- Farmers Market Technology- The ability to accept EBT/SNAP benefits at farmers markets provides a means to expand the availability of local food to people with food needs and provide farmers with the ability to reach a different market segment.

Foster Collaboration around Shared Goals

New partnerships need to be formed, relationships expanded, and roles clarified in order to further food system localization efforts. The agenda of the local food movement is broad and far more than any one organization can handle effectively. Outside of agriculture, there are other groups with which partnerships are critical for advancing the local food agenda, including farm worker support agencies, organizations concerned with hunger, health, and food security, and governmental organizations that can facilitate policy changes influencing the ability of local farm products to reach local markets. As a first step, engage in an asset mapping process. Identify the resources and stakeholders in the Chattanooga community relevant to the process of rebuilding community based food systems. Engage key stakeholders in a process that defines community strengths, needs, shared priorities, and most importantly begins to build relationships across community sectors and potential future collaborations.

Evaluate Local Food Campaign Activities

Evaluation is important to understanding the impacts of your work, determining future action, demonstrating the value of your work, and securing funding for future activities. An evaluation

[62] 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).

program that uses a combination of surveying methods, census data, and activity tracking systems can be used to document participation in and satisfaction with Gaining Ground services and programs. Evaluation systems measure the impacts of campaign activities, and identify points of intervention where resources can be used to further the development of the region's local food economy.

Regular evaluation provides the means to track changes over time. For example, changes in the level of program participation, i.e., increases in participation in the Harvested Here program, is a proxy as to the perceived value of your program for farms and businesses. Changes in the TasteBuds Guide—i.e., increases in the number of farms, increases in the number of businesses, the diversification of participating business sectors, the diversification of farm product offerings—correlate with an expanding local food economy that provides increasing opportunities for farms and businesses. An annual survey administered to program participants provides a means to measure perceived impacts of your work on farmer and food businesses and track local food sales. Consumer surveys administered at periodic intervals tracks changes to the perceptions and values associated with local farms and food. Analyses of data from the USDA's Agricultural Census can help track changes in agriculture—number of farms, farm acreage, changes in production practices, farm profitability, farm size, etc.—over time. Appendix A suggests evaluation measures for campaign activities and ways to collect that information.

Logic models are a useful evaluation tool. Logic models provide a structure to conceptualize change in the food system; how programs—specific activities—lead to changes in knowledge, attitudes, behaviors, and conditions. As an ongoing evaluative structure, it provides a way to monitor campaign activities in relation to expected outcomes, creating a feedback loop to promote modification in campaign activities in response to new knowledge. Appendix B contains a logic model template. Additional templates are available from the University of Wisconsin at http://www.uwex.edu/ces/pdande/evaluation/evallogicmodelworksheets.html. A logic model development guide is available from the W.K. Kellogg Foundation at http://ww2.wkkf.org/DesktopModules/WKF.00_DmaSupport/ViewDoc.aspx?LanguageID=0&CID=284&ListID=28&ItemID=2813669&fld=PDFFile.

Appendix A: Evaluation Measures for Local Food Campaign Activities

Evaluation Measures	*Census Data*	*TasteBuds Guide*	*Certification Program*	*Consumer Survey*	*Annual Survey*
Farms					
Number of farms	✓	✓	✓		✓
Farm acreage	✓				✓
Farm size	✓				✓
Farm Profitability	✓				✓
Acres in production					✓
Number of years farming		✓			✓
Changes in production practices		✓	✓		✓
Farm Sales and Markets					
Direct to consumer sales	✓				✓
Direct to grocer					✓
Direct to restaurant					✓
Direct to wholesaler					✓
Trends in products produced for local markets	✓[63]	✓[64]			✓
Expansion into new markets					✓
Perceived access to markets					✓
Distribution of farms participating in TasteBuds and certification program[65]		✓	✓		
Farm participation					
Certification program			✓		✓
TasteBuds		✓			
Satisfaction with Gaining Ground services/programs					✓

Continued next page…

[63] From Census data, trends in cash receipts from farming by farm product.
[64] Trends in product offerings in Taste Buds.
[65] Indicates reach of program, expansion of interest, expansion of markets.

Evaluation Measures	*Census Data*	*TasteBuds Guide*	*Certification Program*	*Consumer Survey*	*Annual Survey*
Businesses: Sales and Markets					
Purchase amount ($) of local foods					✓
Perceived availability of local products					✓
Perceived obstacles					✓
Change in demand for local food					✓
Change in demand for GG certified products					✓
Business participation					
Participation in TasteBuds (number and types of businesses)		✓			
Participation in certification program (number and types of businesses)			✓		
Satisfaction with Gaining Ground services/programs					✓
Public awareness/demand for local					
Consumer demand and perceptions				✓	
TasteBuds		✓			
Growth across category listings (e.g., # of farmers markets, CSAs, restaurants, etc)		✓			
Distribution		✓			
Engagement with Gaining Ground				✓	
Facebook membership				✓	
Newsletter subscriptions				✓	
Website hits				✓	

Appendix B: Logic Model Worksheet

PROJECT GOALS:

INPUTS	OUTPUTS		OUTCOMES		
	Activities	Reach	Short-term (1-2 yrs)	Medium-term (3-5 yrs)	Long-term (6+ yrs)