The Locavore's Delight:

A LOCAL FOOD SYSTEM ASSESSMENT of THE CAPITAL REGION

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Abstract

Local food has become trendy in recent years with many scholars citing the community, environmental, and economic benefits of a strong local food system. Through semi-structured interviews, surveys, focus groups, and field visits, we constructed an overview of the local food system of the New York Capital Region. The Capital Region is unusual in its agricultural diversity and its high volume of local food. Many farmers in the area prefer to sell their products locally because it is convenient and profitable regardless of what they produce or how long they have been farming. Overall, the Capital Region is an excellent example of a strong local food system.

Keywords: *local; direct to consumer; food system assessment; farm; markets; Capital Region; semi-structured interviews; survey; focus group*

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I: Introduction

The Local Food Movement has gone from relative obscurity to widespread recognition in a short span of time, with the number of farmers' markets, Community Supported Agriculture (CSA) shares, and restaurants boasting "local" selections increasing rapidly in the past decades. Supermarkets across the United States are continuing to expand their local selections. Many are striving to develop new strategies for advertising and labeling these foods. The local food trend gained momentum as experts began documenting the community, economic, and environmental benefits of a strong local food system. As a result, many consumers are now interested in where their food comes from and how it is produced, seeking out products advertised as "local" (Coit 2009).

The popularity of the Local Food Movement has been reflected in recent government legislation, such as the 2014 Farm Bill which allocated 40 million dollars for local food programs (Johnson & Cowan 2016). The Large Retailers Act, passed during the George W. Bush administration, sets aside 2.3 billion dollars for certain crops like eggplants, which are grown primarily by small, organic farmers, and also helps reimburse the costs of organic certifications and crop insurance. This benefits small farmers, who are more likely to sell locally than large farmers (Gogoi 2010).

Local food scholars agree that there are many criteria upon which the strength and resilience of a local food system depends. Our study evaluates the New York Capital Region's local food system based on four such criteria: the diversity of food production and market availability, the amount of farmers who sell locally and their perceptions of how well the system is working, the proportion of local food sales that are made through "Direct to Consumer" marketing channels, and lastly, how newer farmers are faring in the local food system and how they are altering its direction.

A. *Defining "Local"*

Despite the momentum of the local food movement and the widespread interest in shopping locally, there is no universal definition of the term "local" with respect to food. This has been a consistent challenge for many stakeholders in the push to localize food systems. Many have attempted to quantify the radius within which a food item must be produced in order to be considered local. For example, as the *Journal of Food Law and Policy* describes, a cafe located on Google's California campus boasts that all of its food is local, having been grown within a 150-mile radius (Coit 2009). On the other hand, Author Gary Nabhan, a renowned agroecologist, asserts that food must only be grown within 250 miles of where it is sold to qualify as local (Coit 2009). The United States Department of Agriculture (USDA) in a recent publication "Trends in US Local and Regional Food Systems," reveals that its survey of farmers categorizes food into three categories: grown within 100 miles, between 100 and 400 miles, and greater than 400 miles from where it is sold (USDA 2015). The Food, Conservation, and Energy Act of 2008 attempts to establish a legal definition of "local food," mandating that stores may only market food items as local if they are sold within 400 miles of where they were grown. As these various definitions demonstrate, there is a wide range in what is considered local, and little consensus among local food scholars (Brain 2012).

Though many stakeholders characterize "local" food as being grown within a few hundred miles, this is not necessarily consistent with what farmers consider to be local. The board members of the Washington County Farm Bureau in New York unanimously agreed that they consider 100 miles to be "really, really far," and, rather, that a 25-mile radius would be a more appropriate definition (Washington County Farm Bureau 2017 April 10).

Still, others involved in the local food movement avoid any numerical definition of local food at all, and instead prefer to classify food as local based on the channels through which they are sold. By this reasoning, direct to consumer sales methods, such as farmers' markets, farmstands, and CSA shares, are considered to be local food sales methods, whereas more traditional channels, such as large-scale production and distribution from one central location to supermarket chains nationwide, are not considered local (USDA 2014). According to Tyler Blance, Price Chopper's Marketing Program Coordinator, Price Chopper defines local produce as anything grown and sold within the same state, and considers all of its produce to be "local to the Northeast" (Blance 2017 April 13).

For the purposes of this study, "local" food was defined as food sold within a 100-mile radius of where it was produced. This radius was chosen deliberately to exclude the New York Metropolitan Area from the region that is considered local. During the planning process, we were informed by Capital Roots, a nonprofit organization in Troy, New York, that many Capital Region farmers travel to New York City in order to sell their products at the farmers' markets there (Peck 2016 November 17). In order to use our survey to determine the extent to which this was true, "local" was defined using a 100-mile radius.

B. Benefits of Localized Food Systems

There is a large body of evidence supporting the movement to create a more diffuse and localized food system. One motivation behind the local food movement is the potential of local food systems to lessen the environmental impacts of agriculture, and to mitigate greenhouse gas emissions from transportation of food. Local food advocates often discuss "food miles," a term that describes the distance that food travels from farm to consumer. In addition to lessening the number of food miles, local food sales can cut out the greenhouse gas emissions associated with processing. Unfortunately, quantifying the difference in greenhouse gas emissions between local and mainstream food due to transportation and processing has proven challenging (Lev et al. 2014). However, there are further environmental benefits of local food beyond just "food miles," such as increased diversity of crops and improved soil quality (Grubinger 2010).

One of the predominant economic benefits of the local food movement is the potential of local food production to improve farmers' profits, particularly those of small, organic farmers. In the past few decades, agriculture has become increasingly centralized and industrialized, with a relatively small number of staggeringly large farms claiming a disproportionate share of the market. These farms are able to make millions, while small farmers are unable to meet supply needs and are often forced out of business (Pollan 2006). This has concentrated wealth among an increasingly smaller group of farmers, while taking profits away from many small-scale farmers. Furthermore, this system of food production and distribution relies on a series of middlemen to get food from farms to consumers. Processing facilities claim a substantial portion of food sales profits as well, which further reduces economic gains for farmers. This too puts small farmers at a disadvantage, since processing and distribution costs are expensive, and they may not be able to produce enough to meet the demands of large-scale distributors (Pollan 2006).

Conversely, the local food movement has had positive effects on many small farmers. Direct to consumer sales methods which, except in rare cases, are generally local methods, do not rely on intermediary markets, like distributors, to connect farmers with consumers, which typically makes them more profitable. A case study by Lev et al. found that in regions where local selling opportunities are available, farmers who sold through direct to consumer channels were able to increase profits significantly, as shown in Figure 1 (2014).

PRODUCT & LOCATION	% DIFFERENCE DIRECT MARKET VS. MAINSTREAM[a]	% DIFFERENCE INTERMEDIATED VS. MAINSTREAM[b]
Milk (DC Area)	+91%	+101%
Apples (Syracuse)	+50%	0%
Beef (Twin Cities)	+65%	+12%
Salad Mix (Sacramento)	+649%	+279%
Blueberries (Portland)	+183%	+194%

[a] Calculated as(Direct Market Net Price/Mainstream Net Price)–1.

[b] Calculated as(Intermediated Net Price/Mainstream Net Price)-1.

Source: Case studies.

Figure 1: Percentage difference in net producer price for local and mainstream supply chains. Certain products in certain places have profit differences of up to 647% (Lev et al. 2014).

Additionally, farms that sold through direct to consumer marketing channels were more likely to stay in business between 2007 and 2012 than farms that sold through traditional channels (USDA 2015). Of course, these increases in profit are dependent on the availability of local selling opportunities for farmers. Many do not have the luxury of choosing where to sell their products due to factors such as a lack of nearby markets. This is one argument for increasing the availability of local food markets. Another is that in many regions, when certain types of produce are sold directly to consumers, their prices are lower than retail prices, despite the farmers making a greater profit (USDA 2015). Lower prices for consumers and higher profits for farmers are possible in direct to consumer channels due to the lack of processing and, therefore, lack of a need to pay a middleman. This shows that it is in the interests of both local farmers and consumers, as well as communities in general, to make local food markets available.

Farms that sell locally are often more in touch with their consumers' desires, and therefore may be more likely to adapt their growing techniques to customers' environmentally conscious desires (Grubinger 2010). In addition, local producers use a more diverse set of cultivation practices than mainstream producers (Lev et al. 2014). While large-scale mainstream producers rely on monoculture, which leaves crops vulnerable to disease and unexpected weather conditions, local farmers are able to plant a wider variety of crops, which promotes a more resilient food system and an economic “safety net” if one crop fails (Grubinger 2010).

C. Recent Trends in Local Food

In recent years, the market for local food has expanded significantly. Estimates suggest that in 2012, local food sales reached 6.1 billion dollars. Certain types of local food marketing channels have grown substantially; the number of farmers’ markets in the United States grew 180% between 2006 and 2014. Additionally, regional food hubs and farm-to-school programs have increased 288% and 430%, respectively (USDA 2015).

The 2012 Census of Agriculture examined direct to consumer marketing channels, and found that between 2002 and 2007, the number of direct to consumer farmers increased 17%, and that the value of direct to consumer sales increased by 32%. Direct to consumer marketing channels are more popular in concentrated areas of the United States, specifically the Northeast and the West Coast (USDA 2015).

Between 2007 and 2012, the rates of direct to consumer sales of local food were highly inconsistent across the country, with some areas showing decreases. This may be due to the fact that consumers often look to intermediated channels to purchase local food, such as grocery stores, which are beginning to carry more local options in response to the Local Food Movement (USDA 2015). Retailers are likely looking to capitalize on the desires of consumers to purchase locally, as consumers in some areas are willing to pay a higher price for certain types of local food (Lev et al. 2014). It is therefore in the economic interest of grocery stores to source locally, since consumers purchase 90% of their food in grocery stores (Dyckman et al. 2016). However, many consumers believe that there is a lack of local food options available to them, which is one of the main barriers of purchasing locally (Martinez et al. 2010).

