



# **LOCAL FOOD SYSTEM POLICY AND PLANNING FOR SUSTAINABILITY**

**FINAL REPORT**

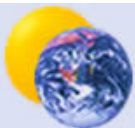
**for the  
Science, Engineering &  
Technology Services  
Program**

**a program  
supported by the  
Delaware General Assembly  
and the  
University of Delaware**

**Center for Energy &  
Environmental Policy**

**University of Delaware**

**February 2011**



**Center for Energy and Environmental Policy**

The Center for Energy and Environmental Policy conducts interdisciplinary and collaborative research and supports graduate instruction in energy, environmental, and sustainable development policy. The Center serves as a University-wide forum for the discussion and dissemination of faculty, staff, and graduate student research in these areas. In addition to its research and instructional activities, the Center also provides technical assistance to community, state, federal and international agencies and nonprofit organizations. The Center is composed of an internationally diverse faculty, professional staff, and graduate student body with backgrounds in a variety of disciplines including political science, economics, sociology, geography, philosophy, urban planning, environmental studies, history, and engineering. Research programs currently organized in the Center include comparative energy and environmental policy, sustainable development, political economy of energy, environment and development, environmental justice, conservation and renewable energy options, integrated resource planning, and technology environment and society. Graduate areas of specialization in energy and environmental policy are supported at the master's and doctoral levels.

**Mailing Address:**

John Byrne  
Director  
Center for Energy and Environmental Policy  
University of Delaware  
Newark, DE 19716-7381  
Email: [jbyrne@udel.edu](mailto:jbyrne@udel.edu)  
Telephone: (302) 831-8405  
Telefax: (302) 831-3098  
Website: <http://ceep.udel.edu>

**Cover Photo Credits:**

Purchased from IPhoto

# **LOCAL FOOD SYSTEM POLICY AND PLANNING FOR SUSTAINABILITY**

## **Final Report**

### **Researchers:**

Tom Battagliese,  
Cassandra Brunette  
Sung Goo Kang  
Katherine Kitchener  
Kate Kuholski  
Peleg Kremer  
Jeffrey Mascornick

### **Supervised by:**

Cecilia Martinez, Associate Research Professor  
Kristen Hughes, Policy Fellow  
John Byrne, Director and Distinguished Professor of Climate Policy

**Center for Energy and Environmental Policy**  
University of Delaware

### **For the:**

Science, Engineering, & Technology Services Program

### **Program supported by the:**

Delaware General Assembly  
and the  
University of Delaware

**February 2011**



## **Preface**

It is a pleasure to present you with this report of the 2010 Science, Engineering & Technology (SET) Services Program. The report is designed to provide the Delaware General Assembly and the citizens of the State with an overview of the efficiency and environmental benefits associated local food systems.

The Center for Energy and Environmental Policy received valuable assistance in preparing this report from many individuals from various state and local governments, as well as non-profit organizations. In the acknowledgements section of this report, we have provided a complete listing. We would like to express our special appreciation to all those who contributed their knowledge and expertise to this project.

We hope that this report will be useful to you in your discussions and deliberations relating to both water and energy policies in the State of Delaware.

A handwritten signature in black ink, appearing to read "John Byrne", with a long horizontal flourish extending to the right.

Dr. John Byrne  
Director and  
Distinguished Professor of  
Energy and Climate Policy



## Table of Contents

ACKNOWLEDGEMENTS .....	v
EXECUTIVE SUMMARY .....	1
1.0 INTRODUCTION .....	5
1.1 Background .....	5
1.2 Food System Structure .....	7
1.3 What are Local Food Systems? .....	11
1.5 Foodshed Analysis .....	12
1.6 Agri-Food Initiatives .....	13
2.0 POTENTIAL OF LOCAL FOOD SYSTEMS .....	15
2.1 Energy and Environment .....	15
2.1.1 Challenges .....	15
2.1.2 Potential Benefits of Local Foods Systems .....	18
2.2.1 Challenges .....	19
2.2.2 Potential Benefits of Local Foods Systems .....	20
2.3 Economics .....	20
3.0 SURVEY OF LOCAL FOODS PROGRAMS .....	23
3.1 National Programs and Initiatives .....	23
3.1.1 Healthy Food Financing Initiative .....	23
3.1.2 Farmers' Market Nutrition Program .....	23
3.1.3 Senior Farmers' Market Nutrition Program .....	23
3.1.4 Farm to School .....	23
3.1.5 Buy Fresh Buy Local .....	24
3.2 State Programs and Initiatives .....	24
3.2.1 Food Policy Councils .....	24
3.2.2 Farm to Institution .....	24
3.2.3 Labeling Programs .....	24
3.3 Research and Technical Assistance Organizations .....	25
4.0 BEST PRACTICE MODELS .....	27
4.1 California .....	27
4.2 Illinois .....	28
4.3 Maryland .....	29
4.4 Michigan .....	30
4.6 New York .....	31
4.7 Oregon .....	32
4.8 Pennsylvania .....	32
5.0 SURVEY OF DELAWARE STAKEHOLDERS .....	35
5.1 Delaware Survey Results .....	35
5.1.1 Farmers and Growers .....	35
5.1.2 Restaurant Owners .....	36
5.1.3 Retailer Stakeholders .....	36
5.1.4 Institutional Stakeholders (Hospitals and Schools) .....	36
5.1.5 Summary .....	37

5.2	Delaware Interview Results .....	38
5.2.1	Delaware Definition of “Local” Foods .....	38
5.2.2	Local Food Initiatives in Delaware.....	38
5.2.3	Barriers to Local Food Systems in Delaware .....	40
5.2.4	Opportunities for Local Food Systems in Delaware.....	40
6.0	RECOMMENDATIONS.....	43
	BIBLIOGRAPHY.....	45
	APPENDIX A: Delaware Stakeholder Interview List.....	59
	APPENDIX B: Delaware Stakeholder Survey .....	61
	APPENDIX C: Summary of State and Local Food Programs and Policies .....	72



## **List of Figures**

Figure 1. Farms, Land in Farms, and Average Acres per Farm, 1850-2007 .....	7
Figure 2. Per Capita Calories From the U.S. Food Supply.....	8
Figure 3. Stages of Food System Production and Distribution.....	11
Figure 4. U.S. Greenhouse Gas Emissions by Economic Sector, 2007 .....	16
Figure 5. U.S. Methane Emissions by Sector, 2007 .....	17
Figure 6. U.S. Nitrous Oxide Emissions by Sector 2007.....	17
Figure 7. Greenhouse Gases Emitted by Food Source .....	18
Figure 8. Distribution of Revenue, per Food Dollar .....	20

## **List of Tables**

Table 1. Food Expenditures, 1930-2009 .....	9
Table 2. Direct Sales of U.S. Produce .....	22
Table 3. Survey Response and Ranking of Benefits of Local Foods.....	37



## **ACKNOWLEDGEMENTS**

We would like to acknowledge all of the various state contacts that provided information on the status of their energy and water programs. The Center for Energy and Environmental Policy (CEEP) is solely responsible for the findings and recommendations of the report.

CEEP received invaluable support in preparing this report from many individuals in state and local governments, as well as several business and non-profit organizations. We are extremely grateful to the following people and organizations: Emmalea Ernest, Delaware Cooperative Extension, Fruit and Vegetable Grower Association of Delaware; Lynne Bennet and Mike Wellik, Delaware Organic Food and Farming Association; Mike Wellik; Audrey Scott Hynson, Food Businesses Incubator at Delaware State University; Patricia Beebe, Food Bank of Delaware; Gordon Johnson, Vegetable and Fruit Extension Specialist Delaware Cooperative Extension; Carl German, Crops Marketing Extension Specialist Delaware Cooperative Extension; Anne Fitzgerald, Chief of Community Relations Delaware Department of Agriculture; Ed Kee, Secretary of the Delaware Department of Agriculture; and David Marvel, the Vegetable Growers' Association of Delaware.

We hope that this report will be useful to your discussions and deliberations on the issue of local food systems in the State of Delaware. With an understanding of the nexus that exists between food systems and the environmental, economic, and social sustainability, the State can develop policies that will support and enhance livability and health benefits to Delawareans.



## EXECUTIVE SUMMARY

### Growing Interest in Local Food Systems

The U.S. food system is a substantial sector in the U.S. economy, and one that is essential for the health and well being of its citizens. Recently, issues of food security and safety as well as a variety of health and economic concerns have turned public attention to the development of alternative food production and distribution systems. An expanding international agricultural market, developments in transportation and agricultural technologies, and innovations in food processing and retail have all contributed to the development of a modern global agriculture and food system. Today, food products, even highly perishable ones such as fruits and vegetables, can be distributed to consumer markets across great geographical distances from their original points of production. This has contributed to significant growth of the agricultural sector as a whole, but especially in the area of food processing and retailing. Global food retail sales are approximately \$4 trillion annually. In 2008, the U.S. processed food industry exported food products valuing a total of \$48 billion (U.S. Department of Agriculture [USDA], 2009).

As the U.S. food and agriculture system has expanded internationally, there have been corresponding changes for both the structure and size of U.S. farms. According to the USDA, there was a significant drop in the number of farms between 1935 and 1974, with some stabilization since then. At the same time, farm acreage on a per farm basis increased substantially. Overall, total farmland remained relatively stable throughout the last century. This trend has implications for food production families and communities. In the U.S., the number of farming-dependent counties dramatically decreased over the last 50 years, and even where rural population losses stabilized, new “rural residents tend to be metro-area commuters and retirees” (Archer et al., 2008, p. 273). Moreover, the average age of farm operators has been steadily increasing to about 55.3 in 2002 and approximately 26 percent are over the age of 65 (Archer, et al., 2008, p. 273). These trends point to a general consolidation and specialization of farm operations — fewer farms are producing fewer commodities while increasing overall production. This consolidation and specialization of farm operations has also resulted in changing demographic characteristics of farmers and shifts in rural community composition.

The shift to processed foods has had a profound effect on American eating habits. Dairy products have *decreased* as a share of the American diet. More and more, people are eating outside the home. In 2001, away-from-home meals and snacks were nearly half of total food consumption (47 percent), up from 40 percent in 1981. According to the USDA, we are consuming approximately 500 more calories per day than our American counterparts in the recent past. The average daily caloric intake has increased about 25 percent between 1970 and 2000: 9.5 percent from grains (mainly refined grain products); 9.0 percent from fats and oils; 4.7 percent from added sugars, and 1.5 from fruits and vegetables (USDA, Economic Research Service [ERS], 2010).

Other issues related to food systems are those of food security and safety. In 2009, 16 percent of households in the U.S. were food insecure at least some time during the year. The USDA estimates that improved diets could prevent \$48 billion (in 1995 dollars) in medical costs and lost productivity resulting from disability, and \$28 billion in the value of premature deaths

(Nord, 2009). In addition, there are issues of food safety due to the rising number of food recalls and holds. It is in this context — globalizing food and agriculture markets, rural community transitions, food safety, and food security — that local foods initiatives have emerged. New “agrifood” initiatives (AFIs) are efforts to create alternative food systems that promote greater environmental sustainability, increased economic viability at all stages of food production, and more equitable distribution of healthy foods. The concept and practice of implementing AFIs has gained popularity over the last several decades. The trends toward global food markets and increased centralization of food production and retailing have resulted in what many see as a decreased personal and community connection with food. Thus, local food systems are part of a larger societal trend that encompasses a variety of efforts to create alternative agricultural systems.

## Research Summary

This report provides a review and assessment of local food systems and their applicability to the State of Delaware. A summary of local foods research is presented in this report along three general categories: energy and environment; economics; and health and equity. Agriculture and food systems are both dependent upon, and have direct impacts on, environmental quality. Among the most prominent environmental issues are those of biodiversity, water sustainability, soil sustainability, and climate change (Duram and Oberholtzer, 2010, p. 100). Research on the potential for local foods systems to provide environmental benefits have yielded some important results. Research on public health matters has also investigated and monitored the social and health impacts of food systems. Because the agriculture sector utilizes a range of inputs including fertilizers, pesticides, antibiotics for livestock, and genetically modified organisms (American Public Health Association [APHA], 2007), it is important to conduct assessments of potential health effects on the human population. In economic terms, a principal benefit associated with local food is the retention and circulation of food dollars in the local community. According to the USDA, farmers receive 19 percent of every dollar spent on food by American consumers, down from 41 percent in 1950. The rest of that food dollar is spent on off-farm costs including marketing, processing, wholesaling, distribution, and retailing.

The research team conducted: a review of federal, state, and local policies and programs related to local food systems; a review of studies conducted by governmental agencies and research institutions; and interviews with professionals in the field.

A number of state level best practice models were identified by the research team:

- **California** is home to a variety of non-profit organizations working on food policy and has the highest number of local Food Policy Councils (FPCs) in the U.S. The State has developed numerous food programs, and the cities of Oakland, San Francisco, and Los Angeles are undertaking policy initiatives in support of local food systems.
- **Illinois** recently took significant steps to promote local food systems by passing legislation and establishing an Illinois Local and Organic Food and Farm Task Force. In addition, Illinois has implemented a variety of local foods support programs including a local labeling program and Farm to School programs.

- **Maryland** has implemented a number of successful policies and programs supporting local food systems including: legislation authorizing local governments to provide a five-year property tax credit for land used for urban agricultural purposes; participation of all of its public school systems in the Farm to School program in partnership with 30 different farms; and a Hospitals for a Healthy Environment program.
- **Michigan** has a set of laws known as the Michigan Farm to School Bill Package; a state level Food Policy Council (FPC); and a state food labeling program.
- **New Jersey** has laws supporting direct sales, marketing, and agricultural tourism for local food systems, as well as state labeling programs for its produce and horticultural products.
- **New York** established itself as a national leader in support of local food systems via laws that: support low-income access to local foods; facilitate the transportation and distribution of local foods; farm to school programs; and the New York State Council on Food Policy.
- **Oregon** developed a unique community-based approach to supporting its local foods system including: farm-to-institution programs; a Farm to School program; a state level Food Policy Council; and a pilot a farm-to-preschool program serving over 3,000 children and families in need in 12 Oregon counties.
- **Pennsylvania** laws that support local food include: grants to support farmers markets, a State's Food Purchasing Program; a state food labeling program; the Healthy Farms and Healthy Schools Act; and the Pennsylvania Fresh Food Financing Initiative designed to assist food retail businesses establish and retain supermarkets that offer fresh food in underserved neighborhoods.

The research team conducted a stakeholder survey and a set of interviews to assess the current state of local food system operations in the State of Delaware. A total of 61 individuals participated in the survey. Respondents included farmers and growers, restaurants, retailers, and institutional stakeholders such as hospitals and schools. Findings suggest that further research on the opportunities for promoting and implementing local foods systems in the region are important and that local food systems can provide economic opportunities for Delaware farmers. Delaware's population growth and rich history of fresh food production presents a growing market opportunity for small produce growers. Based on the data, the research team developed a set of policy recommendations:

- **Public Awareness, Marketing, and Education**

There is opportunity for the State of Delaware to enhance public awareness of the benefits of locally produced foods through marketing and education including promoting Delaware's *Grown with Care* program. Stakeholder participation is an essential component of public awareness and education programs as well as broader local food planning efforts. . Key stakeholders include consumers, farmers, distributors, food retailers and those who have not historically participated in healthy food practices.

- **State Food Policy Council**

Creation of a State Food Policy Council to facilitate state level planning and program implementation would provide a mechanism for stakeholder representation and coordination. Findings from the surveys and interviews indicate that stakeholders support such a mechanism in Delaware. States have implemented FPCs with great success could be used as models for designing FPCs for Delaware.

- **Promotion of Local Food Procurement/Farm to Institution**

Institutional sourcing of local food can be an effective mechanism for supporting local food system systems. On the supply side, bulk purchasing supports shorter supply chains and on the demand side, institutions have access to fresher produce. Farm to School is one example of a program that has already taken root in the Delaware. Other institutions could include hospitals, colleges, hospitals, and government agencies. The State could assess the feasibility of legislation such as that enacted in Illinois and other states to promote state facility purchases of local foods.

- **Farm to School Program.**

Successful Farm to School programs in other states and localities indicate there are important health benefits for children. All school districts in Delaware participate in the program and continued support for the program provides, as Governor Markell stated, “economic benefit to Delaware farmers, Delaware’s agricultural industry and Delaware’s economy” (CapeGazette.com, 2010).

- **Farmers’ Markets**

The popularity of farmers’ markets continues to grow across the country provide an important outlet for the sale of locally produced foods. The Delaware Department of Agriculture (DDA) provides vendor information on farmers’ markets throughout the state and continued State support for farmers’ markets could provide local economic and health benefits.

- **Local Foods Distribution**

A key challenge for local food producers, particularly small operations, is the availability of distribution systems. Lower volume, accessibility, and seasonality are often cited as barriers for small farm operators. Further investigation into potential approaches such as cooperatives and financing mechanisms such as those implemented in the State of New York deserves further attention.

- **Federal FMNP and SFMNP**

While the Farmers’ Market Nutrition Program (FMNP) and Senior Farmers’ Market Nutrition Program (SFMNP) require the state to be responsible for a portion of the administrative costs, these programs are worthy of further consideration.

- **Foodshed Analysis**

Further research regarding the local food system potential for State of Delaware and the surrounding region could yield important information for legislators and policy makers.



## **1.0 INTRODUCTION**

“Local foods” is an emergent initiative that is geared toward creating geographically localized food markets and is gaining popularity in communities across the nation. Federal, state, and local policies and programs are also being developed to support local food systems. While advocates may differ in the specific implementation strategies used, there is general consensus that the overall long-term goal is to optimize environmental, economic and health benefits through geographically scaling food production and distribution to a more localized spatial level. This report provides a review of local food system research and practice with a baseline assessment of the local food system potential for the State of Delaware.

### **1.1 Background**

The U.S. food and agricultural systems have undergone significant change in the last century. In 1900, approximately 40 percent of the workforce was in agriculture, compared to about 1.9 percent in 2000 (Dimitri, et al., 2009, p. 3). An expanding international agricultural market, developments in transportation and agricultural technologies, and innovations in food processing and retail have all contributed to the development of a modern global agriculture and food system. Today, food products, even highly perishable ones such as fruits and vegetables, can be distributed to consumer markets across great geographical distances from their original points of production. This has contributed to significant growth of the agricultural sector as a whole, but especially in the area of food processing and retailing. Worldwide, between 1981 and 2000, processed food exports grew an average of six percent per year, while primary product markets grew at a rate of three percent per year. The highest growth was in processed foods such as cereals, fruits, vegetables, and tropical beverages (Food and Agriculture Organization, 2004).

In the U.S., farm produce constitutes one percent of the economy for a total value of \$297 billion (USDA, National Agricultural Statistics Service [NASS], 2007). While a small proportion of the economy, it is nonetheless significant in real terms. Major crops are expected to yield \$118.4 billion for the 2010 to 2011 growing season (McFerron, et al., 2010). Moreover, these figures do not include food retail and processing, which when combined with the agriculture and food sectors, represents a major presence in the U.S. economy.

Farms have become more specialized, trending towards monoculture, commodity production. In 1900, the average farm produced five different commodities; by 2002, this figure had declined to an average of just over one commodity per farm (Dimitri, et al., 2009). Correspondingly, a tendency toward consolidation and integration of the agricultural and food retail sectors has also been evident. In 1998, the top four seed firms produced 67 percent of corn seed, 46 percent of soybean seed, and over 96 percent of cotton seed in the U.S. In 2004, the top five food retailers represented 46 percent of retail food sales in 2004 (Archer et al., 2008, p. 273) and top fifteen companies account for more than 30 percent of global supermarket sales (USDA, NASS, 2007). Only a few commodities dominated the of total value (almost \$300 billion) of U.S. agricultural products sold in 2007: 26 percent from grains and oilseeds, 21 percent from cattle, 12 percent from poultry and eggs, 11 percent from milk, and 6 percent from fruits and nuts (USDA, 2007). Geographically, 50 percent of the total value of agricultural products comes from nine states:

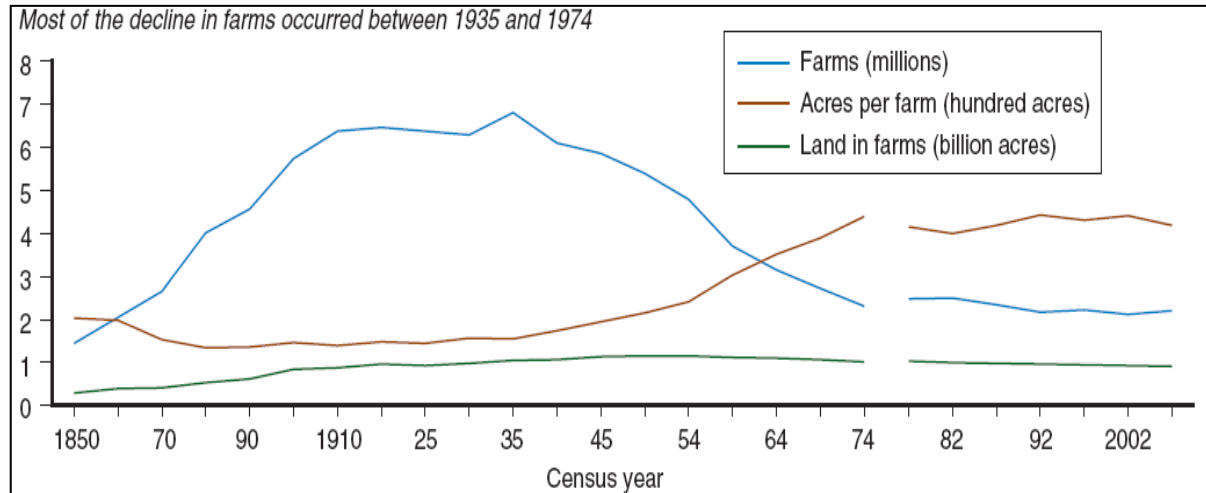
California, Texas, Iowa, Nebraska, Kansas, Illinois, Minnesota, North Carolina, and Wisconsin (USDA, NASS, 2007).

Global food retail sales are approximately \$4 trillion annually (USDA, 2009). In 2008, \$48 billion of food products was exported by the U.S. processed food industry. Six countries accounted for 61.5 percent of U.S. processed food exports: Canada (22 percent), Mexico (16 percent), Japan (9 percent), China (7.5 percent), South Korea (4 percent), and Russia (3 percent). In addition to being an exporter, the U.S. is also a significant importer of food commodities — having imported a total value of nearly \$40 billion in food products in 2008 (U.S. Department of Commerce, 2008). U.S. food suppliers and retailers import food from around the world, often modifying products through processing and packaging to tailor products to different consumer markets. This is particularly true of large multinational corporations, which have expanded their market presence in developing countries (USDA, 2009). More than one-third of the world's top 50 food and beverage processing firms are headquartered in the U.S.

