

Berkshire County Foodshed Analysis

A Study for the Berkshire County Regional Planning Commission

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I. Introduction:

A foodshed is the origin of a food supply line; it represents the land resource that enables food production for a region or community. The aim of a foodshed analysis is to determine if the local supply of food meets the local demand (Kloppenburg 1996). Defining a foodshed, the geographic area where the food for a population originates, serves as a tool by which to understand the forces in places that control the flow of food supply in a region (Peters 2008). For the purposes of this project we are looking at the foodshed of Berkshire County, defining the area of the foodshed as the county.

The information from this analysis will serve as a tool for regional policymakers in their efforts to revitalize the local food movement in Berkshire County. Fostering the local production and consumption of food is of critical importance to the well-being and sustainability of the region in a number of ways. For one, as energy prices rise and concerns about climate change become more pressing, locally produced food provides a more ecologically sustainable

alternative to the industrial production of food and its transportation across the globe. It also is useful in addressing food security issues: the availability of food and access to it. With these environmental and health concerns in mind, such an analysis is extremely important to our future, because it serves to evaluate the capacity for the relocation of a food system. In undertaking this analysis we are asking: can the region survive off of the food it produces?

More and more people in Berkshire County are opting out of the industrial food system and are looking to purchase and consume local foods. Interest in the local food movement serves to encourage and revitalize the communal aspects associated with local agriculture. The Berkshires have a long agricultural history that has, in many ways, shaped its local culture. By encouraging the local food movement within Berkshire County, we hope that the agricultural conceptions of community and of the local landscape can be preserved.

Additionally, the recent national health scares regarding food, such as E. coli outbreaks, have made many people reconsider the safety of industrial agriculture. Locally produced food provides a responsible and safer alternative to these industrial practices. Ultimately, the aims of a foodshed analysis serve to inform locavores and land use planners of the benefits and challenges of eating from a local foodshed, as well as provide important land use implications needed to help strengthen a local foodshed.

A. Goals for the project:

1. Serve as an indicator for the agriculture economy of the Berkshires, looking specifically at whether the local foodshed has the capacity to meet the region's needs.
2. Aid in the establishment of a 'Berkshire Food Policy Council'
3. Help develop a regional food security strategy, which would create policies for, and promote sustainable agriculture development in the region

B. Identification of planning problem:

This foodshed assessment was conducted in order to understand the current state of the foodshed of Berkshire County, and opportunities for the future both in terms of supply and demand of food and potential available farmland. The assessment provides a careful analysis of current land in use for farming, open lands available for farming, the county's food demand based on different diets, and the amount of farmland required to meet that demand. The assessment provides useful insights for both land use planners, like Amy Kacala, at the Berkshire Regional Planning Commission, and locavores. Our results will inform farmers, policy makers, and the community at large, in order to improve the local foodshed, which strives to meet the county's consumption demands with a supply of locally produced food.

The foodshed analysis will answer three questions related to the supply and demand of food in Berkshire County:

1. What type of food do we grow here locally? --- determine current local food production
2. What do we consume locally? --- determine consumer food demand
3. Do we have potential to produce more locally? Where is food currently grown and where/how could food production be expanded? --- determine potential for more local food production

C. Objectives:

1. Conduct a literature review: review examples of past foodshed assessments, including recommendations by Amy (UMASS Amherst: Pioneer Valley and Peters Mapping Foodsheds in New York), and examples from Cornell, San Francisco and Wisconsin;

consider other Food Security websites suggested by Amy, as relevant to Berkshire County, and review the Ag Census, Berkshire Grown and Farm Bureau website

2. Assess the supply and demand in Berkshire County: identify the farms in the region, quantify the amount and type of food they produce, conduct an agriculture soil and land use assessment, and then account for what the ‘typical’ American consumes in one year using consumer expenditure data produced by the Bureau of Labor Statistics. This information will be used in order to evaluate whether local food production has the capability to meet food consumption demands, based on how much food is consumed in the Berkshires annually.
3. Determine if local food production meets the demands of the county
4. Conduct a qualitative analysis via interviews and surveys
5. Summarize the findings, provide recommendations for potential policies, including suggestions for advocacy, education, land-use policy, and marketing approaches
6. Report the results of the analysis to the Food Policy Council of Berkshire County

II. Project Background:

A foodshed analysis has never been done for Berkshire County. Massachusetts, however, performed statewide foodshed analyses in 1975 and 1997, which compared the consumption of meat, dairy, poultry, eggs, vegetables, fruits and aquaculture foods with the production of these foods within the state. In this study, each food group was given a self-sufficiency score based on the dollar-to-dollar comparison of production and consumption patterns within the state. The study found that self-sufficiency had increased, on average, from 19 percent to 32 percent between 1975 and 1997 (Blum-Evitts 2009). This study, however, is limited in its applicability to

the analysis that we intend to perform in Berkshire County. For one, the self-sufficiency levels of each food group do not indicate how much locally produced food is actually being consumed locally. Furthermore, only a limited amount of food products are considered that may not accurately reflect the average American diet. Lastly, this statewide analysis does not examine Massachusetts' potential agricultural production given existing soil, residential, and geographic conditions.

A more pertinent foodshed analysis was one recently performed by the Central Connecticut River Valley Institute in Shelburne Falls, Massachusetts. In this study, the demands for agriculture are determined by national nutritional guidelines in lieu of actual consumption patterns. The supply of agriculture was examined in two ways – through data provided by the USDA Agricultural Census performed in 2007, and by examining the food production of personal gardens and urban and community agriculture undertakings within Shelburne Falls. In compiling local food production values in this way, the analysis reflects a nuanced approach toward examining current local food supplies.

The examination performed in Shelburne Falls also includes comprehensive assessment of potential food production within the village and the local community. This was done through in-depth site condition examinations in Shelburne Falls and an extensive investigation of crop yields and alternative farming methods in both rural and residential areas. The depth and detail of the Shelburne Falls foodshed analysis is beyond the scope of our project, as we will be working on a countywide assignment. The analysis done in Shelburne Falls also seeks to direct future agricultural production to meet consumption needs as determined by a standardized national diet that is not necessarily reflective of actual consumption patterns. The work done here, however, highlights important considerations to take into account that were not regarded in

the Massachusetts statewide survey. For instance, it seems apparent that community engagement is critical to accurately discern current and potential production levels.

The foodshed analysis of Massachusetts' Pioneer Valley, as performed by Shemariah Blum-Evitts in her master's thesis "Designing a Foodshed Assessment Model," is perhaps the most relevant food security evaluation performed to date. As in our project, Blum-Evitts sought to: 1) determine consumer food demand, 2) determine current local food production, and 3) determine potential local food production.

In this foodshed analysis, consumer demand is determined through the 2007 Consumer Expenditure Survey performed by the Bureau of Labor Statistics. Because specific data to Pioneer Valley was not available, average consumer expenditures from the United States' Northeast were utilized (Blum-Evitts 2009). A similar approach is utilized in our assessment, as demand data is not available for Berkshire County. USDA Census of Agriculture data was employed in this analysis to determine current production in the Pioneer Valley (Blum-Evitts 2009). This method is not ideal as the USDA Census only takes into account farms that produce over \$1,000 of agriculture annually. However, a more detailed approach, as was taken in Shelburne Falls, is not practical when performing a countywide analysis. Moreover, our assessment is primarily meant as a tool to help craft policy to promote the production and consumption of Berkshire-grown food by residents. Producers of less than \$1,000 per annum do not likely rely on agriculture as their main source of income, and therefore, would probably not be responsive to policy changes aimed at increasing production. Total local consumption, however, would still likely be understated as a result of this bias.

Geographic Information Systems was utilized to determine the potential local food production in the Pioneer Valley study. GIS layers employed include: USDA soil data for

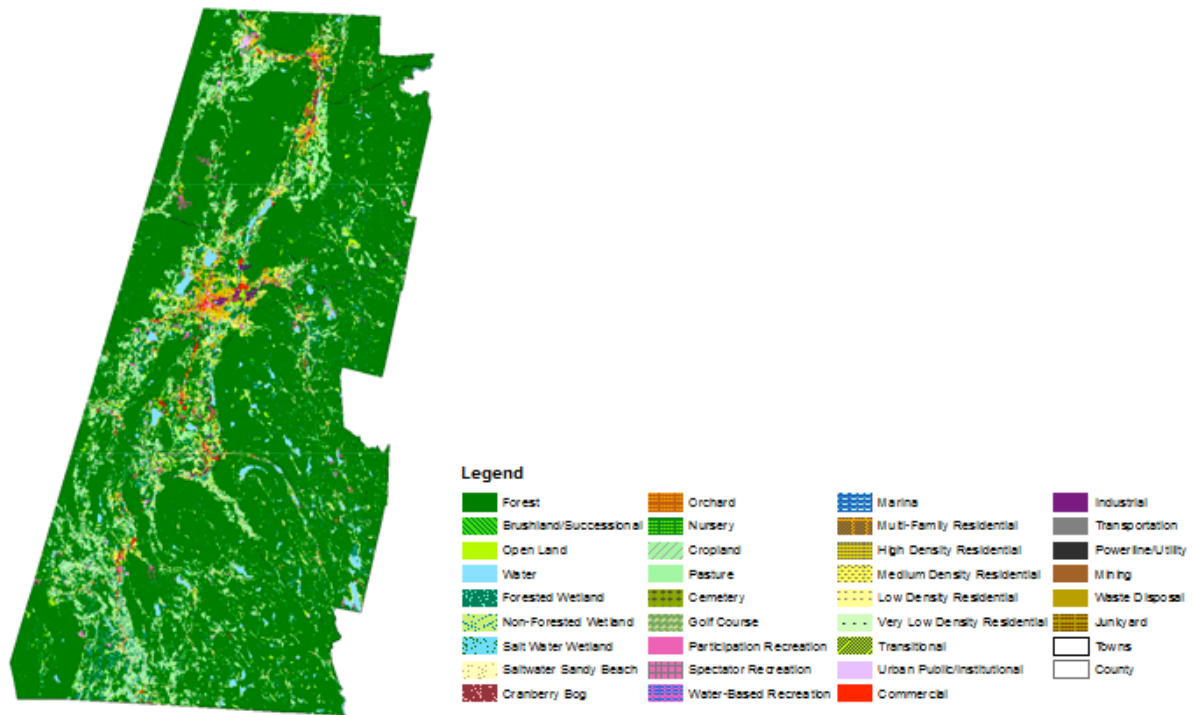
Hampden and Hampshire counties, land use data for Hampden and Hampshire counties, and land use in Franklin county. The examination of available USDA farmland soils, as well as open, undeveloped space from these layers culminated in producing a mapping of potential farmlands for the Pioneer Valley. The one drawback to this method is that protected forested lands were included in this assessment. Local production potential, therefore, may have been overstated in this analysis. This is a more significant problem in Berkshire County where there is a higher rate of protected conservation lands. While obvious shortcomings are present in the approach taken in the Pioneer Valley Foodshed Analysis, the scope and stated goals of the project are analogous to that of the Berkshire County Foodshed Analysis. Therefore, we will use a similar methodology for our project.

III. Physical Site Description, Site History & Community Profile:

The foodshed analysis we are conducting in this project deals exclusively with Berkshire County in Western Massachusetts. Berkshire County is the westernmost county in the state of Massachusetts. It borders New York State in the west, Vermont in the north and then Connecticut to the south. It is comprised of 32 towns with Pittsfield, MA in the central north as the county seat. The county is an especially well known destination for summer tourism. The population is 129,288 people according to the United States Census 2009 estimate (US Census Bureau 2009). The median age is 43.6 years (US Census Bureau 2009) but the average age of a principal farm operator is 58.3 years (Census of Agriculture 2007). The total land area of Berkshire County is 931.32 square miles or 593,093 acres (Census of Agriculture 2007).