D. Food System Assessments

One of the most commonly used tools for evaluating food systems, local or otherwise, is a Food System Assessment (FSA). FSAs are used for a range of purposes; some look at areas of food insecurity, some are more focused on economics, and others try to cover every possible aspect of a food system, following the whole supply chain from production to waste disposal (Tufts 2013). While there are many different types of FSAs, all of them seek to understand a particular food system in detail.

FSAs use a wide variety of methods, but some of the most common trends include the use of semi-structured or structured interviews, surveys, focus groups, direct observation, and GIS mapping. Nearly all FSAs benefit from the data and research of organizations such as the USDA and the Census Bureau (Tufts 2013).

E. Benefits of Direct to Consumer Sales

While some literature on local food systems uses the terms “local” and “direct to consumer” almost interchangeably, these two terms are distinct, and are both key considerations of the local food movement. Most local food sales are made through marketing channels which are classified as “direct to consumer,” meaning that products are sold from the farmer to the consumer without the use of an intermediary market, such as a wholesaler or a distributor. There is a large overlap between direct to consumer sales and local sales, as 70% of farms in the U.S. that sell locally use only direct to consumer marketing channels, and essentially all direct to consumer sales are local (USDA 2015).

Many advocates of localized food systems emphasize the benefits of direct to consumer sales in particular. One of the most significant benefits of direct to consumer sales is that it improves the economic viability for farmers, especially small farmers (Adam et al. 2016). By eliminating the need for an intermediary market, farmers are able to set their own price in order to guarantee a profit. Direct to consumer marketing also strengthens personal connections between farmers and the larger community (Adam et al. 2016). This helps increase the visibility of local products in the marketplace and allows farmers to receive vital customer feedback.

II: Methods

A. Semi-Structured Interviews

To begin our data collection process, we conducted semi-structured interviews with Capital Region farmers and other stakeholders in the regional food system. We reached out to local farm bureau field staff and the Cornell Agricultural Extension office in order to help us get in contact with farmers in the eleven counties that comprise the Capital Region (Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Saratoga, Schoharie, Schenectady, Warren and Washington). Additionally, we were able to find contact information for many farmers on several counties' websites. We visited the Saratoga Springs and Greenwich farmers' markets where we conducted multiple interviews. We also conducted 22 phone interviews with farmers from Saratoga, Rensselaer and Washington counties, representatives from 3 local supermarkets, Price Chopper, Healthy Living, and Four Seasons; Aaron Gabriel, Soils and Crops Educator at the Cornell Cooperative Extension; Allison Akins, Young Farmer Representative for the Washington County Farm Bureau; Crystal Stewart, Regional Vegetable Specialist at the Cornell

Cooperative Extension; and Tricia Lockwood, President of the Washington County Farm Bureau.

While interviewing farmers, we began with a short list of prepared questions (Table 1). The semi-structured style of interviewing allowed us to stray from our original questions and focus on the subjects that each farmer found most important. This approach allowed us to get a better sense of what the farmers felt were the main barriers and strengths of the local food system, which was ultimately critical in drafting the survey later on in our study.

1) Tell me a little bit about your farm. How did you get involved in farming? How many acres do you cultivate? What kind of products do you produce?
2) Where do you sell your products? Why?
3) When deciding where to sell your products, what are your biggest considerations? Is there one factor that you focus on the most? Why
4) Is there anywhere you'd like to be selling, but aren't currently? Why or why not?
5) Is farming your main source of income?
6) Are there any changes you'd like to see in the region that would make it easier for you to make a profit?

Table 1: Semi-structured interview questions.

Most interviews were conducted over the phone, with a few taking place in person at the farmers' markets. We conducted the majority of interviews on speakerphone so that we could all listen, one person could record, and the three of us could compare what we each felt were the most important parts of each interview, or what the interviewee's view was. Interviews were also recorded using the Photobooth app on a Mac computer.

B. Survey

Once we had completed our 30 interviews, we were able to create a survey that we were confident incorporated terminology that would resonate with farmers in the Capital Region. We designed the survey to take no more than three minutes, and used Qualtrics to develop and distribute it (Appendix 1). Our survey questions were adapted from a 2015 USDA survey on local food marketing practices (USDA 2015). We chose to use the USDA survey questions so we could compare our results to the findings of that survey, allowing us to compare our results to national averages. Questions were also developed based on trends noticed during the interview process.

In order to reach a representative sample of farmers, we reached out to many stakeholders in the Capital Region. Aaron Gabriel at the Cornell Agricultural Extension sent our survey to a list of 1500 farmers. We also contacted the three Farm Bureau field staff who collectively represent the eleven counties, Todd Heyn, Renee Schoonmaker, and Kim Trombly. These three people each sent the survey to their lists of farmer constituents. We then used Qualtrics, Microsoft Excel and SPSS to analyze and visualize the data that we collected from the surveys.

C. Focus Group

In addition to our interviews and surveys, we conducted a focus group at the Washington County Farm Bureau board meeting, held at the regional office in Salem, New York. In attendance was a group of different stakeholders from across Washington County, which is one of the most agriculturally prolific counties in the Capital Region. The bureau members in attendance were President Tricia Lockwood, Young Farmer Representative Allison Akins, four farmers, an agricultural marketing specialist, and several other stakeholders from various sectors of the local agricultural industry. We introduced them to our project and asked them for feedback on our survey, as well as for their input on why the results looked the way they did. The focus group was valuable to our understanding of the results, because it allowed the participants to converse with each other as well as with us, which clarified the concepts that everyone agreed on, as well as ideas that were more controversial. The Farm Bureau board also gave us suggestions for how to get in touch with more farmers, as well as regional distributors.

D. Field Visit

In order to gain more personal insight into the day-to-day routines of Capital Region farmers, we visited Durkacres Farm in Washington County on April 22, 2017. We were given a tour of the 100-acre farm, observed the birthing of a calf, and assisted with daily chores such as feeding, milking, and the Stewart's milk pickup. We also spoke with several members of the Durkee family–the owners of the farm–about their selling choices and about the local food system in general.

III: Results

A. Interviews

During the interview process, 22 farmers, four local agricultural experts, and three grocery chains were interviewed. Of the 22 farmers, 12 were from Saratoga County, 4 were from Rensselaer County and 6 were from Washington County. Additionally, 2 staff members from the Cornell Agricultural Extension Office and 2 Farm Bureau Members were interviewed. The grocery chains included Four Seasons, Price Chopper, and Healthy Living.

1. Farmers

Many of the questions we asked farmers were intended help us learn more about their farm as well as some of their general preferences in terms of what to produce and where to sell it. Of the 22 farmers that were interviewed, 12 produced vegetables or fruit, 4 produced dairy, 3 produced grain, and 4 also produced value-added products. Half of our interviewees said that they sold at farmers' markets, with 8 selling to restaurants and 7 selling to retailers. In terms of their motivations, 9 said that they valued the focus on local food that their selected markets provided. 7 stated that they chose to sell in these markets based on personal convenience, and another 6 stated that price was their biggest consideration in choosing market channels. Five respondents indicated that face-to-face customer interactions were the most valuable to them. When asked how farmers decide what to grow from season to season, 5 said that it was based on consumer demand, but 3 responded that they chose their products based on their personal preferences. All of the farmers interviewed agreed that ultimately they had to do what made the most sense for them in terms of convenience and profitability.

2. Local Agricultural Experts

Interviewing non-farmer stakeholders provided additional insights into the food system of the Capital Region. Many of the experts stated that there was an abundance of local food available in the Capital Region. Aaron Gabriel, Soils and Crops Educator with the Cornell Cooperative Extension in Washington County, said that one of the biggest barriers for farmers when it came to selling their products was marketing and that farmers sometimes struggled to gain a reputation for producing dependable and high-quality products, particularly with large retailers in the region.

3. Grocery Chains

One of the most common trends in responses from grocery stores was that sourcing from smaller local farmers could be difficult logistically. Having a greater number of farms supplying the products means more paperwork, more transportation logistics, and it can be difficult to find farms with enough consistency in the quantity and quality of their products while also having the necessary certifications. That being said, the stores all cited their general desire to have local food within their stores as it is something that many customers are looking for and will typically pay more for.

Price Chopper Marketing Program Coordinator Tyler Blance stated that Price Chopper, like many grocery stores, requires third party certifications like the Good Agricultural Practices (GAP) certification, which many smaller farmers cannot afford (2017 March 13).

B. Survey

In total, 190 farmers responded to the survey. This equated to 3.9% of the total 4,848 farms in the Capital Region (USDA 2012). Rensselaer and Washington counties had the highest number of respondents (Figure 2). However, Washington and Montgomery counties have the highest percentage of farms in the Capital Region (Figure 3).

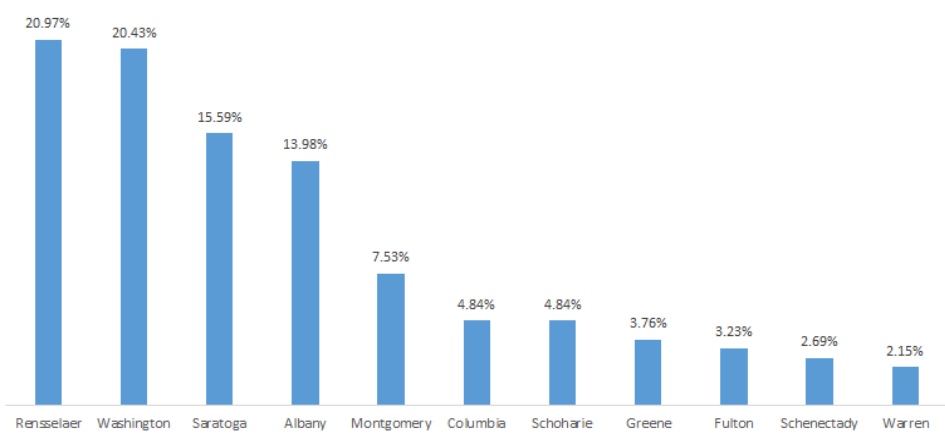

Figure 2: Percent of respondents from each county.