As the U.S. food and agriculture system has expanded internationally, there have been corresponding changes for both the structure and size of U.S. farms. According to the Census of Agriculture, a farm is defined as any place from which there is \$1,000 or more of agricultural products (crops and livestock) in a given year. This definition has been in place since August 1975, by joint agreement between the USDA, the Office of Management and Budget, and the U.S. Census Bureau (Sommer, et al., 1998, p. 4). The official definition of “family farm” used by the USDA ERS includes “any farm where the majority of the business is owned by the operator and individuals related to the operator by blood or marriage, including relatives who do not reside in the operator's household” (Hoppe and Banker, 2010, p. 2). Non-family farms are those where the operator and relatives do not own a majority of the business. Some examples of non-family farms include those operated by publicly held corporations, those owned by three unrelated business partners, or those operated by a hired manager for a family of absentee owners (Hoppe and Banker, 2010).

According to the USDA, there was a significant drop in the number of farms between 1935 and 1974, with some stabilization since then. At the same time, farm acreage on a per farm basis increased substantially. Overall, total farmland remained relatively stable throughout the last century as shown in Figure 1. This trend toward fewer, but larger farms has implications for rural communities. In the U.S., the number of farming-dependent counties dramatically decreased over the last 50 years and even where rural population losses have stabilized, new “rural residents tend to be metro-area commuters and retirees” (Archer, et al., 2008, p. 273). Moreover, the average age of farm operators has been steadily increasing to about 55.3 in 2002, and approximately 26 percent are over the age of 65 (Archer, et al., 2008, p. 273). These trends point to a general consolidation and specialization of farm operations — fewer farms are producing fewer commodities while increasing overall production. This consolidation and specialization of farm operations has also resulted in changing demographic characteristics of farmers and shifts in rural community composition.

**Figure 1. Farms, Land in Farms, and Average Acres per Farm, 1850-2007**



Source: Hoppe and Banker, 2010

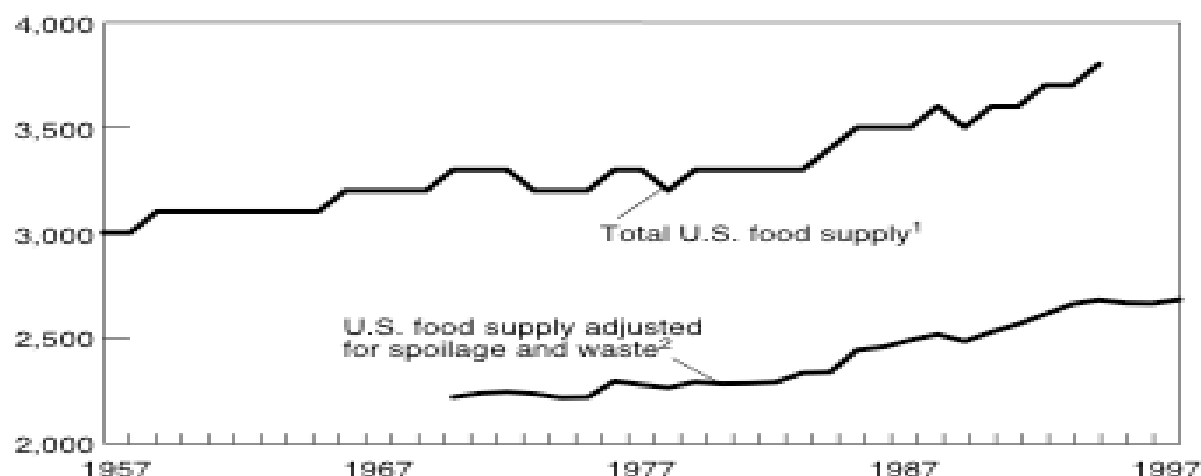
These statistics illustrate the structural complexities of the U.S. and global agriculture and food systems. Both the number and share of sales of small commercial farms is on the decline. However, the total number of U.S. farms in operation (approximately 2 million) was virtually unchanged between 1991 and 2007. This is in part due to the fact that “non-commercial farms,” that is, those farms with income below \$10,000 per year increased from two-fifths to over half of all farms in the U.S. Still, despite their increase in numbers, the share of production of non-commercial farms remained the same at approximately 1 percent of total farm production. On the opposite end of the scale, those farms with gross cash income of \$500,000 and above, have doubled in number as well as increasing their share of production from 3 percent in 1991 to 5 percent in 2007 (Hoppe and Banker, 2010). This shows that there are two parallel trends in food production. On the one hand, there is a tendency toward economic consolidation and centralization. On the other hand, there is also a growing number of very small-scale food producers.

## 1.2 Food System Structure

It is important to note that the agriculture sector and the food system sector are not synonymous, as not all crop production is for food. In fact, agriculture encompasses a wide range of activities. As Wood notes, “agriculture has become integrated into a variety of industrial sectors — pharmaceuticals, energy production, chemicals, etc. — resulting in new challenges and opportunities” (p. 19). Reasons for the diversification of the agriculture sector are many. More recently, recognition of the costs and environmental impacts of carbon-based fossil fuels has catalyzed massive investments in the biofuels and biobased industrial materials industries. This new demand has implications for the global system of food production. According to World Bank President Robert Zoellick, soaring food prices in 2008 were in part, a direct result of the competing market demand for ethanol and other biofuels (2008). This food-versus-fuel debate emerged because both food and biofuels are dependent on the same resources for production: land, water, and energy (Pimentel, 2009).

Despite competing demands for agricultural products, food production in the U.S. is constantly increasing. In 2000, the aggregate food supply provided about 3,800 calories per person per day, 500 calories above the 1970 level and 800 calories above the record low in 1957 and 1958. Figure 2 illustrates this historic trend. Estimated total food expenditures for all food consumed in the U.S. was \$1.8 trillion in 2009 with food purchased for home consumption accounting for 51.4 percent, or about \$607 billion, of this total (USDA, 2002).

**Figure 2. Per Capita Calories From the U.S. Food Supply**



Rounded to the nearest hundred; not calculated for years before 1970

Source: USDA, 2000.

The shift to processed foods has had a profound effect on American eating habits. Dairy products have *decreased* as a share of the American diet. More and more, people are eating outside the home. In 2001, away-from-home meals and snacks were nearly half of total food consumption (47 percent), up from 40 percent in 1981. According to the USDA, we are consuming approximately 500 more calories per day than our American counterparts in the recent past. The average daily caloric intake has increased about 25 percent between 1970 and 2000: 9.5 percent from grains (mainly refined grain products); 9.0 percent from fats and oils; 4.7 percent from added sugars, and 1.5 from fruits and vegetables (USDA, Economic Research Service [ERS], 2010).

As shown in Table 1, another U.S. trend is that the share of income devoted to food budgets has been steadily declining. In 1930, one-fourth of family disposable income was spent on food. By 1950 this figure had dropped to 20 percent and in 2009 it had declined to 9.5 percent. In 2009, U.S. food expenditures by individuals and families for food-at-home reached \$605.4 billion and another \$429.2 billion for prepared food away from home for a total of \$1,034.6 billion in food expenditures (USDA, ERS, 2010).

Research indicates that the changing food system has implications for the overall health of American individuals. One study found that death rates in the U.S., due to dietary and lifestyle factors, exceed other developed countries. The average U.S. diet is too high in calories, fat, saturated fat, cholesterol (Frazao, 1996). Obesity, hypertension, high blood glucose, high low-density lipoprotein levels, and other dietary risk factors are responsible for approximately

914,000 deaths every year. Four of the ten leading causes of death could be influenced by diet. The attendant health costs of diet related diseases are considerable. For example, treatment of diabetes is estimated to cost \$100 billion annually and is projected to increase to \$334 billion by 2034 (Huang, et al., 2009).

**Table 1. Food Expenditures, 1930-2009**

Year	Consumer Food Expenditures					
	Total Food Expenditures	Percent of Total Expenditures to Total Disposable Income	At Home <sup>1</sup>	Percent Home Food Expenditures to Total Disposable Income	Away from Home <sup>2</sup>	Percent Away from Home <sup>2</sup> Expenditures to Total Disposable Income
	Billion dollars					
1930	18.1	24.2	15.8	21.2	2.3	3.1
1940	15.9	20.7	13.5	13.5	2.4	3.1
1950	43.3	20.6	35.7	35.7	7.6	3.6
1960	64	17.5	51.5	14.1	12.6	3.4
1970	110.6	13.9	78.2	10.3	32.4	3.6
1980	264.4	13.2	180.1	9.0	84.3	4.2
1990	449.8	11.1	276.2	7.0	173.6	4.1
2000	661.1	9.9	390.2	5.8	270.9	4.0
2009	1034.6	9.5	605.4	5.5	429.2	3.9

<sup>1</sup>Includes food purchased primarily at retail food outlets including purchases with food stamps and WIC vouchers; food produced and consumed on farms; but excludes government-donated foods

<sup>2</sup>Includes food purchased at restaurants, fast-food outlets, and other public eating places, and food served in institutions, such as hospitals, schools, and rest homes, but excludes food paid for by government and business such as donated foods to schools, meals in prisons, and other institutions and expense-account meals.

Source: USDA, ERS, 2010, June 11.

Other issues related to food systems are those of food security and food safety. The USDA refers to food security as the condition in which all household members have access to enough food at all times for an active and healthy life. Thus, a food secure household should have readily available nutritionally adequate and safe foods and an “assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)” (USDA, ERS, 2009a; see also Andersen, 1990). On the other end of the spectrum, food insecurity exists when there “is limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire these foods in socially acceptable ways” (USDA, ERS, 2009a). In 2009, 16 percent of households in the U.S. were food insecure at least some time during the year. While this figure hasn’t changed since 2008, it still represents the highest recorded rate of food insecurity since 1995, when the first national food security survey was conducted (Nord, 2009). The USDA’s ERS estimates that improved diets could prevent \$48 billion (in 1995 dollars) in medical costs and lost productivity resulting from disability, and \$28 billion in the value of premature deaths (Nord, 2009).

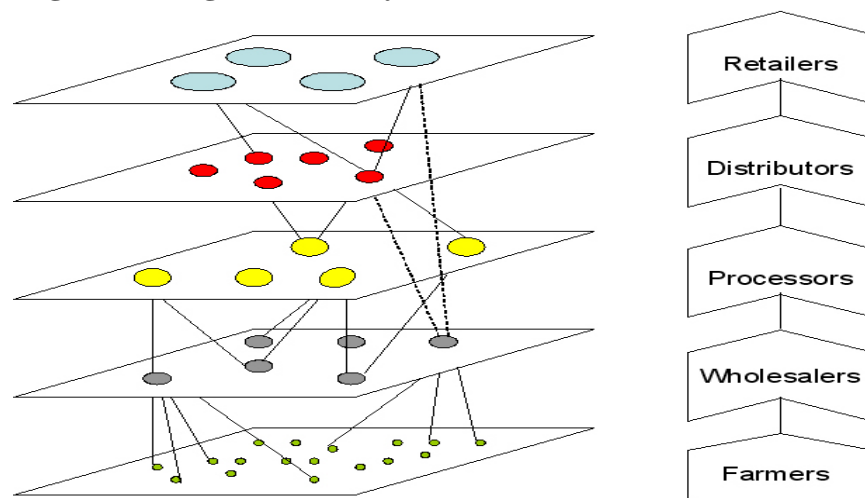
In terms of food safety, recent high profile problems have highlighted the risks associated with food production and distribution. According to the USDA's Food and Nutrition Service, in 2008 and 2009, food recalls or holds due to safety issues included: 3,752 cases of spaghetti sauce from three states; 212,000 pounds of peanut butter from 16 states, 9 tribal organizations, the District of Columbia, and Puerto Rico; 7,200 cases of frozen blueberries from five states (although these were found not pose a health threat); 14,000 cases of various varieties of canned beans from 8 states; and 51,000,000 pounds of ground beef and ground beef products from 46 states and the District of Columbia, of which 18,000,000 pounds were returned or destroyed by the vendor (USDA, 2009; ). Concerns about food safety led to a new law, the FDA Food Safety Modernization Act, signed by President Obama on January 4, 2011. The intent of the law is to increase inspections, establish stricter food standards and provide the Federal Drug Administration with greater authority to implement food recalls.

In summary, food production is a multi-stage system with important health and economic implications. Stages of the food supply chain include:

- **Agriculture.** Primary production includes farming or growing crops, raising livestock and fisheries;
- **Manufacturing.** This includes processing primary or fresh products into canned, packages, or frozen foods;
- **Research and development.** The food sector conducts substantial research in various stages of food technology from bio-engineering to packaging;
- **Inputs.** The agricultural input sector includes fertilizers, farm machinery and seeds;
- **Marketing.** This includes packaging, advertising, and distribution (wholesale and retail).
- 

A variety of public and private sector activities, including a regulatory system, are in place in order to ensure food safety and quality. The U.S. Department of Commerce cites the food industry as one of the largest manufacturing sectors in the U.S., accounting for more than 10 percent of all manufacturing shipments. Over the last 15 years, the processed food industry showed steady growth with the exception of a slight decline in 2006. Still, the value of food shipments in that year was \$538 billion, an increase of 27 percent over the 1997 figure of \$422 billion. The U.S. Department of Commerce report also identifies the most salient issues affecting the industry as one of rising commodity prices, concerns over food safety, higher energy costs, and environmental sustainability (2008). The conventional food supply chain, for the U.S. and world, is illustrated in Figure 3.

**Figure 3. Stages of Food System Production and Distribution**



Source: C.J.M. Ondersteijn. 2004.

It is in this context — globalizing food and agriculture markets, rural community transitions, and food safety and food security — that local foods initiatives have emerged.

### **1.3 What are Local Food Systems?**

“A review of the policy and research literature reveals that the definition of local can have multiple meanings when referring to food systems (Allen, et al., 2003). Some definitions have strict mileage limits for the distance between food production and consumption (e.g., within 100 miles), while other definitions have more generalized regional scales. According to the National Agriculture Library, the concept of local food is generally understood as “a collaborative effort to integrate agriculture production with food distribution to enhance the economic, environmental, and social well-being of a particular place” (2007). This incorporates the “idea of regional provisioning through a selective and voluntary regional closure that links production and consumption around particular sites” (Allen, et al., 2003, p. 63; see also Kloppenburg, et al., 1996).

Research has shown that consumers, farmers, and businesses have varying definitions of what constitutes local. The most important factor is obviously geography or distance from production to consumption. Still, consumer perceptions vary depending on individual preferences, local culture, and demography (Martinez, et al., 2010). For example, dense and heavily populated regions often have ideas of local foods that differ from remote and more dispersed areas. Results from a survey of producers in King County, Washington (a large metropolitan area) showed that 66 percent of those surveyed defined local as their own or surrounding counties (Martinez, 2010 p. 3; see also Ibery and Maye, 2006). Yet, only 20 percent of producers in a rural and agricultural based county agreed with that definition. In addition, there is often a confluence of other factors that are considered as important attributes or benefits of local foods by advocates. These include use of sustainable production and distribution practices, fair farm labor practices, animal welfare considerations, production scale, and shorter supply chains (Martinez et al., 2010).

The 2008 Food, Conservation, and Energy Act, known as the Farm Bill, has a specific section related to local or regionally produced agricultural products. In Section 6015, the Act defines locally or regionally produced food products as those “raised, produced, and distributed in the locality or region in which the final product is marketed, so that the total distance that the product is transported is less than 400 miles from the origin of the product; or the State in which the product is produced” (Martinez, et al., 2010). The Act also establishes a loan and loan guarantee programs for enterprises that process, distribute, aggregate, store, and market locally or regionally produced food products.

In an USDA comprehensive review of local food systems entitled *Local Food Systems: Concepts, Impacts, and Issues*, a local foods market typology was created (Martinez, et al., 2010). Two types of local food markets were defined: direct-to-consumer and direct sales. Direct-to-consumer food supply chains are those in which “transactions are conducted directly between farmers and consumers” (Martinez, 2010, p. 5). Venues for marketing direct-to-consumer foods include farmers’ markets, community supported agriculture (CSAs), farm stands, and “pick your own” establishments. Direct sales are markets characterized by transactions between farmers and restaurants, retail stores, and institutions such as governmental entities, hospitals, and schools (Martinez, et al., 2010 p. 5). There are also intermediaries, such as distributors or buying clubs, which allow for the purchase of bulk quantities of local foods at wholesale prices. In other words, the goal of local foods systems is to scale the supply chain geographically, and to reduce intermediary stages of distribution existent in large-scale food production systems. A local foods system seeks to shorten the geographic distance between production and consumers, and correspondingly shorten the supply chain by reducing intermediaries.

#### **1.4 A New Word —Locavore**

The growing attention to the role local food systems can play in achieving the larger goal of sustainable development has resulted in the creation of a new term, *locavore*. Patterned on the concepts of carnivore and omnivore, the term locavore refers to a person whose diet consists only, or principally, of locally-grown or produced food. Locavore was selected as the Oxford dictionary word of the year in 2007.

#### **1.5 Foodshed Analysis**

A useful analytic tool to assess the food supply potential of a given local region is foodshed analysis. The concept of the foodshed analysis was first applied in the early part of the twentieth century to trace the flow of food from producer to consumer (Hedden, 1929; Peters et al, 2008b). It was developed when a railroad strike threatened New York City’s food access in the 1920s. The situation alerted city planners and policy makers that the activities associated with the food production and distribution system, while supplying a basic human need, were largely unknown. In this case, a large city with the population of 8 million was facing a crisis as a result of the fundamental lack of knowledge and understanding about the food system. Foodshed analysis was thus developed to provide an assessment of the food distribution system for greater integration into city planning. More recently, the concept has been resurrected to evaluate how



food systems can potentially be scaled down to more localized spheres of activity (Getz, 1991) and how this might help to reduce social and environmental risks. Thus, foodshed analysis refers to the study of the actual, or potential, sources of food from its origin as agricultural commodities on a farm to its destination as food wherever it is consumed (Peters et al., 2008a, p. 2). The concept is analogous to that of a watershed (Peters et al., 2008a; 2008b) and is intended to identify the barriers and opportunities that affect the flow of locally-produced food.

Studies mapping potential local and regional foodsheds are being implemented across the country, providing data on the feasibility of local foods systems. A recent foodshed analysis of New York utilized data on soil and land cover, agricultural suitability, population figures, and per capita food requirements to evaluate the potential for the state to meet its food needs. Findings suggest that with the exception of New York City, “most population centers could meet all, or nearly all, of their food needs within the State” (Peters, 2008a, p. 79).

## **1.6 Agri-Food Initiatives**

“Agri-food initiatives” (AFIs) are efforts to create alternative food systems that promote environmental sustainability, increased economic viability at all stages of food production, and more equitable distribution of healthy foods. The concept, and practice, of implementing AFIs has gained popularity over the last several decades.

The local food “movement” is part of a larger societal trend that encompasses a variety of efforts to create alternative agricultural systems in response to a perceived decrease in personal and community connections to food. These efforts range in scope, from efforts to specifically promote organic foods or sustainable agriculture generally, to urban community gardening and the “slow foods” movement. A number of local, state, and national policy initiatives have been implemented to support further development of these alternatives. While there is some overlap, there are differences within these alternative initiatives and they are not all completely congruous in their goals and objectives. This report focuses specifically on local food systems and the potential for development of a localized food system as an AFI in the State of Delaware.



## **2.0 POTENTIAL OF LOCAL FOOD SYSTEMS**

The research team for this report conducted a review of the research literature on agriculture and food systems and the potential role of local food systems in sustainable development. A summary of the research is presented below in three general categories: energy and environment, economics, and public health and access to healthy food.

### **2.1 Energy and Environment**

According to the Millennium Ecosystem Assessment, cultivated agricultural systems cover about 25 percent of the Earth's surface (2005). The global harvest of food crops is expected to grow by 70 to 85 percent in the next 50 years, with a corresponding increase in water usage of 30 to 85 percent (Archer, et al., 2008, p. 273). A human activity that has a direct impact on 25% of the world's surface is bound to have some adverse impact on environmental quality. Intensive agriculture, meaning physically manipulated enhanced agriculture production to increase productivity, has been correlated with important environment and ecosystem challenges (Ongley, 1996). Among the more prominent environmental issues associated with agriculture and food systems are those of biodiversity, water sustainability, soil sustainability, energy use, and climate change (Duram and Oberholtzer, 2010, p. 100).

#### **2.1.1 Challenges**

Monoculture agriculture, a growing practice worldwide, requires the wide-scale use of pesticides and herbicides (Bengtsson et al., 2005; Tilman et al., 2002). The steadily increasing use of pesticides and chemical fertilizers over time can affect the environment in a number of ways. These impacts include: non-target species population declines; changes in the chemical composition of soil; and dead zones in waterways due to chemical runoff. Moreover, pesticide drift can result in deposits of pesticides in unanticipated areas with unanticipated impacts.

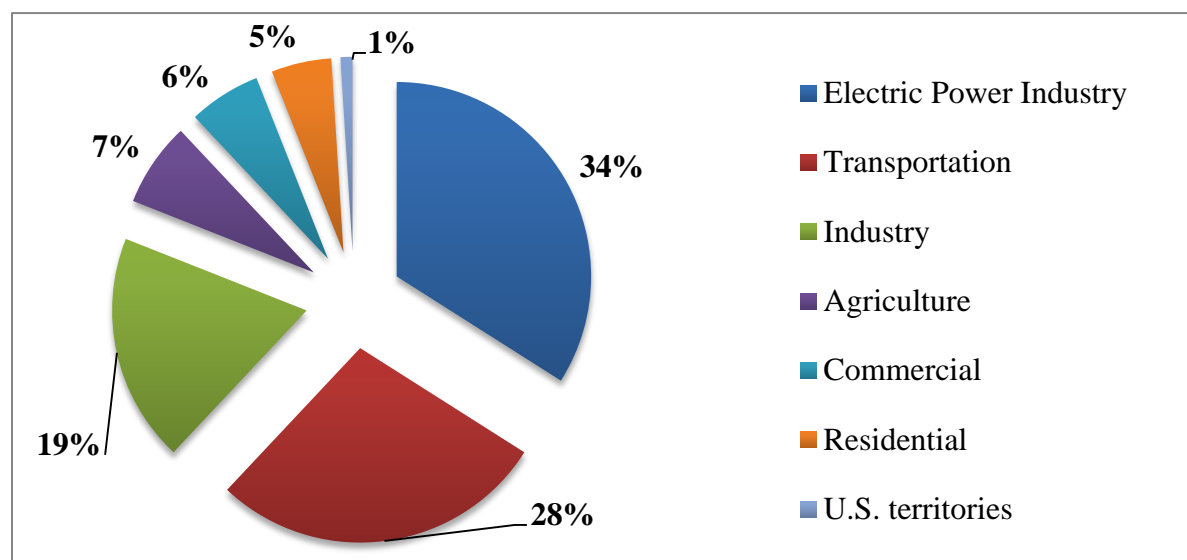
In the U.S., irrigated agriculture accounts for 80 percent of consumptive water and in some Western states this figure rises to 90 percent. While only 16 percent of all U.S. cropland is irrigated, this amounts to almost half the value of all crops (Duram and Oberholtzer, 2010, p. 101). The relationship between water sustainability and agriculture continues to be a significant area of research. Among the impacts noted for agriculture are: increases in consumptive water usage; sediment loading of waterways; excessive nutrient (nitrogen and phosphorus) effluents with impacts such as algal blooming; pesticide contamination; and increased salinity. Combined, these can have profound effects on aquatic ecosystems (Varghese, 2009).