The various land use of Berkshire County can be seen in this map from GIS which shows the land use for 2005:

Figure 1: Land Use in Berkshire County in 2005



Total Land Use Berkshire County, 2005

The total land use can be broken down into different types of land (see Figure 2). By far the greatest use is just natural land, which comprises almost 84% of county. Agricultural use is next at about 6.5%, followed by residential and industrial use. The total land area of Berkshire County is a slightly higher number of acres according to GIS. This is likely due to the overlapping of various land uses and the limit of GIS to calculate small differences between overlaps. Therefore for all future calculations, we will use the total acreage from the 2007 Agricultural Census.

Figure 2: Breakdown of GIS 2005 Land Use

Land Use	Acreage	Percent
TOTAL NATURAL LAND	508647.84	83.99
TOTAL OPEN LAND	8353.73	1.38
TOTAL AGRICULTURAL LAND	39231.71	6.49
TOTAL RECREATION LAND	4132.48	0.66
TOTAL RESIDENTIAL LAND	32305.01	5.34
TOTAL INDUSTRIAL LAND	12984.72	2.14
TOTAL LAND	605655.49	100

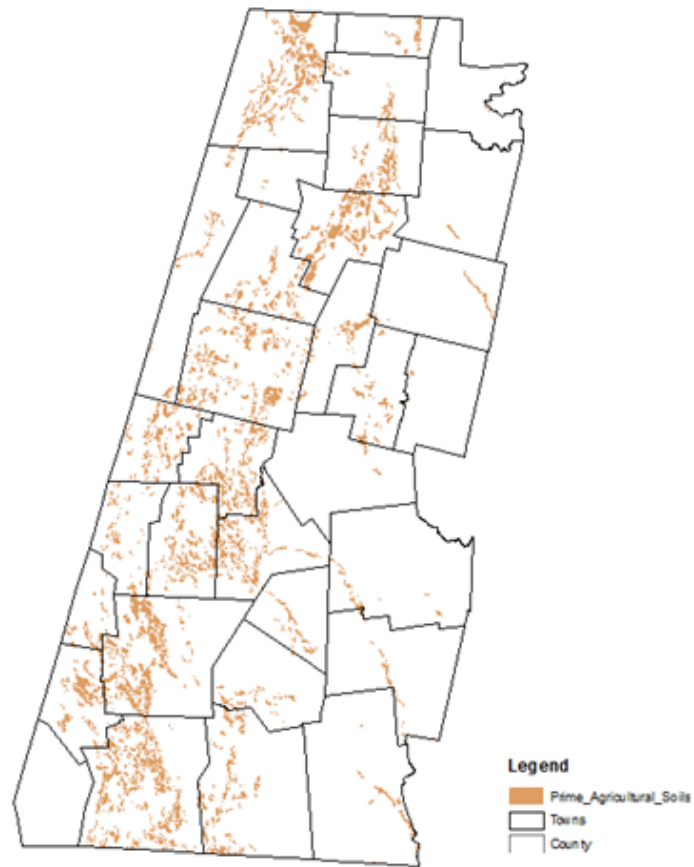
Berkshire County is fairly mountainous resulting in later settlement than the rest of Massachusetts. It also has many rivers and lakes which provide water for the county. The winters are very cold with moderately warm summers. The annual precipitation rate is 43 inches over half of which falls from April to September making that the primary growing season. Farming is, and from the beginning has been, an important enterprise in Berkshire County with important crops including hay, apples, beef and dairy. Farming mostly occurs in the valleys of the county even though the soil in other parts is also well suited to farming.

According to the 1988 Soil Data Analysis of Berkshire County the soil is classified by as “Coarse-loamy, mixed, frigid, Typic Haplaquepts” (Scanu 1988 pg. 216) which is considered a hydric soil. A hydric soil is “a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.” (National Resources Conservation Service 2010). Thus all of this land is waterlogged during the growing season and likely unable to be farmed. According to GIS, there are only 43,814.71 acres of land that is considered “prime farmland” in Berkshire County (see Figure 3).

Figure 3: Prime Farmland in Berkshire County

PRIME FARMLAND

Prime Farmland =
43,814.70652 acres



According to the 2007 Agricultural Census there are 522 farms in Berkshire County with a cumulative total of 66,352 acres of farmland (Census of Agriculture 2007), which can be broken down into woodland, cropland, pasture, and other uses (see Figure 4 for percentage breakdown). The average size of a farm in 2007 was 127 acres with a median of 50 acres (see Figure 5 for further breakdown by size).

Figure 4: Land Use in Farms (Census of Agriculture 2007)

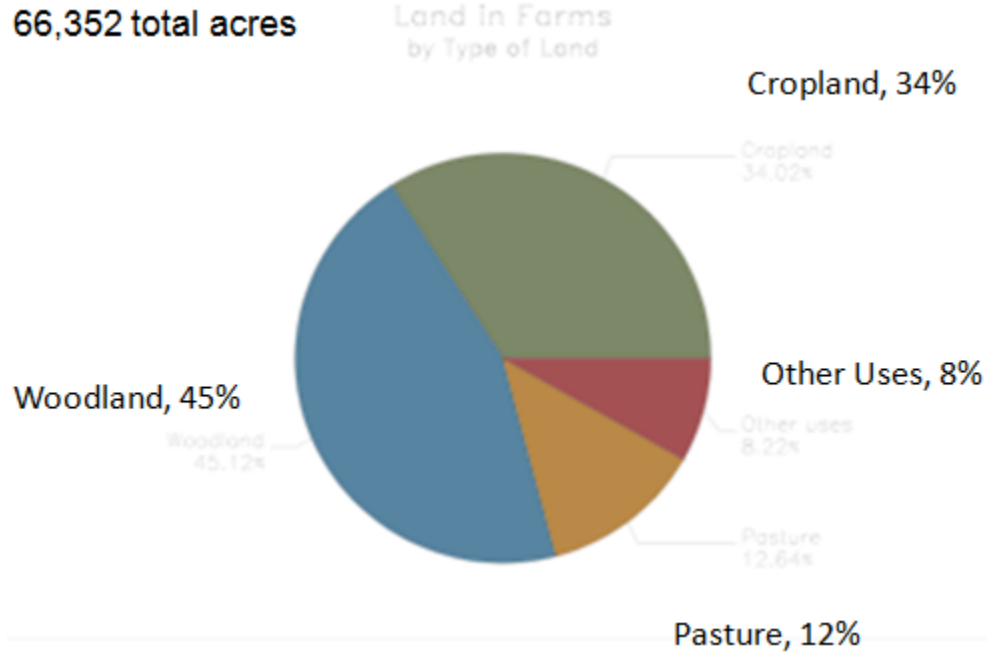
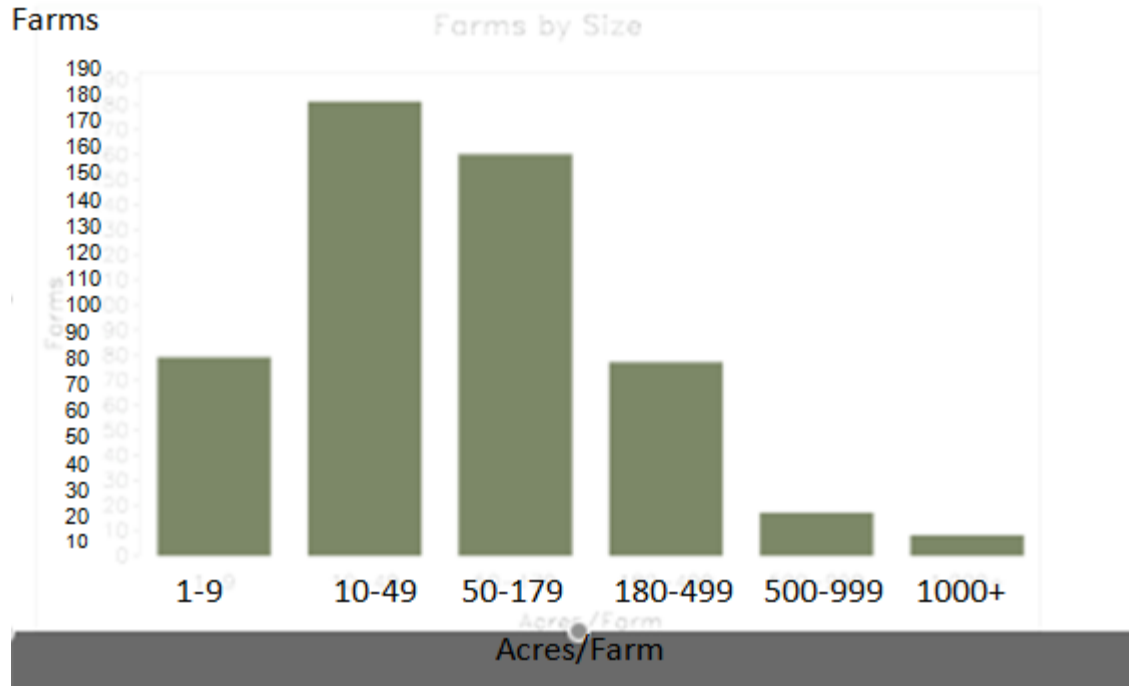
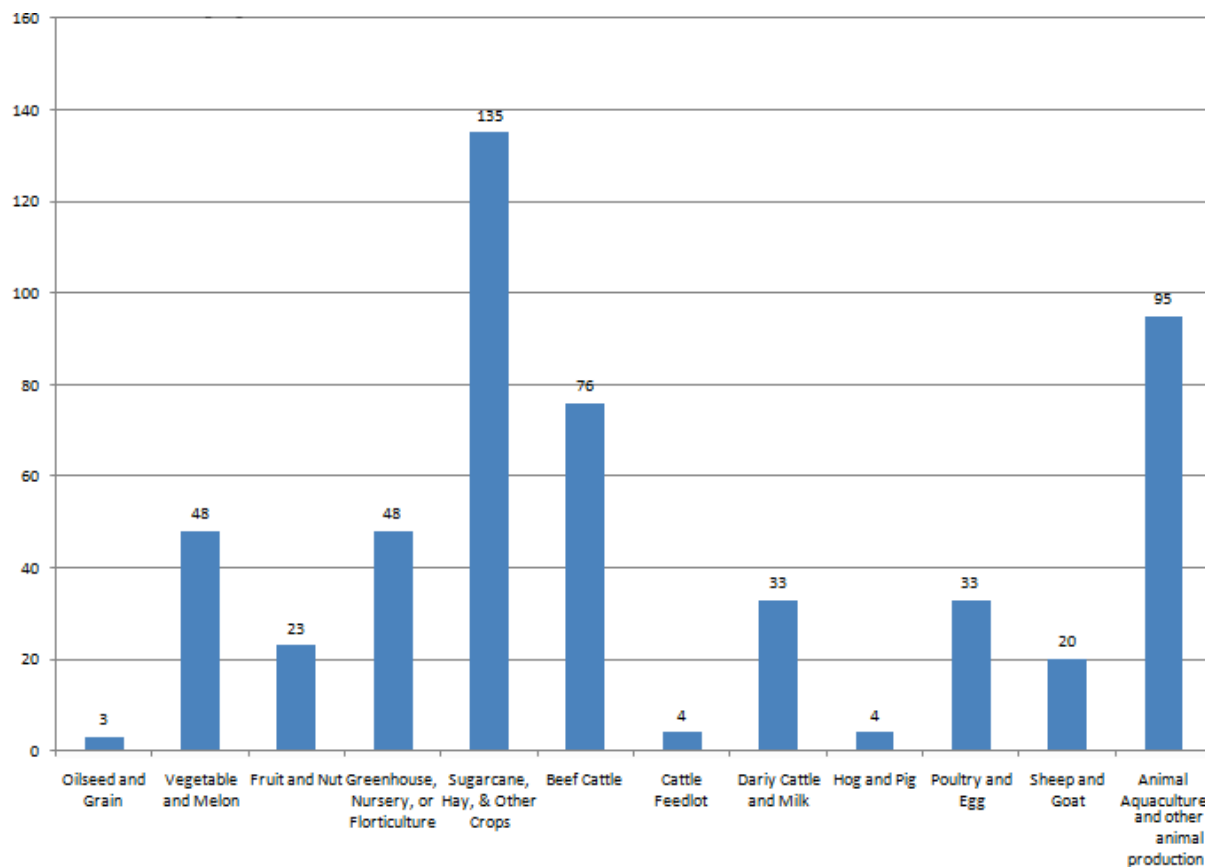


Figure 5: Farms by Size (Census of Agriculture 2007)



There are a wide variety of different types of farms in Berkshire County. They are delineated in the 2007 Agricultural Census according to industry classifications (see Figure 6). They are identified by the main crop they produce but that does not mean that they do not also produce a variety of other things. These various types of farms make up the 522 total farms in Berkshire County.