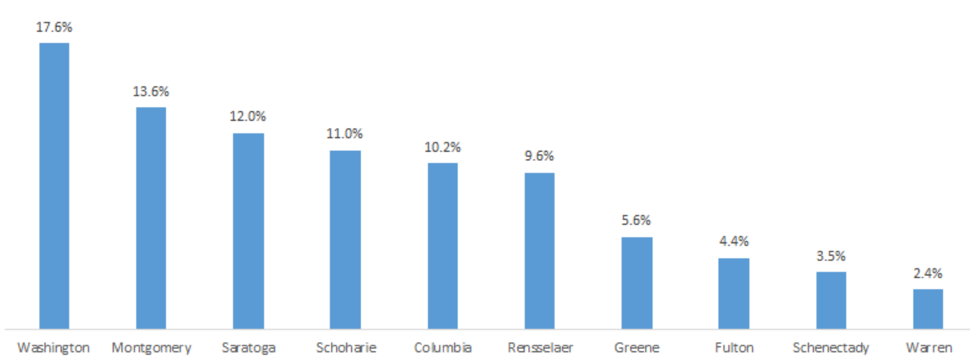

Figure 3: Percent of Capital Region farms in each county (USDA 2012).

1. Farm Size

In 2012 the average size of a farm in the Capital Region was 159 acres (USDA 2012). However, the average farm size of survey respondents was 280 acres, which is over 100 acres larger than the average farm in the Capital Region. Respondents' farm size ranged from a quarter of an acre up to 4,000 acres. That being said, the majority of survey respondents have farms that are between 499 and 100 acres (Figure 4). The total farmland of survey respondents is 52,778 acres, while the total farmland for the entire Capital Region is 849,781 acres (USDA 2012).

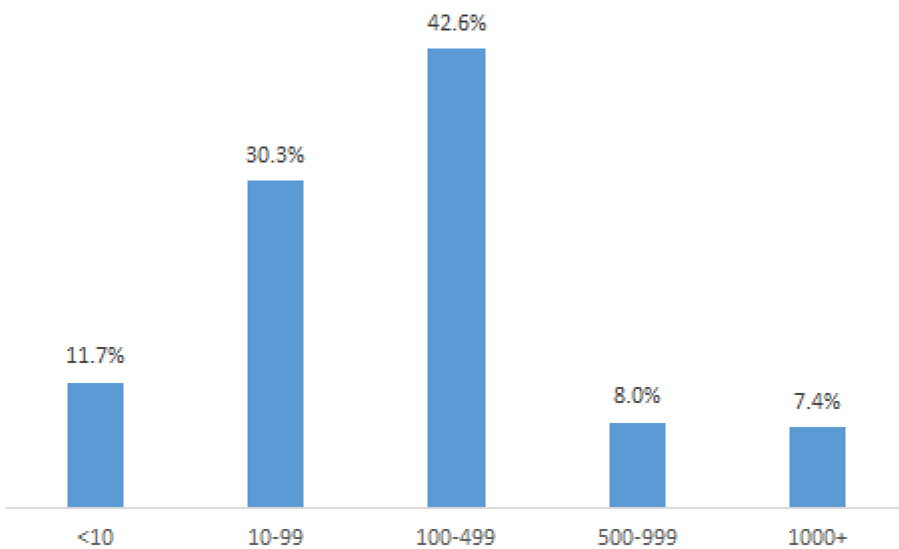

Figure 4: Number of farms in each acreage category.

2. Diversity of Crops Grown

Looking at the diversity of products being produced by individual farms, 46.6% of respondents indicated that they produced grains, hay, or straw for animal consumption. The second most selected product category was vegetables, melons, and potatoes with 42.6% of respondents. As the survey format allowed farmers to select more than one category, the percentages shown do not add up to 100% overall (Figure 5).

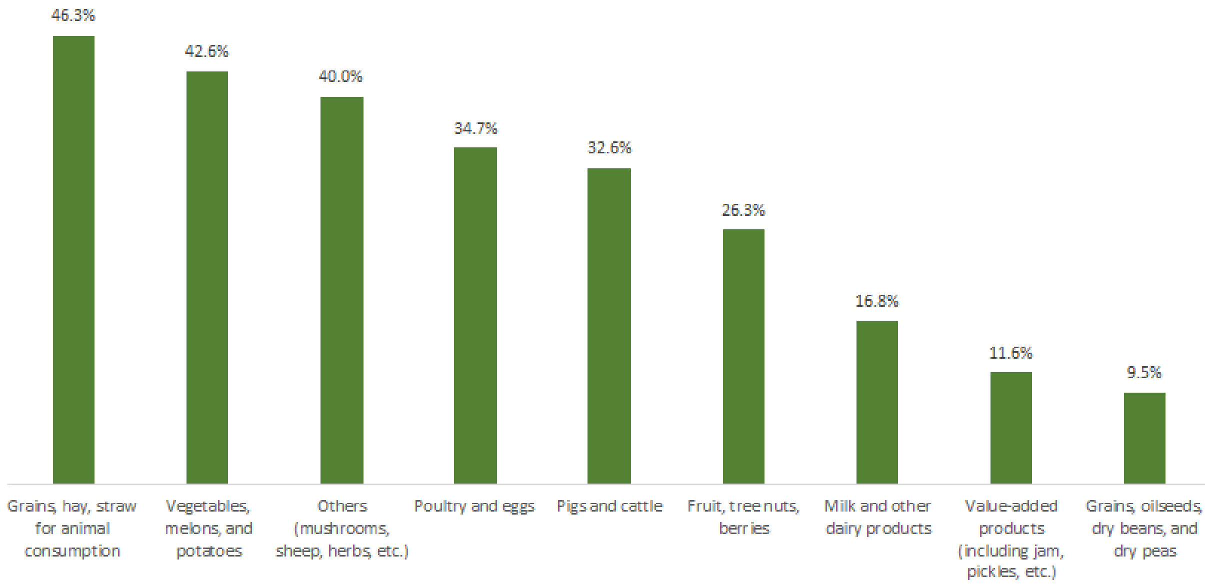

Figure 5: Percent of farmers who produce each product category.

Using SPSS cross tabulations, the diversity of production at an individual farm level was calculated. Overall, 75.3% of the respondents indicated that they produced more than one product category with 30.5% producing two product categories (Figure 6).

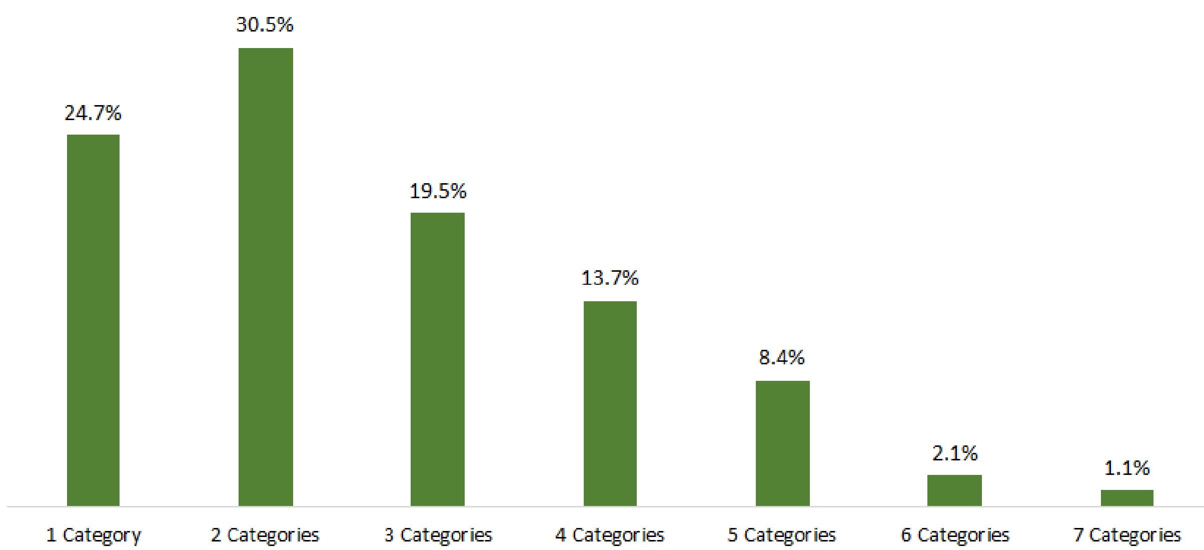

Figure 6: Percent of farmers who produce one or more product categories.

3. Diversity of Local Markets

When asked where they sell their products, 68.4% of farmers responded that they sold their products "direct to consumer." In a breakdown of individual market channels, eight were determined to be "direct to consumer." The two most frequently selected market channels were both direct to consumer (farmers' markets and farmstands or roadside stands) and the third most popular choice was indirect to consumer (restaurants) (Figure 7).

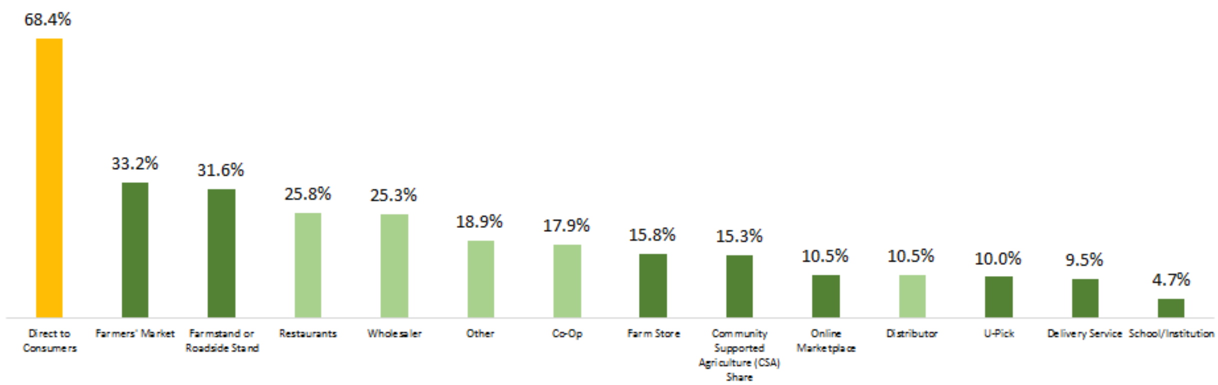

Figure 7: Percent of farmers who sell to each location.