The prospect of climate change has significant implications for future food system viability and the role of climate change in food security and sustainability has become an important topic in climate change research. While agriculture is a greenhouse-emitting sector, agricultural activity may also sequester carbon. The Institute for Agriculture and Trade Policy suggests that, "it is at this intersection – as a current GHG [greenhouse gas] contributor but with carbon sink potential – that agriculture has entered the climate policy stage, and where the debate over agriculture's role in GHG reductions has grown most heated" (Olmstead, 2009, p. 1). The U.S., one of the world's largest GHG emitters, has identified agriculture and forestry-related sequestration as ways to reduce overall GHG emissions accounting. Moreover, there is a growing national effort

to support biofuels as one potential solution to the carbon-centric U.S. energy system. The result has been a focus in climate change research on assessing the role of agriculture as both an energy producer and as a food producer.

In recent years, the tension between agriculture-as-emitter and agriculture-as-mitigator was made evident. The spike in food prices in 2006 has been attributed to the competing uses of corn for food, feed, and energy. Prominent researchers suggested that while biofuels have the potential of displacing carbon-based fossil fuels, the indirect effects on land use change must also be assessed (Brown, 2007). Studies have indicated that the conversion of land through deforestation to biofuel crops can result in net increases in carbon emissions (Peters, 2008a, p. 4). In the U.S., the agricultural sector is responsible for 7 percent of total U.S. GHG according to the 2010 U.S. Greenhouse Gas Inventory. While this seems relatively small when compared to other sectors, the figure does not include use of fossil fuels for machinery and other operations, which are counted in the energy and/or transportation sector. Moreover, the main agricultural GHGs are methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) that have global warming potentials of 21 and 310 times the warming potential of carbon dioxide (U.S. EPA, “Methane”; “Nitrous Oxide”).

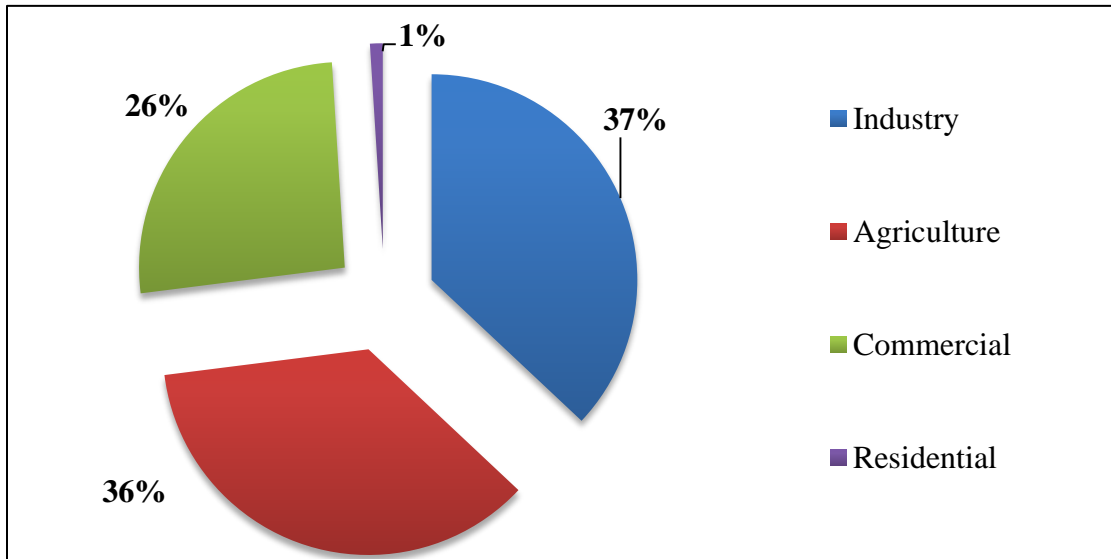
**Figure 4. U.S. Greenhouse Gas Emissions by Economic Sector, 2007**



Source: U.S. EPA, 2009

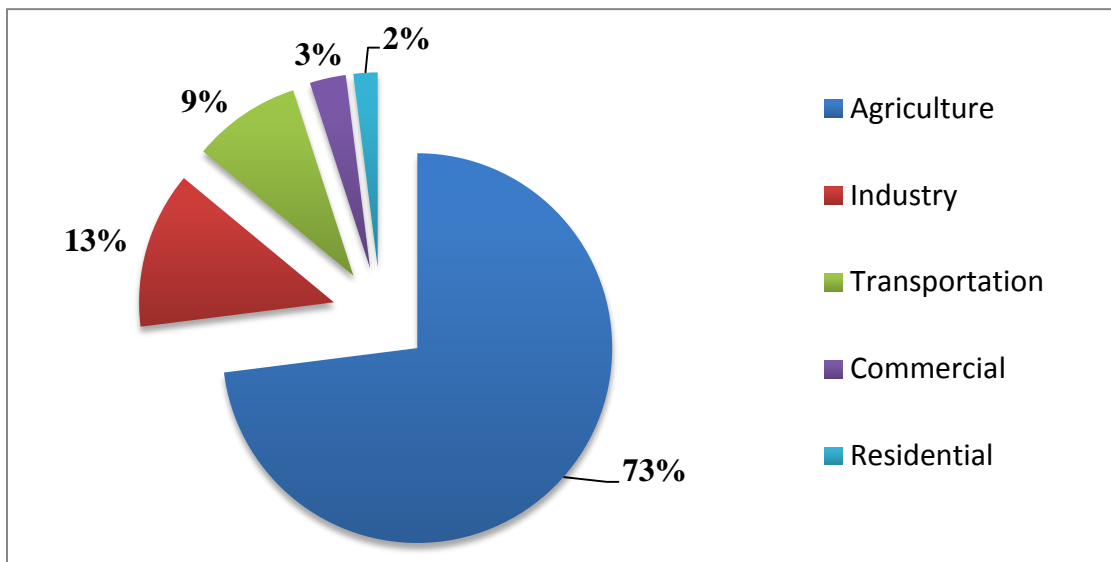
According to the Intergovernmental Panel on Climate Change (IPCC), global average atmospheric concentrations of methane have increased by 30 percent over the last 25 years, and nitrous oxide has also been steadily increasing (IPCC, 2007). Livestock releases or “enteric fermentation” and manure management represent about 36 percent of total U.S. methane emissions. Agricultural soil management activities such as fertilizer application and other cropping practices were the largest source of N<sub>2</sub>O, accounting for about 72 percent of total U.S. emissions. See Figures 5 and 6 (U.S. EPA, 2007).

**Figure 5. U.S. Methane Emissions by Sector, 2007**



Source: U.S. EPA2009

**Figure 6. U.S. Nitrous Oxide Emissions by Sector 2007**

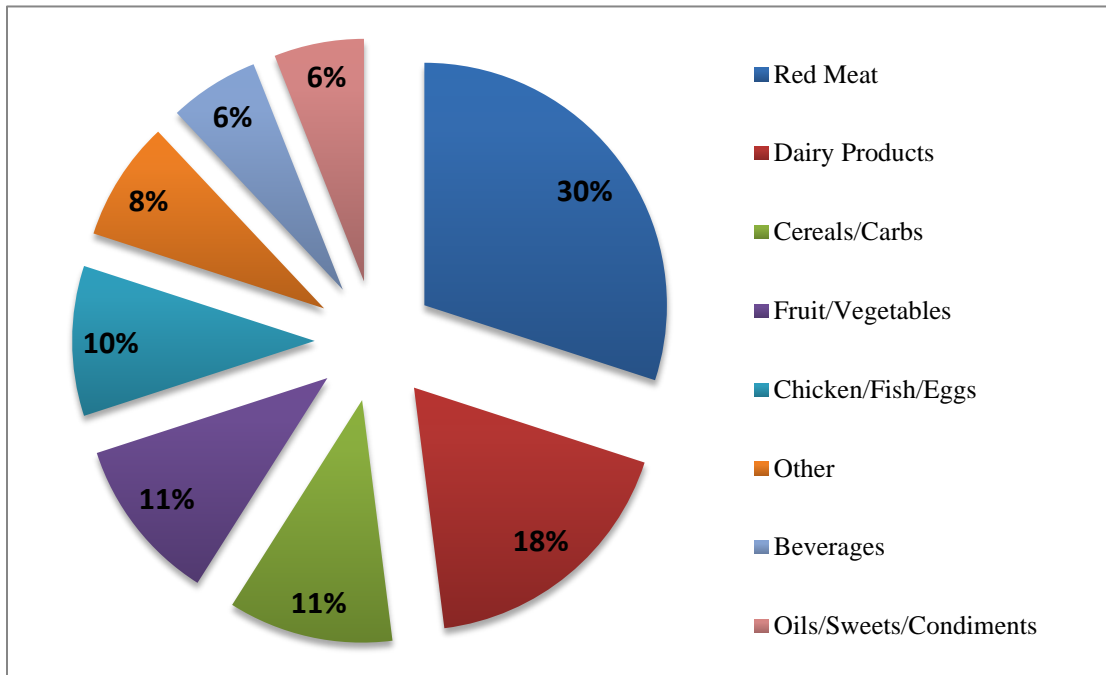


Source: U.S. EPA2009

In addition to these direct emissions, agriculture also contributed to carbon dioxide (CO<sub>2</sub>) emissions through the use of fossil fuels in the transportation sector (e.g., use of farm equipment and transportation of crops), industry sector (e.g., manufacturing of fertilizers), and electric power industry sector (e.g., electricity for irrigation).

The food sector uses between 12 and 20 percent of the total U.S. energy budget (Duram and Obreholtzer, 2009, p. 99). The distribution, by food products, is shown in Figure 7.

**Figure 7. Greenhouse Gases Emitted by Food Source**



Source: Center for Sustainable Systems, University of Michigan, 2009.

### ***2.1.2 Potential Benefits of Local Foods Systems***

Research on the potential for local foods systems to provide environmental benefits have yielded some important results. Local food systems that use less packaging than the conventional food system may lengthen the lifetimes of landfills. One study found that food packaging and food waste accounts for roughly one-third of U.S. landfill waste (Halweil, 2002). Studies also suggest that conventional food systems use 4 to 17 times more petroleum and emit 5 to 17 times more carbon emissions than local food systems (Pirog, 2001; DeWeerd, 2009b). This is due to a number of factors including the significant use of refrigeration and packaging by conventional food systems (Halweil, 2002b), as well as the transport distance from production to consumption.

Numerous studies have attempted to demonstrate the energy and resource use due to the transport of food by calculating “food miles.” The term “food miles” is the distance food travels from where it is grown to where it is purchased or consumed. Estimates of food miles range from 1346 food miles for an average U.S. food product to an average of 1496 miles for fresh produce in the U.S. (Brown and Pitz, 1969; Kloppenburg, et al., 1996; Pirog, 2001, 2005).

Analyses of agricultural and food system sustainability using the “food miles” concept by itself are inadequate and should include other factors. For example, the impact of the farming practices can be seen in an Oak Ridge National Laboratory (2009) study that analyzed 96 percent of U.S. cropland production between 1990 and 2004, and found that reduced tillage practices resulted in a net reduction of 8.8 million tons of carbon. This study suggests that a local crop using conventional tillage practices could have higher CO<sub>2</sub> emissions than a no-till crop with a

longer transport distance. Another study indicated that free range lamb production in New Zealand, despite being shipped 11,000 miles to its destination in Europe, resulted in 1,520 pounds of carbon emissions, while corn fed lamb raised in Britain produced 6,280 pounds of carbon (McWilliams, 2007).

## **2.2. Public Health and Access to Nutritious Food**

Another important area of research is the social impact of agricultural and food systems, as well as the role of diet on public health.

### **2.2.1 Challenges**

There has been considerable research investigating potential public health impacts related to agriculture because the agriculture sector utilizes a range of inputs including fertilizers, pesticides, antibiotics for livestock, and genetically modified organisms (APHA, 2007). A growing area of study is in bio monitoring — the measurement of toxic chemicals in the human body. Such studies conducted in the U.S. and around the world are providing data on the impacts of the pesticide load on human health. This research includes a focus on agricultural workers and agricultural communities due to the possible health impacts from misuse and unsafe pesticide and fertilizer practices (Kansas Rural Center, 2010). Other research is focused on human exposure to antibiotics and the possible effects of resistant bacteria to consumers and workers (Osman and Wallinga, 2009). For food systems, the health implication of food additives and artificial flavors is another area of research (APHA, 2007).

Access to nutritious food, especially for marginalized and vulnerable populations, continues to be an important public health and social justice issue in the U.S. (Stringer, 2009). For example, the lack of access to fresh fruits and vegetables for one such population, low-income families in urban communities, has been a recognized problem that many cities have tried to address and led to the coining of another new term — “food deserts.” Food deserts are neighborhoods with few or no supermarkets, no fresh produce markets, and few, if any stores, carrying nutritious foods. Low-income, underserved communities suffer from increased rates of diet-based health conditions such as obesity, diabetes, and hypertension as a result of inadequate nutritional intake (New York City Department of Health & Hygiene, 2009). Low-income families often do not have access to transportation to shop in higher quality food/grocery stores that may be located in nearby communities. Hendrickson, et al., (2004) found that due to the lack of reliable transportation, “low-income urban residents in two Minneapolis neighborhoods shopped in grocery stores where small selection and poor quality was coupled with expensive prices,” limiting their ability to obtain a diverse selection of quality food options (p. 381). Zenk, et al., (2006) found that low-income communities had much more access to liquor stores than businesses carrying quality fresh produce, when compared to middle-income communities of a similar racial makeup. Eliminating food deserts has become a policy priority because of the long-term health issues associated with inadequate diet and food insecurity (Parker-Pope, 2008; DeWeerd, 2009a).

According to the USDA, between 2006 and 2008, the prevalence of low food security in the U.S. averaged 9.4 percent and households with very low food security was 3.7 percent (Nord et al., 2009). Other research shows that only 33 percent of adults are eating the USDA recommended

fruit intake and only 27 percent are eating the USDA recommended vegetable intake. Adolescents in grades 9 to 12 are showing even lower rates of meeting USDA dietary guidelines, 32 percent and 13 percent respectively. In addition, less than 20 percent of middle and high schools cafeterias offer fruit and non-fried vegetables as competitive foods (Centers for Disease Control and Prevention, 2009).

According to a Delaware comprehensive study of hunger, approximately 241,600 people receive emergency food annually from the Food Bank of Delaware (FBD). About 44 percent of households served by the FBD have children under 18, six percent have children between the ages of 1 and 5, and six percent are elderly. Moreover, the study showed that 21 percent of households served by the FBD have at least one household member in poor health (Mabli, et al., 2009, p. 3).

### 2.2.2 Potential Benefits of Local Foods Systems

Farmers' markets and community-supported agriculture can be accessible local sources of quality fresh foods for underserved communities. These local food outlets also help to build public understanding about food and its production, and promote healthy eating and cooking. These venues often offer consumers education about locally and seasonally appropriate produce and recipes. In addition, local food systems facilitate development of community networks that bring together residents, public sector agencies, and non-profit groups to work toward healthy food solutions (Pothukuchi, 2003; Treuhaft et al., 2009). Over the last two years, the economic crisis has created awareness of the need for the U.S. to re-localize and diversify many aspects of the nation's economy. Moreover, bolstering local food production and policies have been shown to contribute to local, regional, and national economic growth.

## 2.3 Economics

Research on local food systems is only beginning to provide quality evaluations of its economic potential and impact. A principal economic benefit associated with local food is the retention and circulation of food dollars in the local community. According to the USDA, farmers receive 19 percent of every dollar spent on food by American consumers, down from 41 percent in 1950. The rest of that food dollar, as shown in Figure 8, is spent on off-farm costs including marketing, processing, wholesaling, distribution, and retailing.

**Figure 7. Distribution of Revenue, per Food Dollar**



Source: USDA's Economic Research Service.



One study found that for approximately every \$15 spent on local foods, another \$37 dollars was generated in the local economy compared to \$21 dollars generated for the local economy by \$15 spent on non-local foods in a supermarket (Halweil, 2002). The Illinois Local and Organic Food and Farm Task Force has identified the local foods economy as an important economic revitalization tool. According to its findings, 4 percent of the \$48 billion spent annually on food in Illinois is produced locally, and thus, the Task Force has outlined a program to achieve 20 percent consumption of local foods at state-funded facilities, and 10 percent local foods of total food consumption in Illinois (2009, p. 3).

In southeastern Minnesota, an increase in local food purchases was found to help lower regional farmers' dependency on federal subsidies. If residents in the region purchased 15 percent of their food from local sources, the need for federal subsidies to farmers would be substantially reduced (DeWeerd, 2009, p. 20). Research in Iowa found that \$139.9 million in new economic output and more than 2,000 jobs would result from a quarter of its citizens purchasing produce from in-state farmers (Swenson, 2009). Another study conducted in the Central Puget Sound region in Washington found that if consumers spent 20 percent of their food dollars at local businesses such as farmers markets, a potential extra billion dollars would be injected every year into the region's economy (DeWeerd, 2009, p. 20). In Vermont, then-Governor Jim Douglas stated that, "if Vermonters shifted just 10 percent of their food spending to buying local we could add about \$130 million to the Vermont economy" (State of Vermont, 2006).

One readily available indicator of the local food economy is direct agriculture sales. This includes buying options such as harvesting your own foods, community supported agriculture (CSAs), farmers' markets, and farm stands. Table 3 shows the growth in direct marketing sales of produce in the U.S. between 2002 and 2007. On average, direct marketing sales in the U.S. grew 49 percent. However, direct marketing represents less than half of one percent of the total sales of agricultural products. States, which experienced the most rapid growth in direct marketing, were Oklahoma (209 percent) and Oregon (163 percent). As a percentage of the total, direct sales are largest in Rhode Island (9.5 percent), Massachusetts (8.6 percent) and New Hampshire (8 percent). In Delaware, direct marketing grew 23 percent in the period between 2002 and 2007, and represents 0.32 percent of all agriculture product sales.

Another economic indicator is the volume of sales from farmer's markets. The USDA conducts a comprehensive survey of farmers' market managers and results from the 2006 survey showed a 43 percent increase in the number of farmers markets over the previous year, from 2,863 to 4,093. Total farmers' market sales in 2005 averaged about \$245,000. This figure was higher in the Mid-Atlantic region (\$306,000) with average per capita vendor sales of \$7,108 (Ragland et al., 2009). In 2009, there were 5,240 farmers' markets in 3,141 counties, parishes, and boroughs in the U.S. Approximately one-third of counties had no farmers' markets, while large urban counties had the highest numbers of farmers' markets (Kaufman, 2009).

**Table 2. Direct Sales of U.S. Produce**

<b>State</b>	<b>Percent growth in direct sales 2002-2007</b>	<b>Direct/ Total sales 2007</b>	<b>State</b>	<b>Percent growth in direct sales 2002-2007</b>	<b>Direct/ Total sales 2007</b>
Oklahoma	209 %	0.20 %	Utah	45 %	0.71 %
Oregon	163 %	1.29 %	Kentucky	45 %	0.31 %
Vermont	139 %	3.39 %	Arkansas	44 %	0.11 %
Alaska	103 %	2.95 %	Missouri	43 %	0.28 %
Louisiana	87 %	0.35 %	California	42 %	0.48 %
Connecticut	74 %	5.39 %	Iowa	42 %	0.08 %
Virginia	72 %	0.99 %	Pennsylvania	41 %	1.31 %
Rhode Island	70 %	9.55 %	Illinois	41 %	0.19 %
New Mexico	70 %	0.51 %	Montana	40 %	0.23 %
Maryland	69 %	1.16 %	North Dakota	38 %	0.04 %
North Carolina	69 %	0.28 %	Tennessee	37 %	0.59 %
Maine	64 %	2.98 %	Massachusetts	34 %	8.59 %
South Dakota	63 %	0.09 %	Arizona	34 %	0.16 %
Michigan	58 %	1.02 %	Idaho	33 %	0.14 %
New Jersey	57 %	3.05 %	Colorado	30 %	0.37 %
Florida	57 %	0.25 %	New York	30 %	1.75 %
West Virginia	55 %	1.20 %	Mississippi	29 %	0.20 %
New Hampshire	54 %	8.05 %	Wyoming	27 %	0.26 %
South Carolina	53 %	0.54 %	Washington	25 %	0.64 %
Minnesota	52 %	0.26 %	Indiana	24 %	0.27 %
Texas	51 %	0.18 %	Delaware	23 %	0.32 %
Wisconsin	50 %	0.48 %	Hawaii	22 %	1.69 %
Nebraska	47 %	0.04 %	Alabama	4 %	0.19 %
Georgia	47 %	0.18 %	Kansas	3 %	0.06 %
Ohio	46 %	0.77 %	Nevada	-33 %	0.21 %

Source: USDA, NASS, 2007

## **3.0 SURVEY OF LOCAL FOODS PROGRAMS**

The research team conducted a review of programs, networks, and initiatives that operate at the national and state level. This was accomplished through a comprehensive review of studies conducted on local food systems by governmental agencies, research institutions, and was supplemented by interviews with professionals in the field. The results of this review are presented in this section.

### **3.1 National Programs and Initiatives**

#### ***3.1.1 Healthy Food Financing Initiative***

The purpose of this \$400 million joint Initiative (USDA, U.S. Department of Health and Human Services [DHHS], and the Treasury Department) is to improve access to nutritious foods in underserved communities. The Initiative will support and leverage actions to increase the number of supermarkets and to improve access to quality fresh foods in areas identified as food deserts. It includes a New Markets Tax Credit to help community development financial institutions to leverage healthy foods investment from the private sector. There is also a competitive grants provision geared to “support projects that finance grocery stores, farmers markets, and other sources of fresh nutritious food” (DHHS, 2010).