Figure 6: Types of Farms in Berkshire County (Census of Agriculture 2007)



The Agricultural Census collects data every five years which is helpful in being able to compare the change in number of farms or amount of land in production in recent history. The number of farms in Berkshire County in 2007 is up 130 percent to 522 from the 401 farms in 2002 which in turn was down 20 percent from 501 farms in 1997. However, the amount of lands in farms has dropped even though the number of farms has increased. In 2007, the 66,352 acres

of farmland was down 3 percent from 68,630 acres in 2002 which in turn was slightly up 1 percent from 67,983 acres in 1997. This is consistent with the drop in the average acreage of the farms. The average size of farms in Berkshire County in 2007, 127 acres is down 74 percent from 171 acres in 2002 which in turn was up 26 percent from 136 acres in 1997. (*Federation Inc.* 2010) (See also Figure 7).

Figure 7: Comparative Data

2007	2002	1997
522 farms	401 farms	501 farms
66,352 acres	68,630 acres	67,983 acres
Avg: 127 acres	Avg: 171 acres	Avg: 136 acres

GIS breaks down the amount of land found in farms slightly differently than the Census of Agriculture. GIS land use categories for agricultural use include cropland, orchard, pasture, and nursery. The total acreage of land in Berkshire County agricultural use according to GIS, is 39,231.71 acres (see Figure 8), which is much smaller than the acreage calculated by the 2007 Census of Agriculture. Overlapping the agricultural land use and prime farmland area in GIS, calculates the intersection between the two types of land. Only 12,696.82 acres of land that is in agricultural use is actually in prime farmland (see Figure 9). This is equal to 32.3% of the agricultural land use which is reflective of the national average of less than 30% of agricultural production occurring in areas of prime farmland.

Figure 8: Agricultural Land Use in Berkshire County (GIS)

AGRICULTURAL LAND USE

Cropland: 24,103.7801
acres

Orchard: 328.194624
acres

Pasture: 14,467.6526
acres

Nursery: 332.082151
acres

Total: 39,231.71 acres

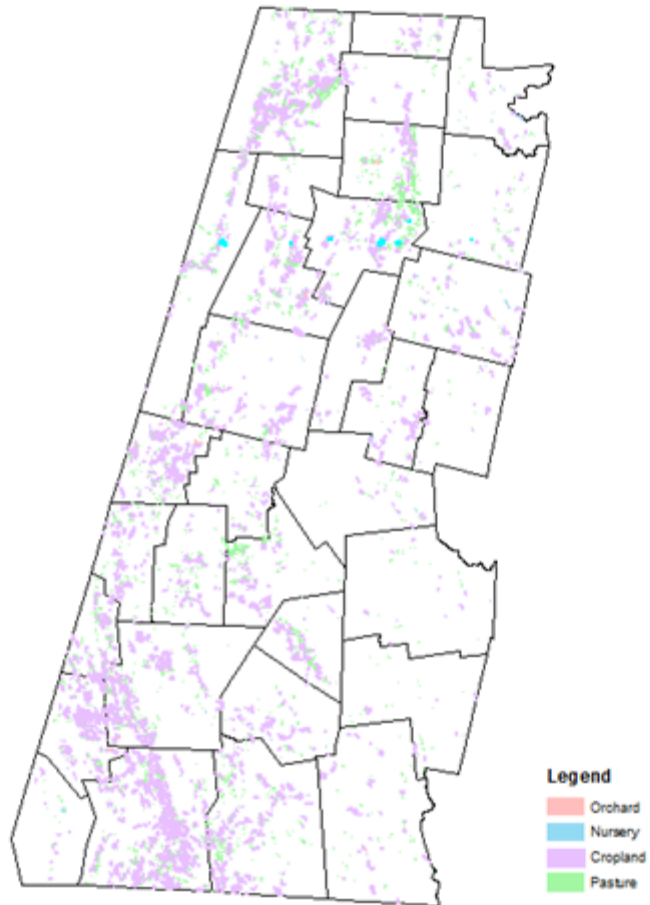
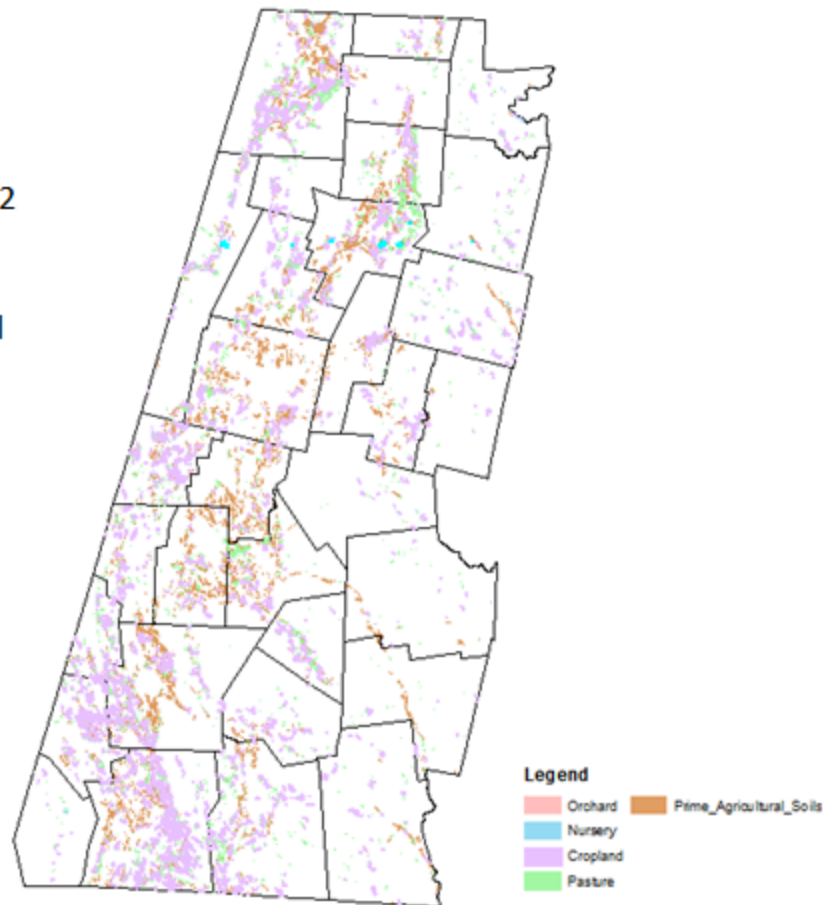


Figure 9: Agricultural Land Use and Prime Farmland Soil (GIS)

PRIME FARMLAND & AGRICULTURAL USE

Intersection of prime
farmland and current
agricultural use =12,696.82
acres

32.3% of total agricultural
land use



The 2007 Agricultural Census reports that the market value of products sold in 2007 was \$20,601,000, with crop sales totaling \$7,726,000 and livestock sales totaling \$12,875,000. The average market value of products sold per farm was \$39,465. Government payments were recorded at \$205,000, to 32 farms, with the average farm receiving payments of \$6,391. Most farms, 186, have a value of sales less than \$1000, while only 9 record a value of sales at \$500,000 or more. The net cash farm income of operation was recorded at \$871,000, while the net average income per farm was \$1,669. The data indicates that most farms in Berkshire county

are small and family owned, and do not serve as the primary source of income for many of these farmers (Census of Agriculture 2007).

IV. Quantitative Analysis:

A. Determining Current Consumer Food Demand:

The 2007 Consumer Expenditure Survey provides the information required to determine the consumer demand for food. The Bureau of Labor Statistics conducts the survey in order to report on household and family purchasing trends. A ‘consumer unit’ represents one household or family; a group of people living with each other and sharing purchased food for themselves. Since consumer expenditure data particular to Berkshire County, Massachusetts is not available, the Northeast averages reported from the Consumer Expenditure Survey are used here. The US Census reports that the Northeast region has an average household size (the total number of people living in a housing unit) of 2.4, and an average number of 1.3 workers per household. Berkshire County has a reported average household size of 2.21, which is comparably similar to the Northeast average (US Census Bureau 2010).

While some foodshed analysis projects determine nutritional needs by utilizing a “recommended” dietary guideline, like the Food Pyramid produced by the United States Department of Agriculture, our study looks at consumer spending as a means by which to measure the nutritional needs of the county. The main focus is to measure consumer demand for food in the Berkshire County against the local production of food; this goes back to our initial question, what is the degree to which local production can meet food consumption demands? The average spending per consumer unit for the Northeast region can be multiplied by the Berkshire’s present number of households, 56,031, in order to reveal the spending patterns of the

county (US Census Bureau 2010). At this point we must take into consideration population variables, like the consumption impact of second homeowners and tourists during “peak” months. While population variations should be noted, and considered, for the sake of calculations, our analysis assumes a relatively stable population for twelve months of the year. Thus, our calculations are inherently tied to a certain margin of error.

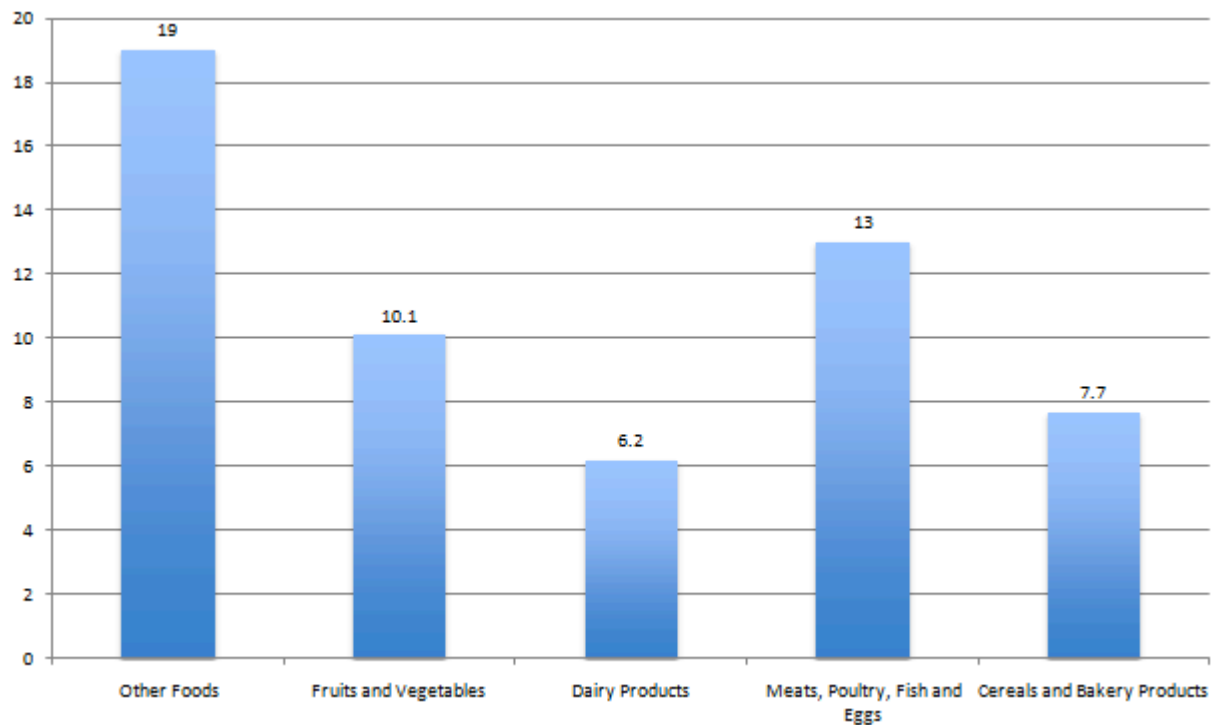
The Bureau of Labor Statistics tracks consumer spending from year to year. In 2007 the national average annual expenditure was \$49,638 per consumer unit. 12.4% of consumer spending is attributed to food purchases (BLS 2007) (see also Figure 10). In 2007, \$6,133 was the average annual food expense per consumer unit. Annual expenditures on food are divided in terms of purchases for consumption in the home and out of the home. For the Northeast region, 44% of the total food expenditure was credited to meals outside the home (BLS 2007), while 56% of total expenditure was credited to food at home (BLS 2007). Analyzing spending trends between different commodity groups can break down in-home food consumption.