SPSS cross tabulations indicated that a majority of farmers (68.1%) were selling their products through more than one channel. Of that 68.1%, 45.7% were selling through 2-4 channels with another 22.4% selling through 5 or more channels (Figure 8).

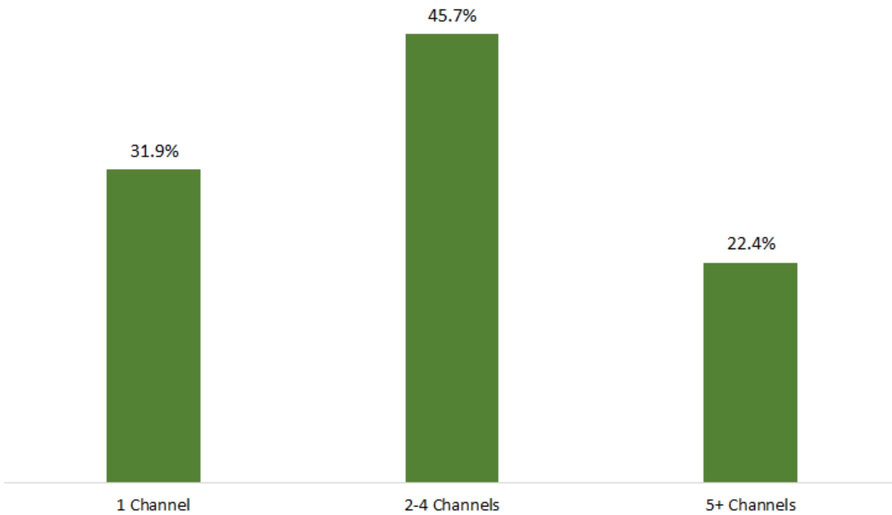

Figure 8: Percent of farmers selling through one or more channel.

4. Local and Direct to Consumer Sales

Despite the significant increase in the popularity of local food, only 7.8% of farms nationally are selling through local channels (Figure 9). However, 80% of survey respondents are selling their products locally. The amount of Capital Region farmers who are selling locally is over ten times the national average. Furthermore, the USDA defines local food as products sold within 400 miles, while in this survey local food was defined as food sold within 100 miles (USDA 2015).

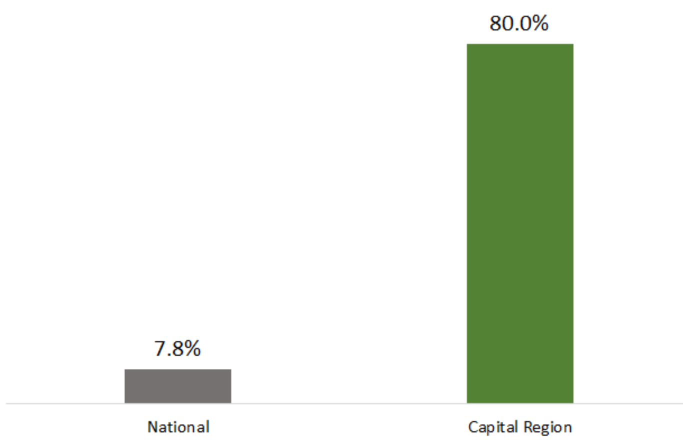

Figure 9: Percent of farmers selling locally.

5. Surplus Product

We also examined the various channels through which surplus products are moved throughout the Capital Region food system. The most popular answer was "I do not have any leftover products," with 43.7% of respondents selecting this option (Figure 10). Of the 56.3% of respondents who do have surplus products, the majority feed leftover products to farm animals or donate to a local food pantry. The two most common 'other' responses were to compost or give leftover products to friends and family. Many of the farmers who were asked about leftover products during interviews explained that local organizations, such as Franklin Community Center, either come to their farms or to local markets and collect surplus products there.

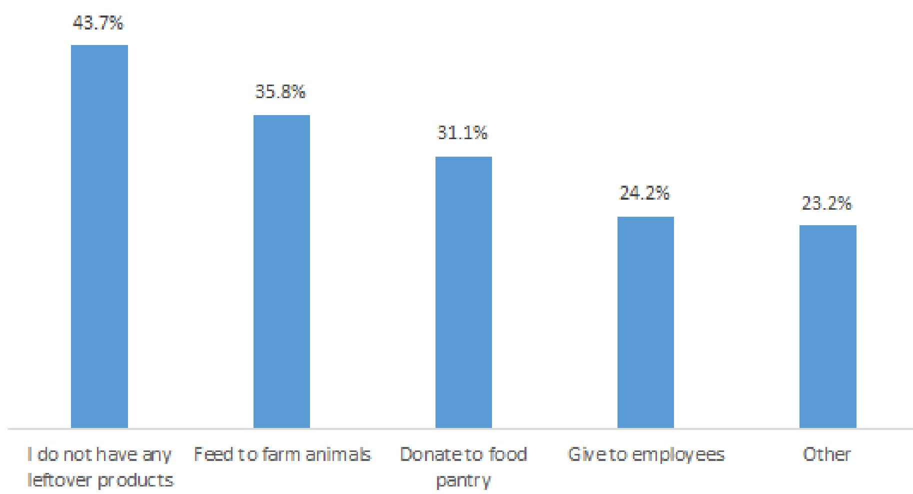

Figure 10: Percentages of responses to "What do you do with your leftover products?"

6. Farmer Income

A slight majority of survey respondents do not use farming as their primary source of income (Figure 11). The average percent of income of farmers who do not farm as their primary source of income is 22%. Thirteen respondents stated that although farming is not their primary source of income, it makes up 50% or more of their total income. Six respondents do not make a profit from farming, while two farmers lose money from their farming operation.

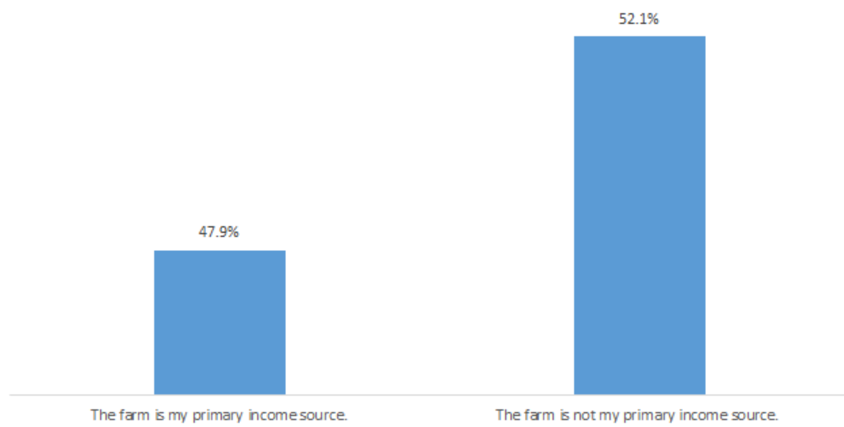

Figure 11: Percent of responses to "Is your farm your primary source of income?"

7. Established and Nonestablished Farmers

In order to assess how the Capital Region Food System may be shifting, we looked specifically at new farmers, using the USDA's classifications of farm age. The USDA defines an "established" farmer as someone who has been farming for ten or more years while a "nonestablished" farmer is someone who has been farming for fewer than ten years (USDA 2015). The survey sample consisted of 74.7% established farmers and 25.3% nonestablished farmers. The average age of an established farm in the survey sample was 35 years, while the average age of a nonestablished farm was 5 years. There were eight farmers in the established category whose farms had been in existence for 100 or more years, with one farm going back ten generations. There were several notable differences between the two categories of farmers in terms of farm size, which crops they produce and where those crops are sold.

The average size of an established farm was 333.6 acres, while the average size of a nonestablished farm was 115.6 acres. In total, established farmland made up 47,473 acres of the survey sample, or 89.3% of the sample, while nonestablished farmland was only 5,432 acres in total, or 10.3% of farmland in the survey sample.

Cross-tabulation of the survey results revealed that established farmers were 22.1% more likely to grow grains for animal consumption than nonestablished farmers were. However, there were three categories which nonestablished farmers were more likely to produce: Vegetables (18.3% more likely), Pigs and Cattle (12.1%), and Poultry and Eggs (28.8%) (Figure 12). The remaining categories did not have statistically significant differences.

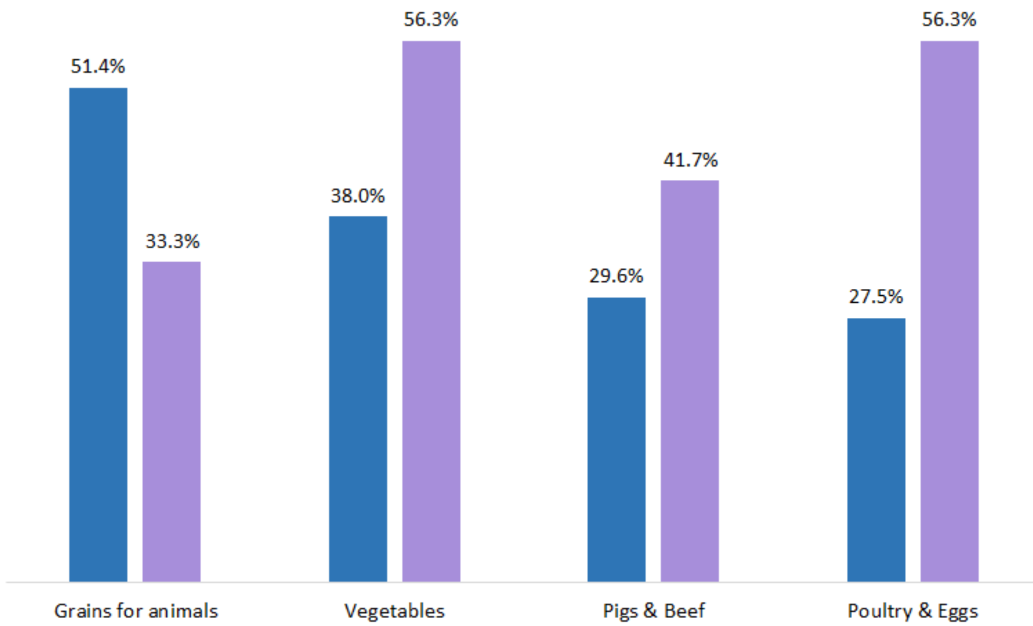

Figure 12: Percentage of established (blue) and nonestablished (purple) farmers who produce each category of products.