#### ***3.1.2 Farmers’ Market Nutrition Program***

The Farmers’ Market Nutrition Program (FMNP) is a supplemental program to the Women, Infants and Children (WIC) program. The FMNP provides food coupons worth \$10 to \$30, to WIC participants each year to purchase foods at farmers’ markets is. In addition, FMNP also provides nutrition education on how to select, store, and prepare fresh fruits and vegetables. FMNP currently operates in 45 state agencies. In 2008, over 16,000 farmers were authorized to accept FMNP coupons (USDA, 2009c).

#### ***3.1.3 Senior Farmers’ Market Nutrition Program***

The Senior Farmer’ Market Nutrition Program (SFMNP) provides grants to states to support low-income seniors. It is similar to the WIC program and provides supplemental assistance to seniors for food purchases from farmers’ markets and community supported agriculture. Seniors receive coupons to spend at these venues. The SFMNP operates in 49 states. Congress has authorized \$20.6 million in funding for the SFMNP through 2012 (USDA, 2009b).

#### ***3.1.4 Farm to School***

The National Farm to School Network is a collaborative project of the Center for Food and Justice , a division of the Urban and Environmental Policy Institute at Occidental College and the Community Food Security Coalition. Farm to School is a nationwide program that helps teach children about food and connects farmers with schools. There are eight regional agencies and a national staff that provide free training, and technical assistance in networking and marketing. The National Farm to School Network supports state and national policy efforts for developing regulations and legislation in support of farm to school programs. It operates over 2,000 programs in 40 states (National Farm to School Network [NFSN] website).

### **3.1.5 Buy Fresh Buy Local**

Food Routes, a non-profit organization based in Pennsylvania, first developed the Buy Fresh Buy Local Initiative. This Initiative facilitates development of resources for local foods systems through a variety of strategies including technical assistance and outreach. Numerous local and state chapters have been established across the U.S. (Pennsylvania Buy Fresh Buy Local website). Examples of local chapters' success stories include:

- In Iowa, twenty three institutional buyers, including hospitals, retirement homes, restaurants, grocers, and colleges have doubled local food purchases. Together, these institutions spent approximately \$465,000 on locally produced fruits, vegetables, meats, dairy and baked goods.
- In Kansas City, there has been a 36 percent increase in local food sales for the Good Nutured Family Farmers Cooperative since 2004.
- In Alabama, 204 billboards displaying the Buy Fresh Buy Local logo reached an average daily viewing of 1,043,000 people (Buy Fresh Buy Local website).

## **3.2 State Programs and Initiatives**

### **3.2.1 Food Policy Councils**

State and local Food Policy Councils (FPCs) are advisory bodies generally composed of representatives from stakeholder sectors in the private, public and non-profit sectors. FPCs provide a venue for citizen participation and policy coordination. Identified benefits include: "mapping and publicizing local food resources; creating new transit routes to connect underserved areas with full-service grocery stores; persuading government agencies to purchase from local farmers; and organizing community gardens and farmers' markets" (North American Food Policy Council website). Currently, there are almost 50 FPCs in the United States.

### **3.2.2 Farm to Institution**

There are various programs across the country that support different farm to institution programs. Institutions include: colleges, universities, schools, correctional facilities, and hospitals. These programs also help institutions to incorporate local food into their dining services through technical and networking assistance.

### **3.2.3 Labeling Programs**

Numerous food labeling programs currently exist at the state and local levels. There have also been unsuccessful attempts to include labeling rules into the U.S. Farm Bill. Several states have adopted their own labeling laws. For example, Florida state law allows for the *Produced in Florida* label. Other states have similar initiatives including Michigan, South Dakota, Minnesota, New Jersey, and Pennsylvania.

Deceptive advertising in the labeling of local foods, foods labeled local that are actually produced in areas as far as Latin America and Europe, has spurred state efforts to prohibit such practices. For example, Vermont implemented a law in 2008 that limits "local" and "locally grown" labels to only food and other goods that originate in Vermont or within 30 miles of where they are being sold. Place-of-origin labels allow consumers to choose food that originates from their area and to directly support local producers. Labeling programs also inform

consumers about the economic, environmental, health, and social benefits of buying locally (Institute for Self-Reliance website, Locally Grown Labeling). State departments of agriculture generally administer labeling programs.

### **3.3 Research and Technical Assistance Organizations**

A number of research and technical assistance organizations have emerged over the last several years to provide local foods policy and program training and assessments. These range from academic programs to non-profit think tanks with the express mission of promoting sustainable agriculture and/or local foods systems. Among the most active are the following:

- The *Drake University Agricultural Law Center* supports education and research on food and agriculture including: marketing and finance; biotechnology; international trade; tax planning; soil and water conservation; land use and environmental issues; food safety; and federal farm programs.
- The *Institute of Agriculture and Trade Policy* works at the intersection of policy and practice to ensure fair and sustainable food, farm and trade systems. It provides research and advocacy on a variety of topics related to food policy including climate change, health, and environmental impacts. The Institute also examines trade and governance, rural communities, and forestry issues.
- The *National Sustainable Agriculture Information Service*, funded by the USDA's Rural Business-Cooperative Service, provides information and other technical assistance to farmers, ranchers, cooperative extension agents, educators, and others involved in sustainable agriculture in the U.S.
- The *Organic Farming Research Foundation* conducts research related to organic farming. The Foundation disseminates research results to farmers as well as educates the public about organic foods.
- The *Farm Foundation* provides information on agriculture, food systems, and rural regions. Their work focuses on energy and environmental issues, trade policy, food systems, food quality and safety, and rural community development.
- The *Food Marketing Policy Center* conducts research on food and agricultural marketing and related policy questions. The Center provides information on food production and marketing systems. The research agenda includes work in marketing, food safety, agriculture cooperatives, and industrial organization.
- The *Agriculture and Public Health Gateway* provides research and dissemination on food policy related to public health and agriculture, environment and agriculture, crop production, sustainable agriculture, industrial food animal production, food safety, and labeling. The website has links to events, listservs, glossaries, and newsletters related to agriculture and public health.



## 4.0 BEST PRACTICE MODELS

This section provides an overview of food policies and programs from eight states. These states represent best practice models for the promotion of local food systems based on an extensive review of the research literature including governmental studies, peer reviewed journals, and stakeholder interviews.

### 4.1 California

The State of California has developed a number of food policies and programs. At this time, California has the highest number of local FPCs in operation. These include:

- Berkeley Food Policy Council
- California Food and Justice Coalition
- Contra Costa Food and Nutrition Policy Consortium
- Get Fit Fresno County
- LA Food and Justice Network
- Marin Food Policy Council
- Oakland Food Policy Council
- Pasadena Food Policy Council
- Sacramento Hunger Commission
- San Bernardino City Food Policy Council
- San Francisco Food Systems Council
- Santa Barbara Food System Network
- Santa Cruz Food System Network
- Sonoma County Food Matters
- West Contra Costa County Food Security Council
- Stanislaus Nutrition and Fitness Council

Yolo County Food Policy Council (North American Food Policy Council website)

In addition, California is home to a variety of non-profit local food organizations. One example is the Community Alliance with Family Farmers (CAFF), a member organization with local chapters across the state that promotes local food policies on a statewide level. Founded in 1978, the organization advocates for “family-scale agriculture that cares for the land and promotes social justice” (CAFF website). CAFF has developed a Buy Fresh Buy Local campaign to increase the marketing capacity of local farms and to provide new local outlets of family farm produce. In addition, it sponsors the California Growers Collaborative, a program that aggregates fruits and vegetables from family farmers that are too small to work with traditional distributors. The Collaborative markets the local produce to public and private grade schools, colleges, hospitals, and corporate cafeterias in the South Coast, Sacramento Valley, Fresno, and Central Coast regions (CAFF, California Growers). Due to CAFF and other organizations, California has been able to implement a number of very effective local foods programs across the state including 72 Farm-to-School programs involving a total of 411 schools from 20 districts (NFSN, California Profile).

There are also several local level initiatives in California. For example, in 2006, the Oakland City Council, Life Enrichment Committee unanimously passed a resolution authorizing, “the Mayor’s Office of Sustainability to develop an Oakland Food Policy and Plan for thirty percent local area food production, by undertaking an initial food system assessment study” (Mayor’s Office of Sustainability, Oakland Food System Assessment). One of the Assessment’s recommendations was to develop a Department of Food to advocate for local food and business development. Increasing food access in underserved areas was also cited as a priority (Unger and Wooten, 2006).

In July 2009, the Mayor of San Francisco issued Executive Order 09-03, entitled “Healthy and Sustainable Food for San Francisco”. The Order declared that “access to safe, nutritious, and culturally acceptable food is a basic human right and is essential to both human health and ecological sustainability” (Office of the Mayor [OM], 2009, p. 1). Additionally, the Order stated that sustainable food systems should “ensure nutritious food for all people, shorten the distance between food consumers and producers, protect workers’ health and welfare, minimize environment impacts, and strengthen connections between urban and rural communities” (OM, 2009, p. 1). Several guidelines were enumerated, including that whenever possible city resources will be used to purchase and promote regionally produced and sustainably-certified food. A FPC with representatives from city and county agencies, private stakeholder groups, and non-profit organizations was established to guide planning and coordination.

In 2010, the Los Angeles Food Policy Task Force produced a comprehensive assessment of the city’s food system, with policy and program recommendations. The assessment noted that agricultural production within a 200-mile radius of Los Angeles totaled \$12.6 billion, most of which was produced for national and international markets. The Task Force identified six priority areas: (1) promote a good food economy; (2) build a market for good food; (3) eliminate hunger in Los Angeles; (4) ensure equal access to good food in underserved communities; (5) grow good food in our neighborhoods; and (6) inspire and mobilize good food champions. The Task Force further recommended building a “Regional Food Hub” to support small and mid-sized growers, vendors and distributors, with a focus on creating green jobs and supporting entrepreneurship (Los Angeles Food Policy Task Force, 2010).

## **4.2 Illinois**

The State of Illinois took significant steps to promote local food systems by enacting the Local Food, Farms, and Jobs Act (Public Act 096-0579) in August 2009. This legislation stemmed from a 2009 report by the Illinois Local and Organic Food and Farm Task Force, which was charged with developing policy recommendations for the legislature (2009). The Act set forth the following goals:

- All state facilities, including universities, correctional facilities, and mental health and developmental disability facilities, shall purchase at least 20 percent of food from within the State of Illinois by 2020. These facilities shall track and report progress beginning in 2011.
- Facilities that are supported partially or wholly by state dollars (schools, hospitals, child care, etc.) shall purchase at least 10 percent of their food locally by 2020.



- Food contracts for state facilities shall be awarded to local providers if the price differential is no more than 10 percent higher than other conventional purchasing agreements.
- Increase total consumer purchases of local food to 10 percent by 2020.

The Act also created the Local Food, Farms, and Jobs Council to: facilitate the growth of an Illinois-based local farm and food product economy; revitalize rural and urban communities; promote healthy eating with access to fresh foods; create jobs; ensure a readily available supply of safe food in an emergency event; and support economic growth through making local farm or food products available to all Illinois citizens (Illinois General Assembly, 2009). In addition to this landmark legislation, Illinois has implemented a variety of local foods support programs including a local labeling program, the FNMP and SFMNP, and Farm to School programs.

### **4.3 Maryland**

According to National Farm to School Network, the State of Maryland's Jane Lawton Farm to School Program is the most successful statewide Farm to School program. All of the State's public school systems participate in the Program and more than 30 different farms support the Program (NFSN, Maryland Profile). Maryland law also allows schools to pay 5 percent above the lowest bid for local food grown in Maryland (Md. Code Ann. State Finance and Procurement § 14-407). A new Maryland law (Md. Code Ann. Tax Property § 9-253) authorizes local governments to provide a five-year property tax credit for land used for urban agricultural purposes.

The City of Baltimore's FPC (the Food Policy Task Force) serves as a platform for development of programs and policies related to local foods in Maryland's largest city. The following strategies are the Task Force's ten top priority actions are detailed in its 2009 report:

1. Expand and Promote Farmers' Markets
2. Expand and Promote Community Supported Agriculture
3. Support Continued Research on Food Deserts and Collaboration with Policymakers
4. Support a Central Kitchen Model for the Baltimore City Public School System
5. Support for Community Gardens and Urban Agriculture
6. Expand Supermarket Home Delivery Program
7. Improve the Food Environment around Schools and Recreation Centers
8. Support Street Vending of Healthy Foods
9. Create Healthy Food Zoning Requirements or Incentives
10. Develop a targeted marketing campaign to encourage Healthy Eating among all Baltimoreans (City of Baltimore, 2009)

In May 2010, the City of Baltimore became one of the few cities with "food czar," officially known as a Food Policy Director. The Director, funded by several foundations focused on public health issues, is charged with implementing the recommendations and strategies of the Task Force. The Virtual Supermarket Project was one of the first programs implemented by the Director (Cohn, M., May 11, 2010)

An initiative in Maryland, Hospitals for a Healthy Environment (H2E) is a technical assistance network that promotes environmental sustainability in health care, including serving locally grown foods in hospitals or other health care facilities. Co-sponsored by the Maryland Hospital Association, the Maryland Department of the Environment, the Maryland Nurses Association, the University of Maryland School of Nursing, and Health Care Without Harm, H2E has participation from 60 healthcare facilities (Maryland H2E, 2009). H2E programs include establishing neighborhood food stands near WIC clinics, Farm to Cafeteria programs, and local food deliveries to health care facilities. Over 16 hospitals/health care centers in Maryland have signed onto H2E's healthy food pledge (Maryland H2E, 2008; 2009).

#### **4.4 Michigan**

The State of Michigan has a set of laws that support the State's Farm to School programs (Michigan Compiled Laws: Public Acts 231; 315; 344; and 343). The laws require the Michigan Department of Education and Michigan Department of Agriculture (MDA) to educate food service directors in local food purchasing and staff a Farm to School liaison in the MDA to facilitate cross agency cooperation. Additionally, the laws ease restrictions on competitive bids for food purchases. Public Act 231 also provides tax incentives for food retailers in low income and rural communities that offer healthy food options, including local fresh foods.

The Michigan FPC is composed of 21 members and was established via Executive Order in 2005. In 2006, the Michigan FPC released a comprehensive report with 20 recommendations with several focusing on supporting local food systems (Michigan FPC, 2006). According to its Executive Director, the FPC has provided a successful forum for stakeholder discussions and collaboration. There is currently an effort to create regional and local councils, and one of the first of these has been established in Detroit. Other goals of the FPC include increasing fresh food access to underserved communities through the Michigan Neighborhood Food Movers Program, enhancing Farm to School Programs, and creating local procurement programs.

Michigan has also implemented a state labeling program called "Select Michigan". To be eligible, produce is required to be 100 percent produced in Michigan. Growers who meet this eligibility requirement can utilize a Select Michigan logo in their marketing. The program has resulted in a significant increase in the purchase of local produce. For example, Michigan asparagus sales increased 20 percentage points between 2002 and 2005. Moreover, the program is estimated to have been responsible for nearly 700 jobs with a 111 percent increase in sales of local products during its first year. Recent program evaluations show continuous annual increases in local agricultural sales, ranging from 5 to 20 percent. The program also educates consumers on the benefits of local foods and promotes the expansion of local product availability throughout the state, specifically targeting underserved areas. The creation of community gardens is also part of the program (Select Michigan, 2009). However, according to the Executive Director of the Michigan FPC, funding is a continuing issue that may jeopardize the future of this program.

#### **4.5 New Jersey**

The State of New Jersey's produce labeling program, "Jersey Fresh," has been in existence since 1983 (N.J.S.A. 4:10-18, 4:10-19.1). The intent of the program is to provide marketing and development assistance to the agricultural sector. In 2004, the New Jersey Department of Agriculture (NJDA) began a new marketing strategy to promote the sale of horticultural products under the "Jersey Grown" label, similar to the successful Jersey Fresh program. New Jersey has enacted several laws that support the Jersey Fresh label including the promotion and sale of Jersey Fresh products at service areas along certain toll roads (N.J.S.A. 27:23-48, 27:25A). The NJDA also has community outreach programs such as the Youth Farmstand Program, which teaches high school students about agriculture and provides them with experiential education through participating in local foods activities. In addition, New Jersey participates in the Buy Fresh Buy Local Program, FNMP and SFMNP programs, and has a highly successful Farm to School program.

#### **4.6 New York**

Enacted in 2002, New York State farm to school legislation facilitates school procurement of New York farm products and charges the Department of Education, and the Department of Agriculture and Markets (NYDAM) with working together to facilitate the purchase of New York farm products by schools, universities, and other educational institutions. The legislation also formalized the establishment of a New York Harvest for New York Kids Week to promote New York farm products (NFSN, New York Profile).

Established via an Executive Order by Governor David A. Paterson's in 2007, the New York State Council on Food Policy (NYS CFP) is comprised of representatives from agriculture, industry, public health, and government. The NYS CFP is responsible for making recommendations to the NYDAM and the Governor on funding and program priorities. Its mission is to ensure a coordinated and comprehensive inter-agency approach to state food policy and is responsible for issuing an annual report to the Governor (NYS CFP, 2009). The NYS CFP also supports community and school-based food security, direct marketing, and networking with the ultimate goal of improving local food production and distribution.

New York also has a successful Buy Fresh Buy Local program coordinated by the New York Sustainable Agriculture Working Group (NYSAWG, 2010). In addition to the statewide program, a regional program sponsored by the Watershed Agricultural Council has been established. This program is called "Pure Catskills" and its purpose is to "support the farmers that care for the land surrounding New York City's reservoirs" (Pure Catskills, 2009) and to achieve the larger goal of helping to preserve clean drinking water for New York City. Support for this project comes from W.K. Kellogg Foundation, Catskill Mountain Foundation, and the New York City Department of Environmental Protection (Buy Pure Catskills website).

To support low-income families' access to healthier foods, the State allows for the use of Electronic Benefits Transfer Cards (EBT) for the FMNP at farmers' markets in New York City. Through the Health Bucks program, families can receive additional vouchers at farmers' markets

— for every \$5 spent with the EBT card, an additional \$2 in Health Bucks is provided (New York City Council, 2009).

#### **4.7 Oregon**

Oregon has developed a unique community-based approach to supporting its local foods system. The State has established several farm-to-institution programs including a Farm to School program and an initiative that connects farmers with correctional facilities. Working closely with the Multnomah County Sustainability Initiative and the City of Portland in 2004, the Oregon FPC initiated a pilot project that encouraged county correctional facilities to purchase and track local produce purchases. This resulted in approximately \$57,000 (between 35 and 55 percent of the total) in purchases from local farms in Oregon and southwest Washington (City of Portland, 2006). Because of the success of the pilot project, the Multnomah County Sheriff's Office has since developed sustainability criteria and requirements in food service contracts to track local purchases of fresh produce, frozen produce, and dairy and eggs.

In 2008, , the non-profit organization, Ecotrust, piloted one of the first farm-to-preschool programs in the country in partnership with the Oregon Child Development Coalition (OCDC). The OCDC is an early childhood care and education network in Oregon annually serving over 3,000 children and families in need in 12 counties. The Farm to Childcare program creates networks between childcare facilities and local food producers and processors (Ecotrust website)).

#### **4.8 Pennsylvania**

The Pennsylvania Department of Agriculture (PDA) administers a variety of programs with local food components including: the State's FMNP and SFMNP, , the State Food Purchasing Program which provides food for emergency assistance and a required priority for Pennsylvania food products, the "Pennsylvania Preferred" labeling program, and a grant program to support farmers markets (PDA website). The PDA also administers Healthy Farms and Healthy Schools Program which provides grants to schools to nutrition education involving student participation and direct marketing initiatives for Pennsylvania farmers. This PDA program is based on the Kindergarten Initiative, a program designed by the Food Trust, which is a Philadelphia based non-profit organization. The Initiative promotes healthy eating habits from an early age by teaching young children and their parents about food, farms and nutrition as well as providing healthy fruit and vegetable snacks grown by local farmers (Food Trust website, "Kindergarten Initiative"). Due to the efforts of a variety of local governmental agencies and community organizations, 160 schools in 21 school districts in the state are involved with Farm to School programs.

The State has also implemented the Pennsylvania Fresh Food Financing Initiative (FFFI), which is a program designed to establish and retain supermarkets that offer fresh food in underserved neighborhoods. The program is public-private partnership — the Food Trust, the Trust Reinvestment Fund (TRF) and the Greater Philadelphia Urban Affairs Coalition work in partnership with the Pennsylvania Department of Community and Economic Development. The State appropriated \$30 million for FFFI, which leveraged an additional \$90 million through

private sources and TRF's New Markets Tax Credits allocation for a total of \$120 million available for several financing options for fresh food retailers in underserved areas. The FFFI offers grants and loans to qualified food retail enterprises for land acquisition financing, equipment financing, construction, and workforce development. As of June 2010, more than \$73 million in loans and \$12 million in grants have been approved for projects that are expected to bring 5,023 jobs and 1.67 million square feet of commercial space underserved neighborhoods (TRF, 2010).

Another statewide initiative is Pennsylvania's Buy Fresh Buy Local Program which is one of the most comprehensive programs in the U.S. and is coordinated by the Pennsylvania Association for Sustainable Agriculture (Pennsylvania Buy Fresh Buy Local website). On a more local level, Philadelphia is the first major city to adopt a municipal food charter. . The Philadelphia Food Charter was established in 2008 to facilitate the development of a sustainable city food and urban agriculture system. A comprehensive sustainable development plan, "Greenworks Philadelphia", was created by Mayor Nutter in 2009 and incorporated the goals of the Food Charter along with other local foods initiatives. One of the 15 targets of the plan is to "Bring Local Food Within 10 Minutes of 75 Percent of Residents." Along with other initiatives, Greenworks Philadelphia proposes to create 59 food-producing gardens, 12 farms and 15 farmers' markets in Philadelphia to meet its local good target (City of Philadelphia, 2009).



## **5.0 SURVEY OF DELAWARE STAKEHOLDERS**

This section provides an overview of key Delaware stakeholders' views regarding the current and future status of local food systems. Three methods were used to collect the data: an online survey; personal interviews; and a document review of relevant research reports.

### **5.1 Delaware Survey Results**

The project team conducted a survey in order to assess the current state of local food system operations in the State of Delaware. The survey was administered online using the Qualtrics software program. Participants in the survey sample were identified based on their stakeholder roles in the Delaware's food supply chain. A total of 61 individuals participated in the survey. The online survey was made available between January 1 and February 28, 2010 (See Appendix A). Respondents included farmers and growers (64 percent), restaurants (8 percent), retailers (4 percent) and institutional stakeholders such as hospitals and schools (10 percent). Summaries of the responses are provided below.