Figure 10: Consumer Expenditures (Blum-Evitts 2009)

Table 3: Comparison of 2007 Annual Consumer Expenditures				
	National		Northeast	
Number of Consumer Units	120,171,000		22,382,000	
Average Number in Consumer Unit	2.5		2.4	
Average Number of Earners in Consumer Unit	1.3		1.3	
	Dollars	Percent	Dollars	Percent
Average Annual Expenditures	49,638	100.0	51,624	100.0
Food	6,133	12.4	6,419	12.4
Housing	16,920	34.1	19,085	37.0
Apparel & Services	1,881	3.8	2,068	4.0
Transportation	8,758	17.6	8,014	15.5
Health Care	2,853	5.7	2,645	5.1
Entertainment	2,698	5.4	2,811	5.4
Other Expenditures	9,939	20.1	10,073	19.7
Source: BLS Consumer Expenditure Survey 2007				

Among five main categories: fruits and vegetables; dairy products; meats, poultry, fish, and eggs; cereals and bakery products, overall the food expenditure was largest for “other foods,” at 19% the total percentage of food spending, then meats, poultry, fish, and eggs, at 13% (BLS 2007) (see Figure 11). The “other” category includes fats, oils, sweets, sodas, and other miscellaneous foods, typically high-fat or high-sugar snack foods. It’s no surprise that we spend the most on packaged and processed foods, which are quite popular, and often accessible and convenient – like frozen pre-made meals, pre-made packaged snacks, soups, salads, desserts, chips, nuts, and condiments.

Figure 11: Expenditures by Commodity Group



B. Determining Current Local Food Production:

The 2007 Census of Agriculture notes the market value of agricultural products sold in Berkshire County at \$20,601,000. The largest sector for the region, (in terms of human consumption), is the commodity group of vegetables, melons, potatoes, and sweet potatoes. Berkshire County provides both crops and livestock for its population to consume – with grains, beans, peas, vegetables, fruits, poultry, eggs, meat, milk, and other dairy products produced in the region (2007 Census of Agriculture). The following table illustrates farm sales in Berkshire County:

Figure 12: Farm Sales for Berkshire County (Census of Agriculture 2007)

Farm Sales for Berkshire County:	
Total Farm Sales:	\$20,601,000
Crops – including nursery and greenhouse -	\$7,726,000
Animals and animal products -	\$12,875,000
Total Value of Sales by Commodity Group (total food sales):	
Crops:	
Grains, oilseeds, dry beans, and dry peas:	\$286,000
Vegetables, melons, potatoes, and sweet potatoes:	\$2,159,000
Fruits, tree nuts, and berries:	\$1,204,000
Livestock:	
Cattle and calves:	\$1,548,000
Hogs and pigs:	\$51,000
Milk and other dairy products from cows:	\$10,648,000
Poultry and eggs:	\$69,000
Sheep, goats, and their products:	\$132,000
Source: 2007 Census of Agriculture, US Department of Agriculture	

C. Results:

The Northeast Expenditure Survey breaks down spending on food into two main categories: food consumed at home and food consumed away from home. The category of food consumed at home is further broken down in terms of specific spending on different commodities. For the purposes of this analysis we are assuming that the food purchased for consumption at home and away was in fact grown in Berkshire County. The food expenditures for the Northeast region break down as follows:

Figure 13: Food Expenditures 2007

Table 4: Food Expenditures 2007				
	National		Northeast	
	Dollars	Percent	Dollars	Percent
Food	6,133	100.0	6,419	100.0
Food at home	3,465	56.5	3,595	56.0
Cereals and bakery products	460	7.5	495	7.7
Cereals and cereal products	143	2.3	157	2.4
Bakery products	317	5.2	339	5.3
Meats, poultry, fish, and eggs	777	12.7	832	13.0
Beef	216	3.5	207	3.2
Pork	150	2.4	149	2.3
Other meats	104	1.7	121	1.9
Poultry	142	2.3	151	2.4
Fish and seafood	122	2.0	159	2.5
Eggs	43	0.7	45	0.7
Dairy products	387	6.3	400	6.2
Fresh milk and cream	154	2.5	151	2.4
Other dairy products	234	3.8	249	3.9
Fruits and vegetables	600	9.8	647	10.1
Fresh fruits	202	3.3	216	3.4
Fresh vegetables	190	3.1	205	3.2
Processed fruits	112	1.8	133	2.1
Processed vegetables	96	1.6	93	1.4
Other food at home	1,241	20.2	1,221	19.0
Sugar and other sweets	124	2.0	125	1.9
Fats and oils	91	1.5	93	1.4
Miscellaneous foods	650	10.6	626	9.8
Nonalcoholic beverages	333	5.4	333	5.2
Food prep for out-of-town trips	43	0.7	44	0.7
Food away from home	2,668	43.5	2,824	44.0
Source: BLS Consumer Expenditure Survey 2007				

In this day and age especially with rampant globalization the price that the consumer pays for food accounts for many other elements of the product than just payment to the farmer. On

average in 2006 only 19 cents of the whole dollar went to the farmer, the remaining 81 cents was divided among other marketing costs including: labor, packaging, transportation, energy, advertising, etc, (Blum-Evitts 2009). This has dropped slightly since 1995 when for every dollar spent on food 21 cents went to the farmer and 79 cents was devoted to other costs (Northeast Farms to Food 2006).

This can also be broken further down depending on the different type of commodity (see Figure 14). With certain commodities the farmer gets a larger percentage of the retail cost while with others the farmer gets substantially less.

Figure 14: What Farmer Got Paid by Commodity (Blum-Evitts 2009)

Table 9: What the Farmer Got Paid or... Farm Value Share of Retail Cost	
	Farm value share (percent)
MARKET BASKET OF MIXED COMMODITIES	19
Fresh vegetables	25
Fresh fruit	30
Processed fruit & vegetables	16
Cereals & bakery products	6
Dairy products	27
Beef	47
Pork	30
Other meat	36
Poultry	41
Eggs	46
Source: 2006 Farm Share, ERS, USDA. Source for other meats, poultry, and eggs: Food Cost Review, 1950-1997, Howard Elitzak, Agriculture Economic Report No 780. June 1999. USDA ERS. Table 7: Market Basket of Food Products originating on US farms by food group.	

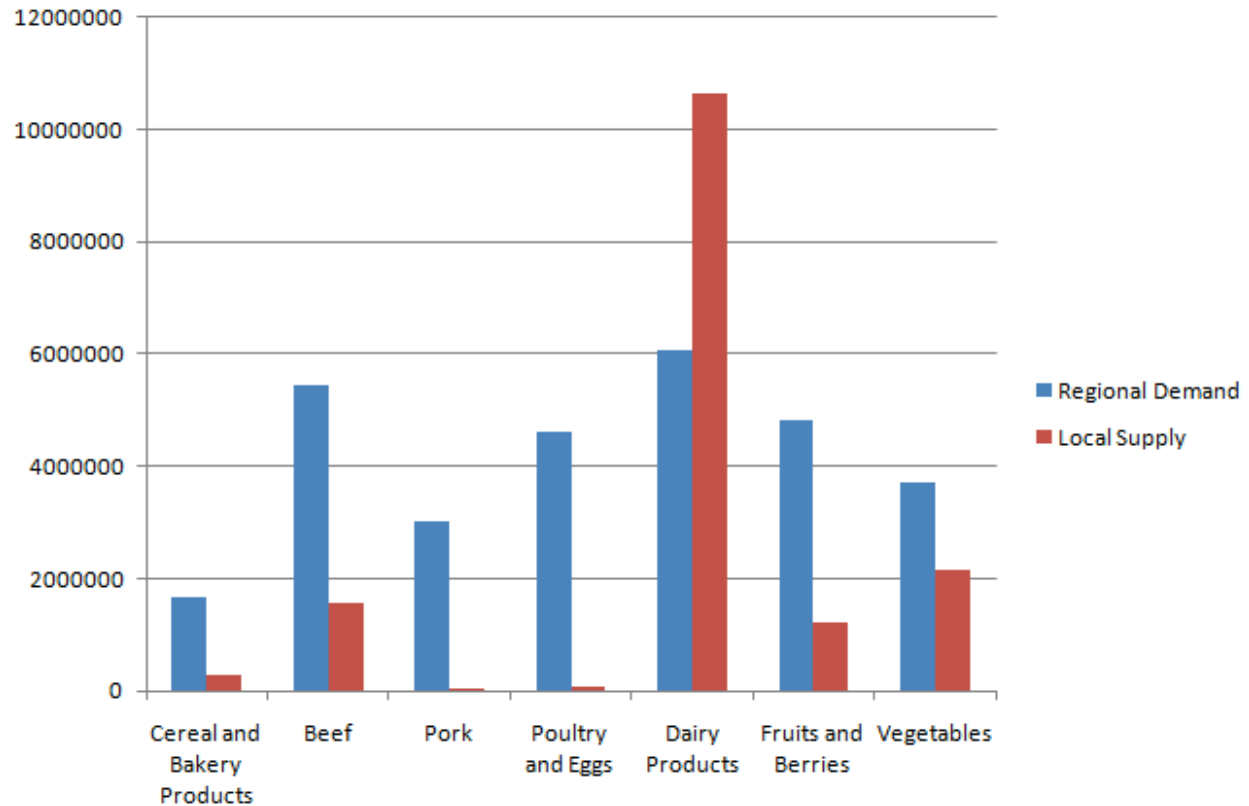
In order then to compare consumer spending on food to farm sales we first needed to determine what percent of their spending actually went to the farmers. Therefore we multiplied the percent of money the farmer was actually receiving by the total consumer expenditure in

Berkshire County (money spent on each commodity multiplied by the number of households in Berkshire County). The number became our demand figure. We then compared this to the total farm sales in Berkshire County for each commodity or commodity group which became our supply figure.

Figure 15: Comparison of Food Consumed at Home and Local Farm Production

Comparison of Food Consumed at Home and Local Farm Production for Berkshire County				
	In Dollars			Percent of Local
	Regional Demand	Local Supply	Balance	Supply Fulfilling Regional Demand
Cereal and Bakery Products	1,664,121	286,000	(1,378,121)	17.19
Beef	5,451,256	1,548,000	(3,903,256)	28.4
Pork	3,005,503	51,000	(2,954,503)	1.7
Poultry and Eggs	4,628,721	69,000	(4,559,721)	1.49
Dairy Products	6,051,348	10,648,000	4,596,652	175.96
Fruits and Berries	4,823,148	1,204,000	(3,619,148)	24.96
Vegetables	3,705,330	2,159,000	(1,546,330)	58.27
Total	29,329,427	15,965,000	(13,364,427)	54.43
All food at home, including <u>miscellaneous</u> and other foods	42,328,059	15,965,000	(26,363,059)	37.72
Note: Fish and seafood as well as other meats including sheep and lambs have been excluded from supply and demand				

Figure 16: Graph Comparison



For food consumed at home, dairy products are produced at one and three-quarters times the spending for them in Berkshire County. No other product outstrips the demand, although over half the region's demand for vegetables is produced in the county. Beef and fruits and vegetables are also important products for the county's self-reliance meeting approximately 28% and 25% of the county's demand respectively. Local production in Berkshire County meets 37.72% of the regional demand for food consumed at home. If only the identified products are considered this amount jumps to 54.43%.