There were also distinctions in where established and nonestablished farmers sell their products. Established farmers were 8.7% more likely to sell through a wholesaler, while nonestablished farmers were more likely to sell through two types of markets: Farmers' Markets (19.7% more likely) and Community Supported Agriculture (CSA) shares (18.6% more likely) (Figure 13). Established and nonestablished farmers were equally likely to sell through direct to consumer channels. The remaining channels did not have statistically significant differences.

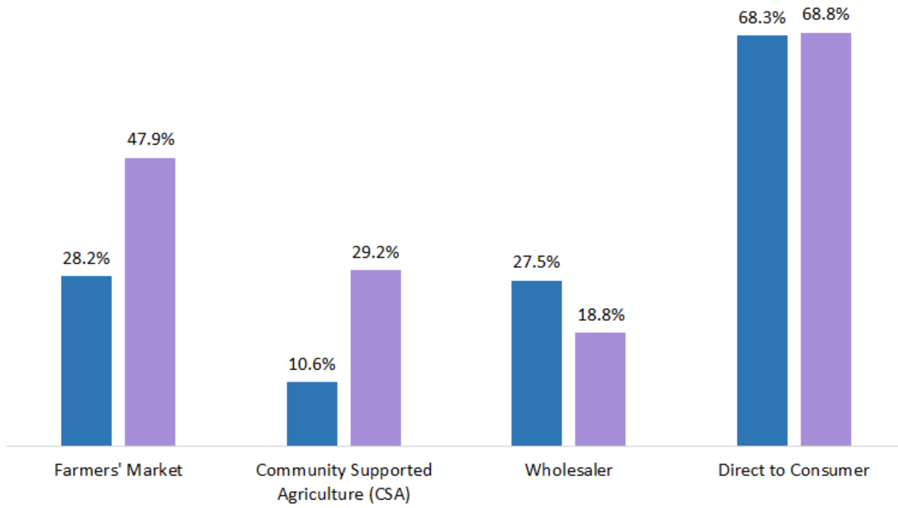

Figure 13: Percent of established (blue) and nonestablished (purple) farmers who sell through each channel.

8. *Farmer Perceptions*

This section of the survey consisted of a 6-question matrix, where farmers were asked to evaluate how well they feel the Capital Region Food System is functioning (Appendix 1, Question 10). The data from the matrix was analyzed using Qualtrics, SPSS, and Microsoft Excel. In order to simplify the data, it was sometimes combined into three categories: agree, disagree, and neither agree nor disagree. This was done by combining the “strongly agree” and “somewhat agree” categories, and the “strongly disagree” and “somewhat disagree” categories.

The responses revealed that a majority of Capital Region farmers in the survey sample believe that it is convenient and profitable to sell in the Capital Region (Figure 14). Responses to the matrix were not correlated with whether the farm was established or nonestablished.

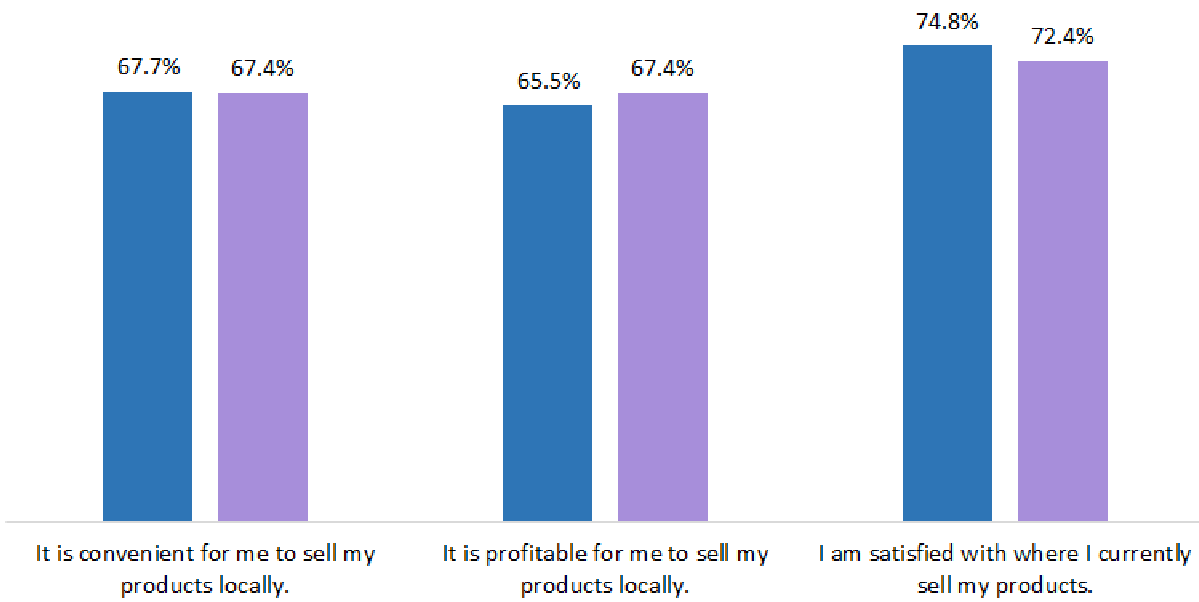

Figure 14: Percentages of established and nonestablished farmers who either agree or strongly agree that it is profitable and convenient to sell locally, and that they are satisfied with where they currently sell.

A plurality (35.8%) of farmers believe that they could not make a better profit if they sold their food farther away than they currently do. Additionally, 74.5% of survey respondents are satisfied with where they are currently selling their products. Most respondents (73.1%) believe that selling their products locally is profitable. Lastly, the majority of respondents (61%) also agree that they do not produce enough to sell to a large buyer, such as a grocery store.

C. Focus Group

The focus group was conducted at a meeting of the Washington County Farm Bureau in Salem, New York, on April 10th, 2017. The entirety of the Farm Bureau Board was in attendance, and the meeting was facilitated by Patricia Lockwood, the President of the Board. There was a diverse range of food system stakeholders present, with dairy farmers, vegetable farmers, a Farm Credit East employee, and a financial advisor, among others.

The survey was presented and focus group participants were asked for feedback on the questions and to comment on the preliminary trends that were beginning to emerge at the time of the focus group. This conversation revealed that the Farm Bureau members defined “local” differently than the USDA. The members unanimously agreed that a 25-mile radius would be more appropriate than a 100-mile radius, with one farmer explaining that “100 miles is really, really far” (Washington County Farm Bureau Board 2017 April 10).

Furthermore, the members explained that Question 10 of our survey was not entirely applicable to many dairy farmers as there are more regulations on where and how they can sell their products. Therefore, many dairy farmers do not have as much choice in their market options. The members went on to explain some of the regulations placed on dairy farmers that would prevent them from selling their products locally, such as the need to properly process and bottle their milk, which many dairy farmers cannot afford to do on their farms. Instead, dairy farmers must send their milk elsewhere to be bottled and then distributed. As a result, the board members agreed that the 100-mile radius for “local” food was more applicable for dairy farmers.

Finally, we asked the focus group how they would have classified farms by size. We asked survey respondents to indicate the acreage of their farm, and planned to classify farm sizes based on this. However, the focus group explained that this may not have been the most accurate measure. Rather, members said that income was a better metric of farm “size,” since the total acreage of a farm may not reflect how much tillable land is present or how much land is actually used for farming. Additionally, it is challenging to compare acreage across different types of farms. For example, a small dairy farm could still be much larger than a large vegetable farm. We witnessed this first-hand during our site visit to Durkacres Farm, where a large portion of the land is either unused or used for the family’s home and sports fields.

IV: Discussion

A. Availability of Local Food

One of the most striking statistics produced by the survey was that 80% percent of farmers in the Capital Region are selling their products locally. This makes the Capital Region very unusual in terms of the quantity of local food available. Comparatively, USDA data shows that only 7.8% of farmers nationwide are selling their products through local channels, which puts the Capital Region at around ten times the national average. However, that difference is more significant when the different definitions of "local" are taken into consideration. The USDA's definition of local food is products sold within 400 miles of where they were produced (USDA 2015). For our study, we defined "local" as products sold within 100 miles of the farm, because we were interested in finding how many farmers were driving to New York City to sell, and this radius excluded New York City. Furthermore, during our focus group, we discovered that the board members of the Washington County Farm Bureau feel that "local" is best defined as within 25 miles, and that even by this definition, they agree that farmers in the Capital Region often sell their food locally. When asked if the Capital Region is unusual compared to other parts of New York, in terms of selling locally, Allison Akins, Young Farmer Representative of the Washington County Farm Bureau Board, and Farm Credit East employee responded, "extremely, extremely unusual" (Akins 2017 April 13).

B. Diversity of Production

Diversity of products is an important criterion for assessing the strength of a food system, because a greater diversity of products and, more specifically, a greater diversity of crops grown has both economic and environmental benefits for a food system. Farmers who are unable to sell locally more often resort to "monocropping" products like corn. Many farmers like George

Naylor of Farnhamville, Iowa, are forced to grow in the largest quantities possible, and then sell exclusively to the local grain elevator. This type of agriculture, which generally goes hand in hand with fertilizers and pesticides that harm the soil, is widely regarded as both unsustainable for the land and economically challenging for farmers (Pollan 2006). Industrial farming like this has become more and more centralized over the last several decades, and many local food advocates name local food sales as a way to alleviate this troubling trend. Research has shown that selling locally often leads to a higher diversity of crops (Grubinger 2010).