#### ***5.1.1 Farmers and Growers***

Delaware farmers and growers constituted 64 percent of total survey respondents. Most respondents indicated they produced more than one type of food commodity: 69 percent of respondents produced vegetables, 25 percent produced livestock, 22 percent produced poultry, and 3 percent produced milk and dairy products. 53 percent of respondents indicated they were also involved in another type of primary production such as flowers, etc.

Many farmers are marketing their products directly. 27 respondents (75 percent) indicated they sell their products to individual consumers; 16 respondents (44 percent) to a range of direct sales outlets such as farmers' markets, CSAs, etc.; 10 respondents (28 percent) to restaurants, and 8 respondents (22 percent) sold their produce to retail stores. 3 growers also sold their product for national or international markets.

When asked about current barriers or issues to further development of a regional local food system, respondents focused on both supply and demand side concerns. Two-thirds of respondents indicated that maintaining a consistent customer base was a significant issue. Approximately 50 percent of respondents indicated that the inability to provide a regular supply of product was problematic to customers. Twenty-seven percent of respondents identified an insufficient market potential for local foods in the Delaware and nearby states. Additional barriers identified included a lack of capital for expansion and a lack of distributors/distribution network.

Respondents indicated strong support for policies and programs that promote local food production. This included support for development and implementation of a local food council; development of a food distribution system that links local food producers to markets such as the farm to school initiatives; support for creating direct markets with local restaurants and institutions; creation of food distributors focused on local foods; expansion of farmers markets; Delaware labeling; financial incentives to improve access to lower cost capital, insurance, etc.; and greater public education about the benefits of local, healthy foods. These support

mechanisms were cited as important because of the competitive marketing and distribution advantages of large-scale producers. As one farmer stated, “customers are the ones who choose ... some will pay more for a locally grown perceived better product - but until something is done with the economics, the majority of people cannot afford to spend extra money on food.”

### ***5.1.2 Restaurant Owners***

3 out of 5 Delaware restaurant respondents indicated they are aware of local food production. 3 respondents indicated they currently buy products from local growers, and 2 others indicated they are considering buying local foods. Those who responded that they are currently buying local products also indicated they believe their customers value food that is locally grown and they utilize local foods as a marketing tool for their restaurant. Restaurant respondents also stated they are considering more local food options to their menu. Interest in participating in education and training on local foods however was mixed. Only 3 respondents indicated they would be interested in such participation.

A main barrier identified by restaurant stakeholders is the irregularity of supply, price volatility, and adequate number of local suppliers to meet their needs. No respondents listed food quality as a barrier. However, a concern cited in the purchasing local products was the need for local food to meet health standards and regulations. The principle recommendation by restaurant stakeholders was to develop better marketing information or labeling of local foods in the Delaware region.

### ***5.1.3 Retailer Stakeholders***

4 retailers responded to the survey. All 4 indicated they were aware of “buying local” initiatives and that they currently purchase locally. While these retailers displayed general support for local food production, they also indicated there are significant barriers. Among the barriers was uncertainty regarding the number of local food suppliers, adequate volume of local produce for retail markets, and regular availability of produce. One retailer stated that the most important factor in determining whether to purchase local products is “getting them in a large enough volume and packaged for retail.”

### ***5.1.4 Institutional Stakeholders (Hospitals and Schools)***

Nearly all the institutional survey respondents indicated knowledge and awareness of buy local initiatives (9). 4 are currently purchasing local foods and 4 indicated they are considering purchasing local foods. Of those institutions that currently purchase local foods, the most common local products are vegetables and fruits. The most common barriers cited by institutional stakeholders are irregular supply, inadequate volume to meet demand, cost of local foods, and finding local suppliers. Unlike restaurant stakeholders, institutional respondents indicated strong interest in participating in local foods training or education programs. They also showed an interest in collaboratively working with local farmers to facilitate greater institutional participation. Demonstration of their support is the fact that five of the institutional respondents stated they would be interested in hosting a farmers’ market. Institutional respondents specifically cited promotion of Farm to School programs and farmers’ markets as important mechanisms to support a local foods system. In addition, certification and labeling of establishments using local foods was recommended.



### 5.1.5 Summary

In order to assess how Delawareans perceived the benefits of local foods, survey respondents were asked to rate the benefits of local foods along the energy and environment, economic, and equity/health criteria. Equity/health considerations received the most number of top rankings, followed by economic development and job creation. Other benefits cited by respondents included community engagement, added viability of small farms, increased food security, improvements in food quality and variety, better relationships with food producers, and ethical considerations. Results are shown in Table 3.

**Table 3. Survey Response and Ranking of Benefits of Local Foods**

Category	Rank					
	1	2	3	4	5	6
Environment: Environmental conservation	3	8	6	12	3	1
Energy : Energy Saving, decrease transportation needs	3	4	7	10	8	1
Equity/Health : Affordable access to healthy foods	11	11	5	4	1	1
Economy : Job creation and local economic development	9	6	11	5	2	0
There is little importance in supporting local foods	1	0	2	1	8	21
Other	6	4	2	1	11	9

The survey also included an open-ended question asking respondents to identify or recommend state or local policies that would be useful for promoting a local foods system. A summary of the responses is below.

- The public is confused by the many conflicting voices declaring what is healthy food. The state could help by promoting food education for adults and children.
- Perhaps state institutions could use our tax dollars to purchase local food whenever possible.
- I do not think there needs to be any state policies to promote local food.
- Educating the general public when produce is "in season" would be helpful.
- I think that farmers are getting tired of state and local policies. We are weary of regulations and governmental involvement in our businesses.
- Schools should mandate the purchase of healthy local food for a certain percent of their menus.
- Make it easier for micro farmers to sell to state agencies and schools
- Relax the burdensome nutrient management program.
- Expand Farm to School — but it will have to start with cafeteria managers and workers willing to change their current routine of mainly using pre-sliced, pre-packaged items. It requires more labor to use unprocessed foods and a change in current cooking practices.
- More support on a federal level — small growers cannot compete with larger wholesale producers.
- Consumers are the ones who choose. Some will pay more for a locally grown perceived better product, but until the economics of food consumption is comprehensively addressed, many people cannot afford to spend extra money on food.

- Programs for local foods in public institutions as much as possible.
- A price incentive for local foods into State run feeding programs, i.e., schools, prisons, state hospitals.
- Free directory of farms or gardens ready or willing to produce goods. Education of the public on the economic, food security and environmental value of local food systems.
- Clear definition based mileage as to what is considered "local" food.
- Establish a campaign to promote local farmers markets, highlighting the quality and breadth of Delaware food products.
- Establish handling standards and legal sales program for raw dairy products. Delaware has many families travelling to Pennsylvania for these products.
- Clarify labeling (organic, local, natural, etc.).
- Better knowledge of what is being grown or available. A system to reach out to the end users about what is available.
- Department of Education and legislators endorsing the use of local foods.
- Ag-trader web sites of farmers markets

## 5.2 Delaware Interview Results

The project team conducted interviews with representatives from government agencies and nonprofit organizations to gain a baseline stakeholder perspective of the current local food system in Delaware. Interview subjects included representatives from the Delaware Department of Agriculture (DDA), the University of Delaware Cooperative Extension (DCE), the Fruit and Vegetable Grower Association of Delaware, the Delaware Organic Food and Farming Association (DOFFA), the Food Bank of Delaware, the Food Businesses Incubator at Delaware State University, and the Delaware Center for Horticulture (see Appendix B). This section summarizes the interview results.

### 5.2.1 Delaware Definition of “Local” Foods

Overall, there is consensus that a local food system should be defined regionally incorporating Delaware as well as adjoining geographic areas in Maryland, Pennsylvania, New Jersey and even Virginia. Because of Delaware’s small geographic size and the reality of regional food markets, a local food system should be defined beyond state boundaries (Ernest, 2010). On this point Mike Wellik, current president of DOFFA, emphasized that the geographic distance between the populated urban centers of Newark and Wilmington make local food distribution problematic for farmers located in the southern part of the state (2010). He further indicated that, on average, the market reach of Delaware farms is predominantly within a 50-mile radius. Most Delaware farmers use farmers markets and grocery stores to sell their produce.

### 5.2.2 Local Food Initiatives in Delaware

Interview respondents identified a number of programs and initiatives that support a local food system currently operating in Delaware. These include:

- The “**Local Food Processing Pilot Program**” which encourages on-farm or home food processing for “non-hazardous” foods (non-perishables such as jams, etc.). Recently there have been efforts to expand this program to include perishable foods, but this still requires Division of Public Health approval (Fitzgerald, 2010).

- The “**Food Business Incubator Center**” or “**Kitchen Incubator**” at Delaware State University has been in operation since 2008 and provides low-cost kitchen facilities for small business entrepreneurs to use for the production of food items for business (FBIC; Hynson, 2010).
- On March 5, 2010, the Departments of Agriculture, Education, and Health and Social Services signed a Memorandum of Understanding to develop and implement “**Farm to School**” Program. A similar initiative is underway with correctional institutions. DDA Secretary Kee stated that:

[I]n the long-run, 123,000 kids times 180 days per year equals 22 million meals per year. So, the hope is that enough private sector transactions will occur so that purchasing local may become commonplace for schools. We will try to let the market do it (Kee, 2010).

The Woodbridge School District’s successful farm to school program has grown in demand since its inception and may be a model for other schools to follow.

- The DDA, the Cooperative Extension Programs at the Delaware State University and the University of Delaware, and the University of Maryland’s Environmental Finance Center created web portals for local foods and agriculture suppliers. The “**Delaware Farm Market**” or **DEFoodtrader.org** is a virtual farmer’s market that connects buyers and sellers with local foods. The “Delaware Agriculture Exchange” or **DEAgtrader.org** is a free exchange for farmers and others to buy/sell/trade manure, compost, hay, fodder, fruits and vegetables, equipment, livestock, and more.
- **DOFFA** promotes and supports the growers of small organic and natural grown food in Delaware. Member farms are typically small and membership is not limited to organic farms. DOFFA is also involved with consumer outreach and education and helps farmers secure federal and state grants.
- The Food Bank of Delaware supports the distribution of fresh local foods. However, in practice, because the food bank relies on food donations, there are barriers to a consistent and adequate supply of local foods. There are examples of cooperative partnerships, such as the University of Delaware’s Garden for the Community, which is an initiative to grow produce to support the food bank exclusively (Beebe, 2010).
- The state has a number of established farmers’ markets (Johnson, 2010). The DDA promotes **Farmers’ Markets and Agricultural Tourism** through websites and promotional maps. In addition to serving as outlets for food produce, some farm markets also have educational workshops on nutrition or food preparation.
- Nemours Health and Prevention Services (NHPS) has implemented several programs and policies promoting local foods and increasing access to fruits and vegetables through farmer’s markets and in grocery stores. NHPS also promotes local and healthy foods at child care centers, schools, and out of school programs. NHPS has toolkits, research, and evaluations related to healthy foods.
- Camp Fresh. Camp Fresh provides an 8-week camp for minority youth and focused on development/healthy lifestyles program. This includes promoting access to healthy food in low-income urban areas such as Wilmington.
- The DDA Marketing Team supports programs such as “Grown with Care in Delaware”. the first local labeling program in Delaware.

### ***5.2.3 Barriers to Local Food Systems in Delaware***

The most prevalent issues raised by those interviewed were inconsistency of supply, lack of distributors tailored to local food suppliers, and inadequate pre-processing facilities. It was cited that many school kitchens are not equipped for fresh produce, and kitchen staff are often not trained to prepare fresh food. The price of local foods was cited as another impediment to the expansion of the local foods market in the region. Farmers cited transportation of food and the production and marketing costs associated with setting up farmer's market stands as barriers to direct marketing of food. For farmers in southern Delaware, the time and cost to transport produce to urban markets in the northern part of the state is a prohibitive. This barrier was identified by almost all interviewed, both non-government and government respondents. The sunk capital in infrastructure for large-scale monoculture/commodity crops inhibits smaller and more diverse crop production (German, 2010). For example, the existing processing, storage, and distribution systems and networks for commodity crops are not easily (or at all) adaptable to the small and diverse crops prevalent in local food systems. Barriers as seemingly simple as getting local crops to markets or institutional customers such as schools can be a difficult challenge/barrier for both farmers and customers.

### ***5.2.4 Opportunities for Local Food Systems in Delaware***

Interview respondents indicated that further research on the opportunities for promoting and implementing local foods systems in the region are important. Most respondents agreed that local food systems can provide economic opportunities for Delaware farmers. However, caution was also expressed in advancing local food policies that could interfere with competitive food markets at the regional, national and international level. DDA Secretary Kee explains:

[T]here are very few farmers in Delaware that can make a living selling 100 percent local foods. For Delaware agriculture to be healthy, it needs to be able to compete and have opportunities in the larger market. Delaware and the Delmarva Peninsula is a foodshed for the eastern United States. There are 100 million people within an eight-hour drive. I want farmers to be able to sell to local school districts and be profitable and I also want them to be able to compete in the larger market (nationally and internationally) and be profitable. More local is good, but local has to be done in conjunction with national tapestry of production technologies, marketing alternatives, and distribution programs (Kee, 2010).

Some interview respondents pointed out that Delaware has a rich history of fresh food production. For example, Delaware was a major provider of strawberries and peaches for the East Coast food markets during parts of the 19<sup>th</sup> and 20<sup>th</sup> centuries and that there was potential for the State to regain at least some of that status. These respondents further contended that small-scale farmers in Delaware retained the knowledge and ability to grow diverse crops, and combined with a growing number of direct marketers, there is potential for growth in local food production. One respondent offered the view that population growth in some Delaware counties presents a growing opportunity for small produce growers.

Addressing the food equity was also cited as an opportunity in the development of local food systems. For example, the proposed reauthorization of the federal Child Nutrition Act includes language promoting farmers markets. However, respondents also expressed concern that the benefit of federal programs such as the FMNP and SFMNP is limited for Delaware residents. Another initiative recommended by respondents included the establishment of a clearly defined Delaware FPC to help to promote and enhance local food system programs in Delaware.

Respondents further mentioned opportunities to build a local food system infrastructure including development of grower cooperatives to achieve the critical mass necessary to bring efficient, timely and adequate quantities of food to consumers. Improved distribution systems and networks for non-commodity crops and grower cooperatives would be particularly useful for Farm to Institution, Farm to School, and other direct marketing efforts. Programs that market local foods such as signage on major highways, buy local campaigns, and technical assistance and education for small farmers about the options of selling locally were also cited opportunities to help improve the market for Delaware agricultural products.

Policy recommendations included providing tax credits or other incentives for supermarkets and food retailers to offer local foods as well as incentives to support a local distribution system. Financial support for research that assists farmers and agricultural industries in staying competitive was another recommendation. Respondents recommended that food safety regulations be scaled to production systems size because of the undue burden these regulations can cause for small farms and small local food production.. Incentives for the establishment of farm stands, a more coordinated State planning effort to target the promotion of a local food system, and implementation of zoning ordinances for agriculture in urban counties were also offered as policy opportunities.



## 6.0 RECOMMENDATIONS

For a number of years, there has been growing concerns about food security, food safety, public health, and the environmental and economic impacts of the conventional food production and distribution systems in the U.S. These concerns have turned public attention to the development of alternative food production and distribution methods. This report provided a review of local foods initiatives and an analysis of the applicability of such initiatives for Delaware. The following are policy recommendations based on the research team's review of best practice models being implemented in a number of states as well as an analysis of Delaware stakeholder perspectives:

- **Public Awareness, Marketing, and Education**

There is opportunity for the State of Delaware to enhance public awareness of the benefits of locally produced foods through marketing and education including promoting Delaware's *Grown with Care* program. Stakeholder participation is an essential component of public awareness and education programs as well as broader local food planning efforts. Key stakeholders include consumers, farmers, distributors, food retailers and those who have not historically participated in healthy food practices.

- **State Food Policy Council**

Creation of a State Food Policy Council to facilitate state level planning and program implementation would provide a mechanism for stakeholder representation and coordination. Findings from the surveys and interviews indicate that stakeholders support such a mechanism in Delaware. States have implemented FPCs with great success could be used as models for designing FPCs for Delaware.

- **Promotion of Local Food Procurement/Farm to Institution.**

Institutional sourcing of local food can be an effective mechanism for supporting local food system systems. On the supply side, bulk purchasing supports shorter supply chains and on the demand side, institutions have access to fresher produce. Farm to School is one example of a program that has already taken root in the Delaware. Other institutions could include hospitals, colleges, hospitals, and government agencies. The State could assess the feasibility of legislation such as that enacted in Illinois and other states to promote state facility purchases of local foods.

- **Farm to School Program.**

Successful Farm to School programs in other states and localities indicate there are important health benefits for children. All school districts in Delaware participate in the program and continued support for the program provides, as Governor Markell stated, "economic benefit to Delaware farmers, Delaware's agricultural industry and Delaware's economy" (CapeGazette.com, 2010).

- **Farmers' Markets**

The popularity of farmers' markets continues to grow across the country provide an important outlet for the sale of locally produced foods. The Delaware Department of Agriculture (DDA) provides vendor information on farmers' markets throughout the state and continued State support for farmers' markets could provide local economic and health benefits.

- **Local Foods Distribution**

A key challenge for local food producers, particularly small operations, is the availability of distribution systems. Lower volume, accessibility, and seasonality are often cited as barriers for small farm operators. Further investigation into potential approaches such as cooperatives and financing mechanisms such as those implemented in the State of New York deserves further attention.

- **Federal FMNP and SFMNP**

While the Farmers' Market Nutrition Program (FMNP) and Senior Farmers' Market Nutrition Program (SFMNP) require the state to be responsible for a portion of the administrative costs, these programs are worthy of further consideration.

- **Foodshed Analysis**

Further research regarding the local food system potential for State of Delaware and the surrounding region could yield important information for legislators and policy makers.



## BIBLIOGRAPHY

- Access to Healthy Foods Coalition. (2006). *About Access*. Retrieved October 29, 2010, from [www.accesstohealthyfoods.org/index.php?page\\_id=22](http://www.accesstohealthyfoods.org/index.php?page_id=22)
- AgMap. (2009). *Welcome to AgMap*. Retrieved October 15, 2011 from: <http://agmap.psu.edu/>
- Alkon, A., Harper, A., Holt-Gimenez, E., & Lambrick, F. (2009). *Food Policy Councils: Lessons Learned*. Institute for Food and Development Policy. Retrieved from [www.foodfirst.org/files/pdf/Food%20Policy%20Councils%20Report%20small.pdf](http://www.foodfirst.org/files/pdf/Food%20Policy%20Councils%20Report%20small.pdf)
- Allen, P., FitzSimmons, M., Goodman, M., & Warner, K. (2003). Shifting Plates In The Agrifood Landscape: The Tectonics Of Alternative Agrifood Initiatives In California. *Journal of Rural Studies* 19, 61-75.
- American Farmland Trust. (no date). *Cleaning Up the Chesapeake Bay: Make Agriculture a Key Player*. Retrieved October 23, 2010 from: [www.farmland.org/programs/states/DE/default.asp](http://www.farmland.org/programs/states/DE/default.asp)
- American Planning Association. (2007, May). *Policy Guide on Community and Regional Food Planning*. American Planning Association May 11, 2007. Retrieved October 23, 2010, from [www.planning.org/policy/guides/pdf/foodplanning.pdf](http://www.planning.org/policy/guides/pdf/foodplanning.pdf)
- American Public Health Association (APHA). (2007). *Toward a Healthy, Sustainable Food System*. Retrieved October 10, 2010 from [www.apha.org/advocacy/policy/policysearch/default.htm?id=1361](http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1361)
- Anderson SA. (1990). Core Indicators of Nutritional State for Difficult-to-Sample Populations. *Journal of Nutrition*. 120, 1559–1600.
- Archer, D.W., Dawson, J., Kreuter, U.P., Hendrickson, M., & Halloran, J.M. (2008). Social and Political Influences on Agricultural Systems. *Renewable Agriculture and Food Systems* 23(4), 272-284.
- Beebe P. (2010, February 24). P ersonal communication.
- Beginning Farmers. (2010). *Tax Credit for Urban Agriculture Proposed in Maryland*. Retrieved October 15, 2010, from <http://beginningfarmers.org/tax-credit-for-urban-agriculture-proposed-in-maryland/>
- Behrens, A. (2010, March 25). *Maryland's Grocery Store Tax Credit Bill Could Improve Food Deserts*. [Web log message]. Retrieved from [www.livablefutureblog.com/2010/03/marylands-grocery-store-tax-bill-could-improve-food-deserts/](http://www.livablefutureblog.com/2010/03/marylands-grocery-store-tax-bill-could-improve-food-deserts/)
- Bengtsson J., Ahnstrom, J. & Weibull, A.C. (2005). The Effects of Organic Agriculture on Biodiversity and Abundance: A Meta-Analysis. *Journal of Applied Ecology* 42, 261-269.
- Berkley Food Policy Council. (no date) Website that presents online information in organic food. [www.berkeleyfood.org](http://www.berkeleyfood.org)
- Bloom, J.D., & Hinrichs, C.C. (2010). Moving Local Food Through Conventional Food System Infrastructure: Value Chain Framework Comparisons and Insights. *Renewable Agriculture and Food Systems*. doi:10.1017/S1742170510000384