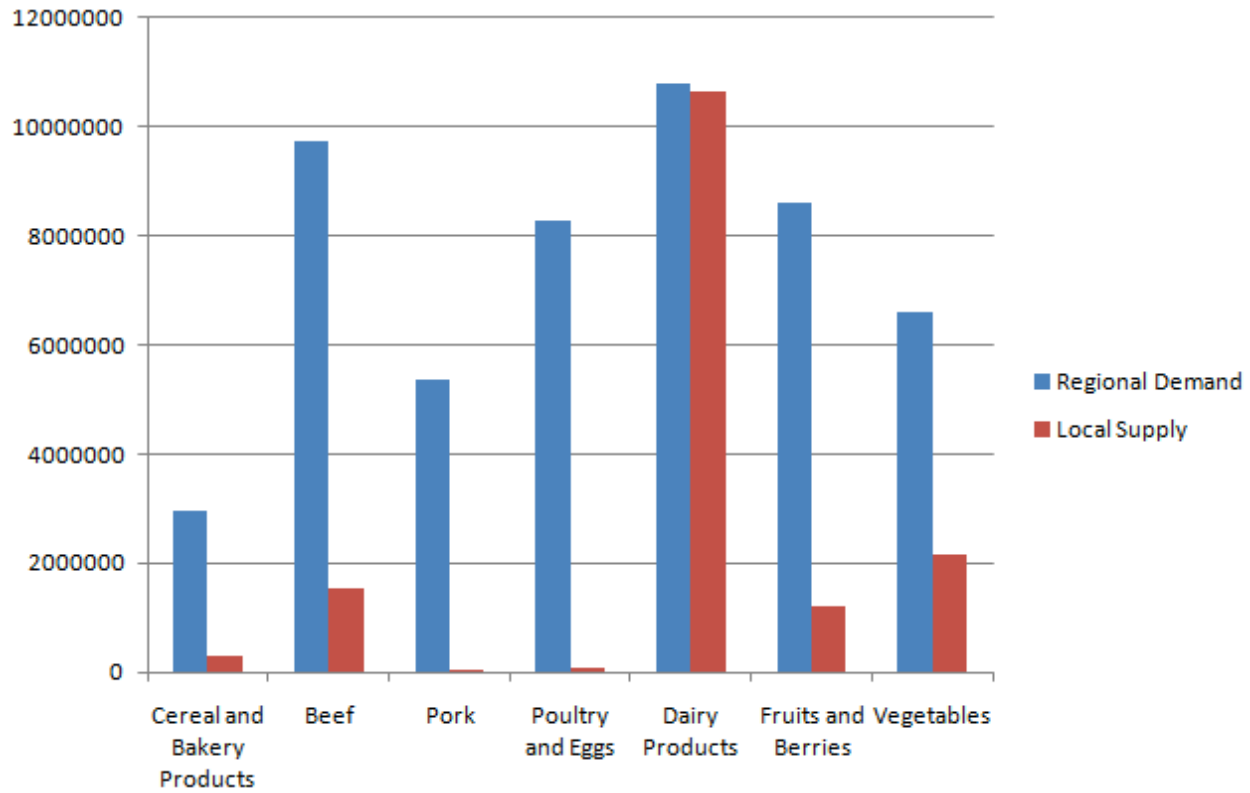
To determine the capacity of local production to meet the demand for food consumed both at home and away in Berkshire County, and thus the total demand for the county, we assumed that the amount spent on each commodity group away from home was the same proportionally to the spending for each group at home. Although this assumption may not

necessarily be true, we have to operate by it due to the lack of data for spending on specific commodity groups.

Figure 17: Total Food Consumption and Local Farm Production

Comparison of Food Consumed at Home and Away with Local Farm Production for Berkshire County				
	In Dollars			Percent of Local
	Regional Demand	Local Supply	Balance	Supply Fulfilling Regional Demand
Cereal and Bakery Products	2,971,645	286,000	(2,685,645)	9.62
Beef	9,734,386	1,548,000	(8,186,386)	15.9
Pork	5,366,970	51,000	(5,315,970)	0.95
Poultry and Eggs	8,265,573	69,000	(8,196,573)	0.83
Dairy Products	10,805,979	10,648,000	(157,979)	98.54
Fruits and Berries	8,612,764	1,204,000	(7,408,764)	13.98
Vegetables	6,616,661	2,159,000	(4,457,661)	32.63
Total	52,373,978	15,965,000	(36,408,978)	30.48
All food at home, including <u>miscellaneous and other foods</u>	65,372,610	15,965,000	(49,407,610)	24.42
Note: Fish and seafood as well as other meats including sheep and lambs have been excluded from supply and demand				

Figure 18: Graph Comparison:



When we include food consumed away from home, the percent of local production that meets the regional demand decreases. Also, none of the individual products meets the demand for it, although dairy products still come closest at 98.54%. Local production in Berkshire County meets 24.42% of the county's demands and meets 30.48% of the demand when only considering specific products.

D. Calculating Potential Land:

In order to calculate the amount of land available in Berkshire County for agricultural production, to see if we can sustain ourselves within the county, we looked at the intersection between prime farmland and current land use in GIS (see Figure 19 for acreages). A fair bit of prime farmland soil is currently in land uses in which it cannot be used for agricultural

production including 16.41% in residential land use and 5.84% in industrial land use.

Figure 19: Intersection of Prime Farmland and Land Uses (GIS)

Land Use	Acreage	Percent
Total Natural Land	18559.36	42.36%
Total Open Land	1776.07	4.06%
Total Agricultural Use	12696.82	28.97%
Total Recreation Use	1033.34	2.36%
Total Residential Use	7188.30	16.41%
Total Industrial Use	2560.82	5.84%
Total	43814.71	100%

In determining land that is available for agricultural production we looked specifically at land in forest and brushland/successional areas in addition to open land. We overlapped these areas with the prime farmland soil layer in GIS to calculate the intersections of these lands (see Figure 20). They total 17,258.8 acres of land or 6.61% of the total land in the county. Then we added this to the amount of land currently in agricultural production according to GIS (39,231.71 acres) to come up with the figure for the acreage of the total potential farmland available. This came out to 56,490.51 acres or 9.51% of the total land area of Berkshire County (see Figure 21).

Figure 20: Intersection of Prime Farmland and Potential Land Area

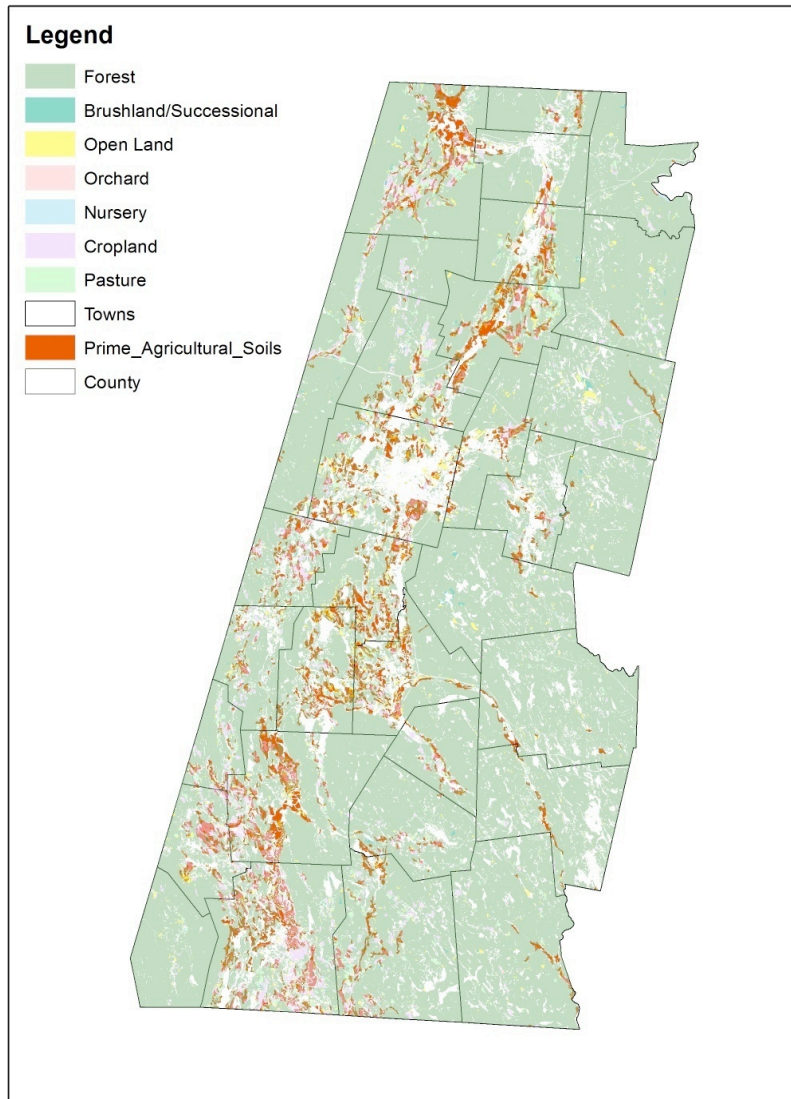


Figure 21: Total Potential Farmland Available

Farmland Soils and Available Land in Berkshire County		
	Acres	Percent of Total Land
Total Land Area	593,093	100
Prime Farmland Soil	43,814.71	7.39
Current Lands in Agricultural Use (2005 GIS Land Use) (inc. cropland, nursery, orchard, pasture)	39,231.71	6.61
Farmland Soils not Developed	17,258.80	2.9
Total Potential Farmland Available	56,490.51	9.51

Then if we look at the land use areas required for different types of diets established by Peters et. al. from Cornell and utilized in Shemariah Blum-Evitts' master's thesis, we can look at what acreage would be required for a certain diet and see if we have enough potential land. First we multiplied the population of the county by the acreage required per person produce enough food for a certain diet: .5 of an acre per person for a vegetarian diet, .6 of an acre per person for a light meat diet, 2 acres per person for a heavy meat diet, and 4,000 square feet per person for a vegan diet. We then compared these figures to both the total available potential farmland and the total land area of Berkshire County (see Figure 22).

Figure 22: Farmland Needed for Different Diets

Farmland Needed for Different Diets			
	Acres	Percent of Total Land	Percent of Potential Land
Total Land Area	593,093	100	
Total Potential Farmland Available	56,490.51	9.51	
Vegetarian Diet (.5 acre/person)	64,644	10.9	114.43
Light Meat Diet (.6 acre/person)	77,572.8	13.08	137.64
Heavy Meat Diet (2 acre/person)	258,576	43.6	457.73
Vegan Diet/Soil Sustenance (4,000sq ft/person)	11,872.18	2	21.01

Only a vegan diet would be possible given the potential farmland available, although this

may not be a healthy diet for everyone, but both a vegetarian and light meat diet are not far off from being able to be fulfilled given the potential land, requiring 114.43% and 137.64% of the total potential land available. Heavy meat seems out of the question at over 450% but it still would require less than half to the total land area of Berkshire County.

We then took another look at these numbers using the amount of land in agricultural production according to the 2007 Census of Agriculture, which at 66,352 acres is considerably higher. When adding this to the amount of prime farmland soil in undeveloped areas we got a higher figure of 83,610.8 acres of total potential farmland available which is 14.1% of the total land area of Berkshire County (see Figure 234).