Our survey results showed that farmers in the Capital Region are producing a wide variety of crops and other food products. This is a promising finding for the economic and environmental resilience of the local food system. We asked our participants to select which of the nine USDA product categories they produce. Overall, there was no one product category selected significantly more than the others, indicating a high level of diversity of products in the area. Grains for animal consumption, such as corn and hay, were the most popular, but not by a large margin. Product categories for human consumption, including fruits and vegetables, were also very popular.

Using the USDA classifications for product categories proved beneficial because it allowed us to compare our data with national averages. However, it also had certain drawbacks. For instance, we were unable to tell from the survey results how many types of crops farmers were growing within each product category. Therefore, a farmer could have selected multiple product categories, yet could still be practicing monocropping. However, the interview data largely suggested that monocropping is relatively unpopular in the Capital Region. Many farmers cited the necessity of growing multiple crops because of the economic resilience that agricultural diversity provides. Paul Arnold, owner of Pleasant Valley Farms, said “growing forty different crops means we have a safety net. It’s always a bad year for something” (Arnold 2017 March 19). This was a commonly echoed sentiment throughout the interviewing process, which is promising for the diversity of crops in the Capital Region and the sustainability of the local food system.

As farmers could select more than one product category, it was possible to see how many respondents selected various combinations. Comparisons were made to determine the most common combinations of product categories. Fruits and vegetables were a popular combination, as were pigs, cattle, and poultry. This indicates that many farmers prefer to grow specific combinations of products. This diversity of product categories supports the idea that agricultural diversity presents farmers with economic benefits.

Production in the Capital Region is diverse both overall and at the individual level. The diversity of local products is beneficial for consumers because provides consumers with more local alternatives, requiring fewer products to be imported from farther away. Diverse production also provides an economic safety net for farmers.

C. Diversity of Local Markets

Like product diversity, market diversity is also a crucial component of a strong local food system. The USDA report “Trends in Local and Regional Food Systems” emphasizes the economic benefits of selling locally, for both farmers and consumers. However, these benefits are highly dependent on the availability of local markets (USDA 2015). An abundance of different local selling options is beneficial for a food system because it creates more opportunities for both farmers and consumers. A lack of local markets will lead farmers to sell their products farther away (Akins 2017 April 13). The markets portion of the survey asked farmers to select where and how they sold their products (Appendix 1). These options were chosen after conducting initial semi-structured interviews with farmers in the area, and after referring to the USDA Local Food Marketing Practices Survey (USDA 2015).

Overall, the two most popular choices were farmers' markets and farm or roadside stands, which are both direct to consumer markets. While the next three most popular markets were indirect to consumer, the overall trend still suggested that the majority of farms prefer to sell directly to consumers. On an individual basis, the survey results showed that a majority of respondents were selling through multiple channels. Around two thirds of farmers surveyed sold through two or more channels, and 22% sold through five or more channels.

The range of markets available to farmers not only provides them with more selling options, but also allows consumers more opportunities to purchase locally grown food. Therefore, customers do not have to search as far for local food, making it more likely that they will choose those local options. Martinez et al. write that the most prominent way local food systems can shape local economic strength is through import substitution, which they define as consumers "purchasing food locally instead of importing from a neighboring region, state, or country" (2010). Availability of a diverse range of products increases the potential for import substitution, whereas if only a small selection of products are available locally, more products must be imported (USDA 2015).

D. Farmers Prefer Direct to Consumer Channels

In the section of the survey where respondents listed the markets where they sell, one option was "Direct to Consumer." The majority (68.4%) of respondents selected this option. However, this category does not describe one specific market type, but is rather an overarching descriptor of several types of markets through which food is sold directly from farmer to buyer without the use of an intermediary, such as a grocery store (Martinez et al. 2010). The remaining categories were specific market types, some of which fall under the umbrella of "Direct to Consumer." It is important to recall that some market types, such as farmstands, fall both into their own specific category, and also into the "Direct to Consumer" category. Of the individual market types, 8 are Direct to Consumer: farmers' market, farmstand or roadside stand, farm store, CSA share, online marketplace, U-Pick, delivery service, and school/institution. While a majority of respondents indicated that they sold direct to consumer, there are many added challenges that come with selling through a direct to consumer market, such as a farmers' market. When interviewed, many farmers stated that direct to consumer markets like farmers' markets can be a hassle because of the time commitment that they require. In order to sell at a farmers' market, farmers must first apply to have a stand (Joint Venture Farm 2017 March 3). After securing a spot, farmers must travel to the farmers' market once or twice a week dedicating a large portion of their work day to travel and working at the market. Farmers' markets take place on specific days of the week, which may pose challenges for farmers whose main income source is not farming. One farmer we spoke with at Joint Venture Farm in Greenwich explained that due to the schedule of her daughter's soccer games, she is not able to attend some farmers' markets. Around half of farmers in the Capital Region do not rely on farming as their primary source of income, so they may be in similar situations and may not feel that rearranging their work or personal schedules is necessary to sell at a farmers' market. Furthermore, selling at a farmers' market does not ensure that all of a farmer's products will be sold which can produce more food waste and a loss of capital for the farmer. Many of the same challenges apply for channels like farm stands and Community Supported Agriculture (CSA) shares.

Despite the challenges associated with direct to consumer markets 73.1% of farmers indicated that they either "strongly agreed" or "agreed" that they preferred to sell their products directly to consumers. Only 12.9% said that they either "disagreed" or "strongly disagreed."

Motivations for selling direct to consumer seemed to be split between a personal preference for face-to-face interactions with consumers and economic benefit, though many farmers cited both of these motivations. For some farmers, such as Katie Gorsky of Gorsky's Pasture Raised, selling direct to consumer reduces the need for expensive third party certifications such as "certified non-GMO" or "certified grass fed." Instead, Gorsky was able to communicate to her customers in person how she raised her cattle (Gorsky 2017 March 6). For many smaller farms, direct to consumer markets present a way to avoid extra expenses. Also, many direct to consumer markets offer the added benefit of farmers being able to control the prices on their products. Without a middleman, such as a grocery store or wholesaler, farmers receive 100% of the revenue. Furthermore, farmers' markets tend to have higher prices and a customer base that is willing to pay a premium on farm-fresh, local food (Lev et al. 2014).

Other farmers explained that they simply prefer to have that face to face interaction with their customer base which helps them forge connections and generate repeat customers (Crandall's Corner Farm 2017 March 3). Several of the farmers interviewed stated that they had customer bases that spanned decades if not generations. Many appreciated the sense of community that they got from interacting with local people, as well as the economic benefits.

As a result, many farmers in the area perceived the benefits of selling directly to consumers to be great enough to outweigh any time and transportation costs. That being said, there were also farmers who indicated that channels like farmers' markets were too much of a hassle. These farmers typically preferred harvesting and boxing their products for a wholesaler that was more consistent in what they bought and how much. Options like U-pick, however, provided farmers with an opportunity to sell direct to consumer with minimal hassle. In fact, U-pick eliminates some of the labor needs of the farmer.

Each market type, whether direct or indirect to consumer, had benefits as well as drawbacks. Overall, it was clear that there are a variety of options available to farmers in the Capital Region and that many of them preferred some aspect of selling their products direct to consumer for both personal and financial reasons.

E. Barriers to Integrating Local Food into Mainstream Channels

Although local food has gained a significant amount of popularity in recent years, it has not established itself in many local grocery stores. A previous capstone study examined the reasons behind this lack of local products (Dyckman et al. 2016). The study revealed that there is in fact local food in many grocery stores within the Capital Region, but focused primarily on the successes and pitfalls of local food marketing in these stores. Our results showed that there is not a proportionally high volume of local food for sale in the majority of grocery stores in the region. Only a handful of farmers in the Capital Region responded that they sell to a grocery store, while over 60% responded that they did not produce enough to do so. As a result, consumers may take this as a sign that there is a lack of local food in the region, especially since US consumers purchase 90% of their food in grocery stores (Dyckman et al. 2016). However, our research indicates that this is not the case. In fact, there is an ample amount of local food for sale in the region, but it is not commonly found in many mainstream markets, such as grocery stores. Consumers looking to purchase local food will likely have more success if they visit non-mainstream markets, of which there are multitudes in the Capital Region, such as farmers' markets, farmstands, and CSA shares.

Despite the diversity of products produced in the Capital Region and despite the wide variety of markets utilized by farmers, many Capital Region farmers believe that they do not produce enough to sell to large buyers, such as grocery stores or wholesalers. In 2012, the average farm size of Capital Region farms was 159 acres (USDA 2012). However, the average farm size of survey respondents was 280 acres. Although, on average, our survey respondents have larger farms than the average Capital Region farm, the majority of respondents (73.1%) agree that they do not produce enough to sell to a large buyer. Despite the fact that there are several large farms within our study area, many farmers in the region do not perceive themselves as being able to meet the needs of large buyers.

This particular survey finding was also a common trend throughout our interviews with farmers in the region. Several of the farmers we interviewed explained that they cannot produce a large enough volume of consistent products to meet the standards set by many large buyers. Many of the ‘Mom and Pop’ stores in the region have closed, meaning that there are only a handful of companies controlling all of the grocery stores in the Capital Region. Farms in the region were capable of selling to smaller grocery stores, but can no longer keep up with the demand set by larger supermarkets. During an interview, Ed Engle, owner of Engle’s Acres, explained that he does not blame grocery stores for wanting a high volume of products, but he does not have the capability to meet these standards. Stores such as Price Chopper are not looking to purchase from farms that can supply only a small amount. They are looking for places that can supply “pallets and pallets and truckloads” of food (Engle 2017 February 24).