- Brown, L. (2007). Distillery Demand for Grant to Fuel Cars Vastly Understated: World May Be Facing Highest Grain Prices in History. *Plan B Updates*. January 4. Retrieved October, 31, 2010, from [www.earth-policy.org/index.php?/plan\\_b\\_updates/2007/update63](http://www.earth-policy.org/index.php?/plan_b_updates/2007/update63)
- Brown, S.L., & Pitz, U.F. (1969). *U.S. Agriculture: Potential Vulnerabilities*. Stanford Research Institute, Menlo Park, California
- Buy Fresh Buy Local New York Local Food Guide (no date). *A Project of the New York Sustainable Working Group*. Retrieved October 15, 2010, from [www.foodroutes.org/bfbl-chapters.jsp#chapter-list](http://www.foodroutes.org/bfbl-chapters.jsp#chapter-list)
- Buy Pure Catskills. Website presenting information about sustainable agriculture in areas surrounding New York' City's reservoirs. [www.buypurecatskills.com/about\\_us.html](http://www.buypurecatskills.com/about_us.html)
- California Center for Public Health Advocacy (CCPHA). (no date). *Designed for Disease: the Link Between Local Food Environments and Obesity and Diabetes*. Retrieved October 15, 2010, from [www.publichealthadvocacy.org/designedfordisease.html](http://www.publichealthadvocacy.org/designedfordisease.html)
- California Department of Food and Agriculture. (no date). *Senior Farmers Market Nutrition Program*. Retrieved October 15, 2010, from [www.cdffa.ca.gov/seniorfarmersmrktnutritionprgm/](http://www.cdffa.ca.gov/seniorfarmersmrktnutritionprgm/)
- California Department of Public Health. (no date). *WIC Farmers Market Nutrition Programs*. Retrieved October 15, 2010 from [www.cdph.ca.gov/programs/wicworks/Pages/WICFarmersMarketNutritionProgram.aspx](http://www.cdph.ca.gov/programs/wicworks/Pages/WICFarmersMarketNutritionProgram.aspx)
- California Federation of Certified Farmers' Markets. (no date). An online market directory. [www.cafarmersmarkets.com/index.cfm](http://www.cafarmersmarkets.com/index.cfm)
- California Food and Justice Coalition. (2009). A website for the state-wide membership coalition on food and social justice. Retrieved October 17, 2010, from [www.cafoodjustice.org/](http://www.cafoodjustice.org/)
- Camp FRESH. (no date). Christiana Care's Eugene du Pont Preventive Medicine & Rehabilitation Institute. [www.christianacare.org/campfresh](http://www.christianacare.org/campfresh)
- Centers for Disease Control and Prevention. (2009). *State Indicator Report on Fruits and Vegetables, 2009*. Center for Disease Control and Prevention. Retrieved October 17, 2010, from [www.fruitsandveggiesmatter.gov/downloads/StateIndicatorReport2009.pdf](http://www.fruitsandveggiesmatter.gov/downloads/StateIndicatorReport2009.pdf)
- Center for Sustainable Systems, University of Michigan. (2009). "Carbon Footprints Factsheet." Pub. No. CSS09-05.
- Chang, H-H. Mishra, A.K., & Livingston, M. (2010). Agricultural Policy and Its Impact on Fuel Usage: Empirical Evidence From Farm Household Analysis. *Applied Energy*. 88, 348-353.
- City of Baltimore, Department of Planning. (2009). *Baltimore City Food Policy Task Force: Final Report and Recommendations*. Retrieved October 15, 2010, from <https://www.baltimorecity.gov/Government/AgenciesDepartments/Planning/FoodPolicyTaskForce/Downloads.aspx>
- City of Philadelphia. (2009). *Green Works Philadelphia*. Philadelphia Mayor's Office of Sustainability. [www.phila.gov/green/greenworks/2009-greenworks-report.html](http://www.phila.gov/green/greenworks/2009-greenworks-report.html)

- City of Portland. (2006). *School Food and Institutional Purchasing*. City of Portland Bureau of Planning and Sustainability. Retrieved October 15, 2010 from [www.portlandonline.com/bps/index.cfm?&a=123017&c=42294](http://www.portlandonline.com/bps/index.cfm?&a=123017&c=42294)
- Cohn, Meredith. (May 11, 2010) Baltimore Names Its First Food Czar. *The Baltimore Sun*. [http://articles.baltimoresun.com/2010-05-11/health/bs-hs-food-policy-director-20100511\\_1\\_food-czar-healthful-ebt-machines](http://articles.baltimoresun.com/2010-05-11/health/bs-hs-food-policy-director-20100511_1_food-czar-healthful-ebt-machines)
- Committee on Identifying and Assessing Unintended Effects of Genetically Engineered Foods on Human Health, National Research Council. (2004). *Safety of Genetically Engineered Foods: Approaches To Assessing Unintended Health Effects*. National Academies Press. Washington, D.C. [www.nap.edu/openbook.php?isbn=0309092094](http://www.nap.edu/openbook.php?isbn=0309092094)
- Community Alliance with Family Farmers (CAFF) *Programs: Farm to School. Buy Fresh Buy Local. California Growers Collaborative*. Retrieved October 15, 2010, from [www.caff.org/programs/](http://www.caff.org/programs/)
- Day-Farnsworth, L., McCown, B., Miller, M., & Pfeiffer A. (2009, December). *Scaling up: Meeting the Demand For Local Food*. University of Wisconsin Agriculture Innovation Center and the University of Wisconsin, Madison Center for Integrated Agricultural Systems.
- Delaware Organic Food and Farming Association, (DOFFA). (no date). [www.delawareorganics.com/home.html](http://www.delawareorganics.com/home.html)
- Delaware Governor's Energy Advisory Council. (2009). *Delaware Energy Plan: 2009-2014 (Draft)*. Retrieved September 17, 2010, from [www.dnrec.delaware.gov/energy/information/Documents/Energy%20Plan%20Council%20Report%20-%20Draft%20-%20202-26-09.pdf](http://www.dnrec.delaware.gov/energy/information/Documents/Energy%20Plan%20Council%20Report%20-%20Draft%20-%20202-26-09.pdf)
- Derden-Little, E. & Feenstra, G. (2006, May). *Regional Agricultural Marketing: a Review of Programs in California*. University of California, Agriculture and Natural Resources Sustainable Agriculture Research and Education Program. Retrieved September 17, 2010, from [www.sarep.ucdavis.edu/cdpp/foodsystems/stateExecSum.pdf](http://www.sarep.ucdavis.edu/cdpp/foodsystems/stateExecSum.pdf)
- DeWeerd S. (2009a, May/June). Is Local Food Better?. *World Watch Magazine*. 22(3), 6-10. [www.worldwatch.org/epublish/1/v22n3](http://www.worldwatch.org/epublish/1/v22n3)
- DeWeerd S. (2009b, July/August). Local Food: The Economics. *World Watch Magazine*, 22(4). 20-24. Retrieved October 17, 2010, from [www.worldwatch.org/node/6161](http://www.worldwatch.org/node/6161)
- Dimitri, C., Effland, A., & Conklin, N. (2005, June). The 20<sup>th</sup> Century Transformation of U.S. Agriculture and Farm Policy. U.S. Department of Agriculture (USDA). *Economic Information Bulletin (EIB)*, No. 3. Retrieved October 29, 2010, from [www.ers.usda.gov/publications/EIB3/eib3.pdf](http://www.ers.usda.gov/publications/EIB3/eib3.pdf)
- DuPuis, E.M, Goodman, D.(2005). Should We Go "Home" To Eat?: Toward a Reflexive Politics of Localism. *Journal of Rural Studies*, 21, 359-371
- Duram, L., & Oberholtzer, L. (2010). A Geographic Approach to Place and Natural Resource Use in Local Food Systems. *Renewable Agriculture and Food Systems*, 25(2), 99-108
- Ecotrust. (no date). Farms to Schools webpage. Retrieved October 29, 2010, from [www.ecotrust.org/farmtoschool/#](http://www.ecotrust.org/farmtoschool/#)

- Edwards-Jones, G. (2010). Does Eating Local Food Reduce the Environmental Impact of Food Production and Enhance Consumer Health? *Proceedings of the Nutrition Society. Symposium on Food Supply And Quality in a Climate-Changed World. Society for Experimental Biology and the British Society of Animal Science*. University of Reading, December 1, 2009.
- Ernest, E. (2010, February 4). Personal communication.
- Environmental Commons. (no date). *2008 Local Food Legislation Tracker*. Retrieved October 29, 2010, from <http://environmentalcommons.org/tracker2008.html>
- Feenstra, G. (1997). Local Food Systems and Sustainable Communities. *American Journal of Alternative Agriculture*, 12, 28-36.
- Fitzgerald, A.(2010, February 23). Personal communication.
- Food and Agricultural Organization of the United Nations (FAO). (2004). *The State of Agricultural Commodity Markets*. Retrieved October 15, 2010, from <ftp://ftp.fao.org/docrep/fao/007/y5419e/y5419e00.pdf>
- FAO. (no date). *Major Food and Agricultural Commodities and Producers: Commodities By Country*. Economic and Social Department. Retrieved October 15, 2010, from [www.fao.org/es/ess/top/country.html?lang=en&country=231&year=2005](http://www.fao.org/es/ess/top/country.html?lang=en&country=231&year=2005)
- Food Bank Council of Michigan. (no date). *Michigan Agricultural Surplus System*. Retrieved October 15, 2010, from [www.fbcmich.org/site/PageServer?pagename=programs\\_foodprograms\\_mass\\_index](http://www.fbcmich.org/site/PageServer?pagename=programs_foodprograms_mass_index)
- Food Bank of Delaware. (no date) <http://www.fbd.org/>
- Food Business Incubator Center, (FBIC). (no date) Delaware State University. [www.desu.edu/food-business-incubator-center](http://www.desu.edu/food-business-incubator-center)
- Food Trust. (no date). *Farm to School Program. The Kindergarten Initiative: A Healthy Start to a Healthy Life. Pennsylvania Fresh Food Financing Initiative: Providing Healthy Food Choices to Pennsylvania's Communities*. Retrieved November 20, 2010, from the "Our Projects" tab on [www.thefoodtrust.org/](http://www.thefoodtrust.org/)
- Foodhub. (no date). A website presenting information for regional food buyers and sellers. <http://foodhub.org>
- FoodRoutes Network. (no date). *Buy Fresh Buy Local Chapters*. Retrieved October 15, 2010, from [www.foodroutes.org/blinitiative.jsp](http://www.foodroutes.org/blinitiative.jsp)
- Foodshed Alliance. (no date). *Buy Fresh Buy Local*. Retrieved October 15, 2010, from [www.foodshedalliance.org/bfblhome.asp](http://www.foodshedalliance.org/bfblhome.asp)
- Frazao, E. (1996, January-April). The American Diet: A Costly Health Problem. *Food Review*, 2-6.
- Fresno County. (no date). *Get Fit Fresno County*. Retrieved October 15, 2010, from [www.co.fresno.ca.us/DivisionPage.aspx?id=26599](http://www.co.fresno.ca.us/DivisionPage.aspx?id=26599)

- Friedman A., Becker J, Freedman-Schnapp M., Parrott J., & Kramer B. (2007). *More Than a Link in the Food Chain: A Study of the Citywide Economic Impact of Food Manufacturing in New York City*. A report by New York Industrial Retention Network and Fiscal Policy Institute for the Mayor's Office of Industrial and Manufacturing Businesses.
- Friends of Family Farmers. (no date). *Friends of Family Farmers—Promoting and Protecting Socially Responsible Farming in Oregon*. Retrieved October 15, 2010, from [www.friendsoffamilyfarmers.org/](http://www.friendsoffamilyfarmers.org/)
- From the Heart of Washington (HOW). (no date). A website to promote Washington state food and agricultural products. [www.heartofwashington.com/index.html](http://www.heartofwashington.com/index.html)
- Galvez, M.P., Morland, K., Raines, C., Kobil,J., Siskind, J., Godbold, J., & Brenner, B. (2007). Race and Food Store Availability in an Inner-City Neighbourhood. *Public Health Nutrition*, 11(6), 624-631.
- German C. (2010, February 11). Personal communication.
- Getz, A. (1991). Urban Foodsheds. *Permaculture Activist*, VII (3), 26-27.
- Goland, C. & Bauer S. (2004). When the Apple Falls Close to the Tree: Local Food Systems and the Preservation of Diversity. *Renewable Agriculture and Food Systems*, 19(4), 228-236.
- GrowNYC. (no date). *Greenmarket Farmers' Markets*. Retrieved October 29, 2010, from <http://cenyc.org/greenmarket>
- Halweil, B. (2002) Farming in the Public Interest. *State of the World*. 51, 53-56.
- Halweil, B. (2002b). Home grown: The Case for Local Food in a Global Market. *Worldwatch Paper 163*, Danvers, MA: Worldwatch Institute.
- Haughton, B. (1987). Developing Local Food Policies: One City's Experiences. *Journal of Public Health Policy*, 8 (2), 180-191.
- Hedden, W.P. (1929). *How Great Cities Are Fed*. New York, NY: D.C. Heath and Company.
- Hendrickson, D., Smith, C., & Eikenberry, N. (2006). Fruit and Vegetable Access in Four Low-Income Food Deserts Communities in Minnesota. *Agriculture and Human Values*. 23 (3), 371-383.
- Holmgren, G.G., Meyer, M.W., Chaney, R.L., & Daniels, R.B. (1993). Cadmium, Lead, Copper, and Nickel in Agricultural Soils of the United States Of America. *Journal of Environmental Quality*, 22, 335-348.
- Hoppe, R. A. (2010). U.S. Farm Structure: Declining—But Persistent—Small Commercial Farms. *AmberWaves*, Retrieved October 29, 2010, from [www.ers.usda.gov/AmberWaves/September10/Features/USFarm.htm](http://www.ers.usda.gov/AmberWaves/September10/Features/USFarm.htm)
- Hoppin, J.A., Umbach, D.M., London S.J., Henneberger, P.K., Kullman, G.J., Alavanja, M.C.R., & Sandler, D.P. (2007). Pesticides and Atopic and Non-Atopic Asthma Among Farm Women in the Agricultural Health Study. *American Journal of Respiratory Critical Care Medicine*. 177 (1), 11-18.

- Horowitz, J., Gottlieb, J. (2010). The Role of Agriculture in Reducing Greenhouse Gas Emissions. *Economic Brief Number 15*. USDA, Economic Research Service (ERS).  
[www.ers.usda.gov/Publications/eb15/](http://www.ers.usda.gov/Publications/eb15/)
- Huang, E.S., Basu, A., O'Grady, M., & Capretta, J.C. (2009, December). Projecting the Future Diabetes Population Size and Related Costs for the U.S. *Diabetes Care*. 32(12), 2225-2229.
- Hynson A.S. (2010, February). Personal communication.
- Ibery, B., & Maye, D. (2006). Retailing Local Food In The Scottish-English Borders: A Supply Chain Perspective. *Geoforum*. 37, 352-367.
- Illinois Department of Agriculture. (no date). *Farmers' Markets. Illinois Local and Organic Food and Farm Task Force. Illinois Organic Certification Cost-Sharing Program. Illinois Products Logo Program. What's in Season*. Retrieved October 29, 2010, from [www.agr.state.il.us/](http://www.agr.state.il.us/)
- Illinois General Assembly. (2009, August). *Local Food, Farms, and Jobs Act, Public Act 086-0579*. Retrieved October 29, 2010, from [www.ilga.gov/legislation/publicacts/fulltext.asp?Name=096-0579](http://www.ilga.gov/legislation/publicacts/fulltext.asp?Name=096-0579)
- Illinois Local and Organic Food and Farm Task Force. (2009, March). *Local Food Farms and Jobs: Growing the Illinois Economy, A Report to the Illinois General Assembly*. Retrieved October 29, 2010, from [www.foodfarmsjobs.org/](http://www.foodfarmsjobs.org/)
- Institute for Local Self Reliance. (no date). *Locally Grown Labeling – Vermont*, Retrieved November 11, 2010, from New Rules Project website: [www.newrules.org/agriculture/rules/placeoforigin-labeling/locally-grown-labeling-vermont](http://www.newrules.org/agriculture/rules/placeoforigin-labeling/locally-grown-labeling-vermont)
- Intergovernmental Panel on Climate Change (IPCC). (2007). IPCC Fourth Assessment Report: Climate Change. Retrieved November 11, 2010, from [www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch2s2-3-3.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-3-3.html)
- Iowa State University Extension. (1999). *Local Food Systems for Iowa*. Retrieved October 15, 2010, from [www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3010392](http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELDEV3010392)
- Jaenicke, E. (1998, October). *From the Ground Up: Exploring Soil Quality's Contribution to Environmental Health*. Henry A. Wallace Institute for Alternative Agriculture. Retrieved October 17, 2020, from [www.winrock.org/wallace/wallacecenter/documents/pspr10.pdf](http://www.winrock.org/wallace/wallacecenter/documents/pspr10.pdf)
- Johnson G. (2010, February 15). Personal communication.
- Kansas Rural Center. (no date) *Human Health Task Force*. A website presenting information on the Kansas Food Policy Council. Retrieved September 17, 2010, from [www.kansasruralcenter.org/health.html](http://www.kansasruralcenter.org/health.html)
- Kaufman, P. (2009). Density of Farmers' Markets Highest In Rural Counties. *Amber Waves*, 8(4), 52.
- Kee E. (2010, March 3). Personal communication.
- Kirschenmann, F. (2010). Alternative Agriculture in an Energy- and Resource-Depleting Future. *Renewable Agriculture and Food Systems*, 25(2), 85-89.
- Kleiman, J. (2009). Local Food and the Problem of Authority. *Technology and Culture*, 50(2), 399-417.



- Kloppenborg, J. Jr, Hendrickson, J. & Stevenson, G. (1996). Coming Into the Foodshed. *Agriculture and Human Values*, 12(3), 33-42.
- Lee, R. & Marsden, T. (2009). The Globalization and Re-Localization of Material Flows: Four Phases of Food Regulation. *Journal of Law and Society*, 36(1), 129-144.
- Los Angeles Food Policy Task Force. (2010, July). *The Good Food for All Agenda: Creating a New Regional Food System for Los Angeles*. Retrieved from [http://goodfoodlosangeles.files.wordpress.com/2010/07/good-food-full\\_report\\_single\\_072010.pdf](http://goodfoodlosangeles.files.wordpress.com/2010/07/good-food-full_report_single_072010.pdf)
- Mabli, J., Cohen, R., Potter, F. & Zhao, Z. (2009). *Hunger in America 2010: Local Report Prepared for the Food Bank of Delaware*. Mathematic Policy Research: Princeton, New Jersey.
- Mariola, M.J. (2008). The Local Industrial Complex? Questioning the Link Between Local Foods and Energy Use. *Agriculture and Human Values*, 25, 193-196.
- Marland, K. & Filomena, S. (2007). Disparities in the Availability of Fruits and Vegetables Between Racially Segregated Urban Neighbourhoods. *Public Health Nutrition*, 10(12), 1481-1489.
- Marris C. (2001, July 7). Public Views on GMOs: Deconstructing the Myths. *European Molecular Biology Organization, Science and Society*. 2(7), 545-548.
- Martinez, S., Hand, M., Da Pra, M., Pollack, S., Ralston, K., Smith T., Vogel, S., Clark, S., Lohr, L., Low, S., & Newman, C. (2010, May). Local Food Systems: Concepts, Impacts and Issues. *Economic Research Report, No. 97*. USDA, ERS. [www.ers.usda.gov/Publications/ERR97/ERR97.pdf](http://www.ers.usda.gov/Publications/ERR97/ERR97.pdf)
- Maryland Hospitals for a Healthy Environment (H2E). (2008, October). *Maryland H2E News Round Up*. Retrieved September, 17, 2010, from [www.h2e-online.org/docs/mdh2e/MDH2EOct2008.pdf](http://www.h2e-online.org/docs/mdh2e/MDH2EOct2008.pdf)
- Maryland H2E. (2009, December). *Maryland H2E News Round Up*. Retrieved September 17, 2010, from <http://e-commons.org/mdh2e/files/2010/01/MD-H2E-December-2009-Newsletter.pdf>
- Mayor's Office of Sustainability. (no date). *Oakland Food System Assessment*. Retrieved September 17, 2010, from <http://oaklandfoodsystem.pbworks.com/w/page/7498248/FrontPage>
- McFerron, W., Wilson, J., & Singh S.D. (2010, October 18). Crop Surge Drives U.S. exports as Obama Channels Iowa. *Bloomberg Business Week*. Retrieved October 29, 2010, from [www.businessweek.com/news/2010-10-18/crop-surge-drives-u-s-exports-as-obama-channels-iowa.html](http://www.businessweek.com/news/2010-10-18/crop-surge-drives-u-s-exports-as-obama-channels-iowa.html)
- McGray, D. (2009, October 7). California's Food Banks Go Locavore. *New York Times*. Retrieved October 5, 2010, from [www.nytimes.com/2009/10/11/magazine/11banks-t.html?\\_r=2](http://www.nytimes.com/2009/10/11/magazine/11banks-t.html?_r=2)
- McLaughlin A., & Mineau P. (1995). The Impact of Agricultural Practices on Biodiversity. *Agriculture, Ecosystems, and Environment*, (55)3, 201-212.
- McWilliams, J.E. (2007, August 6). Food That Travels Well. *New York Times*. Retrieved October 19, 2009, from [www.nytimes.com/2007/08/06/opinion/06mcwilliams.html](http://www.nytimes.com/2007/08/06/opinion/06mcwilliams.html)

- Michigan Department of Agriculture (MDA). (no date). Michigan Farm Market and Agricultural Tourism Directory. Retrieved October 2, 2010, from [www.michigan.gov/mda/0,1607,7-125-1570\\_2468\\_30432---,00.html](http://www.michigan.gov/mda/0,1607,7-125-1570_2468_30432---,00.html)
- Michigan Farm to School. (no date). Retrieved October 2, 2010, from [www.mifarmtoschool.msu.edu/](http://www.mifarmtoschool.msu.edu/)
- Michigan Food Policy Council. (2006, October 12). *Michigan Food Policy Council: Report of Recommendations*. Retrieved October 2, 2010, from [www.michigan.gov/documents/mda/MFPC\\_Report\\_2006\\_174216\\_7.pdf](http://www.michigan.gov/documents/mda/MFPC_Report_2006_174216_7.pdf)
- Michigan Office of Services to the Aging. (2009). *Overview of Senior Project FRESH*. Retrieved October 2, 2010, from [www.michigan.gov/miseniors/0,1607,7-234-43880\\_43343-165839--,00.html](http://www.michigan.gov/miseniors/0,1607,7-234-43880_43343-165839--,00.html)
- Michigan State University. (2009, October 28). MSU Extension for the 21<sup>st</sup> Century Will Move Michigan Forward. *Michigan State University News*. Retrieved October 2, 2010, from <http://news.msu.edu/story/7031/>
- National Association of County and City Health Officials. (2009, April 17). New Report Calls for Stronger State and Local Food Safety Roles; New Links to Federal Reform Efforts. *Press Release*. Retrieved September 29, 2010, from [www.naccho.org/press/releases/0417.cfm](http://www.naccho.org/press/releases/0417.cfm)
- National Farm to School Network (NFSN). (no date). *Pennsylvania Profile. Maryland Profile. California Profile. New York Profile. Illinois Profile. Michigan Profile*. Retrieved October 15, 2010, from [www.farmtoschool.org](http://www.farmtoschool.org)
- National Resources Defense Council. (2005, July 15). *Pollution From Giant Livestock Farms Threatens Public Health*. Retrieved October 20, 2010, from [www.nrdc.org/water/pollution/nspills.asp](http://www.nrdc.org/water/pollution/nspills.asp)
- New Jersey Farm to School Network. (2009). A website presenting information on New Jersey farm to school programs. Retrieved October 2, 2010, from [www.njfarmtoschool.org/](http://www.njfarmtoschool.org/)
- New Jersey Farmers Direct Marketing Association. (no date). Market directory. Retrieved October 2, 2010, from [www.njfarmmarkets.org/markets/](http://www.njfarmmarkets.org/markets/)
- New Jersey Food Council. (no date). A website presenting information on New Jersey food policy issues and programs. Retrieved October 2, 2010, from [www.njfoodcouncil.com/](http://www.njfoodcouncil.com/)
- New York Farm Viability Institute. (no date). A website presenting information on farming resources in New York. Retrieved October 29, 2010, from [www.nyfvi.org/default.aspx?PageID=2272](http://www.nyfvi.org/default.aspx?PageID=2272)
- New York City Department of Health and Mental Hygiene. (no date). *Working with Farmers' Markets*. Retrieved September 17, 2010, from [www.nyc.gov/html/doh/html/cdp/cdp\\_pan\\_health\\_bucks.shtml](http://www.nyc.gov/html/doh/html/cdp/cdp_pan_health_bucks.shtml)
- New York State Council on Food Policy. (2008). A website of the New York State Council on Food Policy. Retrieved October 29, 2010, from [www.nyscfp.org/](http://www.nyscfp.org/)
- New York State Department of Health. (no date) *Farmers' Market Nutrition Program*. Retrieved October 15, 2010 from [www.health.state.ny.us/prevention/nutrition/fmnp/](http://www.health.state.ny.us/prevention/nutrition/fmnp/)