Figure 23: Total Potential Farmland Available

Farmland Soils and Available Land in Berkshire County		
	Acres	Percent of Total Land
Total Land Area	593,093	100
Prime Farmland Soil	43,814.71	7.39
Current Lands in Agricultural Use (2007 Ag Census) (inc. cropland, pasture, woodland, and other uses)	66,352	11.19
Farmland Soils not Developed	17,258.80	2.9
Total Potential Farmland Available	83,610.8	14.1

Using this number, we come up with a different picture of possible production in Berkshire County (see Figure 24). A vegetarian diet and a light meat diet, requiring 77.32% and 92.78% of the total potential land available, would be possible if this figure for potential available land is used. Again a heavy meat diet seems unlikely but is also significantly less, requiring just over 300% of the total potential farmland available. These calculations present a

very promising picture for the possibility of the population of the county being able to sustain itself on food grown within Berkshire County.

Figure 24: Farmland Needed for Different Diets

Farmland Needed for Different Diets			
	Acres	Percent of Total Land	Percent of Potential Land
Total Land Area	593,093	100	
Total Potential Farmland Available	83,610.8	14.1	
Vegetarian Diet (.5 acre/person)	64,644	10.9	77.32
Light Meat Diet (.6 acre/person)	77,572.8	13.08	92.78
Heavy Meat Diet (2 acre/person)	258,576	43.6	309.26
Vegan Diet/Soil Sustenance (4,000sq ft/person)	11,872.18	2	14.2

V. Qualitative Research:

The qualitative component of our project allowed us to speak with farmers living and working in Berkshire County and evaluate the information we gathered, rather than simply relying on data from the Agricultural Census. This helped to bridge the gap between the numbers of our capacity and demand analysis and the actual situation; just because a sustainable food system for the county may be geographically viable, this does not necessarily mean it is economically viable. There is a distinct difference between sustainability and farm economic viability. We know that is possible for Berkshire County to become highly self-sufficient. Farmers in Berkshire County, however, are still struggling. Food security is not feasible without economically viable farms. It appears necessary, therefore, to assess the economic climate of Berkshire County in order to fully address issues of food security.

Our survey aimed to collect more specific information from farmers, particularly information on farm capacity in comparison to local food needs and demand for specific

products. Our aim was to find out what products farms were producing and selling and where, and if farms were using their land to its fullest potential. We sought to reveal the obstacles preventing farms from producing more. Conducting interviews with grocery store employees and farmers in the county enabled us to hear their stories in depth, helping us understand the economic climate and allowing us to identify the struggles and concerns of farmers. We selected different farms to visit strategically, in order to get a better idea of the situation in several sub-culture industries - including dairy farms, meat farms, orchards, and agro-tourism farms. Each farm visit placed our analysis in context and providing a meaningful framework for our project's goals.

A. Project Scope:

Of the 522 farms in Berkshire County, we were able to obtain the addresses for approximately 160 of them. These farms were targets for communication over the course of our project. Recognizing our limitations, in this case largely due to time, we mailed hard copies of our survey to these farms and made it accessible online, through Survey Monkey. The deadline to complete the survey was December 5th. Our hope was to collect as much quantitative and qualitative data through our survey replies, conversations, and interviews. A small blurb about our project and the link to our survey went out electronically in an e-mail distribution to about 200 people, thanks to the help of Aimee Thayer, County Executive Director USDA, Berkshire County Farm Service Agency. Information about our assessment also went out in a hardcopy newsletter. We also spoke directly with as many of these farmers as possible, conducting informal, conversational interviews at eight different farms and several grocery stores.

B. Survey Results:

Either through online survey or mail correspondence, we received 40 responses to our farmer questionnaire. The first eight responses obtained through our online survey had formatting issues and were not initially included in our analysis. In the end, however, these first responses were included in the results, as we are more interested in the number of farms that produce certain goods as opposed to the total production of certain crops (such information can be found in the 2007 Agricultural Census data).

Upon examining the types of foods produced in Berkshire County, a few notable trends are apparent (See Figure 25). Firstly, a large number of respondents indicated that they produced fruits and vegetables (13 out of 40 and 15 out of 40 respectively). The large representation of fruit and vegetable producers in our results may be indicative of an attempt by farmers to diversify their farms in order to maintain profitability. The considerable number of vegetable and fruit producers, might not rely primarily upon these crops, but, instead, may grow them as a source of supplemental income to other large-scale agricultural endeavors. Farm interviews that we conducted and an examination of survey respondents' total crop yields support this claim.

Unfortunately, incomplete surveys and the inconsistent units used by respondents render a complete analysis of this trend unfeasible. A comparable number of respondents indicated that they produce eggs, beef, pork, and dairy products (7, 6, 8, and 6, out of 40 respectively). A smaller number of farmers produce grain (4 out of 40) and none produce cereal. Strikingly large quantities of farms produce "other" goods (13 out of 40). When looking more closely at the "other" types of products made by farms in Berkshire County, it appears that a wide variety of value-added or specialty products are potentially significant sources of income for farmers (see

Figure 26). This could be indicative of a shift away from the production of standard agricultural products and toward higher-end markets.

Figure 25: Current Types of Agricultural Production

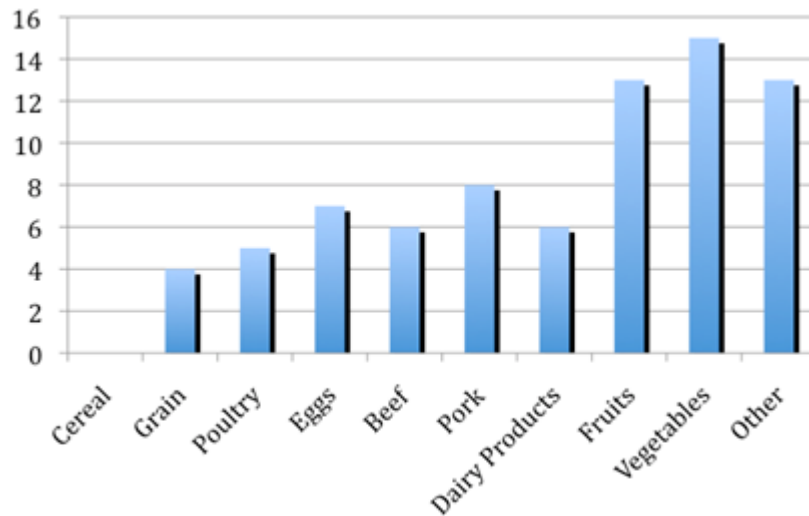
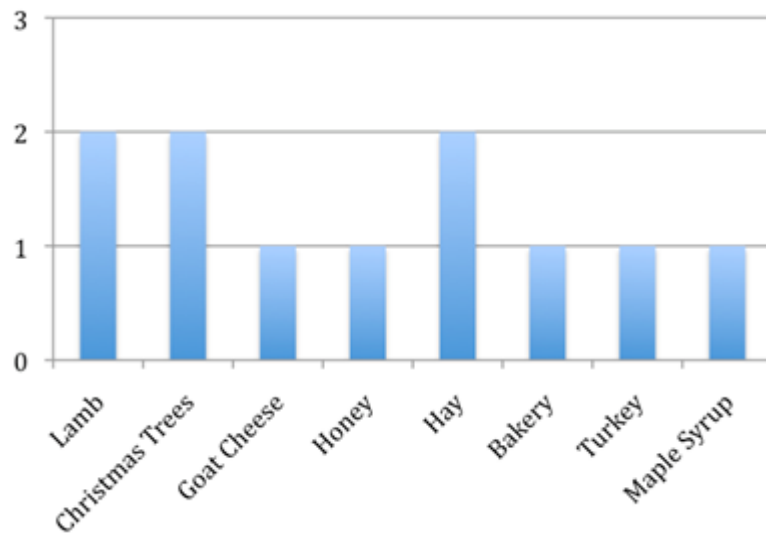


Figure 26: “Other” Types of Agricultural Production



This trend is further supported when examining what crops farmers would like to produce in Berkshire County if more land were to be available (see Figure 27). Again, the large number

of “other” respondents is the most immediate observable development (13 out of 40). Upon examining these “other” crops more closely, a broad array of specialty products appear to be attractive to Berkshire farmers (see Figure 28). A shift from standard agricultural products toward high-end or niche markets would seem to make sense for Berkshire farmers. Such products can be branded and marketed much more profitably than standard crops. Additionally, northeastern farmers cannot truly compete with the efficiency in production of western farmers who have longer crop seasons, larger farms, and a more hospitable climate for agriculture. It would seem, therefore, that Berkshire farmers would have a comparative advantage in producing these higher-end products. The large number of respondents who indicated that they would like to produce more vegetables or fruit is also reflective of this trend (9, 7 out of 40 respectively); as many of those who said that they would like to produce more of these crops also commented that they would like to use them to make value-added or seasonal products.

Figure 27: Potential Types of Agricultural Production

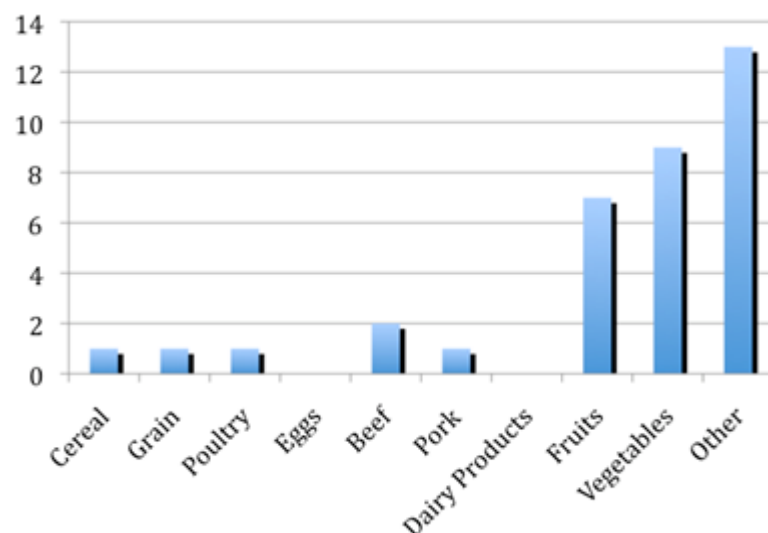
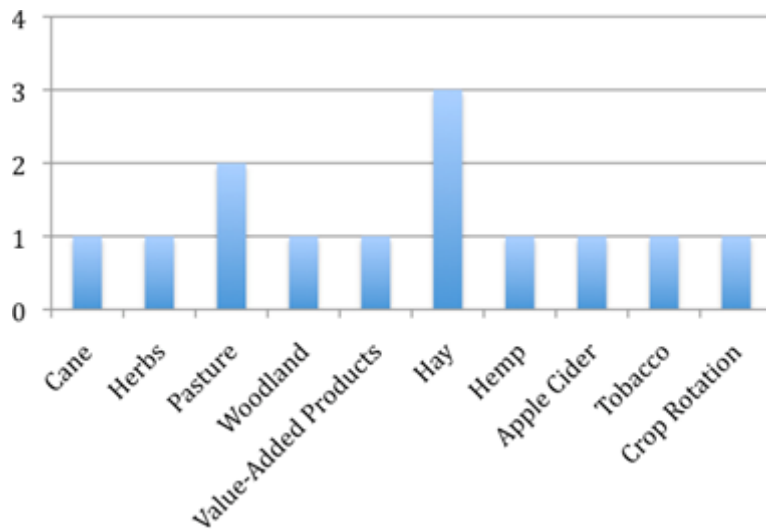


Figure 28: “Other” Potential Types of Agricultural Production



When examining why farmers do not produce more on their lands, it appears that a large fraction of respondents (15 out of 40) simply could not produce more because the land was not suitable for production (see Figure 29). This has only limited policy implications for the Berkshire Regional Planning Commission, as there is little that it can do to make agriculture more feasible in these areas. Likewise, a fairly significant number of respondents (5 out of 40) indicated that they keep portions of their land lying fallow for crop rotation. Since this is a necessary attribute of all sustainable farming endeavors, the policy implications for the Berkshire Regional Planning Commission are, again, limited. Nine out of forty farmers answered “other” as to why they did not produce more on their land (see Figure 30). Yet again, the potential repercussions of this information on future policy are not terribly significant, as four out of nine respondents used their land for grazing, and another three used it as a woodlot. It is possible, however, that such uses could be converted to more productive activities given the right economic circumstances.