During our interviews several farmers also explained that many large buyers, especially grocery stores, require that farms have certifications, such as Good Agricultural Practices (GAP), in order to sell to them. However, third party certifications are expensive and are not a one-time payment. The cost of becoming a GAP certified farm is between $300 and $500, and the farm audit must be repeated, and paid for again, every year (Rejesus n.d.). John Betts, a regional farmer who took our survey, explained that certifications like this, along with the lack of "Mom and Pop" grocery stores and proliferation of large supermarkets, are one of the main reasons why "farmers do not market locally very much [in grocery stores]" (Betts 2017 April 13). This can be a financial burden and a deterrent from selling to grocery stores, particularly for small farmers and those for whom farming is only a secondary source of income. Many farmers in the region do not believe it is beneficial to purchase certain third-party certifications when they can avoid the problem by selling through non-mainstream markets, such as farmers' markets and roadside stands.

Several grocery stores in the Capital Region have made an effort in recent years to purchase more local food. However, during interviews with multiple grocery stores in the region, we found that this task is not as simple as it may appear. Grocery stores recognize that local farms always produce high quality products, but the lack of consistency makes it difficult to keep the shelves stocked at all times. Even stores such as Healthy Living and Four Seasons, which pride themselves on selling local products, do not believe it is convenient to purchase from local farmers. Nina Lesser-Goldsmith of Healthy Living explained that "buying from a distributer is easier; you only have to place one order and deal with one delivery. Big distributors also offer a lot of support in terms of electronic invoicing, etc." (Lesser-Goldsmith 2017 March 9). Nina recognized that selling local products is what makes Healthy Living special, but it is more challenging than buying from one large distributer. Richard Frank, of Four Seasons, spoke of many of the same challenges associated with buying from small, local, farms. Frank describes sourcing products from local farms as "trying to fit puzzle pieces together… – [it's] a lot of logistics to work out" (Frank 2017 March 9). Multiple interviewees explained that local farmers can be unorganized and old-fashioned in terms of how they handle their invoicing, which creates an additional complication when trying to sell to grocery stores and other large buyers. Interestingly, nearly all the farmers who discussed their perceived inability to sell to grocery stores used similar terminology, with most describing "the system" of grocery store supply chains, and how their farms do not fit neatly into the complex supply system.

Grocery stores have made a commitment to increase the amount of local food sold in their stores. However, the current purchasing system makes it challenging for both grocery stores and farmers to meet this goal. At the moment, many small farmers in the region do not have the consistency to meet the high demands set by grocery store supply chains. Many farmers and grocery stores in the region are working with two different systems, making it challenging to seamlessly incorporate local food into mainstream markets such as grocery stores. Grocery stores prefer to simplify their supply chain by purchasing from large wholesalers and distributors. Local farmers prefer to avoid expensive third-party certifications and the hassle of meeting consistency standards by selling outside of mainstream grocery stores. The imbalance between grocery stores and farmers is preventing a high volume of local food from entering mainstream markets. However, this does not indicate that there is a lack of local food within the Capital Region. Our research indicates that farmers in the region prefer to sell to alternative markets and directly to consumers because they believe it to be the most convenient and profitable method.

F. Farmers are Satisfied with the Local Food System

Farmers responded overwhelmingly that they are satisfied selling their products in the Capital Region, with only a quarter of respondents selecting that they disagreed or neither agreed nor disagreed with the statement "I am satisfied with where I currently sell my products." This finding is not particularly surprising, given the information we gathered from the interviews and other survey questions.

Our survey results showed quite clearly that farmers believe it is convenient and profitable to sell locally, and that they do not believe they could make a better profit somewhere else. Although some stakeholders in the Capital Region food system may believe that farmers feel incentivized to travel to New York City to sell their products, surveying the farmers themselves revealed that this is, in fact, an uncommon practice. Especially since most farms in the region are small, they do not feel that the time and energy required to drive to the City would be outweighed by the benefits of a somewhat higher price for their food. This is evident from the responses to our survey question "do you feel that you could make a higher profit selling elsewhere?" Only about one third of respondents answered that they felt that they could make a better profit elsewhere, while the majority felt that selling in the Capital Region was the most profitable option for them. In fact, during our interview process, we only found one farmer who was selling in New York City, and he was not traveling there himself. Rather, he said the only reason for selling his dairy products in the City was that a friend of his, who owned a much larger and wealthier farm, already drove to the City each weekend. It was therefore convenient for him to send a small amount of milk and yogurt down with his friend (Randles 2017 March 24).

Throughout our interviews, there was a common trend that farmers are happy with where they are selling, and aren't seeking different opportunities. A few of the farmers interviewed mentioned other selling opportunities that they would be interested in if they were more convenient or profitable, but overall there was a consensus that the current market options are sufficient. The most common answer to the interview question "is there anywhere you'd like to be selling, but aren't currently" was "no." This is a promising finding for the Capital Region, since it reveals not only that farmers are selling almost exclusively locally, but are also satisfied doing so and are not pursuing other opportunities.

G. Moving Forward: Established and Nonestablished Farmers

As current Capital Region farmers age and start to retire, the future of the local food system will be in the hands of younger farmers, some of whom are currently new to farming. One effect of the Local Food Movement has been an increased interest in farming, and some feel that a "new farmer movement" is currently underway. With this in mind, we examined the differences between nonestablished (farming for less than 10 years) and established (10 years or more) farmers, as classified by the USDA. There were many farms in the region that had been in existence for decades, with 8 that were over 100 years old. One farmer's family had been farming for over 10 generations. Among this group of farmers, there was a common sentiment that their customer base had been consistent for many years, and that the products they sold had not changed very much over the years. We found that there are several notable differences between these farmers and nonestablished farmers, who were new to farming and did not have an inherited agenda or customer base.

One difference is in terms of farm size. Newer farmers tend to have smaller farms. The average established farm was around three times the size of a nonestablished farm in our survey sample. Furthermore, although nonestablished farmers made up 25% of our survey sample, their farmland represented merely 9% of total farmland in the sample.

There are also differences in the products that established and nonestablished farmers produce. Established farmers are around 20% more likely to produce grains for animal consumption in the Capital Region, which is likely related to the larger size of their farms.

Producing crops like hay is profitable only if one has enough land to produce a sufficient quantity of it, and also requires a substantial capital investment — a hay baler can cost between $30,000 and $150,000 and needs to be replaced periodically (Durkee, April 22nd 2017). A new farmer, especially if farming is not their primary source of income, may not have this amount of capital to invest yet, so growing crops for animal consumption would not be practical for them.

A similar line of reasoning can be applied to the three products that nonestablished farmers are more likely to produce: vegetables, pigs and cattle, and poultry and eggs. While grains for animal consumption require a large quantity of land and capital, these three categories can be produced with relatively little investment cost and land, and have a quicker turnaround time than other categories. For instance, a new farmer who plants a field of vegetables can harvest them and make a profit during the same season, whereas if they were to plant an orchard of apple trees, it would be several years before they would be able to make a profit. Therefore, a new farmer who has not inherited their farmland from an older relative is more likely to plant vegetables, in order to make a profit quickly. Economic incentives are crucial for both established and nonestablished farmers.

The markets where the two categories of farmers sold their products were also compared. There were two types of markets where new farmers were more likely to sell–Farmers' markets and CSA shares. In the literature on local food, these two types of markets are frequently cited as rapidly growing markets for selling locally, and are praised for being direct to consumer as well. These types of markets have become much more popular in the past decade, and the numbers of nonestablished farmers in the Capital Region who sell through them indicate that the region is part of this national trend (USDA 2015). The popularity of these markets among new farmers may also indicate that farmers in the Capital Region who have recently started farming are doing so because of an interest in local food systems, since farmers' markets and CSAs are hallmarks of the Local Food Movement, highly lauded by advocates like Michael Pollan (2006).

Established farmers, on the other hand, were more likely to sell through a wholesaler, which is logical considering the farm size. like selling to a grocery store, selling to a wholesaler requires a large supply and consistency that small farmers may not have. However, established and nonestablished farmers were equally likely to sell direct to consumer, though the channels through which they do so may be different.

However, though there were significant differences in where established and nonestablished farmers sell as well as in what they produce, there were no statistically significant differences in their perceptions of the food system. They agreed that it is profitable and convenient to sell locally, and that they are satisfied doing so. This is notable because newer farmers are satisfied with the regional food system, despite the fact that they do not have the inherited consumer base that older farmers do, and despite the fact that they tend to sell in different locations. Therefore, even as the food system shifts as new farmers enter it and older farmers retire, the strengths of the system will likely remain constant.

V: Conclusions and Recommendations

The Capital Region is an example of a particularly strong local food system by a range of measures. Firstly, farmers in the region sell almost exclusively locally, with 80% selling within 100 miles and nearly all selling within 400 miles. This is a key indicator of a strong food system, since selling locally has well-researched environmental, economic, human health, and community benefits for both farmers and consumers.

Upon taking a more in-depth look at farmers' choices and perceptions related to selling their products in the Capital Region, it becomes clear that there are several factors contributing to the strength of this food system. Primarily, it is economically beneficial to sell locally in this region, as opposed to selling elsewhere. Furthermore, it is convenient to sell locally, given the diverse array of selling options. Despite the large number of long-time farmers who have inherited consumers from the previous generations, new farmers are able to carve out a place for themselves in the market, thus expanding new types of local food markets like CSA shares. The potential for making a profit is a strong motivator for Capital Region farmers to sell locally. They are overwhelmingly satisfied doing so, so this will likely not change much in the near future.

As well as selling locally, Capital Region farmers generally produce a diverse array of products, and sell in many different locations. This provides an economic safety net as well as supporting environmental sustainability (Lev et al 2014). Farmers are able to produce this kind of diversity because of the proliferation of local selling opportunities. Additionally, they sell their products in a variety of market types, which creates more opportunities for consumers to purchase food locally, and reduces the need for importing certain products.

Another strength of the Capital Region food system is the large quantity of food that is sold directly to consumers. The majority of farmers sell direct to consumer, which improves profits for farmers and cuts out the need to expend money and energy on intermediaries. This simultaneously raises profits for farmers and lowers prices for consumers. Additionally, many local food advocates argue that direct to consumer sales strengthen communities, bolstering connections between farmers and other community residents. This sentiment was echoed by many of the farmers interviewed in this study, who cited face-to-face interactions with consumers as a primary reason for selling locally and directly to consumers. Furthermore, selling direct to consumer provides economic benefits for Capital Region farmers, as it allows them to build relationships that result in a consistent consumer base and eliminates the need for expensive certifications.