- New York Sustainable Agriculture Working Group (NYSAWG). (2010). A website presenting information about sustainable agriculture and food systems. Retrieved October 2, 2010, from [www.nysawg.org/](http://www.nysawg.org/)
- Nord, M. (2009, September). Food Insecurity in Households With Children: Prevalence, Severity, and Household Characteristics. USDA EIB, No. 56. [www.ers.usda.gov/publications/EIB56/](http://www.ers.usda.gov/publications/EIB56/)
- North American Food Policy Council. (no date). *How Food Policy Councils Are Organized And Operate*. Retrieved October 29, 2010, from [www.foodsecurity.org/FPC/HowFoodPolicyCouncilsAreOrganizedandOperate.pdf](http://www.foodsecurity.org/FPC/HowFoodPolicyCouncilsAreOrganizedandOperate.pdf)
- Oak Ridge National Laboratory (ORNL). (2009, February). New ORNL Tool Gets Handle on Cropland CO2 Emissions. *News Release*. Retrieved October 27, 2010, from [www.ornl.gov/info/press\\_releases/get\\_press\\_release.cfm?ReleaseNumber=mr20090209-00](http://www.ornl.gov/info/press_releases/get_press_release.cfm?ReleaseNumber=mr20090209-00)
- Oakland Food Policy Council. (no date). A website on Oakland's Food Policy Council activities and programs. Retrieved September 13, 2010, from [www.oaklandfood.org](http://www.oaklandfood.org)
- Office of the Mayor, City of San Francisco. (2009) Executive Order 09-03, Healthy and Sustainable Food for San Francisco. [www.sfgov3.org/ftp/uploadedfiles/sffood/policy\\_reports/MayorNewsomExecutiveDirectiveonHealthySustainableFood.pdf](http://www.sfgov3.org/ftp/uploadedfiles/sffood/policy_reports/MayorNewsomExecutiveDirectiveonHealthySustainableFood.pdf)
- Olmstead, J. (2009). *U.S. Climate Policy and Agriculture*. Institute for Agriculture and Trade Policy: Minneapolis, MN. Retrieved September 17, 2010, from [www.iatp.org/iatp/publications.cfm?refid=106994](http://www.iatp.org/iatp/publications.cfm?refid=106994)
- Ondersteijn, C.J.M. (2004, October 22-24). *Proceedings of the Frontis Workshop on Quantifying the Agri-Food Supply Chain*. Wageningen, the Netherlands. Retrieved October 17, 2010, from [http://library.wur.nl/frontis/quantifying\\_supply\\_chain/index.html](http://library.wur.nl/frontis/quantifying_supply_chain/index.html)
- Ongley, E. D. (1996). Control of Water Pollution From Agriculture. *FAO Irrigation and Drainage Paper*, 55. Retrieved September 15, 2010, from [www.fao.org/docrep/w2598e/w2598e00.HTM](http://www.fao.org/docrep/w2598e/w2598e00.HTM)
- Ontario Ministry of Agriculture, Food & Rural Affairs. (1987). *Soil erosion - Causes and effects, Factsheet*. Retrieved September 15, 2010, from [www.omafr.gov.on.ca/english/engineer/facts/87-040.htm#Vegetation](http://www.omafr.gov.on.ca/english/engineer/facts/87-040.htm#Vegetation)
- Oregon Department of Agriculture (ODA). (no date). *Oregon Farm Direct Nutrition Program*. ODA Agricultural Development and Marketing Division. Retrieved September 15, 2010, from [http://oregon.gov/ODA/ADMD/farm\\_direct.shtml](http://oregon.gov/ODA/ADMD/farm_direct.shtml)
- ODA. (2009). *Specialty Crop Grant Program*. Retrieved September 15, 2010, from [www.oregon.gov/ODA/grants\\_spec\\_crops.shtml](http://www.oregon.gov/ODA/grants_spec_crops.shtml)
- Oregon State University Extension Service. (2007). *Small Farms*. Retrieved September 15, 2010, from <http://smallfarms.oregonstate.edu/>
- Osman, N.D. & Wallinga, D. (2009, August). *Smart Guide: Hormones in the Food System*. Institute for Agriculture and Trade Policy: Minneapolis, Minnesota.

- Parker-Pope, T. (2008, June 7). Boosting Health with Local Food. *New York Times*. Retrieved September 15, 2010, from: <http://well.blogs.nytimes.com/2008/06/06/boosting-health-with-local-food/>
- Pennsylvania Association for Sustainable Agriculture. (no date). A website that presents information about sustainable farming for Pennsylvania. Retrieved November 2, 2009, from: [www.pasafarming.org/inside-pasa/mission-history](http://www.pasafarming.org/inside-pasa/mission-history)
- Pennsylvania Buy Fresh Buy Local. (no date). A website that presents online information about local food systems in Pennsylvania. Retrieved September 15, 2010, from <http://www.buylocalpa.org/about/northwest>
- Pennsylvania Department of Agriculture (PDA). (no date). *Healthy Farms and Healthy Schools Grant Program. State Food Purchase Program (SFPP). The Farmers Market Nutrition Program (FMNP) and Senior Farmers Market Nutrition Program (SFMNP)*. Retrieved September 17, 2010, from ("Search By Program Name") [www.portal.state.pa.us/portal/server.pt/gateway/PTARGS\\_0\\_2\\_24476\\_10297\\_0\\_43/AgWebsite/ProgramSearch.aspx?navid=12&parentnavid=0&](http://www.portal.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/ProgramSearch.aspx?navid=12&parentnavid=0&)
- Pennsylvania Preferred. (No date). A website presenting information on Pennsylvania food labeling program. Retrieved September 17, 2010, from [www.papreferred.com/default.aspx](http://www.papreferred.com/default.aspx)
- Pennsylvania State University, College of Agricultural Sciences. (No date). *Economic and Community Development*. Retrieved September 17, 2010 from [www.economicdevelopment.psu.edu/New%20Site/programs.html](http://www.economicdevelopment.psu.edu/New%20Site/programs.html)
- Peters, C.J., Bills, N.L., Lembo, A.J., Wilkins, J.L., & Fick, G.W. (2008a). Mapping Potential Foodsheds in New York state: A Spatial Model for Evaluating the Capacity to Localize Food Production. *Renewable Agriculture and Food Systems*, 24(1), 72-84.
- Peters, C.J., Bills, N.L., Wilkins, J.L., & Fick, G.W. (2008b). Foodshed Analysis and its Relevance to Sustainability. *Renewable Agriculture and Food Systems*, 24(1) 1- 7.
- Pimentel, D., Markein, A., Toth, M.A., Karpoff, N.N., Paul, G.S., McCormack, R., Kyriazis, J., & Krueger, T. (2009). Food Versus Biofuels: Environmental and Economic Costs. *Human Ecology*, 37, 1-12
- Pirog, R. (2005, March). *Calculating Food Miles for a Multiple Ingredient Food Product*. Leopold Center for Sustainable Agriculture (LCSA). Iowa State University (ISU): Ames, Iowa. [www.leopold.iastate.edu/pubs/staff/files/foodmiles\\_030305.pdf](http://www.leopold.iastate.edu/pubs/staff/files/foodmiles_030305.pdf)
- Pirog, R. (2001). *Checking the Food Odometer: Comparing Food Miles for Local Versus Conventional Produce Sales to Iowa Institutions*. LCSA. ISU. [www.leopold.iastate.edu/pubs/staff/files/food\\_travel072103.pdf](http://www.leopold.iastate.edu/pubs/staff/files/food_travel072103.pdf)
- Pothukuchi, K. (2007). *Building Community Food Security: Lessons From Community Food Projects, 1999-2003*. Community Food Security Coalition: Los Angeles, California. Retrieved from [www.foodsecurity.org/BuildingCommunityFoodSecurity.pdf](http://www.foodsecurity.org/BuildingCommunityFoodSecurity.pdf)
- Pretty, J. (2001). Some Benefits and Drawbacks of Local Food Systems. *Briefing Note for TVU/Sustain AgriFood Network*, 1.

- Ragland E. and Tropp D., (2009). *USDA National Farmers' Market Managers Survey 2006*. Marketing Services Division USDA Agricultural Marketing Service.  
[www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5077203&acct=wdmgeninfo](http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5077203&acct=wdmgeninfo)
- Samanic C.M. De Roos A.J., Stewart, P.A., Rajaraman, P., Waters, M.A., & Inskip, P.D. (2008. April 15). *American Journal of Epidemiology*, 167(8), 976-85.
- San Francisco Food System. (no date). A website presenting information about San Francisco food systems. Retrieved September 17, 2010, from [www.sffoodsystems.org](http://www.sffoodsystems.org)
- Sanger, K. & Zenz, L. (2004). *Farm-to-Cafeteria Connections*. Washington State Department of Agriculture, Small Farm and Direct Marketing Program. Retrieved September 17, 2010, from <http://agr.wa.gov/Marketing/SmallFarm/docs/102-FarmToCafeteriaConnections-Web.pdf>
- Sayre, L. (no date). *Organic Farming Combats Global Warming – Big Time*. Rodale Institute. Retrieved September 17, 2010, from [www.rodaleinstitute.org/ob\\_31](http://www.rodaleinstitute.org/ob_31)
- Select Michigan. (2009). *Select Michigan*. Retrieved September 17, 2010, from [www.michigan.gov/documents/mda/SMBrochure\\_258749\\_7.pdf](http://www.michigan.gov/documents/mda/SMBrochure_258749_7.pdf)
- Smith, Malcom A. (2009, June 4). *Senate Facilitates Small "Food" Business Growth*. New York State Senate. Retrieved September 17, 2010, from [www.nysenate.gov/press-release/senate-facilitates-small-food-business-growth](http://www.nysenate.gov/press-release/senate-facilitates-small-food-business-growth)
- Sommer, J. E., Hoppe, R., Green, R.C. & Korb., P.M. (1998, Decmber). *Structural and Financial Characteristics of U.S. Farms, 1995: 20th Annual Family Farm Report to Congress*. USDA. ERS. Retrieved October 10, 2010, from [www.ers.usda.gov/publications/aib746/](http://www.ers.usda.gov/publications/aib746/)
- State of Maryland. (2009, July 16). Governor, Lady O'Malley Host Second Annual "Buy Local" Cookout. *Press Release*. Retrieved September 17, 2010, from [www.governor.maryland.gov/pressreleases/090716b.asp](http://www.governor.maryland.gov/pressreleases/090716b.asp)
- State of Vermont. (2006, August 15). *Governor Urges Vermonters To Buy Local*. Retrieved October 17, 2010, from State of Vermont website  
<http://governor.vermont.gov/tools/index.php?topic=GovPressReleases&id=2027&v=Article>
- Stephenson, G., Lev L. (2004). Common Support for Local Agriculture in Two Contrasting Oregon Communities. *Renewable Agriculture and Food Systems*, 19 (4), 210-217.
- Stringer, S.M. (2009, February). Food in the Public Interest: How New York City's Food Policy Holds the Key to Hunger, Health, Jobs and the Environment. Retrieved September 17, 2010, from [www.mbpo.org/uploads/FoodInThePublicInterest.pdf](http://www.mbpo.org/uploads/FoodInThePublicInterest.pdf)
- Swenson, D. (2009, September). *Investigating the Potential Economic Impacts of Local Foods for Southeast Iowa*. LCSA. ISU. Retrieved September 17, from [www.leopold.iastate.edu/research/marketing\\_files/seiowa.html](http://www.leopold.iastate.edu/research/marketing_files/seiowa.html)
- The Reinvestment Fund (TRF). (2010). *Pennsylvania Fresh Food Financing Initiative*. Retrieved September 17, 2010, from [www.trfund.com/financing/realestate/FreshFoodFinancing.html](http://www.trfund.com/financing/realestate/FreshFoodFinancing.html)

- Tilman D., Cassman K.G., Matson P.A., Naylor R., & Polasky S. (2002) Agricultural Sustainability and Intensive Production Practices. *Nature*, 418, 671-677.
- Timmons D., Wang Q., & Lass D. (2008). Local Foods: Estimating Capacity. *Journal of Extension*, 46 (5).
- Treuhaft, S., Hamm, J.J. & Litjens, C. (2009). *Healthy Food For All: Building Equitable and Sustainable Food Systems in Detroit and Oakland*. PolicyLink and Michigan State University. [www.community-wealth.org/news/recent-articles/09.html](http://www.community-wealth.org/news/recent-articles/09.html)
- Troell, P. Woodbury, & Zens. S. (2000). The Risks and Benefits of Genetically Modified Crops: A Multidisciplinary Perspective. *Conservation Ecology*, 4(1), 13.
- Unger, S. & Wooten, H. (2006, May 24). *A Food Systems Assessment for Oakland, California: Toward a Sustainable Food Plan*. Oakland Mayor's Office of Sustainability and University of California, Berkeley. <http://oaklandfoodsystem.pbworks.com>
- University of Illinois Extension (UIE). (no date). *Stephenson County Local Foods Initiative*. Retrieved September 2, 2010, from <http://web.extension.uiuc.edu/stephenson/localfoods/index.html>
- UIE. (no date). *Winnebago County Local Foods Initiative*. Retrieved September 2, 2010, from <http://web.extension.uiuc.edu/winnebago/localfood/>
- Urban Partners. (2007, December). *Farming in Philadelphia: Feasibility Analysis And Next Steps. Prepared For The Institute For Innovations In Local Farming*. Retrieved September 17, 2010, from [www.spinfarming.com/common/pdfs/STF\\_inst\\_for\\_innovations\\_exec\\_summary\\_dec07.pdf](http://www.spinfarming.com/common/pdfs/STF_inst_for_innovations_exec_summary_dec07.pdf)
- U.S. Department of Agriculture (USDA). 2000. *Agricultural Fact Book, 2000*. Washington, D.C.: U.S. Government Printing Office. Retrieved October 22, 2010, from the USDA website: [www.usda.gov/news/pubs/fbook00/contents.htm](http://www.usda.gov/news/pubs/fbook00/contents.htm)
- USDA. (2010). *Fresh Fruit & Vegetable Program Handbook*. USDA Food and Nutrition Service. [www.fns.usda.gov/cnd/ffvp/default.htm](http://www.fns.usda.gov/cnd/ffvp/default.htm)
- USDA. (no date). *Know Your Farmer, You're Your Food*. Retrieved September 2010, from [www.usda.gov/wps/portal/knowyourfarmer?navtype=KYF&navid=KYF\\_MISSION](http://www.usda.gov/wps/portal/knowyourfarmer?navtype=KYF&navid=KYF_MISSION)
- USDA. (2002). Profiling Food Consumption in America. *Agriculture Fact Book, 2001-2002*. Retrieved October 17, 2010, from [www.usda.gov/factbook/chapter2.htm](http://www.usda.gov/factbook/chapter2.htm)
- USDA. Agricultural Statistics Service. (2007). *2007 Census of Agriculture: Economics*. Retrieved October 15, 2010, from [www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Fact\\_Sheets/economics.pdf](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/economics.pdf)
- USDA. Economic Research Service (ERS). (2009a). *Food Security in the United States: Measuring Household Food Security*. Retrieved October 15, 2010, from [www.ers.usda.gov/briefing/foodsecurity/measurement.htm#what](http://www.ers.usda.gov/briefing/foodsecurity/measurement.htm#what)
- USDA. ERS. (2009b). *Global Food Markets: Global Food Industry Structure*. Retrieved October 15, 2010, from the [www.ers.usda.gov/Briefing/GlobalFoodMarkets/Industry.htm](http://www.ers.usda.gov/Briefing/GlobalFoodMarkets/Industry.htm)

- USDA. ERS. (2010, June 11). *Food CPI and Expenditures: Table 7*. Retrieved October 15, 2010, from [www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures\\_tables/table7.htm](http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/table7.htm)
- USDA. ERS. (2010, September 10). *State Fact Sheets: Delaware: Farm Characteristics*. Retrieved September 17, 2010, from [www.ers.usda.gov/statefacts/de.htm](http://www.ers.usda.gov/statefacts/de.htm)
- USDA. ERS. (no date). *Food Marketing System in the U.S. Price Spreads From Farm to Consumer*. Retrieved September 17, 2010, from [www.ers.usda.gov/Briefing/FoodMarketingSystem/pricespreads.htm](http://www.ers.usda.gov/Briefing/FoodMarketingSystem/pricespreads.htm)
- USDA. ERS. (no date). *Global Food Markets*. Retrieved October 29, 2010, from [www.ers.usda.gov/Briefing/GlobalFoodMarkets/](http://www.ers.usda.gov/Briefing/GlobalFoodMarkets/)
- USDA. Food and Nutrition Service (FNS). (2009a). *FY2009 Annual Report*. Retrieved October 4, 2010, from [www.fns.usda.gov/fns/safety/pdf/annualreport2009.pdf](http://www.fns.usda.gov/fns/safety/pdf/annualreport2009.pdf)
- USDA. FNS. (2009b). *Senior Farmers' Market Nutrition Program*. Retrieved October 17, 2010, from [www.fns.usda.gov/wic/seniorFMNP/seniorfmnpoverview.htm](http://www.fns.usda.gov/wic/seniorFMNP/seniorfmnpoverview.htm)
- USDA. FNS. (2008). *FY2008 Annual Report*. Retrieved October 4, 2010, from [www.fns.usda.gov/fns/safety/pdf/annualreport2008.pdf](http://www.fns.usda.gov/fns/safety/pdf/annualreport2008.pdf)
- USDA. FNS. (2009c). *Farmers' Market Nutrition Program*. Retrieved October 29, 2010, from [www.fns.usda.gov/wic/fmnp/FMNPfaq.s.htm](http://www.fns.usda.gov/wic/fmnp/FMNPfaq.s.htm)
- USDA. National Agriculture Library. (2007, August). *Sustainable Agriculture: Definitions and Terms*. National Agriculture Library: Alternative Farming Systems Information Center. Retrieved October 17, 2010, from [www.nal.usda.gov/afsic/pubs/terms/srb9902terms.shtml](http://www.nal.usda.gov/afsic/pubs/terms/srb9902terms.shtml)
- USDA. National Commission on Small Farms. (1998, January). *A Time to Act: a Report of the USDA National Commission on Small Farms*. Retrieved October 20, 2010, from [www.csrees.usda.gov/nea/ag\\_systems/pdfs/time\\_to\\_act\\_1998.pdf](http://www.csrees.usda.gov/nea/ag_systems/pdfs/time_to_act_1998.pdf)
- U.S. Department of Commerce. (2008, June). *Industry Report: Food Manufacturing NAICS 311*. Retrieved September 17, 2010, from [http://trade.gov/td/ocg/report08\\_processedfoods.pdf](http://trade.gov/td/ocg/report08_processedfoods.pdf)
- U.S. Department of Health and Human Services (DHHS). (2010, February 19). Obama Administration Details Healthy Food Financing Initiative. *News Release*. Retrieved October 2, 2010, from [www.hhs.gov/news/press/2010pres/02/20100219a.html](http://www.hhs.gov/news/press/2010pres/02/20100219a.html)
- U.S. Environmental Protection Agency (EPA) (2009, April 15). *Inventory of U.S. Greenhouse Gas Inventory Emissions and Sinks, 1990-2007*. Retrieved September 17, 2010, from [www.epa.gov/climatechange/emissions/downloads09/InventoryUSGhG1990-2007.pdf](http://www.epa.gov/climatechange/emissions/downloads09/InventoryUSGhG1990-2007.pdf)
- U.S. EPA. (2010, April 15). *Inventory of U.S. Greenhouse Gas Emissions And Sinks: 1990-2008*. Retrieved September 17, 2010, from [www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-2010\\_Report.pdf](http://www.epa.gov/climatechange/emissions/downloads10/US-GHG-Inventory-2010_Report.pdf)
- U.S. EPA. (no date). *Methane, Greenhouse Gas Pproperties*, Retrieved October 2, 2010, from [www.epa.gov/methane/scientific.html](http://www.epa.gov/methane/scientific.html)

- U.S. EPA. (no date). *Nitrous Oxide, Greenhouse Gas Properties*. Retrieved October 2, 2010, from [www.epa.gov/nitrousoxide/scientific.html](http://www.epa.gov/nitrousoxide/scientific.html)
- Varghese, S. (2009). *Integrated Solutions to the Water, Agriculture and Climate Crises*. Institute for Agriculture and Trade Policy and the Heinrich Boll Stiftung, North America. Minneapolis, Minnesota.
- Washington State Farmers Market Association. (no date). *Farmers Market Nutrition Program*. Retrieved September 17, 2010, from [www.wafarmersmarkets.com/resources/farmersmarketnutritionprogram.html](http://www.wafarmersmarkets.com/resources/farmersmarketnutritionprogram.html)
- Weiss B. (2008, June). Food Additives and Hyperactivity. *Environmental Health Perspectives*, 116 (6) A240-A241. Retrieved September 17, 2010, from [www.ncbi.nlm.nih.gov/pmc/articles/PMC2430256/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2430256/)
- White Dog Community Enterprises. (no date). *Farm to Institution: Local Food, Local Flavor*. Retrieved October 29, 2010, from [www.whitedogcafeoundation.org/FTI/about.php](http://www.whitedogcafeoundation.org/FTI/about.php)
- Wiebe, K., & Gollehon, N., eds. (2006). *Agricultural Resources and Environmental Indicators, 2006 Edition*. EIB, No. 16. Retrieved October 29, 2010, from [www.ers.usda.gov/publications/arei/eib16/eib16fm.pdf](http://www.ers.usda.gov/publications/arei/eib16/eib16fm.pdf)
- Wellik M. (2010, February 16). Personal communication.
- Winterfield, A., Shinkle, D., & Morandi, L. (2009, March). *Promoting Healthy Communities and Reducing Childhood Obesity: Legislative Options*. National Conferences of State Legislatures. Retrieved October 20, 2010, from [www.rwjf.org/files/research/20090330ncsllegislationreport2009.pdf](http://www.rwjf.org/files/research/20090330ncsllegislationreport2009.pdf)
- Wood, H.A. (no date). *Agricultural Research: Beyond Food and Fiber*. Boyce Thompson Institute For Plant Research: Ithaca, New York. Retrieved October 29, 2010, from [http://nabc.cals.cornell.edu/pubs/nabc\\_18/NABC18\\_Wood.pdf](http://nabc.cals.cornell.edu/pubs/nabc_18/NABC18_Wood.pdf)
- Younger, M., Morrow-Almeida, H. R., Vindigni, S. M., & Dannenberg, A. L. (2008). The Built Environment, Climate Change, and Health: Opportunities for Co-Benefits. *American Journal of Preventative Medicine*, 35(5), 517-526.
- Zenk, S. N., Schulz, A. J., Israel, B. A., James, S. A., Shuming, B., & Wilson, M. L. (2006). Fruit and Vegetable Access Differs By Community Racial Composition and Socioeconomic Position in Detroit, Michigan. *Ethnicity & Disease*, 16, 275-280.
- Zoellick, R.B. (2008, April 10). World Bank Group President, Robert B. Zoellick, *Opening Press Briefing at the WB-IMF Spring Meetings 2008*. Washington, D.C.