Seven out of forty respondents did respond that they did not produce more on their lands because it is not economically feasible and because there was not enough available labor to cultivate their total acreage. This is a potential area where the Berkshire Regional Planning Commission could significantly increase the viability of owning and operating a farm in Berkshire County.

Figure 29: Reasons for Not Cultivating More

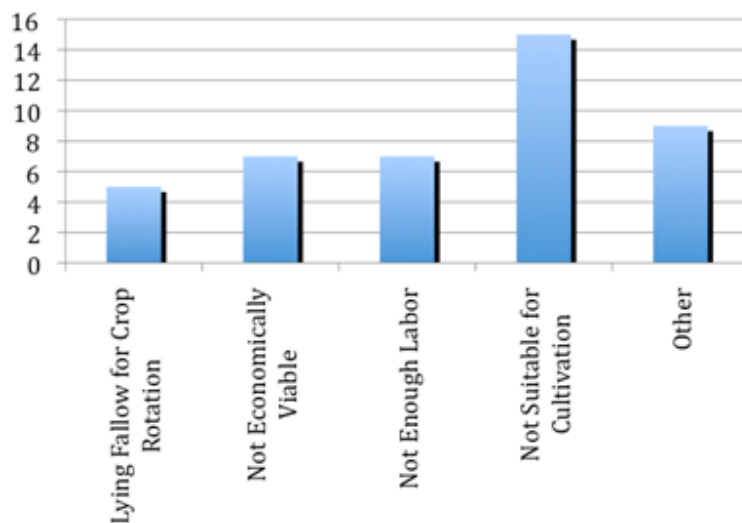
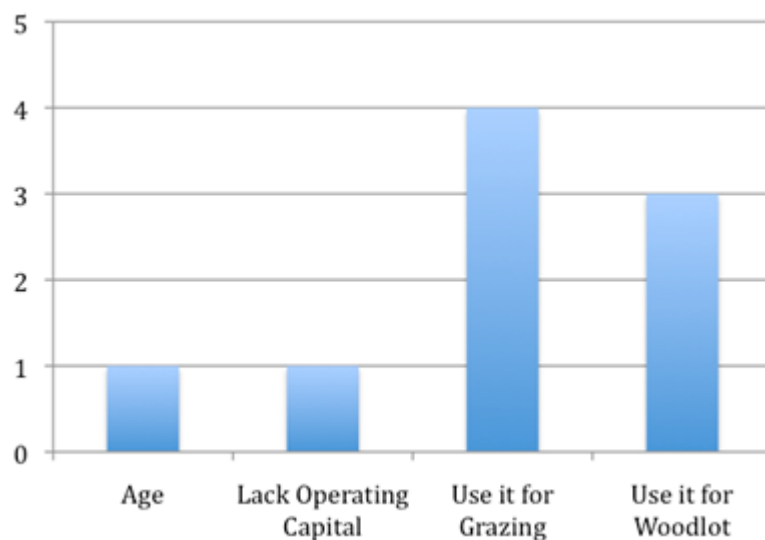
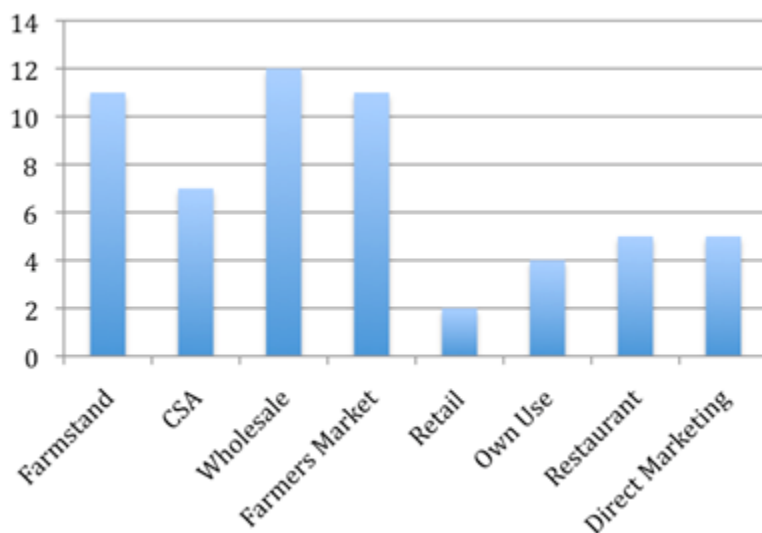


Figure 30: “Other” Reasons for Not Cultivating More



As seen below in Figure 31, the most prevalent means of transaction between farmers and consumers in Berkshire County appears to be wholesale (12 out of 40). A large number of farmers also indicated that they sell produce at farm stands and at farmers' markets (11 out of 40). These figures are potentially misleading because they might be reflective of the diversification trend discussed earlier. While some farmers may rely heavily on farm stands and farmers' markets as a source of income, it is likely that these economic avenues are used to sell off supplementary produce in many instances. A relatively small number of farms sell retail according to our survey results, which is a potential area for further investigation if the Berkshires Regional Planning Commission so desires (2 out of 40). Increasing the number of retail transactions between farmers and consumers could make farming in Berkshire County more viable as the farmer accrues all of the profits – the middle man is cut out of the exchange. A comparable number of farmers sell to restaurants, through direct marketing or through CSAs (5, 5, and 7 out of 40 respectively).

Figure 31: Transaction Means



C. Interview Results

Grocery Stores:

We conducted several phone interviews with grocery stores in Berkshire County, including Big Y, Wild Oats, and Stop and Shop. While the main concern among farmers was price, retailers were more concerned over quantity and availability of products. For instance, Big Y stores have a push in place to sell more local produce. They are doing as much as they can do in this regard, and claim that it is not the price, but the availability of produce that is the biggest inhibitor to selling more local produce. They stressed the difficulty of eating seasonally, especially in a place like Berkshire County. As one Big Y employee noted, “you can’t buy green beans right now, know what I’m saying?”

Wild Oats, a food cooperative in Williamstown, has an agenda to market as many local products as possibly. They do believe, however, that they could be working more with local farmers to sell their products. “We want to have the greatest amount of local food possible,” Michael Saber of Wild Oats explained, but that means, “People have to be willing to buy it.” He did note that availability and supply of local, fresh meat is often limited. It is easier to sell some local products more so than others, including local maple syrup, honey, local cheeses and dairy products. Wild Oats stressed that while they do like to market specialty products, in order to be a grower farmers often have to stick with the “nuts and bolts.” Saber did note that farmers could probably get a better return on such items by selling retail at farmers’ markets or through CSAs. A store like Wild Oats is structured very differently than Stop & Shop. They are a cooperative, and making a profit is not their primary objective. Due to this arrangement, they can place more emphasis on collaborating with local producers – even if this doesn’t make complete financial

sense. A store like Wild Oats recognizes the importance of fostering a local, sustainable food system and is structured purposely with that agenda in mind.

Jaeschke's Orchard:

We visited Jaeschke's Orchard, a 45-acre farm in Adams, MA. Jaeschke's is a small family farm that primarily produces apples, pears, plums and peaches; they also have six greenhouses where they grow more plants and vegetables. Their products are sold wholesale to stores including Price Chopper and Wild Oats. The family is currently using all of their land, and is trying to get two more greenhouses. The demand for their products is relatively high, but the Jaeschke's have adjusted their crop based on consumer preferences. "It's a learning curve," Mike, a Jaeschke employee, explained, "what you produce you want to sell. You cut out what you don't sell." In terms of money earned per acre, small fruits like strawberries are profitable, especially when the customer picks them, which saves labor costs for the farm. Jaeschke's Orchard is 10% 'u-pick' and 90% wholesale, however, they expressed that the higher return comes from retail, "If you can market your own products on your own, that's very good, there's a higher return because there's no middleman."

They stressed the burdens of making the small farm economically viable, "In my lifetime I've seen more farms leave Berkshire County than start," Mike noted, expressing his frustrations with the large-scale agribusiness that has taken over the country's food system. Since the 1970s and 80s things have changed in the farming industry, and farms like Jaeschke's can't survive on apples alone now. In 1980, Mike explained, they made 10 cents per gallon on cider, but in this past year, they actually lost 10 cents per gallon. The reasons behind this loss are in high production, transportation and energy costs, and how much the public is willing to spend on a

product. The cost of doing business is high, and it has thus become “a balancing act” to stay afloat and come out even or with a small profit.



Chenail Farm:

Chenail’s Farm is a 500-acre dairy farm in Williamstown, MA; 350 acres of their land is in cultivation, while the rest of the land is composed of pasture and woodland. They have 80 milking cows, which produce 56/5700 lbs a day of milk. The milk produced by their farm is picked up every day by Agri-Mark, a dairy farmer owned cooperative in Springfield. Chenail also sells fresh vegetables, tomatoes, and corn, retail in front of their farm. They used to be a fruit farm, but diversified into dairy in the 70s and 80s to stay alive. Chenail is a family farm, and while Win Chenail, the father, expressed that “they’ve always struggled,” the farm was more of a

“subsistence type of thing years ago.” He believes that the total number of farms in Berkshire County has decreased for “a lot of reasons,” including, “the cost of operation, a low return on investment, small profitability, and nobody to take over the farm when the older generation steps out.” Win expressed his concern about the ways in which “demand for milk has changed,” especially because of competition from out west. “It used to be all local milk,” but it is just not like that anymore. In the 70s and 80s dairy farms were making money but now the “middle-man” or distributor, makes all the money while the farmer gets the short end of the stick.

Green River Farm:

(Editor’s Note: Green River Farm shut down their operation in winter 2011.)

Green River Farm is a 240 acre farm in Williamstown, MA. They have about 25 acres of vegetables, 15 acres of apples, and 5 acres for blueberries and strawberries. The rest of their land is pasture and woodland. Justin Jennings, an employee on the farm for several years noted that there’s just “no agriculture that makes money” anymore. He claimed that farming is not a viable model for sustainability and profitably right now because of high labor costs, energy costs, and subsidies that favor larger farms. Green River does not depend on the wholesale or retail of their produce for their livelihood; they rely on agro-tourism to keep business alive. Over the years farms like Green River have been forced to either diversify or sell out. Justin believes that in order to remain viable small farms need more local support, in conjunction with policy from the state and federal government that would benefit the small farmer.



Galusha Farm:

Galusha Farm is a 4th generation family farm in Williamstown, MA, in operation since the early 1900s. They produce 14,000 pounds of milk per day, which is picked up by Agri-Mark every other day. John Galusha voiced that the combination of electricity costs and the high price of grain makes running the farm in itself a huge expense. Because of rising electricity costs, the farm has had a hard time “keeping out of the red financially.” “Farms are supposed to get a reduced rate, but that doesn’t amount to much,” explained John. While production and labor costs are a huge burden, factoring in the price of milk, which in 2009 was, according to John, the same price as it was in the 1960s, explains why “2009 was the worst year in 15 years” for their farm. Frustrated, John explained that the “middleman (distributor) makes the money,” while the “farmers get screwed.” The farmer gets a very small, disproportionate amount of the share. Small farms are “dying out in this area,” John said, because it is “hard work and low pay - why do it?” The trend is “just going out of business.” Dairy farming is “definitely a dying breed,” there were “30 dairy farms in Williamstown in the 60s,” he explained, but “now there are only three.” While Galusha would love to sell their milk retail, they don’t have the infrastructure or local support to do that today. It is nearly impossible to rely on your farm to make ends meet; many farmers are forced to take a second job, or have their spouse work outside the farm for an additional source of income. John also runs a bed and breakfast in order to keep the farm afloat financially.