While many older farmers in the region have inherited consumer bases and farmland from their ancestors, there is a small but influential group of newer farmers who are forging their own niches in the local market by selling different products in different places. As older farmers retire, the most popular markets may change, but it is likely that the region will remain strong agriculturally, and direct-to-consumer sales will continue to be most popular. Despite their differences, new and old farmers agree that it is convenient and profitable to sell locally in the Capital Region, and a large majority are satisfied selling here and do not want to sell elsewhere.

There are many factors contributing to the success of the Capital Region food system, but these are primarily related to economic incentives. Some farmers in the region are concerned with local food systems and sustainable agriculture, particularly those who are new to farming. Others have been farming for their entire lives and simply do what they have always done. Regardless of a farmer's motivations for farming, they must make a profit, particularly if they are like the 47.9% of our survey respondents who rely on farming as their primary source of income. As Dave Randles, owner of the Argyle Cheese Farm, explained, "At the end of the day [farmers are] doing this to make a living," regardless of their thoughts on the local food movement (Randles, 2017 March 19). However, farmers in the region widely agree that it is convenient and profitable to sell locally, and therefore have no reason to sell anywhere else. Selling to grocery stores is challenging for them, making accessing local food seem difficult to consumers. That being said, there is an abundance of local food available in the Capital Region, mostly through non-mainstream channels.

While our research was fairly proportional to the number of farms in each of the eleven Capital Region counties, our survey sample results only accounted for 3.9% of farmers in the region. An extended period of study could have helped increase the number of contacts made and surveys sent out. In order to be statistically significant, the survey population would have had to reach 357 farms. Furthermore, most of the comments we received on our survey questions were in regards to the fact that the Question 10 was not as applicable to dairy farmers as there are different, stricter regulations on their products. In order to fully understand the potential for local and direct to consumer sales within the region's dairy industry, an additional study would need to be completed.

Food systems are incredibly complex, and there is always potential for further research. Additionally, the body of research on food systems is currently quite localized, and more research is needed on local food in order to broaden our understanding. When comparing the Capital Region to other regions of New York and of the country, it is important to take into account the specific traits of the Capital Region that allow its local food system to function so well, specifically, the economic incentives that cause farmers to sell locally.

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VII: References

Adam et al. (2016). Direct marketing. *ATTRA Sustainable Agriculture* 1-16.

Anderson, D. (2017 March 13). Phone Interview.

Arnold, J. (2017 February 22). Phone Interview.

Arnold, P. (2017 March 19). In-person Interview.

Akins, A. (2017 April 13). Phone Interview.

Betts, J. (2017 April 13). Emailed Interview.

Blance, T. (2017 April 13). Phone Interview.

Brain, R. (2012 September). The local food movement: Definitions, benefits, and resources. *Utah State University Extension,* 1-5.

Coit, M. (2009 February) Jumping on the bandwagon: An overview of the policy and legal aspects of the local food movement. *Journal of Food Law and Policy*, 1-22.

Crandall’s Corner Farm. (2017 March 3). In-person Interview.

Durkee, D. (2017 April 22). In-person Interview.

Dyckman, R.; Hagerbrant, A.; & Gramprie, O. (2016). Got local? want local? consumer marketing analysis of local food. *Environmental Studies and Sciences Capstone Research.*

Denison Farm. (2017 March 3). Phone Interview.

Ellsworth, T. (2017 March 3). Phone Interview.

Engel, E. (2017 February 22). Phone Interview.

Frank, R. (2017 March 9). Phone Interview.

Gabriel, A. (2017 March 7). Phone Interview.

Garve, R. (2017 February 22). Phone Interview.

Good Fences Farm. (2017 March 3). In-person Interview.

Gorsky, K. (2017 March 6). Emailed Interview.

Grubinger, V. (2010 April). Ten reasons to buy local food. *University of Vermont.*

Hanehan Family Dairy. (2017 February 28). Phone Interview.

Hillside Organic Farm. (2017 February 22). Phone Interview.

Johnson, R. and Cowan, T. (2016). Local food systems: selected farm bill and other federal programs. *Congressional Research Service,* 1-35.

Joint Venture Farm. (2017 March 3). In-person Interview.

King Brothers Dairy. (2017 February 28). Phone Interview.

Lesser-Goldsmith, N. (2017 March 9). Emailed Interview.

Lev, L; Hand, M.; DiGiacomo, G. (2014).What does local deliver? *University of Nebraska Press,* 1-23.

Liberty Ridge Farm. (2017 March 9). Phone Interview.

Otrembiak Farm (2017 February 24). Phone Interview.

Peck, M. (2016 November 17). In-Person Interview.

Pollan, M. (2006) The omnivore's dilemma: A natural history of four meals. Penguin Books.

Pollan, M. (2006 June 7) What's for dinner? *The New York Times.* Retrieved from http://michaelpollan.com/articles-archive/whats-for-dinner-2/

Randles, D. (2017 March 19). In-person Interview.

Rejesus, R. M. GAP certification: Is it worth it? *North Carolina State University Cooperative Extension.* 1-2.

Samson, C. (2017 February 22). Phone Interview.

Stewart, C. (2017 April 14). Phone Interview.

Swartz, K. (2017 February 22). Phone Interview.

Tufts University. (2013). Cultivate your food economy: Food systems assessments.

United States Department of Agriculture. (2012). Census Data.

United States Department of Agriculture. (2014). Farmers Marketing.

United States Department of Agriculture. (2015). Direct farm sales of food results from the 2015 local food marketing practices survey.

United States Department of Agriculture. (2015). 2015 Local food marketing practices survey.

Washington County Farm Bureau (2017 April 10). In-person Focus Group.

Food System Assessments:

Cruze, S. and Curtis, J. (2012) Carrabus County Food System Assessment. *Center for Environmental Farming Systems.*

Central Vermont Regional Planning Commission. (2012) Central Vermont Food System Assessment.

Conley, B., Falk, J, et al (2011) Room at the table: Food system assessment of Erie County. *University of Buffalo Department of Urban and Regional Planning.*

Delaware Valley Regional Planning Commission. (2011). Greater Philadelphia's Food System Plan

County of Greenville Community Planning and Development Department Planning and Code Compliance Division. (2012). Greenville area food system assessment.

Memphis-Shelby County Office of Sustainability. (2014). Regional food system assessment.

Beiswenger, L., Hesse, N., et al (2013). Montgomery County food system assessment.

Slama, J., Nyquist, K., Bucknum, M. (2010). Local food system assessment for Northern Virginia.

Unger, S. and Wooten, H. (2006). Oakland food system assessment. *Mayor's Office of Sustainability*.

Rhoads, A. and Guenin, H. (2009). Portland plan food systems. *City of Portland Bureau of Planning and Sustainability*.

Fischer, A. and Roberts, S. (2011). Community food security coalition recommendations for food systems policy in Seattle. *Seattle City Council.*

Food and Health Network of South Central New York. (2012). Regional food system assessment for South Central New York.

Barbolet, H., Cuddeford, V., et al. (2005). Vancouver food system assessment. *Western Economic Diversification Canada.*

Virginia Tech. (2011). Community-based food system assessment and planning. *Virginia Cooperative Extension.*

VIII: Appendix

Appendix 1: Capital Region Farming Survey

We are studying farming in the Capital Region as part of our senior capstone project at Skidmore College. This survey takes about 3 minutes to complete, and results will be kept completely anonymous. Participants will be entered into a raffle to win a 50$ gift card to Tractor Supply. Thank you for helping us with our project. -Amanda Greenlee, Colleen Sullivan, and Jackie Knoll

1. What county is your farm located in?
   Albany
   Columbia
   Fulton
   Greene
   Montgomery
   Rensselaer
   Saratoga
   Schenectady
   Schoharie
   Warren
   Washington

2. What is the approximate size of your farm in acres?

3. How long have you been farming?

4. What products do you produce on your farm? Check all that apply.
   Grains, hay, straw, etc. for animal consumption
   Grains, oilseeds, dry beans, and dry peas (including corn, flaxseed, rice, soybeans, etc.)
   Vegetables, melons, and potatoes (including beets, cabbage, cantaloupes, pumpkins, squash, etc.)
   Fruit, tree nuts, berries (including apples, blueberries, cherries, grapes, strawberries, etc.)
   Pigs and beef
   Milk and other dairy products
   Poultry and eggs
   Value-added products (including jam, pickles, etc.)
   Others (please list all) ____________________

5. Approximately how many acres does this operation
   Own?
   Rent or lease from others, or use rent-free?
   Rent to others?

6. Where do you sell your products? Check all that apply.
   - Farmers' Market
   - Wholesaler
   - Distributor
   - School/Institution
   - Restaurants
   - Direct to Consumers
   - Farmstand or roadside stand
   - Farm Store
   - Co-Op
   - Community Supported Agriculture (CSA) Share
   - U-Pick
   - Delivery Service
   - Online Marketplace
   - Other (please list all.) ____________________

7. Approximately what percent of this food operation's products were sold...
   - Within 100 miles?
   - More than 100 miles, but less than 400 miles away?
   - More than 400 miles away?

8. What do you do with any leftover products?
   - Donate to food pantry
   - Feed to farm animals
   - Give to employees
   - Other (please explain) ____________________
   - I do not have any leftover products.

9. Is your farm your primary source of income? If not, approximately what percentage of your income comes from the farm?
   - The farm is my primary income source.
   - The farm is not my primary income source. The farm makes up the following percentage of my income: ___________________

10. Please respond to the following statements by selecting one of the following answers: Strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree.
    a. It is convenient for me to sell my products locally,
    b. It is profitable for me to sell my products locally.
    c. I could make a better profit if I sold my products farther away than I do now.
    d. I am satisfied with where I currently sell my products.
    e. I prefer to sell my products directly to consumers.
    f. I do not produce enough to sell to a larger buyer such as a supermarket or grocery store.