## APPENDIX A: DELAWARE STAKEHOLDER INTERVIEW LIST





Name	Organization/department	Date	Mode
Non-Governmental Organizations Stakeholders			
Emmalea Ernest	Delaware Cooperative Extension, Fruit and Vegetable Grower Association of Delaware	2/4/2010	Phone
Lynne Bennet	DOFFA	2/4/2010	Phone
Mike Wellik	DOFFA	2/16/2010	Phone
Audrey Scott Hynson	Food Businesses Incubator at Delaware State University	2/12/2010	E-mail
Patricia Beebe	Food Bank of Delaware	2/24/2010	In person
Government Stakeholders			
Gordon Johnson	Vegetable and Fruit Extension Specialist Delaware Cooperative Extension	2/15/2010	Phone
Carl German	Crops Marketing Extension Specialist Delaware Cooperative Extension	2/19/2010	Phone
Anne Fitzgerald	Chief of Community Relations Delaware Department of Agriculture	2/23/2010	Phone
Ed Kee	Secretary, Delaware Department of Agriculture	3/3/2010	Phone



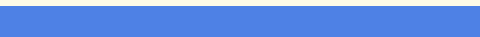


## APPENDIX B: DELAWARE STAKEHOLDER SURVEY

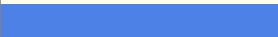


### 1. Please select your primary field/occupation.

#	Answer		Response	%
1	Farmer & Grower		39	64%
2	Restaurant		8	13%
3	Retailer		4	7%
4	Institution-Hospital/School		10	16%
	Total		61	100%







### 2. Have you heard of “buying local”?

#	Answer		Response	%
1	Yes		19	100%
2	No		0	0%
	Total		19	100%

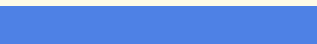


### 3. Are you currently using any local foods?

#	Answer		Response	%
2	Yes - We are currently using local foods		11	58%
1	Yes - We would consider, but not currently taking steps		6	32%
3	No - We are not considering now nor in the near future using local foods		2	11%
	Total		19	100%

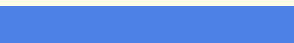

### 4. Of the following, what if any, of your purchases are grown or produced locally (Choose as many that apply)?

#	Answer		Response	%
1	Milk & dairy products		7	58%
2	Seafood		4	33%
3	Poultry, Meats		2	17%
4	Fruits		6	50%
5	Vegetables		8	67%
6	Other, please specify: (1) bread (2) mushrooms		3	25%

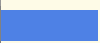

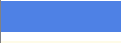


**5. If you are using local foods, do you believe that customers/consumers find them more appealing?**

#	Answer		Response	%
1	Yes		8	67%
2	Maybe		2	17%
3	No		2	17%
	Total		12	100%

**6. If you are using local foods, do you advertise this fact?**

#	Answer		Response	%
1	Yes		7	58%
2	No		5	42%
	Total		12	100%

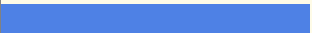

**7. Which of the following barriers affect your ability to purchase local/regional products (choose as many that apply)?**

#	Answer		Response	%
1	Finding local suppliers		4	31%
2	Irregular supply		9	69%
3	Lack of demand from customers		0	0%
4	Cost		5	38%
5	Quality of product		0	0%
6	Volume of product required		7	54%
8	Lack of interest		0	0%
7	Other, please specify: (1) ability to deliver to multiple sites (2) corporate regulations (3) availability during school year (4) we are a chain restaurant and must buy from approved suppliers (5) many farmers are not set-up to handle distribution that we need (6) labor to prepare fresh vegetables and fruits		6	46%
	Total Responses		13	

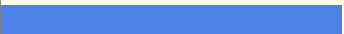

**8. Would you consider supporting or are you already supporting any of the following initiatives to help you buy your products locally/regionally (choose as many that apply)?**

#	Question	Currently Supporting	Would Consider Supporting	Would Not Support	Total Responses	Mean
1	Publication of a farmer/grower directory	4	6	2	12	1.83
2	Local/regional "local foods" marketing campaign	3	8	2	13	1.92
3	Distribution network (i.e., farm to school or farm to hospital programs)	5	6	2	13	1.77
4	Education program for farmers/growers on local food policy/programs	3	8	2	13	1.92
6	Local Food Policy Council	1	11	1	13	2.00
5	Other	0	0	1	1	3.00

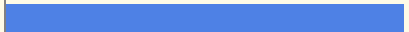


**9. Would you be interested in a training/education program on the benefits of local foods?**

#	Answer		Response	%
1	Yes		8	62%
2	No		5	38%
	Total		13	100%

**10. Would you be interested in a training/education program on how to incorporate local foods into purchasing programs?**

#	Answer		Response	%
1	Yes		9	69%
2	No		4	31%
	Total		13	100%

**11. How interested are you in working with local farmers?**






#	Answer		Response	%
1	Very		9	69%
2	Somewhat		3	23%
3	None		1	8%
	Total		13	100%

**12. What is the most important factor that could help you use locally/regionally-produced products?**






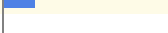
Text Responses: 11

1. Variety of products and availability of products
2. Availability and quantities of fresh fruit and vegetables
3. Cost and availability and delivery
4. A local foods distribution system and campaign
5. Have the ability to supply the products at multiple sites through out the school year
6. Availability of product that meets our demands while meeting corporate regulations & standards.
7. schedules of availability schools operate on 10-month calendar and the window of product availability is very small
8. Getting them in a large enough volume/ packaged for retail
9. Commitment to supply the volume we need during peak summer season.
10. Year round availability and excellent product flow from farm to business
11. Labor to utilize the fresh products.







**13. Which of the following do you grow or produce (choose as many that apply)?**

#	Answer		Response	%
1	Milk & Dairy		1	3%
2	Livestock		9	25%
3	Poultry		8	22%
4	Vegetables		25	69%
5	Other: pumpkins, field crops, grains, mail order seeds & plants, flowers, fruits, soap, yarn, hay, herbs, berries, eggs, seedlings/plants		19	53%
	Total Responses		36	

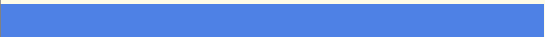
**14. To which local/regional customers are you currently selling your products (choose as many that apply)?**

#	Answer		Response	%
1	Individuals		27	75%
2	Institutions (schools, hospitals, etc.)		3	8%
3	Restaurants		10	28%
4	Retail Stores		8	22%
5	None (only sell to national/international markets)		3	8%
6	Other: soup kitchen, grain buyers, CSA, bed and breakfasts, middle men/brokers, farmers markets, regional auction, wholesalers, DSU farmers market, garden centers		16	44%
	Total Responses		36	

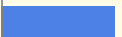





**15. How do you sell to these customers?**

#	Answer		Response	%
1	Farm stand		12	43%
2	Farmer's markets inside DE		13	46%
3	Farmer's markets outside DE		3	11%
4	CSA/buying clubs		7	25%
5	Wholesale		12	43%
6	Other: U-Pick, give away to friends, directly, auction, direct, word of mouth		9	32%
	Total Responses		28	

**16. If no, would you consider selling your products locally/regionally?**

#	Answer		Response	%
1	Yes		2	100%
2	No		0	0%
	Total		2	100%

**17. Which of the following barriers exist to selling your products locally/regionally (choose as many that apply)?**

#	Answer		Response	%
1	Finding local/regional customers		20	67%
2	Not enough potential revenue from local/regional markets		8	27%
3	Ability to have regular and consistent supply		15	50%
4	Lack of understanding of selling directly to customers		2	7%
6	Lack of interest		4	13%
5	Other, please specify: (1) products sell into high end market (2) very small operation (3) not many barriers if people demand & want local produce (4) cost to expand, laws (5) no local granaries (6) lack of labor in selling to customers that require delivery (7) our markets have been very accessible		8	27%
	Total Responses		30	

**18. Would you consider supporting or are you already supporting any of the following initiatives to help you sell your products locally/regionally (choose as many that apply)?**

#	Question	Currently Supporting	Would Consider Supporting	Would Not Support	Responses	Mean
1	Publication of a farmer/grower directory	9	19	2	30	1.77
2	Local/regional "local foods" marketing campaign	7	20	3	30	1.87
3	Distribution network (i.e. farm to school or farm to hospital programs)	6	20	3	29	1.90
4	Education program for farmers/growers on local food policy/programs	8	16	3	27	1.81
6	Local Food Policy Council	1	22	2	25	2.04
5	Other, please specify: (1) form a co-op (2)online direct (3)national networking systems	2	2	1	5	1.80

**19. What is the most important factor that could help you sell products locally/regionally?**

Text Responses: 19

1. Finding local customers
2. A brokerage for small farms to be able to sell to independent restaurants and markets.
3. Consumer awareness
4. We have plenty of help already. It isn't hard to sell products locally. It is the biggest buying trend agriculture has seen in many years.
5. Assistance with selling to local purchasers at restaurants, institutions, stores
6. Low cost liability insurance, availability of a commercial kitchen where we could add value to farm products, local vet, local slaughter house
7. The perception of "food safety" pertaining to local products. We have participated in Farm to School discussions where the perception that local food is less safe than big agri-business continues to prevail.
8. Help finding new buyers that are willing to work with us.
9. Getting policy and economics changed and educating public on value both from a personal health and environmental health standpoint
10. Dealing with customers during busy times of the growing season
11. Grain processor in area
12. A distribution system that would take the time and financial burden off the farmers
13. More farmer markets
14. Continued promotion about the benefits of locally produced food.
15. I am discontinuing my vegetable business for several reasons: I can't scale up production without major investment; I am adamantly opposed to the Good Ag Practices requirements to sell produce; I can't maintain consistent production to fulfill a commitment to customers without significant investment of time

and physical plant; I can't grow produce and do marketing too; the income from the DSU farmers market and direct sale to customers doesn't cover expenses. The DSU farmers market has a lot of potential for vendors and customers; we need to do more to reach a critical mass.

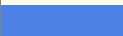

16.Public awareness

17.Advertising and the importance of quality organic products


18.Having a list of places that purchase local produce

19.Exposure to market/customer that is interested in organic/naturally grown/raised products (and can afford them)

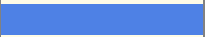
## 20. Do you promote anything on your menu as "local?"

#	Answer		Response	%
1	Yes (please describe): locally raised beef, some seasonal produce and seafood that make it into our "daily specials" program		3	60%
2	No		2	40%
	Total		5	100%


## 21. If you are using local foods, would you consider adding more local food options to your menu?

#	Answer		Response	%
1	Yes		3	100%
2	No		0	0%
	Total		3	100%

## 22. Do you promote anything in your store(s) as "local?"

#	Answer		Response	%
1	Yes, please specify: jellys/eggs/produce/honey		1	100%
2	No		0	0%
	Total		1	100%

## 23. If you are using local foods, do you advertise this fact?

#	Answer		Response	%
1	Yes, please describe how: local paper/local displays in store/ on our web site		1	100%
2	No		0	0%
	Total		1	100%

**24. Would you consider/are you considering carrying any local foods in your store(s)?**

#	Answer		Response	%
1	Yes - We would consider, but not currently taking steps		0	0%
2	Yes - We are considering, and are currently taking steps		1	100%
3	No - We are not considering now nor in the near future using local foods		0	0%
	Total		1	100%

**25. Are locally grown foods available through your suppliers?**

#	Answer		Response	%
1	Yes		0	0%
2	Unsure		0	0%
3	No		1	100%
	Total		1	100%

**26. Have local food producers approached you to sell their products?**

#	Answer		Response	%
1	Yes		1	100%
2	No		0	0%
	Total		1	100%

**27. Have customers requested locally grown products?**

#	Answer		Response	%
1	Yes		1	100%
2	No		0	0%
	Total		1	100%

**28. How interested would your facility be in hosting a farmer's market?**

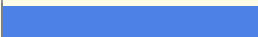

#	Answer		Response	%
1	Very		5	38%
2	Somewhat		5	38%
3	Not at all		3	23%
	Total		13	100%

**29. Do you promote any items in your food service operation as "local?"**

#	Answer		Response	%
1	Yes		3	43%
2	No		4	57%
	Total		7	100%



**30. Would you consider/are you considering using any local foods in your operation?**

#	Answer		Response	%
2	Yes - We are currently taking steps		4	57%
1	Yes - We would consider, but not currently taking steps		3	43%
3	No - We are not considering now nor in the near future using local foods		0	0%
	Total		7	100%

**31. Please describe any state or local policies that you believe could promote further use of local food.****Text Responses 19**

1. The public is confused by the many conflicting voices declaring what is healthy food. The state could help by promoting food education for adults and children.
2. Perhaps state institutions could use our tax dollars to purchase local food whenever possible. I do not think there needs to be any state policies made up to promote local food. Educating the general public when produce is "in season" would be helpful. I think that us farmers are getting tired of state and local policies. We are weary of regulations and governmental involvement in our businesses.
3. We are currently involved in Farm to School.
4. Schools mandating the purchase of healthy local food for a certain % of their menus
5. Making it easier for micro farmers to sell to state agencies and schools; relax the distant, burdensome and basically meaningless nutrient management program; get NCC cooperative extension to actually work with the few producers it has left
6. Farm to School - but it will have to start with cafeteria managers and workers willing to change their current routine of mainly using pre-sliced, pre-packaged items. It requires more labor to use unprocessed foods and a change in current cooking practices.
7. More on a federal level, but the small growers cannot compete with larger wholesale producers. Consumers are the ones who choose, some will pay more for a locally grown perceived better product, but until something is done with the economics the majority of people cannot afford to spend extra money on food.
8. DDA's Farmers' Market network Farms to schools program Farms to restaurants
9. Programs for local foods in public institutions as much as possible.
10. A price incentive for local foods into State run feeding programs, i.e., schools, prisons, state hospitals.
11. Would avoid legislating any action toward this effort.
12. Free Magazine or directory of farms or gardens ready or willing to produce goods. Education of the public on the economic, food security and environmental value of local food systems.
13. Clear definition based mileage as to what is considered "local" food.
14. I would put more marketing into the farmers markets in the State .
15. (1) Establish a campaign to promote local farmers markets, highlighting the quality and breadth of Delaware food products. (2) Establish handling standards and legal sales program for raw dairy products. Delaware has many families travelling to Pennsylvania for these products.

16. Clarify labeling (organic, local, natural, etc)<sup>1</sup>

17. Better knowledge of what is being grown or available. A system to reach out to the end users about what is available.

18. Department of Education and legislators endorsing the use of local foods.

19. Ag-trader web sites farmers markets

**32. Please describe any other details regarding the previous questions and local food issues that you feel are important.**

Text Responses: 10

1. Perhaps the biggest issue is that there is not enough promotable supply of local produce to satisfy demand. In order to supply the large supply chain of grocery stores and food terminals, you must have quite a bit of supply. Much of the local produce is just small amounts that are sold through farm markets and roadside stands. Many fruits and vegetables are not ideally grown in our region, so they are only grown in small amounts. Also, the season for local produce can be only a few weeks for most fruits and vegetables, then the crop moves to a different area of the United States due to seasonal reasons.

2. Educating consumers about what "local" and "in season" actually mean. Getting affordable feed delivery, micro loans/ grants to small farms to do things like add a hoop house, plant fruit trees. Help farms work together with collections of farm plastics for recycling, getting chicken manure or spent mushroom soil delivered to small farmers who could use it. Some kind of social network for local farmers to pool or share equipment and resources. Meaningful classes and workshops for farmers- starting a vineyard or installing drip irrigation. A made in Delaware store in Newark or Wilmington -or maybe even at the new rest stop on I-95-that sold handcrafts and farm goods made right here.

3. I feel strongly that knowing where our food comes from is very important and understanding the process it takes to get food is very important as well. Fewer and fewer people have true farm experience or background. This is a growing problem and is a part of the larger problem.

4. Schools could be mandated to include a certain amount of local foods. DDA could certify restaurants that use a certain percentage of local food.

5. We need to educate more about where food comes from. We need to realize the value of goods at the peak of the season, to learn that some foods are seasonal, therefore worth a premium for the quality. Cheaper is almost never better. The cents we save now are paid out long-term by poor health, poor environmental quality and a poor quality of life for us and future generations. We are addicted to inexpensive, processed foods that are killing us slowly.

6. Grain farmers have no local market. Peavey essentially has a monopoly of NC County grain.

7. End users need to have products that are readily available in the type of packaging such as "pre-cut vegetables" throughout the year and the ability to deliver in multiple sites.

8. Removal of bureaucratic restrictions to marketing local foods.

9. I would like to see the DDA work with local growers to help promote the farm to school program.

10. Advertising is inconsistent, not always all-inclusive, and not replaced, as in pamphlets sometimes found here and there but not resupplied. or/posted/placed to be most noticeable to widest range of potential customers.

**33. Please rank the most important reasons for supporting local foods. (1=most important, 6=least important). Click on the topic and drop & drag to rank importance.**

#	Answer	1	2	3	4	5	6	Responses
1	Environment: Environmental conservation, decrease pesticide use	3	8	6	12	3	1	33
2	Energy : Energy savings, decrease transportation needs	3	4	7	10	8	1	33
3	Equity/Health : Affordable access to healthy foods, education on resources	11	11	5	4	1	1	33
4	Economy : Job creation and keeping local funds	9	6	11	5	2	0	33
5	There is little importance in supporting local foods	1	0	2	1	8	21	33
6	Other, please specify: (1) Bringing community together (2) Save small farms to regain food security and improve food quality (3) Freshness (4) Sustainability; eating our own food (5) Relationship with producers (6) Keeping farms alive in the area and having a local access to food (7) Peace of mind (8) Ag nutrition education (9) Community (10) Education, people on how to feed themselves (11) Supporting local farmers (12) Educating consumers on the value of spray-free vegetables and fruits (13) Good idea but not for us! (14) increased variety and nutrition potential (15) nutrition (16) Offer students and adults unadulterated foods that have been grown under proper conditions to retain nutritional value	6	4	2	1	11	9	33
	Total	33	33	33	33	33	33	



## APPENDIX C: SUMMARY OF STATE AND LOCAL FOOD PROGRAMS AND POLICIES

STATE	Buy Fresh Buy Local	Farmers' Market Nutrition Program	Senior Farmers' Market Nutrition Program	Farm to School	Food Policy Council (State- S Regional- R Local-L)	Cooperative Extension Support	Online Directory/ Market	Farm to Institution
Alabama	X	X	X	X		X	X	
Alaska		X	X	X		X	X	
Arizona		X	X	X	S		X	
Arkansas		X	X	X	S	X	X	X
California	X	X	X	X	L	X	X	X
Colorado	X			X	R	X	X	
Connecticut		X	X	X	S	X	X	X
Delaware				X		X	X	
Florida	X	X	X	X		X	X	
Georgia	X	X	X	X	L	X	X	
Hawaii	X (S)			X				
Idaho	X			X	R/L		X	
Illinois	X	X	X	X	S/L	X	X	
Indiana	X	X	X	X		X	X	
Iowa	X	X	X	X	S	X	X	
Kansas	X			X	S/L	X	X	
Kentucky		X	X	X		X	X	X
Louisiana	X	X	X	X		X	X	
Maine		X	X	X	S	X	X	
Maryland		X	X	X	S/L	X	X	X
Massachusetts		X	X	X		X	X	
Michigan		X	X	X	S/L	X	X	
Minnesota	X	X	X	X	L	X	X	
Mississippi		X	X			X	X	
Missouri	X	X	X	X	S	X	X	
Montana	X	X		X		X	X	X
Nebraska	X		X	X		X		
Nevada	X	X	X				X	
New Hampshire		X		X		X	X	
New Jersey	X	X	X	X	S	X	X	
New Mexico		X	X	X	S			
New York	X	X	X	X	S	X	X	X
North Carolina		X	X	X	S	X	X	
North Dakota					S	X	X	
Ohio		X	X	X	S/L	X	X	
Oklahoma	X			X	X	X	X	
Oregon	X	X	X	X	L	X	X	X
Pennsylvania	X	X	X	X		X	X	X

## APPENDIX C (continued)

STATE	Buy Fresh Buy Local	Farmers' Market Nutrition Program	Senior Farmers' Market Nutrition Program	Farm to School	Food Policy Council (State- S Regional- R Local-L)	Cooperative Extension Support	Online Directory/ Market	Farm to Institution
Rhode Island		X	X	X		X	X	
South Carolina		X	X	X	S		X	
South Dakota						X	X	
Tennessee	X	X	X			X	X	
Texas	X	X	X	X	L	X	X	X
Utah							X	
Vermont		X	X	X	L	X	X	X
Virginia	X		X	X		X		
Washington	X	X		X			X	X
West Virginia	X	X	X	X		X	X	
Wisconsin	X	X	X	X	L	X	X	

To the extent permitted by applicable State and Federal laws, the University of Delaware is committed to assuring equal opportunity to all persons and does not discriminate on the basis of race, creed, color, sex, age, religion, national origin, veteran or handicapped status, or gender identity and expression, or sexual orientation in its educational programs, activities, admissions, or employment practices as required by Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973 and Title II of the ADA, Title VII of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and other applicable statutes. Questions or complaints regarding this policy should be directed to the Director of the Office of Equity and Inclusion, 305 Hulliher Hall, Newark, DE 19716 or (302) 831-8063.