Currently the farm is dealing with the state in the hopes that the state will buy the land under the Agriculture Preservation Restriction (APR) Program. This would offer the Galushas an opportunity to keep their land as farmland; the program offers to pay farmland owners the difference between the "fair market value" and the "agricultural value" of their farmland in

exchange for a permanent deed restriction that ensures the land remains agriculturally viable into the future (Massachusetts Department of Agricultural Resources). The APR program would not only preserve and protect their farmland, but also get them “out of the red.” The problem is the program is caught up in “bureaucracy nonsense” and it has taken seemingly forever to solidify a deal.





Peace Valley Farm:

Our conversation with Bill Stinson at Peace Valley farm revealed that it does not take much land to produce a lot of food. Bill refers to his farm as “Little Siberia,” claiming that the soil on his land is unsuitable for agriculture under most guidelines. Given the conditions though, he is still able to grow a lot of vegetables. Bill’s sentiments echoed other farmers, “labor is key” he said, and “farming is expensive.” It “requires you to have so many sets of skills and to take risks . . . there are lots of variables.” Peace Valley has benefited from another government program, the Farm Viability Act, which provides grants to farmers in order for them to make improvements in productivity on their land. Farmers receiving grant money must continue to commit to farming for at least another five years. Bill was able to construct a hoop house with the grant money, allowing him to extend his growing season. “Every farm has a different challenge,” explained Bill, but on the whole, he believes it is “easy to grow stuff, but hard to sell it.” “Finding your market” is critical to survival, but often this is hard to achieve. Bill believes

there is “no loyalty to the American farmer” and so he winds up “losing money, not making a profit.” Bill feels strongly that the future of farming lies in small farms that produce good food for groups of people, allowing us to get back to a local business scale. He thinks “that anyone can produce good food in a small space. “You can produce \$20,000 worth of food off of an acre of property,” even on “land with bad soil.”



Square Roots Farm:

Square Roots Farm is run by Mike Gallagher, a young farmer who leases 3.5 acres of land in Clarksburg. The farm operates as a CSA - Community Supported Agriculture - and sells food directly to consumers who have shares in the farm. The CSA model is incredibly

successful, and next year they are expected to sell 50 shares up from 30 this past year. They also sell broilers, pigs and chicken to a direct market. Mike expressed that not a lot more land is needed for them to operate, although more pasture would be beneficial. There is currently a demand for all of their products, which is encouraging, even though the farm has not become profitable yet. They hope to continue to grow and increase shares in the CSA, given the consumer demand. Mike mentioned two things in particular that would really help him: an inspection waiver for slaughtering - “the state is not too supportive of small farmers.” Additionally, he added that a farmers’ network, a way for farmers to connect and give advice to each other, “would be really valuable too.”



Ioka Valley Farm:

Ioka Valley Farm is a third generation family farm in Hancock, MA. Over the years they have learned to diversify markets in order to stay alive. They originally existed as a dairy farm, but opted out of the business in the 1980s when dairy farming started to become unprofitable. Over the years they've shifted several times- from pumpkins to maple syrup and strawberries. Now they have an onsite cafe and barnyard for summer and fall entertainment purposes. They continue to grow one acre of strawberries, 100 blueberry plants, some vegetables and corn, and also produce 2,500 gallons of maple syrup per year. Additionally, they sell beef from about 60 cows per year. They do retail sales and bulk wholesale, but their current focus is on their agro-tourism business. They want to sell retail, because it is more lucrative, and this means getting people to come to their farm and buy directly. Their business now is all about "catering to the public," explained Don Leab, owner of the farm. Diversifying has taught them not to "rely on any one entity" but "take it season to season." They are constantly working to decrease costs of production, keep their markets alive, and continue to have people come visit and buy from their farm. Again, he stressed that it is all about "finding out what there is a market for." Don believes that there are "more new crops that could be grown here in Berkshire County, especially with all the ethnic foods."

"Policy in favor of the small farmer" would help their situation the most, and Don explained that he "would like to see farms become more profitable without government subsidies." He also expressed that there is a lot of corruption involved in the Farm Viability Act program, and while its aims are promising "it's designed for people who are actually farming," not simply 'small farms' by name using the money to become profitable in a short time frame. In general though, he thinks that this, and the APR program, are "good

opportunities” that farmers should take advantage of. Their goal as a family is to keep Ioka Valley a farm, and this means continually “looking at what’s going well and phasing out what’s not doing well;” This type of mentality will save not only them, but other farms too. Seldom is it a farm’s goal to make a profit, but rather, like Ioka’s, it is “to own the land and continue to do what they want to do with it.” Pessimistically Don commented that the Farm Viability Act is more about “saving the farmer, not the land,” and for this reason he finds it hard to support it. However, more optimistically, Don also expressed how the demand for local products has come full circle in his time - people are returning back to the land, and “in this next generation the desire for locally grown food is back - now we want local milk all over again.”

East Mountain Farm

East Mountain Farm is a 140 acre farm in Williamstown run by Kim Wells. He also leases 45 acres of land from the town. He raises cows, pigs, and chickens. Wells mostly cuts firewood as his “cash crop,” sells about half of the hay he cuts, and then sells livestock, “which take the most energy and are the least profitable.” The main struggle, and biggest concern, Kim faces is slaughtering and processing his meat - especially chickens. The state makes it incredibly difficult for small farmers to obtain a slaughter license and slaughter their own chickens. He mostly sells his livestock directly to families. Last year he raised 32 pigs, about one-third went to local restaurants. He notes that “Massachusetts needs incentives to get slaughterhouses in Berkshire County, it’s remarkable how far people have to go” to have their meat processed. He “might try to get a slaughter license” in the near future, “depending on the health inspection and costs.” Kim “didn’t know if he could keep this up if he didn’t own his land,” and “doesn’t think the state is doing much to encourage small farmers” to survive - the “state does tend to throw up

lots of roadblocks for farmers” he explained. Further, he feels that Williamstown “doesn’t have a core agricultural community” for farmers to connect.



VI. Policy Recommendations:

In theory, regional food sustainability does appear possible in Berkshire County. However, this does not imply that farming in Berkshire County is sustainable from an economic perspective. To the contrary, the diverse array of challenges that Berkshire farmers face suggest that local and state governing bodies need to play a greater role in making farming more economically feasible. Policymakers should take a pragmatic approach when formulating agricultural policies, as farmers’ needs and accessibility to resources is dependent upon the

location and industry of the farmer. Through assessing the various challenges that farmers face in Berkshire County, however, we have come up with a few broad recommendations that policymakers should keep in mind for the future.

First, local governance can aid in farm viability through investing in value-added or processing facilities. As discussed earlier, the majority of farms in Berkshire County are small, family-run enterprises. As a result, most cannot afford to make the initial infrastructure investments required to make their products more profitable. For instance, John Galusha, of Galusha's Dairy Farm in Williamstown, commented that a processing facility would enable him to sell locally, where there is a high demand for fresh milk. Selling milk in this way, as opposed to it being distributed through Agri-Mark, would be much more lucrative. A regional creamery could also benefit other dairy farmers in the area, as the demand for local dairy products appears to be steadily rising. The scale of many dairy farms and the current price of milk make such investments infeasible for almost all individual farmers in the county.

Similarly, investments in slaughtering and meat processing facilities would benefit many struggling beef, pork, and poultry farmers. Most currently sell these animals alive, or are forced to travel long distances, sometimes to other states, to slaughter their livestock. Local facilities that provide reliable services would cut the travel costs of many of these farmers, while making their products more marketable. Furthermore, government investments made in meat-processing infrastructure could have significant impacts on the food security of the county. As indicated earlier, Berkshire farmers currently produce only enough beef to meet 28.4% of the county's demands. The supply figures for pork and poultry are dismally low as well, at just above 1% of the county's demands. By increasing the viability of producing these foods, infrastructure investments would both aid farmers and make steps forward in addressing this shortage. A few

additional infrastructure projects that should be considered include value-added facilities and commercial kitchens. While such facilities are less likely to have a direct impact on the food security of the region, value-added goods can be marketed much more profitably in niche markets than standard agricultural goods. Investment in such facilities would, therefore, vastly increase the economic viability of owning and operating a farm in Berkshire County. This increases food security indirectly by increasing the overall production of agriculture in the region.

Aside from infrastructure investments, local and state governing bodies should also adopt policies that favor small farms in Berkshire County. Regulations and licensing should be eased for small farmers who are producing on a small-scale and are selling directly. Many farmers, for instance, complained that state regulations were more stringent than federal regulations. In light of the recent national health concerns over food contamination, it would not seem prudent to slacken all state regulations for small farmers. Instead, it would make sense to simplify licensing processes for small farmers who do not have the time to sift through the various forms of regulatory red tape that are required to sell certain products. To further expedite such procedures, state or local governing bodies could offer free or subsidized consultation to small farmers that are hoping to expand into new markets.

Government subsidies should be tailored to provide more support for small farms. That only 32 of 522 farms in Berkshire County receive government subsidies is indicative of a current preference for larger farms (Census of Agriculture 2007). In order to increase the food stability of the region, subsidies could be granted as incentives for small farmers to produce certain types of crops that are currently lacking in the county. In a similar vein, APR funding could be made more accessible to small farmers through a simplification of the application process or by giving

preference to smaller farms. At a local level, the CSA model should be encouraged and facilitated as an alternative to selling products wholesale. Taken together, these policies could significantly increase the economic viability of agriculture in the region.

Because prime farmland only comprises 7.39% of the total land area in Berkshire County, agriculture should be given priority on these lands. As indicated by the GIS intersection of the prime farmlands and current land use layers, less than 30% of prime farmlands are being utilized for agricultural purposes. The remainder of these soils is not all suitable for cultivation. However, the 16.41% of prime farmland soils that are dedicated to residential use suggests that a more efficient utilization of these lands is possible.

Lastly, many of the farmers with whom we met indicated a need for some form of community network between farmers. Such a network could increase the viability of farms, particularly those run by young farmers, by enabling exchanges of information and techniques amongst members. Farmers could also benefit from increased contact with consumers. A greater push toward regional farmers' markets could facilitate these interactions. In this way, farmers could gain greater accessibility to markets, while also gaining greater information on consumer demand. Consumers would, likewise, benefit, through regular access to fresh, local foods at cheaper prices than would otherwise have been the case had they been sold wholesale to grocery stores.

VII. Conclusion:

Our research illustrates the utility of a foodshed analysis, including both quantitative and qualitative components, in helping to inform planners and community members of the characteristics of their food system. The results prove that it is not out of the question for the

county to produce, most, if not all of the food it consumes, especially in the case of dairy products. We can, theoretically, envision a future where supply indeed does meet demand at a regional level - and that is significant to realize as we head into the future. The implications of this survey are vast - but they will only occur if we allow them to. If we consider how personal choices such as diet can impact the amount of land needed to feed a population, the hopes of achieving a self-sustaining region become more realistic. The relocalization of a food system will require tremendous personal and communal sacrifice, challenging us to rethink the way we eat and live. Given the threats of climate change and increasing energy prices in the 21st century, the local food and sustainable agriculture movements have become more relevant. Berkshire County has a long history in agriculture, and huge capacity to produce what its population needs. Now more than ever, is the time to take advantage of that capacity. If anything, the study suggests that the county has potential to increase its food self-reliance and move away from dependency on industrial agriculture.

We must remember that there is a difference between sustainability and farm viability. Berkshire County has the land to feed itself, as this study proves, but farms are still struggling. Promoting local agriculture should help make farms more viable, but we won't get there - to a self-reliant food system - if it remains impossible for farmers to make enough money to support themselves. For instance, there is enough production to meet demands for dairy products, but dairy farms are hanging on by a thread to stay alive in Berkshire County. The economic viability of agriculture in Berkshire County has huge implications for its food security that should not be overlooked. Implementing varying kinds of assistance, as we've recommended, could aid in turning this situation around.

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